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Intra and inter-cohort differences in private and personal pension contributions for men and women in the UK from 1999-2000 to 2009-2010

by

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ABSTRACT

FACULTY OF SOCIAL, HUMAN AND MATHEMATICAL SCIENCES

Social Statistics & Demography

Doctor of Philosophy

Intra and inter-cohort differences in private and personal pension contributions for men and women in the UK from 1999-2000 to 2009-2010

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Using data from the Family Resources Survey from 1999-2000, 2004-2005 and 2009-2010, this research investigates intra- and inter-cohort differences in men and women relating to their propensity to make private and personal pension contributions. It investigates the extent of differentials associated with key demographic and socio-economic characteristics including gender, marital status, education, housing tenure, economic activity, employment sector, gross weekly income and care roles and responsibilities. The findings can help to inform future legislative changes made to address the particular circumstances of those most likely to be at risk of financial under-provision at old age.

Bivariate analyses using age, period and cohort perspectives indicate a downward trend in men's private pension participation, within and across cohorts over time. Women, in contrast, have maintained similar levels of contribution rates during the same period, although these levels are consistently lower than for men. Further bivariate and logistic regression analyses also show notable variations between men and women for each of the demographic and socio-economic characteristics listed above. For example, single individuals across all cohorts are less likely to make private pension provision, even as they approach old age. Results also show that men with young children are as likely as men without children to make private pension contributions whereas having young children is negatively associated with women's pension participation, although this difference between men and women reduces for younger cohorts.

There are distinct patterns of contribution behaviour depending on the angle of analysis adopted, for example, proportions of people making private pension contributions do not fall so dramatically within cohorts compared with age groups over time. This emphasises the importance of interpreting the results according to both actual age *and* cohort, as it suggests that behaviour not only varies with an individual's age but also reflects each cohort's unique lifecourse exposure to different social trends and pension regimes.

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Academic Thesis: Declaration Of Authorship

I, Sarah Wai-Man Wo

declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

> *Intra- and inter-cohort differences in private and personal pension contributions for men and women in the UK from 1999-2000 to 2009-2010.*

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. None of this work has been published before submission:

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1. Introduction

Private pensions are an important constituent of financial provision in old age. It is recognised that state pension alone is unlikely to provide the level of income in retirement to meet most individuals' expectations (DWP, 2011a). This study will investigate the implications of the differences across and between different cohorts with regards to their overall *private* pension contributions, and more specifically their *personal* pension contributions as defined later in this section, and further discussed in Section 2.1.2.2. The focus on these categories of pensions is justified further in this chapter

Population ageing is the result of lower fertility rates, and higher life expectancy, which leads to an increased average age of the population. In the case of the UK population, this is demonstrated by the mean age of the population in 1990 of 35.8 (Office for National Statistics (ONS), 2015a), which has risen to 40.0 in 2014 (ONS, 2015a), barely a generation later. In particular, increased life expectancy means longer periods spent in retirement. In 1901, on average, a man who lived to age 65 in the UK might be expected to live for another 10.8 years (12.0 for women) (ONS Digital, 2015). By 2011, the average 65-year-old man had a future life expectancy of 18.3 years (20.9 for women) (ONS Digital, 2015). Adequate planning for the financial security of older people is therefore vital.

At the individual level, pensioners face the prospect of an under-resourced old age if they do not have adequate pension protection. In 2009/2010, approximately 1.8 million (or 1 in 6 pensioners in the UK) lived in poverty, where poverty is defined as 60 per cent of the median income after housing costs (Department for Work and Pensions (DWP), 2011d). With the size of progressive cohorts of people reaching old age expected to continue increasing in the decades ahead, particularly among women, ensuring adequate pension provision is vital to avoid significant increases to the numbers of pensioners living in poverty.

It is not only cohorts reaching, or already in, retirement who are at risk. Younger cohorts of the population, currently of working age, are also at risk of a higher financial burden,

which may affect their ability to contribute towards private pensions. This is because the UK public pension system is funded on a pay as you go (PAYG) basis, meaning that the population currently working fund the retirement payments made by the State to the current pensioners. This means that the lower the number of working people in the workplace to support each current pensioner, the higher the financial burden on the working population, although the real value of pension benefits can also greatly affect this balance. The rates of labour force participation, the ages at which people choose to retire, the levels of pension contributions individuals are required to, or opt to make, and the levels of retirement benefits that individuals are able to receive, are some examples of factors that will affect this pension cost balance. This will mean that any miscalculation in addressing funding shortfalls in later life will be felt increasingly by society at large, both by individuals and governments alike. In the UK, the proportion of people aged over 65 has grown from 15 per cent in 1985 to 17 per cent in 2010, and is projected to increase further to 23 per cent by 2035 (Office for National Statistics (ONS), 2012h). Furthermore, the old age dependency ratio in the UK (the number of people aged 65 and over relative to those aged 20 to 64) is projected to increase from 28 per 100 to 47 per 100 between 2010 and 2060 (European Commission, 2012). These figures are crude in that they are based on the assumption people will be available to participate in the workplace from age 20, and financially dependent from age 65, but are nevertheless useful indicators to demonstrate the scale of the population ageing currently experienced in the UK, and therefore the sustainability of PAYG state pension benefits, a key component of a retiring individuals source of income in old age.

There are several well-known models conceptualising the components that make up pension systems. Specifically, these models include:

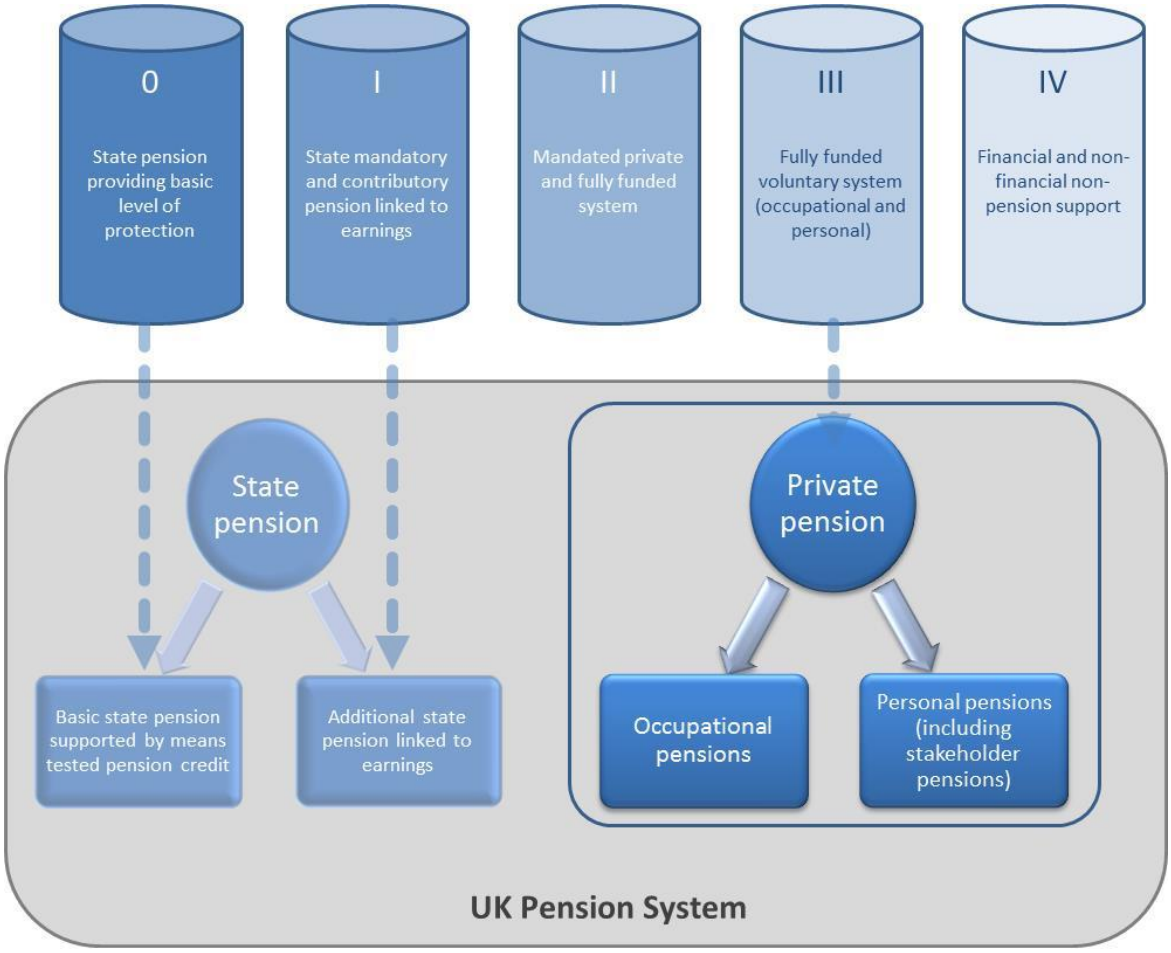
- the World Bank multi-pillar approach, first proposed in 1994 (World Bank, 1994);
- the multi-tier model introduced by the International Labour Organisation (ILO) with principles tied around an anti-poverty and general social welfare floor in 2000 (Gillion *et al*, 2000); and
- the Geneva Association Four-Pillars Programme introduced in 1987 (more latterly known as the Life and Pensions Programme), conceived the need for a flexible extension of work-life around the conventional three pillars of state, occupational and individual savings (Wang *et al*, 2014).

This thesis derives its conceptual framework and pension definitions through the lens of the World Bank model, due to their approach in defining retirement provision from a retirement income perspective, rather than a broader welfare and social care framework. This allows a clearer interpretation of the findings of this study which focuses on pensions. This approach has also been widely adopted by, for example, by the Pensions Institute, in much of their literature setting out the UK pension system, and the Pensions Policy Institute in their briefing notes which include a description of the UK's pension system (Blake, 2000; PPI, 2017d). Whilst any discussion of funding of old age will inevitably require both the consideration of existing wider welfare provision, and the existence of later-life working or 'phased' retirement, this research has a specific focus on pension provision, and in particular, private pension provision. In 1994, the World Bank (1994) recommended their three-pillar system for provision of old-age income security comprising: 1. mandatory publicly-managed tax-financed state pension; 2. mandatory privately-managed, fully-funded retirement benefits; and 3. voluntary privately-managed fully-funded personal retirement savings. This model was subsequently extended by Holzmann & Hinz (2005) for the World Bank by effectively splitting the first original pillar into two pillars, 0. and 1., and the original third pillar into pillars 3. and 4. as follows:

0. A state-funded basic pension, which may be universal or means-tested;
1. A mandated state pension plan which is publicly managed with contributions and linked to earnings;
2. Mandatory and fully funded (backed with financial assets) occupational pension or personal pension plans;
3. Voluntary and fully funded occupational or personal pension plans; and
4. Financial (e.g. house ownership and other capital assets) and non-financial support to elderly persons outside of pensions (e.g. formal social programmes, informal family support etc.).

As stated at the beginning of this chapter, the focus of this thesis is on private pensions which are highlighted in Figure 1.1 below summarising how the pension components in the UK are comprised in the context of the World Bank five-pillar system of old-age security.

Figure 1.1 Summary of pension components in the UK in context of Holzmann & Hinz's World Bank system of old-age income security



Source: Author's own interpretation, adapted from the World Bank (1994) three- pillar system for provision of old-age income security and Holzmann & Hinz (2005) subsequent extension to the World Bank model

The current UK pension system comprises a flat-rate state pension supported by a pension credit (means-tested), an earnings-related pension based on one's revalued average lifetime salary, and voluntary private pensions which include both occupational and/or personal retirement plans (Pensions Policy Institute (PPI), 2015b). However, it should be noted that the pensions landscape in the UK has evolved regularly since the first major state pensions system was introduced, with a number of differentiable pension regimes in succession (Bridgen & Meyer, 2011, see Section 2.1.1), and with some focus on addressing the long-term sustainability and affordability of state retirement benefits and encouraging private provision. These include the introduction of the widespread accessibility to personal pensions in 1988, the wide-reaching Pensions Act of 1995, which introduced significant changes to the state pension ages (SPAs) in the UK, and the Pensions Act 2010, which set

out the introduction of auto-enrolment (see Sections 2.1.1 and 2.1.3.3 for more detail). One of the key impacts of these changes has been to 'rebalance' overall pension provision, increasing the relative importance of non-state second-tier pensions, including private and personal pensions (Ebbinghaus & Whiteside, 2012). However, the extent to which these pension changes have affected individuals of different ages with regards to their private pension choices can be expected to vary. The existence of different pension regimes will have dictated the accessibility of, the incentives to participate in and the types of pension savings schemes available to individuals at different points of their life course. In turn, the existence of these pension regimes may have impacted individual decisions regarding pension participation at the time, leading to different outcomes for different cohorts in the workplace. Older cohorts will have already completed most of their working life and have little time to adjust to recent and imminent pension policy changes. Younger cohorts are reportedly especially reluctant, or unable, to make savings, and in particular, save towards their retirement (Berry, 2011; DWP, 2011i; Dolphin, 2012), and therein the questions of relevance and adequacy of pension reforms arise. Against this background, this study aims to investigate the differences across different cohorts with regards to their *private* pension provision (and which is defined for the purposes of this thesis below).

In addition to providing a basic safety financial net when individuals reach retirement age, pension legislation has grown to encompass a wide range of pension reforms that has included additional income-related pensions, the regulation of occupational pension schemes and the introduction of options for self-employed and unemployed persons. Private pensions, which for the purposes of this study include both occupational and personal pensions (see Figure 1.1), are a key element of the current pensions landscape. Personal pensions are arrangements of a defined-contribution nature between an individual and a provider, rather than between an employee and an employer. There are two main types of personal pensions, the first being a personal pension arranged directly between an individual and a pension provider, and the second being an arrangement set up by an employer, who may or may not contribute to this plan as well. These arrangements include stakeholder pensions, a type of employer-arranged personal pension meeting minimum standards set by the government (these standards include caps on management charges, the provision of flexibility around the level and timing of payments as well as minimum security standards (The Pensions Advisory Service (TPAS), 2016)). Prior to 1 October

2012, it was a statutory requirement for employers with five or more employees to designate a stakeholder pension arrangement for their employees. However, since the roll-out of auto-enrolment, employers are no longer required to do so, although they must continue to take and pay contributions from employee wages for employees who joined a stakeholder pension scheme prior to 1 October 2012 and who remain members of these schemes. For new employees, employers are now required to enrol their eligible jobholders into a pension scheme that meets specific conditions to be an automatic enrolment scheme (The Pensions Regulator, 2014a). The date by which employers are required to do this varies according to employer payroll, with the largest employers required to comply with auto-enrolment arrangements since 1 October 2012. Auto-enrolment is currently being phased, starting with larger employers and continuing with smaller employers, with all employees contributing to pension schemes by default by 2018.

Defined contribution schemes prescribe the level of employer and employee contributions that are made towards a member's pension fund (ONS, 2013f). The payments made by the employer as a percentage of their employee's salary are fixed at the outset, with the benefits received by the employee at retirement being dependant on the performance of their pension fund (ONS, 2013f). This contrasts with defined benefit schemes, where the employer effectively promises a defined retirement benefit to their employees, thereby taking on investment and longevity risk (ONS, 2013f). Historically, retirement benefits offered by employers were typically of the defined benefit form, based on the length of employees' service and their salaries (ONS, 2012f). However, in more recent years, there has been a trend by employers to move towards defined contribution schemes (PPI, 2012a). This move has strengthened the link between earnings over the course of working lives and benefits in later life. This move has also increased the risk to each individual, in particular for younger cohorts who have not accrued significant levels of retirement benefits in the more traditional defined benefit schemes. In promoting the part that private pension plays in financial provision at older ages, it is important to ensure that policy development in the area of private pensions meets the needs for different parts of the population, particularly in light of the likely variation in pension behaviour and outcomes experienced by different cohorts.

It is not surprising that politicians and media alike are heavily involved in the subject of pensions and retirement planning as pension protection represents a large part of government expenditure. The DWP indicate that the cost of payments made by the government towards pensions in the UK exceeds £100bn annually (DWP, 2010). The UK paid out £74.2bn during 2011-12 in respect of state pensions, plus an additional £8.1bn to cover the costs of providing the existing state pension credit and minimum income guarantee (DWP, 2012a). Further spending goes towards other state benefit entitlements such as sickness and disability, attendance and carer benefits and age-related payments for older people, such as the winter fuel payment. The government also invested £8.4bn during 2011-2012 into public sector pension schemes, which include for example, the Local Government Pension Scheme, the NHS Pension Scheme and Teachers' Pension Scheme amongst others. At the same time, general levels of household savings in the UK, which include pension savings, are currently low compared with other developed countries. For example, household savings were forecast to be 3.3 per cent of household income in the UK for 2015 compared with 15.6 per cent in France for the same year (Organisation for Economic Co-operation and Development (OECD), 2014. The increasing level of government funding required to support the financial position of individuals in retirement, combined with the current low inclination of individuals to save, causes the very topic of pensions to be an important one for policymakers, not least because of the need to manage the challenge of retirement provision in the future.

The average value of an occupational pension in payment (for pensioners who received more than zero) was £222 per week in 2013/14; the corresponding figure for personal pensions was £104 (PPI, 2015a). For these pensioners, the private pension elements of their retirement income are much larger than the average state pension receipts. The average weekly state benefits in 2014 were £93.84 for the basic state pension (BSP) and £28.12 in respect of additional state pension (from the State Earnings Related Pension Scheme (SERPS) and State Second Pension (S2P), which were additional earnings-related state schemes that ran from 1978-2002 and 2002-2016 respectively) (PPI, 2015a; PPI, 2015b). A further, more recent, breakdown of the different components of gross income, including income other than pensions, received by pensioners is set out in Section 2.1.2 (Table 2.1c).

This thesis will focus on the private pension components of pension provision in the UK and will also consider the personal pension sub-component of private pension provision. A major reason for investigating personal pensions in addition to analysing the trends for private pensions overall is due to the differences implicit in the very nature of these types of benefit. Individuals who may be interested or eligible in taking up personal pensions are likely to have different socio-economic and demographic characteristics from those who have access to pension arrangements via their employers (Dilnot *et al*, 1994; PPI, 2017a), and the differences between these arrangements are discussed in more detail below.

Firstly, occupational pensions by definition cannot be taken up by self-employed persons. Self-employed people represented 14.9 per cent of the labour force at the end of 2017 (ONS, 2018). Personal pensions are the default option available to this group; it is possible that characteristics associated with the increased likelihood of making pension contributions will be different compared with individuals who are employees. Furthermore, studies have shown that women only make up 30 per cent of the population who are self-employed (Chartered Institute of Personnel and Development (CIPD), 2012b), and that the proportions of individuals with different levels of educational attainment amongst the self-employed vary compared with employees (UK Commission for Employment and Skills, 2011), and to different extents for men and women. For example, in 2011, whilst older cohorts (aged 50 or above) consistently indicated that men were more likely to be educated to at least degree level or the equivalent, the converse held true for those aged under 50, where the younger the cohort of women, the more likely they were to hold at least a degree-level qualification compared with men (ONS, 2014g). Also, whilst higher proportions of employees still hold higher-level qualifications (degree equivalent or higher) than the self-employed and are also less likely to be have low-level qualifications (GCSEs or the equivalent) (IPPR, 2015), recent years have seen an increase in the numbers of self-employed persons, mainly in the professional, scientific and technical sectors, and amongst women on the whole (ONS, 2014h).

Secondly, occupational pensions are already available to employees to join (and once auto-enrolment has been fully rolled-out, all eligible employees will participate in such schemes

by default (DWP, 2016)). However, personal pensions require contributors to make the active decision to take them up. Stakeholder pensions offer individuals the opportunity to opt-out of their arrangements. The personal responsibility of individuals for supplementing whatever pension benefit they build up automatically through the state pension system will have implications when considering future pension policy. In particular, the level of second-tier pension participation across the population that will be achieved when auto-enrolment is fully enacted will need to be considered when reviewing the future likely adequacy of pension provision.

Finally, personal pensions are increasingly becoming a more significant source of income pensioners, being the fastest growing source of income for this group (increasing by over 200 per cent from 1998/99 to 2015/16) (DWP & ONS, 2017). Furthermore, these figures also show that the average personal pension income increases for each successively younger cohort (recently retired, pensioner units where head is aged under 75, and pensioner units where head is aged 75 or older), and this reflects the timing of the introduction of widespread personal pensions (DWP & ONS, 2017).

In addition, this research is focused on the study of patterns of pension contributions over time (i.e. whether or not individuals made pension contributions) rather than the actual amount of such contributions, for two distinct reasons. Firstly, individual contribution levels do not reflect the actual value of benefit that the individual will receive; and are therefore a less powerful indicator of pension protection in the future. For defined benefit scheme members, where individuals' salaries (whether final salary or career-averaged salaries) are used to calculate their pension, it is the value of the pension rights accrual over each year that is a more accurate reflection of the value of the pension benefit gained, and the valuation basis for such calculations take account of many factors beyond the level of contribution paid on behalf a pension scheme member (PPI, 2017b). For defined contribution scheme members, where individuals' contributions are invested in funds over their working life, the value of their pension accrual will also depend on their employer contribution and their future fund performance (the Money Advice Service, 2018).

As a result of the changing pension environment in the UK, including changes to the BSP provision, National Insurance contribution requirements, the SPA and the patterns of saving among individuals, the proportion of retirement income that is likely to be provided by the State when individuals reach the SPA will vary according to when an individual reaches that age. Findings from this study will need to be discussed in the context of this variation according to birth cohort. In order to frame the research questions for this thesis, it is necessary first to set out the theory underlying the study and the conceptual framework, and this is set out in the next section. This outlines the key macro-level and micro-level determinants associated with variances in the propensities of individuals to make retirement savings which provide the background and context of this investigation.

1.1 Conceptualising the factors affecting pension contributions: A theoretical and conceptual framework

The UK pension policy framework is built around voluntary private pension saving (both workplace and personal retirement savings) over and above the basic state pension. This thesis considers the propensity of people in the UK to make private pension contributions in the context of the conceptual framework developed later in this section (and which is set out in Figure 1.2) on this premise, and taking into account existing literature that contributes to its development. There are multifactorial influences on individuals when they face the decision on whether or not to make private pension contributions (DWP, 2006). As this thesis focuses on the exploration of the differences in private pension participation which may exist between and across cohorts, the construction of the theoretical and conceptual framework applied in this thesis will therefore involve a discussion of how these influences might be expected to impact on cohorts differently, and also the extent of how these influences are known to have varied over time. The rest of the section will discuss different determinants in terms of how they may be expected to have changed over time from an age, period and cohort perspective.

1.1.1 Macro-level determinants of making private pension contributions

How the UK pension policy framework has been developed to encourage individuals to save for retirement and what limits have been placed on their eligibility or ability to save

has already led to identifiable trends and differences in the proportions of people making pension contributions. At the macro-level, the development of the UK pension policy framework is also influenced by the performance of the economy (PPI, 2016c) and is further shaped by legislation passed at the European Union (EU) level (Luckhaus & Moffat, 1996). The UK pension framework has changed considerably since the introduction of the Beveridgean[1] pension model (a contributory and redistributive universal system of a minimum welfare provision), and continues to be in a constant state of reform (see Section 2.1), with each cohort of individuals affected by pension reforms differently due to the unique policy landscape over time. Despite the wide range of measures introduced since the evolution of widespread pensions in the post-Second World War period, and which culminated in a peak of occupational pension membership of 12.2 million persons in 1967 (ONS, 2011i), pension changes have continued without abatement. A summary of key pension events and the age at which specific cohorts would have been affected is set out in Table 1.1a. For example, an individual born in 1950 would have been aged 25 when the Social Security Pensions Act was introduced in 1975; and they would have been 45 by the time the 1995 Pensions Act was introduced. A more detailed outline of pension policy development in the UK is explored in further detail in Section 2.1.1. There are no signs that the constant evolution of the pensions framework in the UK is coming to an end. The DWP have stated their intention to reform the existing pension framework to meet the changing needs of the UK population due to the pressures of population ageing (DWP, 2012c), and recent pensions reforms leading to various initiatives such as the Pensions 'Freedom and Choice' introduced in the Budget 2014 (HM Treasury, 2014a) attest to this.

[1] The pension element of the Beveridge proposals was part of the wider recommendations following the Beveridge Committee consultation on the social insurance in the UK following the Second World War. Salter, T., Bryans, A., Redman, C. and Hewitt, M. (2009), *100 Years of State Pensions: Beveridge Report and the National Insurance Scheme of 1948*. pp32.

Table 1.1a: Age[1] at which selected legislative events were introduced for different birth cohorts

Birth Cohort	1940	1945	1950	1955	1960	1965	1970	1975	1980
Social Security Pensions Act 1975	35	30	25	20	n/a	n/a	n/a	n/a	n/a
Social Security Act 1980	40	35	30	25	20	n/a	n/a	n/a	n/a
Health and Social Security Act 1984	44	39	34	29	24	19	n/a	n/a	n/a
Social Security Act 1986	46	41	36	31	26	21	16	n/a	n/a
Barber vs. Guardian Royal Exchange 1990	50	45	40	35	30	25	20	n/a	n/a
Pensions Act 1995	55	50	45	40	35	30	25	20	n/a
Welfare Reform and Pensions Act 1999	59	54	49	44	39	34	29	24	19
Child Support, Pensions and Social Security Act 2000	60	55	50	45	40	35	30	25	20
Pensions Act 2007	67	62	57	52	47	42	37	32	27
Pensions Act 2008	68	63	58	53	58	43	38	33	28
Pensions Act 2011	71	66	61	56	51	46	41	36	31

Note: [1] Above minimum working age

Sources: www.legislation.gov.uk; ONS (2011h); Author's own research

Depending on the cohort to which individuals belong, it is clear that they would have been exposed to very different pension regimes during this period of transition from a Beveridgean model to the current hybrid model (Bridgen & Meyer, 2011), combining increased regulatory controls and improved levels of state pension income with a more quasi-mandatory approach to private pension contributions that exists today (see Section 2.1.1). These regimes have been identified along the lines of the following in literature; a liberal pre-1975 period, characterised by low benefits with limited coverage, a contrasting period of social-democratic reformism from1976-1979, during which a broad coverage of higher benefits was introduced, followed by a return to a more liberal (or neo-liberal) dimension from 1980-2007 (Bridgen & Meyer, 2011; Abrahamson, 2010). It is the liberal period from 1980-2007, which has seen particular change in terms of the levels of, and accessibility to, private pensions. Furthermore, it could be argued that a further pension regime, of a hybrid liberal-statist type, followed the pension reforms introduced in 2008 (Bridgen & Meyer, 2011), with tightened regulatory controls, the commitment to improved levels of state pension income, and the introduction of auto-enrolment with effect from April 2012. One outcome of this latest pension regime, which will be further explored in the empirical analysis, might be an increased level of individuals making private pension contributions, particularly amongst employees.

This thesis uses data from the Family Resources Survey, looking at trends in private pension contributions for the period from 1999-2000 to 2009-2010. In order to draw out the differing behaviour in making pension contributions between cohorts over this period, three distinct cohorts who would have been of working age for the duration of the period of this investigation are selected. Specifically, these are the three cohorts born in 1961-1965, 1971-1975 and 1981-1985, labelled based on the definitions used by the Pew Research Center (2016). In the first instance, key differences arising between the cohorts are as follows:

- '**Late baby boomers**'[2] (born in 1961-1965) would have been able to benefit from the period of relatively higher state benefit accrual introduced in 1978, during the period of the 1976-1979 regime. This was reduced in the subsequent more liberal period which followed, in 1988 and then again in 1995. For those who were eligible to join occupational pension schemes, they would also have had the opportunity to accrue long periods of service with relatively generous pension benefits associated with such schemes, particularly in the public sector. Those continuing in the public sector are likely to have accrued substantial retirement savings, even as private retirement savings schemes have closed, reduced, or changed the form of their provision. Men and women from these cohorts would have started their working lives expecting to retire at different ages, with men starting working expecting to reach their state pension age at 65, and women at 60. As a result, we would expect gender differences to permeate the findings relating to this cohort.

- The 1971-1975 cohort, ('**Generation X or GenXers**'), would not have benefited from the higher-rated State Earnings Related Pension Scheme (SERPS) accrual of benefits, but would have joined the workplace at the time when widespread

[2] The Pew Research Center (2016), defines 'baby boomers' as the cohort born in the period 1951-1965; there is general consensus regarding this population age group in the US; there is less consensus regarding which birth period relates to the baby boomers in the UK, due to the double peak experience in the post war period (Ready for Ageing Alliance, 2015). For the purposes of this thesis, the US definition is adopted.

personal pension choice became available. This enabled those who did not have access to occupational pension schemes or who desired more flexibility in their pension decisions to take out their own private pension plans. A number of legislative events relating to equality laws were introduced in 1989 and 1990 with the effect that women in this cohort and later cohorts would have a more facilitated access to occupational pension schemes than the cohorts who preceded them (Bridgen & Meyer, 2011), which might reasonably lead to the proportions of men and women participating in occupational pension schemes moving closer over time, and this is explored in Chapter 5. This includes key measures such as the sex equalisation introduced following the Barber vs. Guardian Royal Exchange (GRE) ruling in May 1990.

- The youngest cohort ('**Early millennials**'), born in 1981-1985, would have started work only towards the very end of the twentieth century, or after 2000 and the introduction of stakeholder pensions. There is likely to be much more consistent pension coverage for these individuals if they are employees, as auto-enrolment will apply to them and cohorts following them for the bulk of their working lives (for those who were not already members of other occupational pension schemes prior to the introduction of auto-enrolment). It might be expected that for this cohort, there are higher levels of individuals making private pension contributions at each age, compared with older cohorts, although this is most likely to be borne out after the implementation of auto-enrolment (see Section 2.1.3.3).

Macro-level factors, however, are not the only determinants that affect the propensity of individuals to make pension contributions; micro-level factors which are associated with private pension contributions will be now be explored in the following section.

1.1.2 Micro-level determinants of making private pension contributions

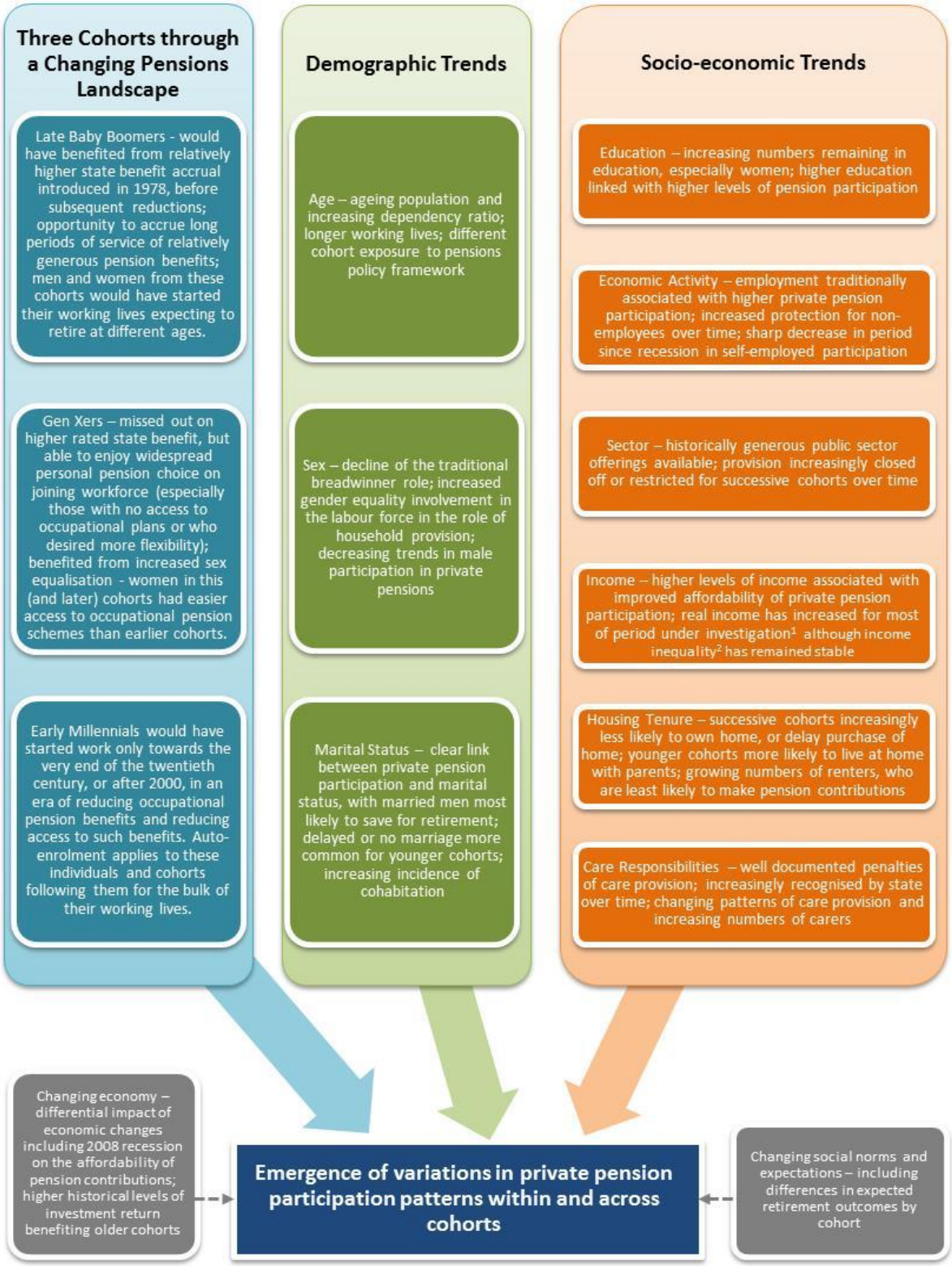
At the micro level, it has been shown through previous studies of pension savings that the characteristics of those who have access to or choose to make savings, including pension savings, differ along key areas which include not only demographic characteristics, but also socio-economic status (Devlin, 2005). Fundamental demographic characteristics are one's age, gender and marital status (the implications of the changing demographic trends of the

UK population on the UK pension policy framework are discussed in more detail in Section 3.1). Socio-economic indicators usually involve educational attainment, economic activity (including inactivity due to ill-health or other reasons), occupational sector, existing wealth, and care roles and responsibilities. The key demographic and socio-economic indicators set out in the framework correspond closely with recent studies such as the work carried out by Bryan *et al* (2011), where the key characteristics that are used to determine the likelihood of people to save are identified as age, gender, partnership status, children, education, earnings, home ownership (including first and second homes), and other savings. There have been well documented and established changes to the extent of these influences over time, e.g. the gendered penalty of taking on care roles acknowledged in the 2005 report by the Department for Work and Pensions (DWP) in 2005 (DWP, 2005) and in the work carried out by Evandrou and Glaser (2003); Price (2007) and Carmichael *et al* (2008).

In summary, variations in the propensity to make private pension contributions within and across different cohorts over time, are expected to emerge due to the unique net effects of various influences on their cohorts. These influences include a combination of the micro-level determinants, which comprise both demographic and socio-economic factors, that have themselves changed over time, but also the macro-level influences that will have impacted individuals such as the wider pension legislative framework, and the wider population changes taking place, including economic performance and social change. The conceptual framework for this thesis might therefore be summarised as set out in Figure 1.2.

In summary, Figure 1.2 sets out how each of the three cohorts analysed in this thesis, has had a different experience with regards to pension policy exposure over their working lives, due to changing demographic, socio and economic trends. For example, older cohorts from the Late Baby Boomer generation will not only have generally started work at a younger age, and have longer potential working lives over which to make private pension savings, but they will also have had opportunity to take advantage of the more generous defined benefit provision which was more prevalent at the start of their working lives than the typical pension provision available to younger cohorts such as Early Millennials.

Figure 1.2 Determinants of making private pension contributions – a conceptual framework



Notes: [1] Perkins (2015), *The income distribution in the UK: A picture of advantage and disadvantage*
[2] at the 50/10 and 90/50 ratios, although there was increased inequality at the highest income percentiles. Cribb (2013), *Income inequality in the UK*

Source: Author's own interpretation, adapted from Devlin (2005), Bryan et al (2011)

A detailed discussion of the extent of the trends and the links between these indicators and pensions is included in Chapter 3, and a further explanation of the variables used in the study is provided in Chapter 4. The next section sets out the research questions that this thesis aims to answer, in light of the background and context on retirement provision provided in this chapter so far.

1.2 Research questions

The research will explore the patterns and levels of private pension contributions made over time, and investigate whether any changes to such patterns are attributable to specific demographic and socio-economic characteristics, particularly with regard to the differences that may be associated with successive pension regimes and their influence on different cohorts over time. Although it is not an explicit research aim of this thesis, consideration will be made as to whether any changes to the patterns of private pension contributions may be associated with specific legislative events. This is essential to understand in order to anticipate and to evaluate certain possible policy outcomes as a result of the many new and proposed changes to UK pensions. For example, when the Pensions Act 1995 introduced the initial set of increases to women's SPA from 60 to 65, studies followed which showed limited evidence of women reactively adjusting their private saving behaviour to counteract the anticipated negative effect raised SPAs on their total expected income in old age (Johnson, 2000).

Key research questions therefore include:

- R1: How does the propensity to make private pensions contributions vary for men and women across all working age groups compared with men and women from the 1961-65, 1971-75 and 1981-85 birth cohorts and what factors may account for such variations?
    - In particular, what differences exist in the levels of private pension contributions between and within different cohorts due to age, period or cohort effects?

  - Do patterns of personal pension contributions follow the same trends as private pension contributions, and if not, how do they differ?

- R2: To what ***extent*** are there intra-cohort differences in the proportion of men and women making private pension contributions over time?

- R3: To what ***extent*** is the propensity of men and women to contribute to private pensions likely to differ according to different demographic and socio-economic factors and how do these propensities vary according to age group?

In summary, this study aims to add to the existing literature by disaggregating the differences in private pension contributions both within and across cohorts over time. It examines private pension arrangements in terms of the key demographic and socio-economic characteristics outlined in the conceptual framework (Figure 1.2), which include gender, marital status and education, and also discuss the trends relating to personal pension arrangements and how they fit within the private pension context. This leads to the question as to the efficacy of and the extent to which exposure to available pension regimes and pensions-related legislative developments have impacted individuals at different stages of their life course. For example, there are questions with regard to the differences between cohorts, given the many changes to pension legislation, the varied timescale with which individuals of different ages have had to adjust to these changes, and the variation within different cohorts depending on their other demographic and socio-economic characteristics. In investigating the adequacy of the level of private pension coverage to date, and private pensions in particular, this study considers the implications of future pension reform for safeguarding the financial security of individuals in different cohorts and demographic/ socio-economic groups. In particular, in both the literature review and in the discussion (Chapters 2, 3 and 8), this thesis also deliberates the potential impacts of forthcoming changes to retirement legislation, including in SPAs and auto-enrolment on different birth cohorts. Finally, these findings will also be discussed in the context of the relative affordability of pension contributions and the 'new economic reality' in which individuals exist.

This investigation will involve retrospective analyses using repeated cross-sectional age-period-cohort analysis and logistic regression analysis of the different trends that have occurred in the period from 1999-2000 to 2009-2010. These will be supplemented by logistic regression analysis to investigate how different demographic and socio-economic characteristics are associated with varying trends of pension contribution between men and women. The findings will be discussed in the context of current and proposed future pension reforms, including the potential impacts of both the increases to the SPA as well as other changes including the introduction of auto-enrolment (see Section 2.1.3.3), and the establishment of the National Employment Savings Trust (NEST).

1.3 Structure of thesis

This thesis is presented in 8 chapters.

This first Chapter has set out an introduction to the topic of financial provision for retirement, the conceptual framework upon which this thesis is based, including an overview of the current retirement provision framework in the UK. It also includes a short commentary on historical pension policy development which has led to the current retirement income system in the UK. This provides the context and the rationale, aims and research questions of the research.

Chapter 2 builds upon the introduction by discussing each of the components of the conceptual framework in more detail. Firstly, an outline of the existing pension framework in the UK is provided including historical pension regimes, followed by a broad description of key recent pensions and savings-related legislation introduced (e.g. auto-enrolment in 2012). It includes a discussion of the implications of new pension policies and changes to existing pension legislation. Auto-enrolment, which was introduced in 2012, is explored specifically, due to the widespread impact it is expected to have on the UK workforce and the level of future private pension contributions. Finally, external and institutional factors which are associated with changing trends in individual decisions regarding saving for pensions, such as the economy and supranational legislation (i.e. EU rulings), are explored.

This macro-level discussion is then followed by a discussion of the demographic and socio-economic characteristics linked to the individual private pension decision-making process in Chapter 3. This includes a discussion of one of the most profiled topics related to retirement, the issue of gender and retirement provision, as well as other factors such as marital status and educational attainment. During the course of this discussion, findings from previous research on each of these issues, which are mainly based on UK data, but also include some other developed countries, are deliberated.

Chapter 4 describes the datasets used in the research, and also discusses various other datasets considered for the study. Drawing on existing research in the area of pension contributions and the conceptual framework outlined in Chapter 1, this chapter outlines the dependent, explanatory and weighting variables that have been used in the analysis, along with newly derived variables. It then provides a description of the methodology employed for each of the analysis sections of this study, including the age, period and cohort statistical summary breakdowns adopted in Chapters 5 and 6, and a description of the repeated logistic regression used in Chapter 7.

Chapter 5 presents the findings of the first analysis, an age-period-cohort analysis carried out on the Family Resources Survey (FRS) (using waves from 1999-2000, 2004-2005 and 2009-2010) producing repeated cross-sectional summary statistics focusing on the key demographic characteristics set out in the conceptual framework (see Figure 1.2). Results are presented by gender, by age and by cohort, to highlight the trends according to these demographic characteristics for both private and personal pensions over time.

Chapter 6 further investigates the trends in private and personal pension contributions associated with key socio-economic characteristics, by continuing with additional age-period-cohort analysis on the data from the FRS using a repeated cross-sectional approach. Results are presented according to gender, by age and cohort, in order to show the trends and differences for these characteristics, for both private and personal pensions.

Chapter 7 develops the findings from the analyses in Chapters 5 and 6 through the application of binary logistic regression analysis, providing insight into the associations between key demographic and socio-economic characteristics on the one hand, and the incidence of private pension contributions on the other, as well as how such associations vary between the three cohorts.

Chapter 8 completes this thesis with a discussion and conclusion. It will present a summary of the results in relation to the research questions. Key topical findings from the study will be discussed critically in the context of existing studies. The findings will also be discussed in the context of the British pension framework, highlighting the implications of changing social policy for different cohorts of individuals. The thesis will conclude with a discussion of the potential policy implications arising as a result of the findings of the study and explore these in the context of changes that have taken place and are due to take place in pension legislation. In particular, it will consider the adequacy of financial provision in retirement for those most at risk and those who are close to retirement age, along with a reflection of the limitations of this study and suggestions for further research in the area.

2. Literature Review: Policy background and macro-level determinants of pension policy

This chapter reviews in detail societal level factors that influence an individual's decision to make private pension contributions. It is important to consider the differences that exist for each of these factors between cohorts (for the purposes of this research, cohorts refer specifically to birth cohorts) especially in light of the changing social landscape and the changing demographic trends experienced by the UK population in recent decades. Each successive cohort will experience different exposures to pension policies and will typically face different lifecourse trajectories. As a result, cohorts are likely to be associated with macro-level determinants of pension change in different ways.

The next section sets out a broad outline of the development of UK pension legislation to the current day. Using the conceptual framework set out in Section 1.2, this chapter provides a general description of the existing UK framework for retirement provision in the UK, focusing particularly on pension income. It then explores some of the more notable developments in pensions and savings, and investment policy that have taken place in recent years and also those that are currently being implemented. The major impacts on different cohorts of these policy changes are then deliberated. The chapter completes the discussion of macro-level factors by looking at other key external factors beyond UK pension legislation which impact on pension policy, the overall effect these may have on the private pension contributions of different cohorts.

2.1 Cohort differences in financial provision for retirement and the UK legislative context

Financial provision for retirement is currently a topic of intense interest for policy makers, the media and the public alike (Resolution Foundation, 2017). Key issues include: the fact that *older cohorts of individuals have achieved greater pension adequacy than younger cohort*s; that different cohorts of individuals have witnessed the introduction of different tiers, types and levels of pension provision, with *younger cohorts facing increasingly complex and varied retirement options*; and there is *variance in the savings levels reported by different cohorts of individuals* (Resolution

Foundation, 2017; Banks & Smith, 2006). This section provides an overview of how UK pension legislation has developed since Beveridge to the current day and outlines the framework for financial provision for retirement in the UK resulting from the succession of historical pension regimes that have taken place to date, and how these have manifested in differences in the pension experiences for different cohorts. This is then followed by a review of the key transformations to the UK pension policy framework currently, and how they are likely to address or impact current cohorts of future pensioners.

2.1.1 Pensions policy development: Beveridge to current day – a different cohort experience

The UK pension framework has changed considerably and almost continuously since the introduction of the Beveridgean welfare state. Each successive working cohort during this time has therefore been exposed to a different pension policy experience. A raft of legislation has been passed to address the changing needs of the population since the Beveridge in the post-World War II era, following the post-industrial transition of the UK and the emergence of so-called 'new social risks' (Taylor-Gooby, 2004; see also Section 2.2.2), with different emphases on the role of the state versus the individual depending on the government of the time. These include key legislative events such as the sex equalisation of occupational pensions in 1990 and the equalisation of SPA in the Pensions Act 1995, and which have had varying impacts on different cohorts of men and women over this period. Table 2.1a below details the main measures which have been implemented over time (a more comprehensive list of pensions related legislation is included in Appendix 1). These include, for example, the Social Security Pensions Act 1975 which introduced equal access for men and women to join occupational pension schemes, with women from the 1960 birth cohort (i.e. late Baby Boomers) being the first cohort able to enjoy the equalisation of occupational pension scheme *access* for the full duration of their working lives. However, the equalisation of occupational pension *benefits* would only be experienced for the full working lives for the cohorts born after 1970-74 (i.e. GenXers or younger) following the introduction of the Barber vs Guardian Royal Exchange ruling in 1990. The selected legislative events set out in Table 2.1a affect all aspects of provision for retirement – and the development of pension policy relating to state, personal and occupational provision, and how they will have impacted different cohorts, will now be discussed in turn.

Table 2.1a: Selected retirement related legislative events

Legislative event	Policy objective	Detail and impact
National Insurance Act 1959	Introduce earnings-related state retirement benefit	Legislated for introduction of the state graduated retirement benefits scheme to start from 1961
Social Security Pensions Act 1975	Sex equalisation for joiners to occupational pension schemes	Equal access for men and women to occupational pension schemes
	Introduction of State Earnings Related Pension Scheme (SERPS) with effect from 6 April 1978	Earnings related pension in addition to basic state pension, for employees paying full National Insurance Contributions
Social Security Act 1980	Removal of earnings link to Basic State Pensions (BSPs)	BSPs increased in line with prices from 1980
Health and Social Security Act 1984	Anti-franking, preservation of benefits in excess of guaranteed minimum pension	Pension accrued after 1 January 1985. Improved levels of pension accrual for employees
Social Security Act 1985	Right to transfer out from schemes. Revaluation of preserved benefits.	Improved revaluation of preserved benefits. Enhanced portability of accrued pension benefits.
Social Security Act 1986	Reduction of vesting period for deferred pension benefits to 2 years' service	Applies to pensions accrued after 1 January 1986. Benefited employees with short service periods (often women)
	Introduction of Personal Pension Plans (PPPs)	Replacing retirement annuity contracts from 1 July 1988
	Reduction of maximum SERPS benefit	Pension accrued from 6 April 1988. Maximum SERPS pension available reduced from 25% to 20% of upper band earnings.
Barber vs. Guardian Royal Exchange 1990	Sex equalisation of occupational pensions	With effect 17 May 1990 (partially addressing indirect sex discrimination due to part-timers)
Pensions Act 1995	Sex equalisation of State Pension Ages (SPA)	Women SPA to be raised from 60 to 65 (as for men)
Welfare Reform and Pensions Act 1999	Pensions sharing on divorce	Option available to secure retirement income in the case of divorce
	Introduction of Stakeholder Pension Schemes	With effect 6 April 2001, increased flexibility and access to pension plans for employees
Child Support, Pensions and Social Security Act 2000	Replacement of SERPS	State Second Pension introduced, skewing benefit in favour of lower and moderate earners
Pensions Act 2007	Reintroduction of earnings link for BSPs	Brought forward several years and triple lock added from 6 April 2011 by June 2010 Budget
	Improved coverage of entitlement to full BSPs	Carer credits for qualifying years, reduction of qualifying years to 30 for men and women
	Increases to SPA	Both men and women SPA to be raised to 68 by 2046
Pensions Act 2008	Auto-enrolment	To take effect October 2012
Pensions Act 2011	Increases to SPAs brought forward	Bringing forward SPA increases – 300,000 women facing delay of 18 months
	Changes to auto-enrolment	Delayed participation by smaller employers

Source: Legislation.gov.uk (2015); Author's own research

The thesis investigates the position of individuals of working age from different cohorts in the period from 1999-2000 to 2009-2010. The oldest respondents would have been aged 60-64 during the final survey wave in 2009-2010. This cohort (of men, as the oldest cohort of women tracked would have been aged 55-59 during the same period) would have been born in the period 1945-1949, with many of them entering the workplace in the early- to mid-1960s, during the beginning of a period which saw the introduction of a secondary, earnings-related pension, commencing with the state graduated retirement benefit scheme, introduced under the National Insurance Act 1959, and which came into effect in 1961 (Salter *et al*, 2009: p50).

The 1961-1965 cohort ('Late baby boomers' as defined Section 1.1.1) would have been eligible to start working from the mid- to late-1970s onwards, and would not have worked during the operation of, or accrued state pension rights under, the graduated scheme. Between 1975 and 1978, the government did not provide a second-tier pension scheme, although a link between state pensions and earnings was introduced in 1974 (PPI, 2014b). In 1978, following the Social Security Pension Act of 1975 additional state-pension income could be accrued under SERPS as part of a move to improve benefits for those not covered by occupational schemes. However, in the period from 1979 through to the 1990s, the real value of pensions was reduced as benefits were re-indexed to prices, and the benefits accruable under SERPS were decreased in a move to contain state costs (Disney & Whitehouse, 1992; Meyer & Bridgen, 2011). In April 2002, around the time that many of the 1981-1985 cohort ('Early Millennials' as defined Section 1.1.1) would have completed their education and began working, the State Second Pension (S2P) replaced the SERPS, and was redesigned to cater more for low income earners (Salter *et al*, 2009, p144). By this time, the late baby-boomer cohort would have been midway through their working lives.

Younger cohorts, such as those born after 1970 (e.g. the Generation X and Early Millennial cohorts) will have been exposed to a much greater range of pension choices for most or all of their working lives. This increased exposure to pension choice for younger cohorts has arisen due to the pension policy developments from the Thatcher government years and beyond. Central to the ethos of the Thatcher government years in the 1980s was the ideology that individuals should take more responsibility for their own welfare (Bonoli, 2000; Sutcliffe-Braithwaite, 2012). An example of how this stakeholding principle was

reflected in practice was the introduction of widespread personal pension plans, whereby individuals were able to make provision towards their own pension arrangements (Disney & Whitehouse, 1992). In July 1988, following the Social Security Act 1986, personal pension plans were made widely available, replacing the more restricted S226 schemes (retirement annuity contracts) which were available only to the self-employed and those without occupational pension scheme rights. This allowed individuals, as well as their employers, the flexibility to make contributions to their own pension plans. The Act also introduced more individual choice in the pension provision process. In addition to preventing employers making occupational pension scheme membership compulsory, it also allowed occupational pensions to be transferred into personal pensions (ONS, 2011i). Until April 2012, it was possible for individuals under these arrangements who wanted to opt out of the additional state pension to 'contract-out', and in return, lower National Insurance contributions were made, or individuals could choose to receive rebates of National Insurance contributions paid into their defined-contribution pension schemes or personal pensions (Gov.uk, 2017b). These individuals can therefore expect to receive a reduced state-pension benefit and may need to rely more heavily on their own pension funds, the returns on which will have been dependent on prevailing investment conditions. In addition to taking more responsibility for their own retirement provision, individuals also take on investment risk, as fund performance will vary depending on the cohort experience of market conditions during the accumulation of their pension funds (Banks & Smith, 2006).

With the responsibility for financial provision in retirement shifting progressively for each successive cohort from the state to the individual (PPI, 2016b), it has been increasingly important for the government to incentivise individuals to save for retirement in their development of pension policy. Pension contributions to approved pension schemes, whether occupational or personal, attract tax relief at an individual's marginal rate of tax, and investment interest accumulated within these pension funds is usually exempt from tax. Although the final pension income taken at retirement is subject to tax, as total income at retirement is usually lower than immediately preceding it, the marginal rate of tax that many pensioners find themselves subject to is lower than they would have otherwise experienced for other forms of saving, with the net cost of pension tax relief estimated to be £23.7bn in 2010/11 (PPI, 2013b). Furthermore, many schemes offer the opportunity to

take a proportion of accumulated pension funds at retirement as a tax-free lump sum. Saving for retirement through pension schemes can therefore generally be seen on balance as a financially advantageous approach to funding for old age (PPI, 2013b).

In particular for younger cohorts, who were in the early years of their working life in the late 1980s, there was a widespread take up of personal pensions, which proved to be inadequately regulated (Disney & Whitehouse, 1992; Goode Committee, 1994). A number of changes to the regulatory regime were passed, partly to address the personal pensions mis-selling fall-out (Pensions Commission, 2005), but also in an attempt to ensure wider transparency and accountability across the private pensions area. This move led to an increasing burden to employers during the years that followed and resulted in a strong decline in the provision of occupational pensions (see Section 2.1.2.2) as the private sector reacted negatively to the increased costs and restrictions placed upon it, and led to major changes to the pensions regime in the UK in 2007 and 2008 (Meyer & Bridgen, 2011).

Indeed, the extent to which different policy changes have an impact on a particular cohort is likely to vary due to the changing needs and priorities individuals experience over a life course (see Section 1.1.1, Table 1.1a). Legacy issues, including an imbalance in retirement provision between men and women, with the current UK state-pension scheme remaining inadequately designed for the changing trends in partnership status and household formation (FT Adviser, 2016), remain. With regards to more recent policy development, increases to the SPA are likely to have the most impact on older female cohorts, especially those who rely more heavily on the state pension (Thurley, 2016). These individuals may have expected to retire and receive state pension benefits from age 60 for most of their working life, but have found since Pensions Acts 1995 and 2007 and 2007 that their state benefits will be paid from a later age (see Section 2.1.3.1). For example, a woman born in 1980, and aged around 15 when the Pensions Act 1995 was introduced, would have all of her working life ahead of her to prepare for a delayed SPA. However, women born in for example, 1955, who were aged 40 when the legislation to equalise female SPAs with male SPAs to 65 was introduced, and who had expected throughout the first half of their working life to retire at 60, would have only the second half of their working life to prepare for a five-year delay to the receipt of their state pension. The SPA in the UK has since been

increased further and the timing of these increases brought forward. The impact of such changes is discussed further in Section 2.1.3.1.

The impact of these policies will affect the cohorts differently not only due to timing vis-à-vis lifecourse, but also due to the broader social changes that have taken place in the UK which have driven the need for pension reform. Changing employment patterns, with frequent job changes during the lifecourse and in particular the move away from the traditional male breadwinner model in a relatively secure long-term employment typical of the industrial era (PPI, 2012a; Taylor-Gooby, 2013), have led to the need to address the deferred pension benefits accrued by early leavers from pension schemes. These early leaver benefits have been improved and protected over time, particularly with a number of Social Security Acts passed in 1985, 1986 and 1990 (Blake & Orszag, 1998). The continuous improvement to preserved benefits over time could be expected to benefit pension scheme members to differing extents, depending on the timing of these events in the context of their own working lives. The introduction of anti-franking (which prohibited the earlier practice of allowing increases on Guaranteed Minimum Pensions (GMPs) accrued by employees contracted out of SERPS before retirement to effectively be absorbed by non-GMP pensions) and the preservation of occupational pension benefits in excess of the guaranteed minimum pension brought in via the Health and Social Security Act 1984 could be expected to have far greater beneficial impact on younger cohorts, in particular those who began working life not long before legislation was introduced. For example, individuals in the Late Baby boomer cohort would have been only around 20 years old when the Act was enacted, which meant that they would have been entitled to preservation on any accrued pension scheme benefits whenever they changed employer or left a pension scheme, for their entire working lives. This compares with older cohorts who may have participated in occupational pension schemes and subsequently left their pension schemes in the period before 1985, to find that the value of their deferred pension benefit would have been eroded due to the effects of inflation in the period between leaving the labour market and retirement (Blake & Orszag, 1998: p23). The particular challenges these social changes bring are also known as new social risks and are discussed further in Section 2.2.2.

Women, and particularly older cohorts of women, have also been disadvantaged from the outset due to the way pension protection in the UK was originally conceived. The design of retirement provision in the Beveridgean vision assumed a typical household consisting of stereotypical gender roles, with men in paid labour for the duration of their working lives, and wives as financial dependants (Thane, 2006). This has led to legacy issues of gender assumptions that influence the structure of the existing social security system (Ginn & Arber, 2001; Vlachantoni, 2012). Especially, among older cohorts, there is a noted dependency of married women's incomes in later life on their entitlement to derived state pensions based on their current or former husband's national insurance contribution record (Evandrou *et al*, 2009), although this has been of decreasing importance as the number of women entitled to derived pension rights has fallen. Falkingham & Rake (2001) and the Fawcett Society (2007a) argued that without an overhaul to the existing system, an economic imbalance will continue to persist between men and women due to their very different needs and life courses. In a review of pension reforms, Price (2008) suggested that continued reliance on private provision for income in later life would still likely result in gendered outcomes. Women would generally be at a disadvantage due to continued structural differences, which include the much higher likelihood of women acting as caregivers within households. However, the gender disparity in pension provision, including the penalty incurred through caring responsibilities that are often taken on by women, were largely addressed in the Pensions Act 2007. The Pensions Act 2007 introduced Home Responsibilities Protection (HRP) and reduced the number of years of National Insurance contributions required in order to qualify for a full basic state pension (Falkingham *et al*, 2010). HRP has since been replaced with the weekly National Insurance credit which was introduced in the 2007-08 pension reforms, and this credit is used towards the calculation of both basic state and S2P pension entitlement. The gender differences in pension provision are explored further in Section 3.1.2.

Finally, in addition to formal pension savings, the government has also created an increasing number of incentives for individuals to make financial savings in other ways, which have provided more choice for younger cohorts, such as the GenXers and Early

Millennials[3]. For some, these provide alternative forms of provision that individuals may wish to make use of for their retirement. Although the government has long provided some incentives via tax-efficient forms of savings through National Savings & Investments (for example, index linked savings bonds and premium bonds), since the 1980s, wider spread tax-efficient vehicles have also been introduced. Personal Equity Plans (PEPs) were introduced in the 1986 Budget, followed several years later by Tax Exempt Special Savings Accounts (TESSAs). PEPs were launched in 1987. It was possible for individuals to buy UK equities or shares through their PEPs, although there were some restrictions including the proportion of funds which had to be directly held in equities. This was followed by the introduction of TESSAs in 1991 (following the 1990 Budget), which were a specific type of bank or building society account in which interest was accumulated tax-free, provided the accounts were held for a five-year period (HMRC, 2014b). These too, had restrictions including an upper limit on the amounts which could be invested in each year that the accounts were held. ISAs, which were introduced in the Chancellor's Budget in July 1997[4], subsequently replaced both PEPs and TESSAs from 6 April 1999. ISAs enabled investors to make investments or savings in a similarly tax favourable position. Again, the total amount that could be invested in these vehicles was capped, although the limits have grown substantially since ISAs were introduced. The annual limit for the tax year from 6 April 2010 (the end of the period investigated in this thesis) was £10,200, up to half of which could be made in cash savings (HMRC, 2009). Whilst these savings products are not specifically designed for retirement provision, the continued expansion of different savings products will be included in the discussion of the findings resulting from this study in Chapter 8.

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[3] These younger cohorts will be able to take advantage of aforementioned products for most of their working lives. Although ISAs, for example, were introduced in 1999, the annual limits on introduction were more prescriptive – £3,000 in cash, £4,000 stocks and shares. The limit is now almost three times this (£20,000 per annum), an increase of around 186 per cent; inflation over this period has only amounted to approximately 60 per cent (Bank of England, 2017).

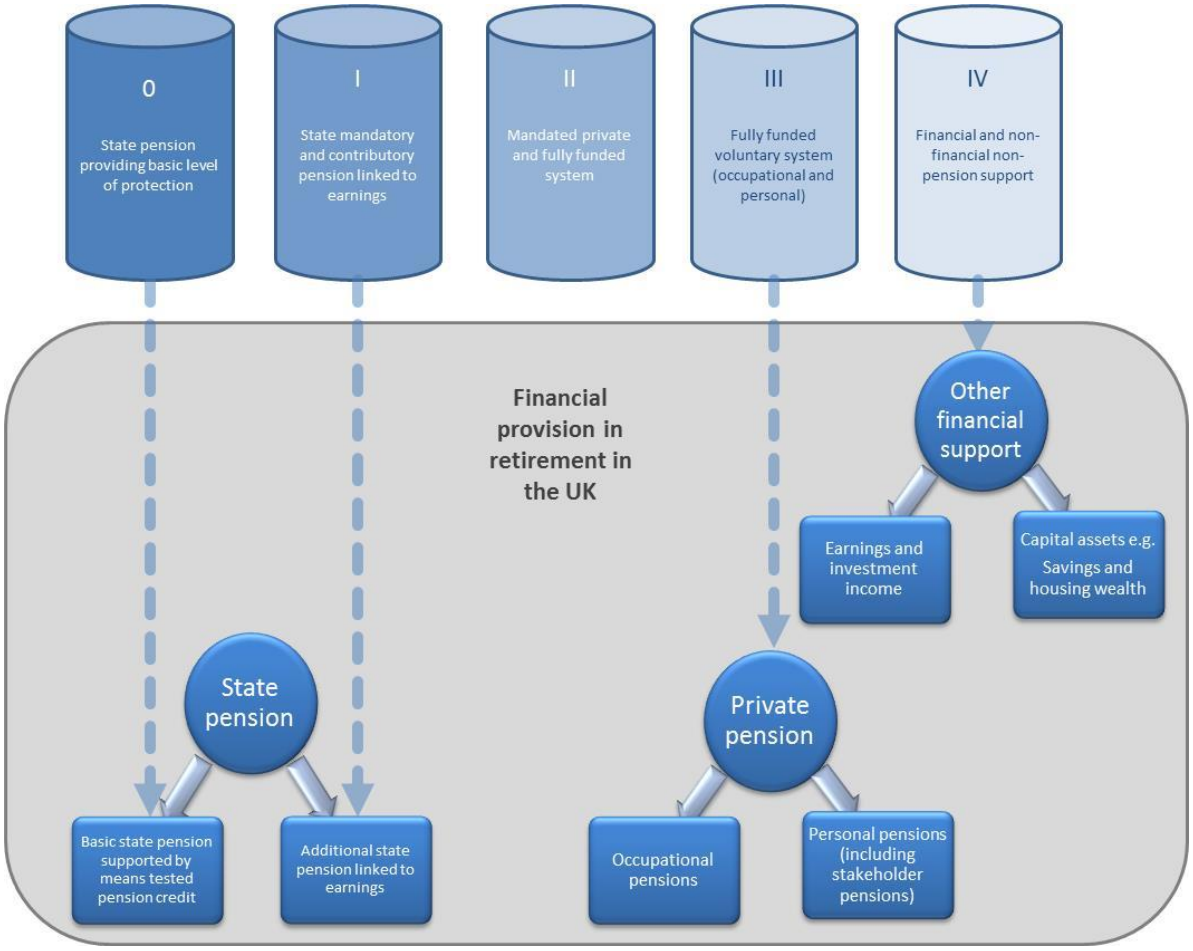
[4] HC Deb 2 July 1997, vol 702, cols 303-316.

In summary, compared with workers who experienced the first decades of the Beveridgean era, many of whom have now entered retirement, younger cohorts (which include Late Baby Boomers, GenXers and Early Millennials) have benefited from increased occupational pension entitlements (e.g. Health and Social Security Act 1984), with increased equality in retirement provision for women (e.g. increasing SPAs (see Section 2.1.3.1; Pensions Acts 1995, 2007 and 2011); improved benefit sharing on divorce (Matrimonial Causes Act 1973; Pensions Act 1995; Welfare Reform and Pensions Act 1999); and greater recognition of caring. However, successive cohorts have also had to contend with an increasing shift of risk relating to retirement provision, especially investment risk, from the state to individuals (Rowlingson, 2002); decreasing state provision, due to a number of factors including a basic state pension increasing at a slower rate than earnings; and reduced state pension accrual levels (Bozio *et al*, 2010);. With the reforms introduced since 2008, intended to halt the continued erosion of the very low state pension, broaden access to state pensions and introduce auto-enrolment amongst other moves, the UK pension regime now stands finely balanced with a hybrid of both liberal and statist tendencies. A further discussion regarding the context of institutional effects on pension policy reform is carried out in Section 2.2.3.1. The next section provides a general outline of the current structure for financial provision in retirement in the UK, which enables a broader understanding of the role and context of private pensions within the wider framework of financial provision in old age.

2.1.2 **Financial provision for retirement**

Financial security for people reaching older age in the UK usually consists of a combination of some or all of different forms of income, which may include retirement income such as public and private pensions as set out in Figure 1.1 but may also include other income such as earnings and investment income, and also capital assets. To provide the broader context of how UK pensions provision fits within the overall system of financial provision in retirement, including these other income elements, Figure 2.1 below shows a representation of these other financial components in the context of the multi-pillar system and the UK pension system (see Chapter 1, Figure 1.1).

Figure 2.1: Financial provision in retirement



Source: Author's own interpretation, further developed from Figure 1.1, adapted from the World Bank (1994) three-pillar system for provision of old-age income security and Holzmann & Hinz (2005) subsequent extension to the World Bank Model

There are clear cohort variations in the projected financial wealth at retirement (including assets such as shares and housing), with current literature suggesting that younger cohorts are on course to have a lower mean real wealth at each age than their older counterparts (Crawford *et al*, 2015). This is discussed in more detail in Section 3.2.2. Income in later life may take the form of state retirement income, other state welfare income, non-state retirement income, investment income and earnings. Current projections suggest that the proportion of retirement income that is comprised from state related income is projected to fall for cohorts born after 1930, and approximately plateau for those born after 1960 (Hood & Joyce, 2013); however, the levels of savings and earnings are projected to increase as successive cohorts are increasingly expecting to receive inheritances, and to work until older ages (Hood & Joyce, 2013). Real median income at old age (after retirement) is also

projected to be increasingly higher for successive cohorts, i.e. those born in 1950s compared with individuals from the 1940s and 1930s cohorts ((Johnson, 2014). Individuals may also receive income in the form of remittances and gifts. State retirement income consists of two elements in the UK, a basic state pension and an additional state pension (PPI, 2014b). The type of additional state pension accrued by an individual depends upon the period during which they accrued this pension.

Table 2.1b Sources of pensioner income in 2015/16 (from pensioner units where at least one member is aged 65 or over)

Income type	Average income per week	As a % of gross income
Benefit income[1]	£221	43%
Occupational pension	£151	30%
Personal pension income	£19	4%
Investment income	£43	8%
Earnings	£70	14%
Other income	£4	1%

Notes: [1] Includes Basic State Pension, Additional Pension (SERPS/S2P) and associated widow's benefits plus income-related and disability-related benefits

Source: Pensioners' incomes series (DWP & ONS, 2017)

Table 2.1b sets out the average levels for each component of pensioner income in 2015/16 drawn from two nationally representative household surveys summarised in the Pensioners' Incomes Series (DWP & ONS, 2017), which are drawn from two nationally representative household surveys. Almost all respondents (97 per cent) reported receiving income from state pensions, with 62 per cent receiving occupational pensions and 18 per cent receiving personal pension income in 2015/16. The Pensioners' Income Series uses data provided by respondents who are single pensioners who have reached the SPA, and pensioner couples (who are married or cohabiting) where at least one of the couple is over the SPA; as the data is drawn from household surveys, it does not include pensioners in care homes (DWP & ONS, 2017). The data has been weighted to be representative of the whole UK population in accordance with the 2011 Census data (DWP & ONS, 2017). Investment income was reported by almost two-thirds of respondents; however, for many this was a relatively small income, with half receiving £200 per annum or less. Individuals may also choose to supplement these forms of financial provision through employment.

In order to understand the role of private pensions in financial provision for retirement, the chapter now discusses in turn the different ways in which individuals may attain the various types of income and capital wealth for their retirement. Together, these constitute the financial resources which individuals have access to in old age, and private pensions form one of these components of retirement provision. The next section focuses on state income; this is followed by a discussion of private pension income in Section 2.1.2.2 and then capital wealth at retirement in Section 2.1.2.3. The discussion will include some historical background relating to how each of these components have developed in order to provide the full context of how the current retirement system is constituted for different cohorts; a broad level outline of the UK pension policy development context was provided in Section 2.1.1.

2.1.2.1 Changing cohort expectations of state income at retirement

Individuals born in the 1950s and before would have accrued state retirement benefits under the state-run graduated scheme which operated between 1961 and 1975 (HM Government, 2014). During this period, individuals could earn entitlement to graduated retirement benefits depending on the level of national insurance payments they made over their life course. One Graduated Retirement Benefit Pension Unit was accrued for each £7.50 of National Insurance contributed to the graduated scheme by a man and £9.00 for a woman. Each of these pension units originally entitled individuals to a pension of 2.5p per week. This amount was frozen at this level until 1978, when pension benefits were adjusted for inflation for each year thereafter (Bozio *et al*, 2010).

By the late 1970s, a more generous state secondary pension scheme was introduced; between 1978 and 2002, additional state pension income could be accrued via the SERPS scheme (see Section 2.1.1). Cohorts such as the late baby boomers and those born before them were able to accrue benefits under the scheme at the outset. In April 2002, the State Second Pension (S2P) was introduced, which was calculated in a similar way to the SERPS pension, but credited earnings for individuals below a Lower Earnings Threshold (LET) up to the LET, and individuals unable to work (including carers and those claiming certain disability benefits). The Pensions Act 2007 put in place reforms to the S2P, to gradually

change it to a flat-rate benefit top-up to the BSP by 2030, with the first changes taking place from April 2009 (Bozio *et al*, 2010). In January 2013, the government announced that a single-tiered basic state pension would be introduced from 2017, combining the existing basic state pension benefit with the additional state pension benefit (DWP, 2013b). Individuals who make national insurance contributions for at least 10 years will be entitled to this benefit, with those making contributions for at least 35 years entitled to the full amount, provisionally given as £144 per week in 2013, increased by a triple lock system. This triple lock increase for the BSP, which took effect from April 2011, was set out in the Coalition Agreement by the new Government following the 2010 general election, and retained under the Confidence and Supply Agreement made between the Conservative and Unionist Party and the Democratic Unionist Party in June 2017 following the 2017 general election (Gov.uk, 2017a). It means that the pension will be uprated by the higher of one of three elements: inflation, average earnings, or 2.5 per cent (Thurley, 2014). Finally, for individuals who choose to defer the receipt of their state pensions beyond their SPA, a further incremental pension income is accrued at a simple rate of increase of 1 per cent for every five weeks the pension is deferred beyond the SPA for pensioners who reached SPA before 2016 (Gov.uk, 2015c), and 1 per cent for every nine weeks for pensioners reaching SPA from 6 April 2016 (Gov.uk, 2017c).

However, beyond the regulations guiding pension accumulation, the state also acts as a welfare provider of last resort, and therefore ensures a minimum level of benefit for its population (Rubery, 2011). Since 2003, and of particular benefit to those born in the 1930s and 1940s, the state provides the Pension Credit for the older, retired, population, which consists of two elements (Age UK, 2015). The qualifying age for Pension Credit is usually the SPA if an individual is being assessed, or when the first person reaches the SPA if a couple is being assessed. A Guarantee Credit provides a minimum income to the level of pension income the claimant is assessed as receiving. This means that claimants are entitled to a top-up to their existing pension income if it falls below this underpin, which includes a notional income based on the level of individual or joint savings held by the claimant(s). The second element of Pension Credit is the Savings Credit. The aim of this second element is to provide additional benefit to retired people who are not well-off but do have savings or a personal pension. This helps to avoid penalising people who fail to qualify for the full guarantee credit due to making savings out of their own accord during their working life, and aims at encouraging savings over the life course (DWP, 2013b). The

complexity of the current system however, may be a contributing factor into almost of a third of eligible claimants not claiming this benefit, and losing out on £33 per week on average (DWP, 2012a). Following the publication of the single-tier pension White Paper in 2013, this second element of the Pension Credit will close to pensioners reaching the SPA from 2017 (DWP, 2013b).

Current cohorts of pensioners are also entitled to other welfare receipts in retirement range from age-related payments such as Winter Fuel Payments and Cold Weather Payments to other state benefit entitlements such as Attendance, Disability or Carer's allowances. In addition to potential entitlements to the Pension Credit, individuals may also be entitled to further benefits including Council Tax Benefit. Older people, not necessarily retired, are also entitled to subsidised benefits such as travel (gov.uk, 2015a), eyecare (NHS.uk, 2015), a Christmas bonus (gov.uk, 2015b) as well as television licences (gov.uk, 2015d), although the value of these are relatively low compared with the value of state pensions or private pensions (DWP & ONS, 2017). Private pension income will be discussed in the next section, 2.1.2.2.

2.1.2.2 Private pension income at retirement

State pensions represented by Pillars 0 and 1 in Figure 2.1 are recognised as unlikely to provide sufficient old age retirement income (see Section 1). The average state pension payment for the 2012/13 tax year estimated to be £124 per week in April 2012, inclusive of basic and additional state pension (gov.uk, 2012). This is just over a quarter of average earnings in April 2012 of £466 per week (ONS, 2014a), a far lower earnings replacement ratio than the ideal proposed by the Pensions Commission in 2004 (Pensions Commission, 2004). Occupational pensions, which would fall under Pillar 3 in Figure 2.1, have historically provided relatively generous income for retirement for employees (DWP, 2011a). These occupational pension schemes were often final salary (or defined benefit), meaning that retirement benefits were based on a combination of the length of service an individual had with the pension scheme, and their pre-retirement salary, although career-average revalued earnings schemes are becoming increasingly common (ONS, 2011i). The costs of defined benefit pension schemes are usually covered by employees paying a fixed

percentage of their salary, with their employer meeting the balance of the cost. The investment risk of the pension fund set aside to meet the pension obligations of the employer is borne by the employer.

Despite the introduction of wide ranging incentives to take up private pension scheme membership (see Section 2.1.1), participation rates in private pension schemes have been falling until very recently. In 1967, the peak of private pension membership (representing those individuals born in 1950 or before), there were 12.2 million active members of pension schemes in the UK; by 2010, there were 8.3 million (ONS, 2011i). This meant that by the end of 2010, only around 36 per cent of people aged 16-64 were contributing to private (non-state) pensions (ONS, 2011i). Previous work carried out by Banks & Smith (2006) shows how older cohorts (born before 1960), especially males, were far more likely to have some private pension provision, than younger cohorts of men and women. This can be further broken down between occupational pension schemes and personal pension plans. Thirty per cent of people aged 16-64 contributed to a workplace scheme (ONS, 2011i) with employee pension membership at 53 per cent of full-time male employees, and 57 per cent of full-time female employees (39 per cent for part-time women) in the same year (ONS, 2012g). Nine per cent of men aged 16-64 had individual personal pensions, compared with 5 per cent of women (ONS, 2011i). There was a sharp decline in the number of open defined-benefit private-sector pension schemes in the UK, falling from 17,900 in 2000 to 2,240 in 2007 (Maer & Thurley, 2009). Traditional final-salary-related pension plans have increasingly been closed to new members or have been stopped completely to make way for defined contribution plans and hybrid schemes (which combine elements of defined benefit and defined contribution schemes) (PPI, 2012a). This will have meant that cohorts entering the workplace after 2000 (i.e. Late Millennials or those born after), will have had much less chance of accessing these typically more generous schemes. However, there was also a decrease in the total number of defined contribution schemes from 44,700 in 2005 to less than 26,000 in 2007 (Maer & Thurley, 2009). This study, which breaks down the propensity of different cohorts to make private pension contributions, will provide more insight into the extent to which different cohorts have seen greater (or lesser) declines.

Although following auto-enrolment there has been a requirement for employers to provide pension arrangements, based on current trends, employers providing pension arrangements for the first time are unlikely to introduce a defined benefit scheme (PPI, 2012a). This move away from defined benefit provision transfers the investment risk to employees. Furthermore, employers and employees generally make lower contributions in total towards defined contribution pension schemes (ONS, 2012f), and this is likely to have an impact on the level of private pension income individuals are entitled to receive at retirement in several ways. Firstly, the absolute levels of benefit provided by occupational schemes, in terms of funds invested into pension benefits, are decreasing and hence older cohorts of employees are likely to be better off than their younger counterparts (DWP, 2011i). Secondly, historically many occupational pension schemes were contracted out, with both employers and employees paying reduced National Insurance contributions; this meant that employees were no longer entitled to accrue state second pensions but would receive their occupational pensions instead. Since April 2012, defined contribution schemes are required to be contracted-in (HMRC, 2014a), and participants therefore also usually receive state second pensions. Thirdly, however, the different forms of private pension have different effects on retirement, with final-salary pension wealth helping to induce retirement, and defined contribution wealth delaying retirement (Blake, 2001). Although future pensioners may receive lower overall levels of contributions to their pension fund during their working lives, the effect of delayed retirement will mean their funds will be invested for longer; contributions paid in for longer periods of time, and a shorter retirement period over which to withdraw their pension benefit. This could result in pension incomes of comparable levels once in payment to those received by current pensioners who benefit from historically generous pension schemes paying out at earlier retirement ages.

A survey carried out in 2011 showed a severe decline in active membership of private sector defined benefit schemes from 4.6 million in 2000 to 2.1 million in 2010 (ONS 2012d). It is likely that much of this decline is due to the increase in the closure of such schemes, and it is likely that the number of defined benefit schemes will continue to fall, given that one-third of the schemes still open to existing members are anticipating reducing benefits or are closing (NAPF, 2011b). Clearly, the older the individual in the workplace, the more likely they are to have been eligible to participate in these schemes. The ONS

also found that the average total contribution rate (employee and employer contributions combined) for private sector defined benefit occupational pension schemes was more than twice that of defined contribution schemes at 21.7 per cent vs. 9.3 per cent respectively (ONS, 2012d). With the reduction in membership of private-sector defined benefit schemes, there are likely to be increasingly large numbers of people who will have smaller pension benefits upon which they can rely in later life, with younger people, who are least likely to have accrued benefits to date, being mostly affected. A review of the trends in the levels of pension provision during this period will detail the impact of the changing occupational pension environment for different cohorts.

The general shift in attitudes towards employees shouldering more of the cost of their retirement provision, ties in with the proposals made by Lord Hutton in his report on Public Sector pension provision in March 2011 (HM Treasury, 2011b), suggesting that employees should make higher contributions towards their pension entitlements. A survey of UK employers selected on a random basis was conducted by the Association of Consulting Actuaries (ACA) in 2011, and showed that by 2011, 91 per cent of defined benefit schemes were closed to new entrants (ACA, 2012a). This has had the dual effect of a shift in the investment risk towards the individual together with the typically lower contributions from employers towards their employees' pension benefits associated with defined contribution schemes. In 2011 the average cost to employers of running defined benefit pension schemes was 21.4 per cent of salary (ACA, 2012b), generally much more expensive than for those with defined contribution schemes (the corresponding figure for defined contribution schemes was only 6.9 per cent of salaries). Most UK companies now offer only defined contribution plans (ACA, 2012a).

Despite the move towards these often less generous defined contribution pension plans, a report based on data obtained in 2008–09 showed that private pensions have become more significant source of incomes than state pensions for pensioners, across the income distribution (Crawford & Tetlow, 2010). This suggests that newly retiring pensioners have significantly more private pension entitlement than their already retired peers. However, according to Pension Trends (ONS, 2011i), the proportion of UK men of working age (16-64) contributing to a private pension has decreased from 49 per cent in 1999-2000 to 38 per cent in 2009-2010. For women (16-59), the corresponding figures are 36 per cent and

34 per cent. These juxtaposing trends need to be analysed in the context of changing wealth of older cohorts, including different kinds of income in combination with capital assets. At the same time, pensioners' needs are continually varying due to changes in longevity and retirement age – whether as a result of increases to SPA currently being implemented or as a result of individual choice, changing perceptions of income requirements at retirement, changes to retirement pattern, including employment at older ages and changing levels and types of retirement provision.(Hammond *et al*, 2015)

In 2012, the ONS reported that the number of people who were active members of private sector occupational pension plans fell from 10.7 million in 1991 to 8.3 million by 2010 (ONS, 2012f). Of these, the corresponding figures for defined benefit schemes were 6.5 million and 3.0 million respectively, a decrease of more than half (ONS, 2012f). In fact, in 2010, the Secretary of State for Work and Pensions, Iain Duncan Smith, noted that only a third of private sector employees paid into pension arrangements (Duncan Smith, 2010). However, it was intended that this low level of private pension participation would be addressed following the introduction of auto-enrolment in 2012 (see Section 2.1.3.3).

2.1.2.3 Non-pension income in retirement

Finally, income for pensioners can take the form of investment or earned income. In 2015/16, 63 per cent of all pensioner units (single pensioners or pensioner couples) received some investment income, although for many, the amount received was relatively small, with three out of five pensioner units receiving less than £10 per week from investments (DWP & ONS, 2017). Investment income can, for example, be received from holdings in range of funds, investment portfolios, trusts or bonds. An increasing number of individuals now opt to continue working beyond their SPA or supplement their retirement income with earned income. Figures from the ONS suggest an almost doubling of older workers, defined as those working beyond SPA, from 700,000 in 2000 to 1.4 million in 2011 (ONS, 2012f). In 2015/16, it was reported that 17 per cent of all pensioner units received some earnings income, although this figure rose to 30 per cent for pensioner units where the unit head was less than 5 years over SPA (DWP & ONS, 2017).

2.1.2.4 Capital wealth at retirement

It is important to approach the financial provision for retirement from a holistic perspective, examining not only pensions, but also the combination of retirement income, inclusive of earnings and other forms of income, savings and capital wealth. This is especially so given the current low levels of confidence in pensions as the main means of financial provision in retirement (National Association of Pension Funds (NAPF), 2011a); a survey carried out by the NAPF found that 54 per cent of respondents lacked confidence in pensions as a form of saving (NAPF, 2012). This is supported by earlier findings by Clery *et al* (2010) who also suggested that attitudes to potential pension providers had also become notably more negative. The discussion in Chapter 8 will therefore discuss the results from this thesis in the context of other financial assets that may be held by individuals in retirement.

Assets may include savings and capital investments including housing wealth, and the variety of vehicles available for individuals to put money aside is considerable. Savings may be made in a wide range of different products, including easy access, notice or regular savings accounts with banks and building societies, bonds, Individual Savings Accounts (ISAs) or National Savings and Investment (NS&I) accounts. Investments are wide varying and can include shares, pooled or collective investment vehicles (e.g. unit trusts, open ended investment companies (OEICs), investment trusts, exchange trade funds (ETFs), unit linked life assurance, ISAs, and bonds). Housing wealth can comprise full or part ownership of principal residences, holiday or secondary homes, or an investment property or portfolio of properties. It is seen as a means of accumulating wealth and also as a potential substitute for retirement wealth (Doling, 2010, Doling & Ronald, 2010). Housing wealth often constitutes a major proportion of an individual's overall wealth at old age (housing wealth is discussed in more detail in Section 3.2.2) and there is a recognised generational divide due to relative market advantages of earlier cohorts (Doling & Ronald, 2010). The association between housing tenure as a proxy and private pension contributions will therefore examined as part of this thesis.

2.1.3 Recent and current changes in pensions legislation and impacts on cohorts

Section 2.1.1 outlined key pensions and savings legislation that has led to the current system of financial provision for retirement, and time at which each of these key events would have impacted different cohorts. The rest of this section discusses in more detail the key pensions legislation that has been implemented since 2010, and which has significant implications for the level of retirement provision available to both existing pensioners and different cohorts of working age persons (16-64 for men and 16-59 for women respectively as at 5 April 2010).

2.1.3.1 Increasing state pension age

Older cohorts of women, especially those born in the 1950s, have been particularly affected by changes to the SPA (Thurley, 2016). The 1940 Old Age and Widows Pensions Act lowered the female SPA from 65 to 60 (ONS, 2011h). From 1946 to 2010 there were no changes in the SPA for men or women (Bozio *et al*, 2010). However recent legislation introduced a number of important changes. In April 2010, women's SPA started to increase gradually from 60 to 65, to match men's current SPA. The position of women who have not yet reached SPA should be explored further; this is particularly important given the impending changes in the SPA for women from the previously long held age of 60 to 66 between April 2010 and 2020, introduced by the Pensions Acts of 1995 and 2007, and further amended by the Pensions Act 2011 (Thurley, 2012b), which received royal assent in November 2011. The timetabled changes for SPA for both men and women to increase to 66 by October 2020 are set out in Tables 2.1c and 2.1d. These changes to the SPA will impact women more than men, as they will see their SPA rise from 60 years to match the current men's SPA of 65 years by 2018 before both are increased over time to meet the demands of increasing longevity.

Table 2.1c: Changes to State Pension Age for women to age 65

Date of birth	Date State Pension Age reached
6 April 1953 to 5 May 1953	6 July 2016
6 May 1953 to 5 June 1953	6 November 2016
6 June 1953 to 5 July 1953	6 March 2017
6 July 1953 to 5 August 1953	6 July 2017
6 August 1953 to 5 September 1953	6 November 2017
6 September 1953 to 5 October 1953	6 March 2018
6 October 1953 to 5 November 1953	6 July 2018
6 November 1953 to 5 December 1953	6 November 2018

Source: Calculating your pension age, www.direct.gov.uk *(2011)*

Table 2.1d: Changes to State Pension Age from 65 to 66 for men and women

Date of birth	Date State Pension Age reached
6 December 1953 to 5 January 1954	6 March 2019
6 January 1954 to 5 February 1954	6 May 2019
6 February 1954 to 5 March 1954	6 July 2019
6 March 1954 to 5 April 1954	6 September 2019
6 April 1954 to 5 May 1954	6 November 2019
6 May 1954 to 5 June 1954	6 January 2020
6 June 1954 to 5 July 1954	6 March 2020
6 July 1954 to 5 August 1954	6 May 2020
6 August 1954 to 5 September 1954	6 July 2020
6 September 1954 to 5 October 1954	6 September 2020
6 October 1954 to 5 April 1960	66th birthday

Source: Calculating your pension age, www.direct.gov.uk *(2011)*

Although long overdue (PPI, 2003), the swiftness of the current and impending changes to SPA means that many women approaching retirement will have had insufficient time to prepare. It is possible that cohorts of women who have already retired are in a more advantageous position than their younger cohorts with regards to these changes, as they have been able to enjoy receipt of their state pension benefits from their lower SPAs.

Nevertheless, the extent of the replacement ratio disadvantage due to differences in basic state pension is likely to be mitigated for cohorts of women who have just retired or are yet to retire. The Pensions Act 2007 changed the terms required for accrual of the full basic state pension, reduced them from 49 years for men and 44 years for women to 30 years for both men and women, taking effect from April 2010, and is expected to increase the numbers of men and women who will become entitled to receive the full benefit. For example, government research suggests that the current disparity between men and women who are entitled to receive a full basic state pension (48 per cent of female pensioners compared with 87 per cent of male pensioners in September 2010) is expected to all but disappear by 2030-31, when it is expected that 95 per cent of women reaching SPA will be entitled to receive the full basic state pension (DWP, 2011f). Whilst recent amendments to the original proposal in the 2010 White Paper mean that increases to the female SPA will not exceed 18 months for any particular cohort (DWP, 2011e), this is still a significant difference that many women approaching retirement will not have been able to plan for during most of their working life. For example, women born between April 1953 and April 1954 will only have 7 years in which to adjust their financial planning in order to manage the impact of a delay in receipt of state pension benefits of 18 months.

However, the delay to the raising of the SPA for women by six months in 2020 and to cap the maximum delay in receiving a state pension to 18 months for all pensioners is expected to benefit almost a quarter of a million women and a similar number of men according to the government (DWP, 2011f). In a survey carried out for the DWP in 2009, Clery *et al* (2010) found that only 17 per cent of women were aware of their correct SPA, and were expecting to receive the State Pension before they were eligible to do so. The recent amendments to the SPA are likely to confuse matters further. The Pensions Act 2007 also brought in increases to the SPA, to 67 years between 2034 and 2036, and to 68 years between 2044 and 2046. In the Chancellor's 2011 Autumn Forecast Statement (HM Treasury, 2011a), the increase in SPA to 67 was brought forward to 2026, and the schedule for these increases to the SPA which were confirmed in the Pensions Act 2014 is set out in Table 2.1e.

Table 2.1e: Changes to State Pension Age from 66 to 67 for men and women

Date of birth	Date State Pension Age reached
6 April 1960 – 5 May 1960	66 years and 1 month
6 May 1960 – 5 June 1960	66 years and 2 months
6 June 1960 – 5 July 1960	66 years and 3 months
6 July 1960 – 5 August 1960	66 years and 4 months
6 August 1960 – 5 September 1960	66 years and 5 months
6 September 1960 – 5 October 1960	66 years and 6 months
6 October 1960 – 5 November 1960	66 years and 7 months
6 November 1960 – 5 December 1960	66 years and 8 months
6 December 1960 – 5 January 1961	66 years and 9 months
6 January 1961 – 5 February 1961	66 years and 10 months
6 February 1961 – 5 March 1961	66 years and 11 months
6 March 1961 – 5 April 1977	67th birthday

Source: State Pension age timetables, www.gov.uk (2014)

Individuals affected by changes to SPA to 67 have a minimum of 14 years to prepare for the additional change, and those who are currently expected to be affected by changes to SPA to 68 are still in the early parts of their working lives. Therefore, for the purposes of this investigation, the impact of these changes will not be examined in detail. Cohorts most likely to be directly affected by these changes to the SPA, with the least length of time to react to these changes, are those born before 1960, and especially women born between April 1953 and April 1954. The financial position of this group of individuals will be among those investigated in this study.

2.1.3.2 Cohort impacts following gender equalisation in pension entitlement and the equalisation of annuities

The Pensions Act 1995 introduced the equalisation of the SPA between men and women (see Sections 2.1.1 and 2.1.3.1), and which would have an impact on women cohorts born in the 1950s and after. However, it was not the only policy which addressed gender equality with regards to retirement benefits. As a member state of the EU, for the time being, the UK is also subject to rulings in this area made at the European level. In addition

to the equalisation of the SPA set out by UK legislation as detailed in Section 2.1.3.1, the marked differences between genders in terms of pension entitlement have also been affected by the recent equalisation of annuity rates following a ruling by the European Court of Justice (ECJ) on 1 March 2011. This ruling meant that insurance companies in the UK were required to equalise rates for men and women with effect from 21 December 2012 (ECJ, 2011). This ruling included the cost of purchasing annuities, an annual income that can be bought using a pension fund, and would have immediately affected pensioners purchasing annuities from that date, most of whom would have been able to access their funds from age 50 or 55, i.e. mainly cohorts from the 1950s and 1960s. Whilst this ruling is unlikely to have a significant impact on joint annuity rates, the introduction of unisex annuity rates for single annuities is expected to have a relatively positive impact for women who retire after that date. For example, according to the Financial Times (FT), prevailing annuity rates in June 2012 would have resulted in a pension fund of £100,000 providing a level joint life annuity at age 65, without a guarantee, of £5,213 per annum for men compared with £5,298 per annum for women, in both cases after tax-free cash had been taken, a difference of approximately one and a half per cent (FT, 2012). However, the corresponding rates for single life annuities were £5,757 per annum and £5,551 respectively, a difference of over 3.5 per cent. This equalisation move will especially benefit women cohorts from the 1950s and after.

Equalisation of annuity rates is likely to impact a large number of people to some degree. Individuals who have contributed to a defined contribution pension scheme with their employers or to a personal pension scheme will typically use the funds they have accumulated at retirement to purchase an annuity, to convert the funds into an income in retirement. Investors usually have the choice of converting all of their accumulated funds, or taking a tax-free cash lump sum, and using the remaining funds to purchase an annuity. The amount of income that each £1 of funds translate to at the time the annuity is purchased depends on a number of factors, including the individual's age, medical history and prevailing annuity rates, which are largely determined by long-term expected yields on gilts. In addition to generally accumulating smaller funds than men, under legislation prior to the equalisation of annuity rates in December 2012, women typically achieved lower levels of income holding all other factors equal, to allow for a longer expected period of payment of their pensions (Sargeant, 2009). Women retiring after 21 December 2012 will

therefore no longer be relatively disadvantaged compared with men, from an annual annuity income perspective. Indeed, with women generally expected to live longer than men, women will be expected to receive more on average overall. Research carried out by the Association of British Insurers (ABI) in 2009 (ABI, 2009) indicated that in 2008 about 450,000 annuities were bought in the UK; there were over 7.3 million members with personal pensions in 2009-2010 (HMRC, 2011). In 2008, a survey carried out by the ABI, showed that 64 per cent of annuities sold by volume were single life, with only 36 per cent including a contingent spousal pension (Gunawardena *et al*, 2008).

The extent of the impact of these changes however, is not yet clear, especially with regards to how insurance companies will spread the cost of this equalisation across their products, and customer base. Whilst relative to men, women will be at less of a disadvantage regarding the annual levels of income they will be able to derive from their pension plans, the long-term effect of the ECJ ruling on annuity rates used by insurance companies is not yet known.

2.1.3.3 Auto-enrolment and younger cohorts

Policy reforms affecting pension provision, particularly for the youngest cohorts, include the far-reaching reforms laying in the introduction of auto-enrolment in the Pensions Act 2008 and which was implemented in the UK in 2012. As already mentioned in Section 1.1, the phased introduction of auto-enrolment began in 2012 and it is intended to address the low private pension participation rates of the UK workforce. The biggest impact will be on those members of the workforce in the early part of their working lives, or those yet to begin working, such as the early millennials and cohorts following them. Auto-enrolment will make it compulsory for employees to be enrolled into their employer pension arrangements if they were not already in one, and if individuals do not wish to be enrolled in these schemes, they have to notify their employers accordingly. Those who choose to opt-out will be re-enrolled every three years, and will have to opt-out each time if they wish to continue their employment without participating in their employer's pension scheme (DWP, 2013a). Large employers have been required to comply with auto-enrolment requirements since October 2012, although smaller employers have had the option of delaying their staging date, the date from which auto-enrolment duties come into force

(The Pensions Regulator, 2014b). The DWP estimates that as at 2016, the impact of auto-enrolment had resulted in an increase of 52 percent in the number of younger people aged 22-29 enrolled in a pension scheme, it is clear that from a cohort perspective, it is especially private pension participation levels of younger workers which have benefited from auto-enrolment (DWP, 2016).

In addition, a new savings vehicle, the NEST was established in July 2010 by the National Employment Savings Trust Order 2010 (SI 2010/917). Following a 'soft' launch in July 2011, during which employers could volunteer to use NEST to meet their forthcoming auto-enrolment requirements, NEST had a widespread launch to coincide with the introduction of auto-enrolment. The intention is to provide a straightforward low-cost scheme aimed predominantly at employees without access to a workplace pension scheme and who are on low to moderate incomes (where low income is widely defined as 60 per cent of median earnings or lower, and moderate income is defined as income up to 35 per cent beyond the upper threshold of eligibility for Family Credit from the government run Families and Children Study (Vegeris & McKay, 2002). This particular focus on moderate to low earners has arisen due to the opinion held by the government that the pensions market was not working for many low to moderate earners or those working for small firms (DWP, 2013c). This is supported by surveys which show that the proportion of people lacking financial resources for later life decreased as household income increased (MacLeod *et al*, 2012). Additionally, it is believed that participation in auto-enrolment will benefit from an inclination for inertia, with many people automatically remaining enrolled. This is expected to have the reverse effect of inertia prior to the introduction of auto-enrolment, which was associated with a lack of private pension participation, whereby even when they were aware of the benefits or need to do so, there was a lack of drive by many people to start (Johnson *et al*, 2010).

It is intended that automatic enrolment, introduced by the Pensions Act 2008 in the UK from 2012, will lead to increased participation in pension schemes, and as such, some of the discrepancies caused by low scheme take up, particularly amongst employees who are the most disinclined to join in the first place, will be somewhat mitigated. Amongst the employees most likely to be impacted are women who otherwise would not have had

access to employer pension contributions, although, it still fails to address the gendered differences arising from continued differences in women's roles and employment (Foster, 2014). A greater impact is also likely to be felt by those who are at least 15 years from retirement as they are least likely to opt out of auto-enrolment, and will also benefit from a longer period of investment for their funds (PPI, 2014a).

In 2010, approximately 8.3 million employees were members of occupational pension schemes, down from a peak in 1967 of 12.2 million (ONS, 2012d). However, the potential numbers of people opting-out of occupational scheme membership may negatively affect the effectiveness of this new legislation, with only 35 per cent of people believing that pensions were the best savings route for retirement in the NAPF 2011 annual confidence survey (NAPF, 2011a). Furthermore, in October 2011, a nationally representative poll of eligible employees carried for the NAPF by the polling organisation Populus found that more than a quarter (27 per cent) of respondents were considering opting out of auto-enrolment (NAPF, 2011c), and a further 15 per cent were unsure about what position they would take. The position had declined slightly by the following year, when a further NAPF survey showed that one in three of eligible respondents indicated that they would opt-out of auto-enrolment (NAPF, 2012). The most common reason provided was a lack of affordability (48 per cent), although large numbers of respondents also indicated a lack of trust in the Government and also in the pensions industry as a whole (29 and 26 per cent respectively) (ibid).

Currently, employers required to auto-enrol their employees must pay a minimum of 1 per cent of qualifying earnings on behalf of those employees who are members of their pension schemes (The Pensions Regulator, 2017). However, the subsequent upwards adjustment of the threshold earnings applying to auto-enrolment in the Pensions Bill 2011 may reduce that effect slightly (DWP, 2011f). By 2018, all employers will be required to make payments on behalf of their pension scheme members of at least 2 per cent of qualifying earnings (NEST, 2014a). By 2019, the level of contributions payable by employees and employers jointly will be 8 per cent of salary. These compulsory employer contributions may lead to an upward trend in the numbers of people who perceive pensions as a more valuable savings option for retirement in the future.

Finally, there will be little or no effect on cohorts already retired, i.e. those who have reached the SPA by the time auto-enrolment comes into effect, as whatever pension accrual they will be entitled to for their retirement, will have already taken place. Although auto-enrolment is intended to address the issue of take-up amongst those currently most disinclined to do so, particularly women, there remains the concern that older women will still be at a higher risk of inadequate financial means at retirement, as they will not have many years until retirement in which to make up any retirement funding shortage. The issue of a shorter timeframe in which contributions can be made is compounded by the shorter timescale in which these contributions may be invested and potentially grow over time. Indeed, this will be the case for any worker approaching retirement age, for whom the effect of auto-enrolment is likely to be somewhat restricted, especially given the lack of expected uptake by those aged over 50 (Legal & General, 2011). For example, current levels of occupational scheme participation amongst those aged over 55 (30 per cent of the population) are significantly lower than those in the 45-54 cohort (49 per cent) (DWP, 2011c), and it is unlikely that employees in this older working age cohort will significantly change their attitudes towards participating in occupation pension schemes.

It is also important to bear in mind the changing environment in which respondents find themselves, as changes to the general economic climate are likely to cause behavioural change with regards to managing personal finances. The UK has experienced an economic downturn since 2008, and this will have had an impact on the affordability of pension savings. The impact of the recession in the UK in recent years is discussed further in Section 2.2.4.1. Whilst the level of pension contributions is not a specific focus of this thesis, the adequacy of private pension is dictated by sufficient levels of accumulated retirement benefits, and the current maximum level of required contributions for employers and employees combined under auto-enrolment rules is 8 per cent of relevant earnings, well below previously calculated minima recommended for adequate retirement funding (Pensions Commission, 2005; Bryne *et al*, 2007).

2.1.3.4 Other recent pensions legislation

Although the introduction of auto-enrolment is an important new change to the UK pension legislative framework, there have been other notable changes to pensions legislation in recent years, which may affect the forms, levels and timing of receipt of pensions that individuals receive in retirement, further solidifying the cohort differences in pension outcomes which have emerged over time. Income drawdown allows individuals to take income from their pension funds whilst leaving the remainder of their fund invested. Prior to 2011, individuals were forced to purchase an annuity with the remainder of their funds when they reached 75 years of age; this affected particularly those born in the 1930s, but also those who were approaching the 75, due to the impact on their decisions around how and when to make income drawdowns. The introduction on new rules of income drawdown by the government on 6 April 2011 means that there is now much more flexibility in terms of the amounts of withdrawal permitted, depending on the amount of secured pension the individual is already in receipt of, the withdrawal of the restriction of the upper age limit for drawdowns, and entitles individuals to take tax-free cash lump sums after age 75 (Financial Conduct Authority, 2013). The increased flexibility of income drawdown rules is likely to make these plans more attractive to investors. However, as the level of funds required for individuals to use income drawdown is usually quite substantial, often around £100,000, and usually requires an above average level of financial literacy, this legislation is unlikely to affect significant numbers of the population.

In the March 2014 Budget, the Chancellor introduced even more wide-ranging changes to the rules surrounding access to pension funds (HM Treasury, 2014a). Prior to the Budget 2014, only pensioners whose entire pension savings totalled less than £18,000 were able to take all their monies as a lump sum, although money could only be withdrawn from pension plans worth £2,000 or less. From April 2015, this new 'Pensions Freedom' means anyone aged over 55 (i.e. immediately affecting those cohorts born in 1960 or before) will be able to draw any or all of their money from their pension funds from self-invested pensions, personal pensions and defined contribution workplace pensions, regardless of individual plan worth and total pension savings. (The new rules do not apply to occupational pension schemes, which are defined benefit in nature.) In practice, this means that it is likely to be easier to avoid purchasing annuities, which most pension savers

have been directed towards prior to these changes in legislation. Transition rules from 19 March 2014 to April 2015 phase in these changes.

This may be particularly relevant and attractive for pension savers with smaller pension pots, especially the self-employed, women and those who have chequered work histories. Individuals with such characteristics will now be able to access a lump sum rather than being forced to purchase an annuity for a relatively small pension income, especially with the currently low prevailing annuity rates on the market. Private pension wealth, however, is not the only source of private financial provision for older people; the 2008/10 Wealth and Assets Survey, showed that although private pension wealth and property wealth constituted the bulk of wealth for 55-64 year olds (80 per cent), other financial savings contributed 11 per cent (with the balance held in personal physical possessions) (Cox, 2013). The next section will discuss the more recent legislative changes that have impacted savings accounts in the UK.

2.1.4 **Recent changes in savings legislation and impacts on cohorts**

More savers have been benefiting from the introduction of savings vehicles and also entitled to more security with regards to their savings accounts with the introduction of junior ISA accounts, a significant increase to general ISA limits in the 2010/11 tax year and also the improvement to the level of protection afforded to savers with deposit accounts.

2.1.4.1 Access to ISAs as a savings vehicle for wealth in retirement

An alternative to making savings in personal pensions might be to use ISAs. There are tax savings to be made in both ISAs as well as pension plans, although these savings differ primarily in the timing of the taxation of these products. In the tax year commencing 6 April 1999, savers could contribute up to a ceiling of £7,000 in ISAs. This limit remained in place until the tax year ending 5 April 2008. A small increase was introduced for 2008/09 (to £7,200) and no change was implemented for 2009/10 (except for older savers who saw their limit increased to £10,200). From 6 April 2010, however, all eligible savers were able

to contribute up to £10,200 into their ISAs, and this cap has increased annually by inflation since this date, rounded to the nearest £120 (Timms, 2010). On 1 July 2014, the Chancellor introduced the NISA (the "New ISA"), intended to be a simpler product than its predecessor, with a substantially increased limit of £15,000 for the 2014/15 tax year, and removing the more restrictive limit on cash that could be held in an ISA (HM Treasury, 2014a). There have since been further proposals for a 'Lifetime ISA', which is specifically designed to appeal to younger cohorts of the population who have competing priorities for their savings. This product, into which there will be a £1 in £4 savings match by the government, was launched by a limited number of providers in 2017 (FT, 2017), and gives savers the option of either saving for their first house purchase or keeping the savings for use in their old age (gov.uk, 2016b).

2.1.4.2 Savings interest rates and Regulatory changes to UK personal bank accounts and savings security

Retirement wealth comes from a variety of sources (Figure 2.1) and this can include non-pension savings. Historically, savings interest provided a good low risk real rate of growth on cash assets in the period from the mid-1980s to early 2000s (see Appendix 2, Table A2.2a), and this would have benefits older cohorts including both Late Baby Boomers and GenXers, who would have been of working age at this time. However, rates since the economic downturn in 2008 have led to typical negative real rates of return on savings accounts and would have impacted cohorts in different ways. Firstly, older cohorts who were more likely to have accumulated wealth (i.e. GenXers and older cohorts) would have found cash savings less attractive than previously. Younger cohorts (especially those who were born in the 1980s or later as they would have entered the workplace at a time when real interest rates on savings had started on a long-term negative trend), will have either been dissuaded from making these savings, or would have accrued very little real return on their savings at this early pivotal stage of their savings lifecourse.

From a regulatory perspective, 2007 saw the start of a period of instability for the UK banking sector, with the bail out of Northern Rock in the UK in 2007 following a run on Northern Rock deposits (HM Treasury, 2012) due to the concerns of savers as to the security of their bank savings. This was quickly followed by further difficulties faced by a

banking sectors leading to the nationalisation and part-nationalisation of a number of other banks (HM Treasury, 2012). With more than two-thirds of respondents in a survey carried out on attitudes towards pensions indicated that they were risk averse (Clery *et al*, 2010), it was essential for safeguards to be put in place to avoid future concerns about where to hold savings deposits. From October 2007, maximum compensation limits increased from £31,700 to £50,000 in October 2008, and from 31 December 2010, the deposit compensation limit for UK regulated personal accounts increased from £50,000 to £85,000 per person, per authorised firm (aligning the savings guarantee in the UK with the €100,000 deposit compensation limit that was in force in the European Economic Area at the time (Financial Services Authority (FSA), 2012

This means that if a UK-regulated financial services firm is unable, or unlikely to be able, to pay customers the monies deposited with it, the FSCS will ensure that the monies were made available. This move has ensured a greater level of security for individuals choosing to keep monies within bank savings accounts, or for individuals looking to place deposits, such as tax-free cash lump sums from pension accounts, or even the full net value of their pensions, should they be eligible and choose to cash in their pensions.

Section 2.2 now explores other external factors that are associated with pension decision making and how they may relate to policy development, starting with the changes to private pensions behaviour associated with the changing population structure in the UK.

2.2 External factors associated with pensions decision making and policy development

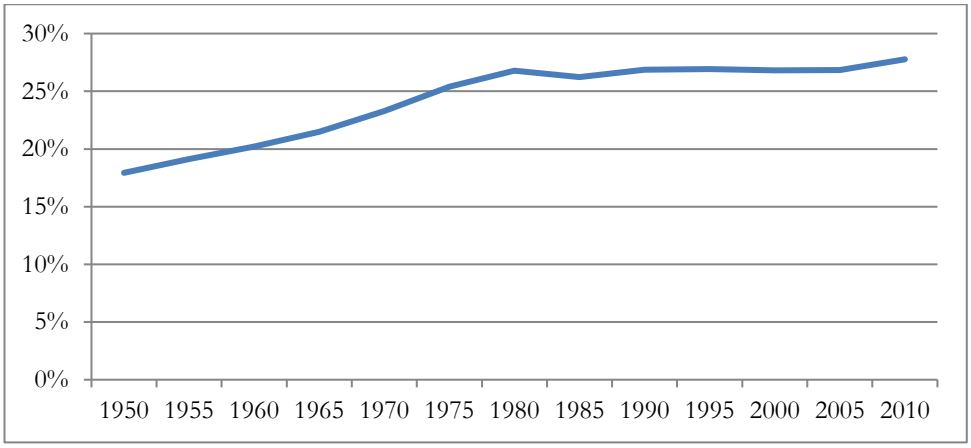
This section will explore in turn, external factors such as demographic trends at the macro-level, institutions, exogenous economic and demographic factors which also impact pension policy and reform (World Bank, 2006), and also have an effect on the reaction by the population, or electorate, to these changes. This includes the constant evolution of general life course trends in the UK, which have seen increasingly heterogeneity in

educational and labour force and working practices and changing household composition and fertility and relationship decisions. This has led to a move away from the more traditional breadwinner employed for long service periods for the older cohorts such as those born before or during the 1940s, compared with the more diverse range of work and family outcomes seen by younger cohorts born in the latter part of the 20th century. The impact of changing institutional influences such as the incorporation of European law affected particularly cohorts newly in the workplace and yet to enter the workplace when the UK joined the European community. Cohorts born in the 1940s and 1950s bore the direct effect of economic shifts at the national and international level during the recession and boom of the 1970s and 1980s whereas Early Millennials have only experienced a period of far lower economic growth since the recession in the first past of this century. To this end, these factors have been incorporated in the development of the conceptual framework for this research (see Figure 1.2), and the results will be discussed taking into account these influences.

2.2.1 **Changing population structure**

As mentioned in Section 1.1, the UK is experiencing significant changes to its population structure, with rising life expectancy and falling birth rates. State pension benefits are funded on a PAYG system (see Section 1.1). This means that the cost of funding these benefits is dependent upon both the total level of benefits payable to current pensioners, as well as the number of people of working age who are able to contribute towards the funding of these payments. State pensions have been in existence in the UK since the early 1900s when the government led by Herbert Asquith introduced the first state pension (Gilbert, 1966), and these state pensions have become more substantial and universal over time (Bozio *et al*, 2010). When this increase in the level of state pension benefits is taken into consideration alongside the notable changes to the corresponding age structure of the UK population over time, this has significant consequences on how pensions are funded through public expenditure. Figure 2.2a shows the historical old age dependency ratios for the UK population (as defined in page 2, Chapter 1) since 1950. Here, the old age dependency ratio in 2010 of 27.8 per 100 was almost a third higher than the old age dependency ratio in 1965 of 21.5 per 100, when those reaching 65 in 2010 would have been in the early years of their working life, at age 20 (United Nations, Department of Economic and Social Affairs, 2011).

Figure 2.2a Old age dependency ratio for the UK from 1950-2010



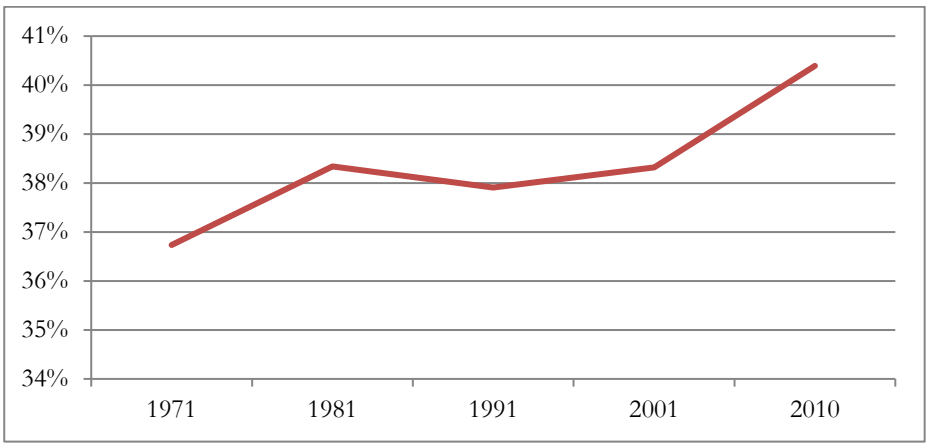
Source: United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision, CD-ROM Edition.

If we consider people reaching state retirement age in 2010 (60 for women, 65 for men), the old age dependency ratios since they first reached the working age of 16 has changed considerably over time. This increasing dependency ratio, which is expected to continue to increase (Chapter 1), has led to a perceived increasing burden on the working population to fund state PAYG benefits and has led to increasing focus on individuals to supplement their retirement provision through privately funded means. These may be through an employer or via self-funding, and several of these measures, such as the widespread availability of personal pensions and pension protection measured introduced for occupational pensions have been outlined in Section 2.1.2.

The cost of funding state pensions on a PAYG system is more accurately depicted, however, using a dependency ratio of the population to be supported (those over state retirement age) to the actual population actively in the workplace, and subject to national insurance contributions, i.e. the share of the population aged under the SPA. Figure 2.2b shows this alternative definition of the dependency ratio in the period to 2010, using the SPAs that were applicable at the time (65 for men and 60 for women). As with Figure 2.2a, this ratio (expressed as a percentage of the active labour force) has increased over the last few decades, and shows the increasing burden of funding state pensions that is falling upon the economically active workforce under the SPA. This definition of dependency ratio in

Figure 2.2b could be considered a more realistic measure as it considers those actually in the workplace, rather than the broader population eligible to work.

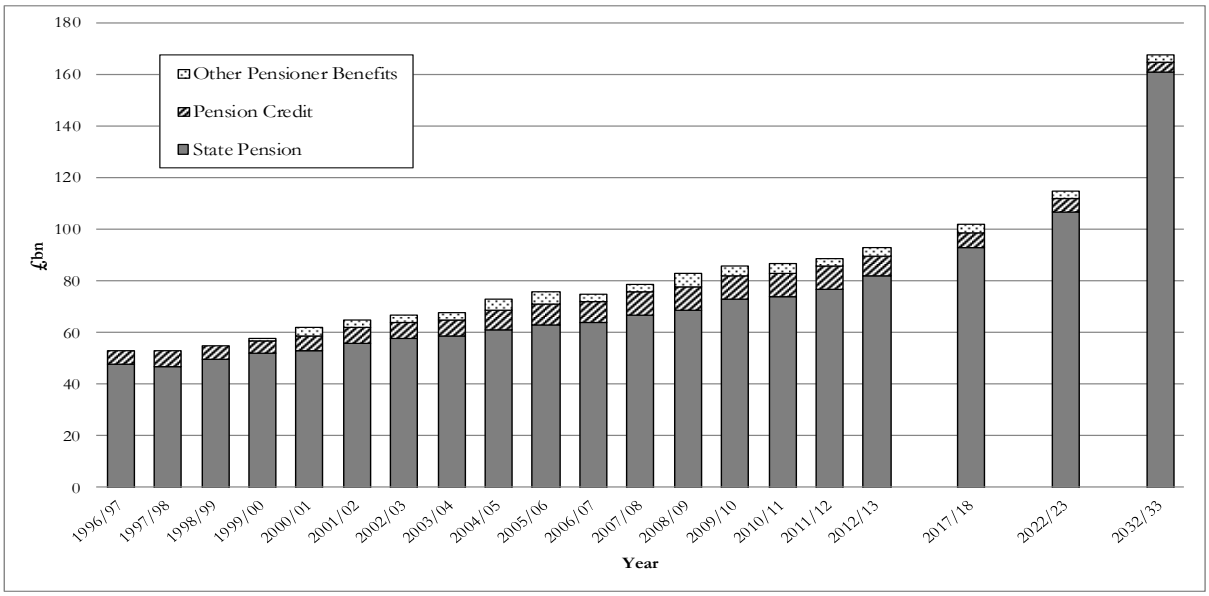
Figure 2.2b Dependency ratio of the population over state pension age vs active labour force (under SPA) for the UK from 1971-2010



Source ONS (2011m). Population Estimates for UK, England and Wales, Scotland and Northern Ireland, Population Estimates Time series 1971 to Current Year; ONS (2015i). UK Labour Market, March 2015.

Furthermore, the policy challenge of providing state pension benefits is projected to continue growing. Figure 2.2c below shows the historical costs of providing state pension benefits in the UK since 1996/97, and the government projections of future costs from 2017/18 onwards (which include the provision for the triple guarantee for BSP and the new proposed flat rate state pension, as well as SPA adjustments in line with the Government Actuary population projects of life expectancy for those decades).

Figure 2.2c Cost of providing state pension benefits in the UK (£bn) from 1996/97 to 2032/3 (with projections from 2017/8 onwards)



Source: DWP (2014d), Social security expenditure in the United Kingdom, including Scotland. ; PPI (2015a), Pension Facts

It is worth noting that despite the increasing cost of providing state pension benefits as a proportion of the Gross Domestic Product (GDP), the burden on the UK population is relatively small compared with other developed countries (Table 2.2a). For example, the cost of providing UK state pension benefits has been consistently below the OECD average. Whilst countries such as Italy and Japan have a more pronounced aging population, the cost of state pension benefits in the UK is less than half the cost as a percentage of GDP compared with France, a country with a similar age structure (IndexMundi.com, 2018) since the 1990s (OECD, 2013a).

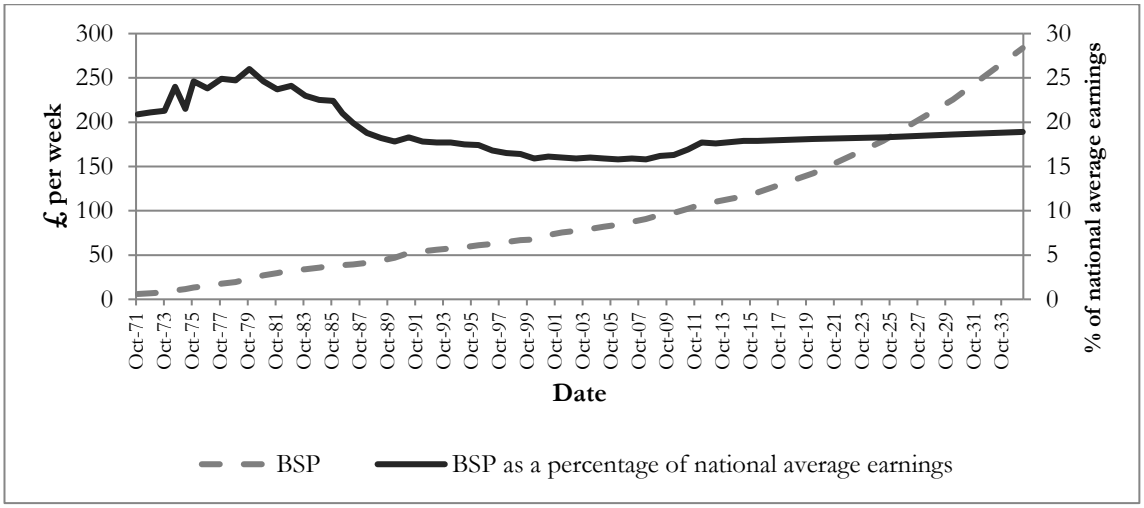
Table 2.2a Cost of providing state pension benefits as a percentage of GDP – selected OECD countries in 1990-2009

Country	Year				
	1990	**1995**	**2000**	**2005**	**2009**
Australia	3.0	3.6	3.8	3.3	3.5
France	10.6	12	11.8	12.4	13.7
Germany	9.7	10.5	11.1	11.4	11.3
Italy	10.1	11.3	13.5	13.9	15.4
Japan	4.8	6.1	7.3	8.7	10.2
Netherlands	6.7	5.8	5.0	5.0	5.1
United Kingdom	**4.8**	**5.4**	**5.3**	**5.6**	**6.2**
United States	6.1	6.3	5.9	6.0	6.8
OECD average	**6.1**	**6.7**	**6.9**	**7.0**	**7.8**

Source: OECD (2013b), Pensions at a Glance 2013

Despite this relatively 'low' cost, the value of the BSP in the UK has fallen since the 1970s and 1980s (see Figure 2.2d), during which it reached a high of 26 per cent of average earnings compared with around 16 per cent in the period from 2000-2010. Recent projections show that the BSP is expected to increase proportionately in the future, but remain below 20 per cent of national average earnings (PPI, 2015a). As such, if individuals are to achieve the adequate threshold retirement incomes as a proportion of pre-retirement earnings, it is increasingly important to consider private pension savings.

Figure 2.2d Full Basic State Pension from 1971-2035 as a proportion of average earnings in the UK [5]



Source: DWP (2012e), The Annual Abstract of Statistics for Benefits, National Insurance contributions, and Indices of Prices and Earnings: 2012 Edition; PPI (2015), Pension Facts.

Finally, it is important to consider the actual consequences and burden placed on the state to provide for elderly people. Dependency ratios are a theoretical construct based on those of non-working and of working age; in reality, many people cease to work before they reach the SPA, and increasingly others continue to work beyond the SPA (this is discussed in more detail in Section 3.1.1). Working patterns also vary, and how people participate in the workplace has changed over time, for example, seasonal working, zero-hours contracts, part-time contracts are all more common place. Part-time work has increased significantly following the 2008-2009 recession, at the expense of full-time working (ONS, 2011f). These changes affect men and women of different socio-economic characteristics and ages to differing extents. For example, zero-hours contracts, which have recently become more common, are more likely to be undertaken by women, those in full-time education, or those in the youngest or oldest age groups (ONS, 2015b). A dependency ratio does not in itself reflect the extent to which these variations in work patterns might exist. Therefore,

[5] Note that these figures are based on the old BSP. With the single tier pension, the revised long-term expectation is that state pension will be worth approximately 24-25% of national average earnings from 2016-2035 (PPI, 2017d).

patterns of participation in the workplace across ages and gender, and different levels of employment should also be considered alongside other factors such as the cost of caring for the population, which would likely increase if the proportion of the population acting as informal carers was to reduce due to an increase in the overall labour force participation, particularly among females (Falkingham, 1989). The changing ability of households to provide care to dependent persons in the context of new social risks is now explored in the next section.

2.2.2 Post-industrial transition in the UK: New Social Risks affecting pension policy development

What may be termed as new social risks are brought about by economic and demographic developments (Taylor-Gooby, 2004). Key identified risks include higher levels of job insecurity for larger parts of society and different age cohorts as different elements of the labour markets transform towards a post-industrial and knowledge-based economy, the changing dependency ratio and changing household compositions along with the reducing capacity of fragmented households to provide 'in-house' care (Bonoli, 2005; Gesano *et al*, 2009). These changing economic and demographic developments are closely tied in to the key socio-economic and demographic characteristics associated with variations in pension decisions, and therefore are likely to affect the long-term trends in pension contribution.

It has been suggested that there is a general social policy consensus towards addressing these risks along the lines of enabling, if not compelling, workplace participation of a number of parties, including benefit claimants, unemployed households and non-working mothers (Daly, 2011). This approach would be complemented by the encouraged involvement of fathers as parents and a recognised need to provide financial assistance for care givers; extended childcare provision for young children alongside work-life balance (Daly, 2011). Despite the move towards this policy consensus, the acknowledgement of these new social risks highlights the limited capacity of welfare systems to deal with them due to financial constraints (Taylor-Gooby, 2013). Furthermore, there are entrenched institutional difficulties in making rapid changes to state welfare arrangements, and these include both cultural and education gaps, which affect the appetite and understanding of the need for change by the general electorate (Pierson, 1996).

In order to understand these new social risks in the context of pension choices in the UK, it is necessary to discuss the changing social developments that have taken place. The sub-section now provides a broad overview of the emergence of new social risks within the UK, together with a broad outline of how these new risks have been affected by the successive welfare regimes, and more specifically, pension regimes that have arisen during this time. A more detailed discussion of specific risks, such as marital status or educational attainment is set out separately in other parts of this chapter.

In the period after the Second World War, demand for state intervention centred on old social risks during a time of traditional trade union politics and traditional breadwinner household models, in relatively secure employment (Taylor-Gooby, 2013). These revolved around health services, and standard education and retirement benefits, often focused at the later stage of the lifecourse. However, the UK transformed in the decades that followed and this post-industrial transition towards a service sector labour market was magnified by the extent of the decline of the manufacturing sector in the 1980s, higher than any other major economy in the OECD (Taylor-Gooby & Larsen, 2004). The transition affected work, family life, access to employment and the associated welfare state reforms which increased social risks for some groups. Specifically, family support was scaled back relative to GDP during this period from the 1980s to 1990s in contrast to provision for older and disabled individuals which increased (Taylor-Gooby & Larsen, 2004). Risk was increased specifically with regards to the pensions of the 1980s which saw a reduction in state related pension accrual, and the encouragement for individuals to take up personal pensions, which proved to be inadequately regulated (and which subsequently led to a number of scandals in the early 1990s (Goode Committee, 1994)). There is a direct correlation between being in the workplace, the level of earnings income, and the propensity of individuals to save (DWP, 2014c). The social risks that arise due to the difficulties in balancing work and family life are well documented. Despite relatively high female work participation in the UK compared with other EU states (Eurostat, 2014), risks due to weak support systems for child and elder care have led to many women opting to work part-time or experience fragmented working patterns over the life course (Taylor-Gooby & Larsen, 2004; Lewis *et al*, 2008). A further new social risk includes low educational attainment in a knowledge society and the potential poverty trap due to lack of access to higher waged opportunities (Taylor-Gooby & Larsen, 2004; Ebbinghaus, 2007).

Finally, additional risks arise over time as a result of the priorities made by successive welfare regimes to the social security available to claimants (Taylor-Gooby & Larsen, 2004; Ebbinghaus, 2007).

Esping-Andersen established a typology of welfare regimes according to three models, namely the liberal, the corporatist-statist and the social democratic model (1990). A general overview of how the UK pension regimes introduced in past decades fit within this typology has already been given in Section 2.1.2. However, these regimes were developed along the lines of the relationship between work and welfare, without due consideration of changing work and social contexts, or the contribution of the family to the work-welfare relationship. In the development of the regime typology established according to the work-welfare relationship, certain groups of individuals were not fully accounted for, namely, those carrying out unpaid work, in the voluntary and family sectors (Lewis, 1992). It has long been established that women have carried the bulk of the burden of these roles (Evandrou & Glaser, 2003), and despite the slow decline of the 'gender contract' in which the traditional male breadwinner role has been challenged (Kohli, 2007) women still often earn less, are more likely to have fragmented working patterns along with this higher burden of care responsibilities (Frericks *et al* 2007, Foster 2012b), with the associated penalties on their pension accumulation. Therefore, in the defining of any pension regime, the differences according to gender and also to the category of economic activity should be made distinct. It follows that problems arising as a result of the emergence of new social risks may be considered gendered, with younger cohorts at a relative advantage compared with older cohorts, due to the changing form and nature of care roles over time. It also means that the discussion of any findings of this thesis must take account of overall state welfare provision especially with regards to gender, with a particular regard to pension regime change. Findings need to be placed in the context of the new social risks that have emerged or existed at the time each regime has taken place and the likely differential impacts on different cohorts.

These transformations pose a serious problem of adequacy of the welfare state in both the UK and the EU more generally (Gesano *et al*, 2009), despite the acknowledgement of the need for social policy to address these social risks. This is partially because these risks for *individuals* are not addressed in part due to the problem of continued familism, in which

family is prioritised over individuals, and therefore does not address the need for individual agency (Daly, 2011). Variations in private pension participation can be expected to exist due to the differential cohort behaviours associated with social change as well as exposure to pension (and wider welfare) regimes.

2.2.3 Institutional context and the political economy of pension reform

Apart from government, other institutions may be stakeholders in the formulation of policy – and their concerns will impact the level of support and effectiveness of the evolution of any pension system in a democratic system such as the UK.

2.2.3.1 UK institutions and pension reform

It has been suggested that the historically decisive nature of policy-making in the UK was made possible due to its majoritarian nature – a liberal institutional framework with effective bi-partisan consensus on privatisation, low taxes, retrenchment in welfare expenditure and workfare programmes (Taylor-Gooby, 2008). Historically, systemic changes to the pension policy framework in the UK (details of which were outlined in Section 2.1.1) were passed with little resistance partly due to the complexity of the pension system and relatively low pension awareness at the time when the reduction in the SERPS benefit was implemented, particularly during the early years of the liberal 1980-2007 regime. Coupled with a long time-lag (15-20 years) for full implementation, the immediate effect of such change was not felt, and made little impact on the palatability of such policy change. Furthermore, immediate differences due to immediate changes such as revaluation were relatively small, with many people having little appreciation of the compound effect over time. The desire to adopt a path of pension reform is not necessarily due to the anticipation of the need to avert future pension crises, but rather, as some commentators have argued (Walker, 1991), for ideological reasons, such as the ascendancy of the neo-liberal ideas of the Thatcher (Bonoli, 2000), and later, Major Governments. Policy making itself can impact the politics of pension policy. An example of institutional impact on policy is the 1986 Social Security Act, which defined a new constituency of private pension holders as new stakeholders in the revised pension framework. Policies that will not be

appreciated generally by stakeholders will be negatively impacted as a result of these individuals also being part of the electorate. The removal of individuals from the PAYG state system is likely to exacerbate possible financial difficulties in the future and make further retrenchment more likely. The devolution of responsibility from the state to the private sector has reinforced the stake that insurance companies and financial institutions have in the pension system (who may be more likely to lead opposition to measures which might reduce their ability to achieve substantial profits in the pensions industry).

In the period from 1979 to 2000, governments had two major impacts on pension provision in the UK (Blake, 2003), which have altered the accessibility and attractiveness of private pensions, and depending on the timing of the changes, affected cohorts to varying degrees. First, they have reduced the cost of providing state pensions by reducing the level of benefits from the state schemes, in moves which have seen the redistributive function and state as guarantor role being reduced substantially (Bozio *et al*, 2010). The reductions in the benefits provided by the state have been introduced in stages, and the more generous original benefits would be enjoyed by older cohorts. Secondly, they have encouraged greater and more effective private sector provision, although the Conservative and Labour Governments have done this in quite different ways. The reforms carried out during the Thatcher-Major Reforms (since 1980) made private supplementary pension arrangements voluntary and encouraged individuals to join personal pension schemes via the use of tax incentives, but the measures did not extend to enforcing constraints on the market which was left to determine the structure and efficiency of these pension plans (Blake, 2003). Although this increased numbers of individuals making private pension contributions, this approach also resulted in personal pension plans that imposed very high front-loaded charges, because customers tended not to be sufficiently competent at assessing and understanding the cost-effectiveness of these retail financial products (Office of Fair Trading, 1997, 1999; Blake, 2000). In contrast, the Blair Reforms (from 1997), took into account this market failure, arising from consumers making poor choices due to a low level of market knowledge, and introduced restrictions stakeholder pensions schemes, forcing through economies of scale and imposing caps on charges (Blake, 2000).

However, this neo-liberal position taken by the Conservative government in the 1980s and further refined by the Labour party from the late 1990s may not remain stable given the

polarisation of different party manifestos that have developed since the 2010 election. Changes to the pension framework in the UK have, to date, been systemic and far reaching. Should further changes be equally decisive and systemic in a different direction with respect to the form, and levels of welfare and mandated private pension provision, this will further reinforce the artificial creation of a typology of cohort experience relating to private pension contributions. This study aims to draw out the existing differences currently found between and within cohorts with respect to their propensity to make private pension contributions, and to investigate the extent of intra- and inter-cohort differences.

In more recent years, the case for only those with sufficient mandatory minimum contributions into a funded pension scheme, with credits given to very low earners, to be provided with a decent basic pension (Blake, 2003), has been answered to some degree with the refinement of the eligibility for and accrual of the UK state pension. The introduction of the pension credit in 2003, the introduction of National Insurance credits, which replaced HRP in 2010, and proposed introduction of a flat rate state pension from 2016 were some measures which went some way to addressing these issues. The phased introduction of auto-enrolment, which began in 2012, has also created a quasi-mandatory contributory pension system to the UK workplace. However, how effective the existing auto-enrolment, which allows the opt-out from retirement savings, will be with regards to the adequacy of the level contributions made by individuals remains unclear. It has been shown that certain characteristics are strongly linked to the propensity of individuals to opt-out of pension schemes (see Section 8.2.1), and some of these characteristics are linked strongly with those least likely to accrue alternative savings. Furthermore, whilst the older cohorts are least likely to be affected by the latest pension reforms, due to the compounding effect over time, the impact on at-risk groups will be most emphatic for the youngest cohorts who have just started out in the workplace.

2.2.3.2 Cohort differences in societal expectations and attitudes towards pension reform

There is a clear divide between the attitudes and behaviour concerning financial planning for later life for individuals aged under 25 years compared with older respondents in a recent survey carried out by the DWP (MacLeod *et al*, 2012). How individuals choose to make financial provision for their retirement are strongly affected by their attitudes towards retirement savings, which will include how much priority they place on savings for retirement compared with other forms of spending. However, the needs within different age groups themselves can be diverse and complex, as shown for example in a qualitative study of young women and their perspectives on pension savings by Foster (2012a). How engaged individuals are with their decision making and perceived ownership of retirement savings decisions are related to their familiarity and perceived level of control relating to the options available to them (Wills & Ross, 2003). Specifically, there exists a lack of clarity and understanding of how pension contributions are linked to individual rational decision-making, and individuals' capacity to make choices and take financial risk (Strauss, 2008). Delayed engagement with the idea of pensions has been found to be associated with the complicated nature of pensions, the cost as well as negative connotations associated with widespread anecdotal stories of pension failure (Thomas *et al*, 2009).

Consequently, the 'easiest' option for individuals could be to not join, or in the post auto-enrolment era, enrolment in a pension scheme as the default option on the minimum levels of contributions as required by legislation or the scheme in question. Whilst a default option of paying into a private pension will go some way to ensuring that individuals have some level of retirement savings, and especially younger cohorts who will be defaulted into pension membership for the bulk of their working life, it has already been established that the minimum contribution levels required under auto-enrolment are unlikely to provide individuals with the post retirement funds that meet their financial expectations or needs (Pensions Commission, 2005; Byrne *et al*, 2007; see Section 2.1.3.3).

Regardless of which pension regime or which cohort experience is being examined, at an individual level, the greatest impediment to having an adequate pension in retirement is

insufficient pension savings made during the working lifetime. It is possible that this could be addressed by considering institutional factors, such as the introduction of measures such as quasi-mandatory pension participation such as auto-enrolment in the UK, and increasing minimum levels of contributions made by individuals and their employers. In late 2014 and early 2015, there were industry wide calls to set up a Retirement Savings Commission or Pensions Commission (NAPF, 2014; Franklin, 2015) alongside a Work & Pensions Committee call for an independent commission (The Work & Pensions Committee, 2015). However, this route needs to be considered in the context of the political economy of pension reform. Whilst the introduction of auto-enrolment was relatively straight forward, there has been more of a reluctance to address the question of whether such enrolment should be mandatory or whether it is adequate; the Pensions Minister, Steve Webb MP, rejected calls for a Pensions Commission in February 2015, citing the diluting effect of a consensus-driven approach where many stakeholders are involved in the decision-making process (Pensions Age, 2015).

Furthermore, the extent to which individuals save will also be influenced by what their expectations are of the level of income they feel they may reasonably need or desire at old age. Whilst a specific minimum level of income required in order to maintain a reasonable standard of living, as perceived by the public, was set at £14,400 per annum in 2010, according to the JRF (Davis *et al*, 2010), this included allowances for expenses which covered items such as bundled telephone and cable television packages, holidays and taxis. Despite an attempt to tailor such amount to different types of household and age groups, this does remain somewhat of a generalisation, as it is quite possible that not all such expenses are likely to be experienced. A further review of minimum income standards in the UK carried out in 2013 suggested that the minimum annualised incomes for single and couple pensioners were £8,592 and £12,545 respectively; as might be expected both these figures are lower than the figures calculated for single persons and couples of working-age (Hirsch, 2013). Furthermore, low income throughout a life course is likely to be related to lower consumption needs and lower expectations of income in retirement, and as such, a lower level of pension may not indicate inadequate retirement saving (Banks *et al*, 2002).

There may also be an effect related to cohort; as baby-boomers (typically defined as being born between 1946 and 1964), for example, will be more accustomed to having more wealth, more accumulated earnings and access to more generous pension schemes than their younger counterparts, and so their expected retirement outcomes may be different to that of baby buster (someone born in the generation following the baby boom) (Hawksworth & Lund, 2011). It has been estimated that a typical baby boomer born in 1963 will be around 25 per cent better off at age 65, inclusive of housing, pension and other financial wealth, than their baby buster counterpart who was born in 1993, relative to average earnings in society at age 65 (Hawksworth & Lund, 2011).

2.2.4 Pension decisions in a changing economy

Whether people choose to, or are able to afford to make, private pension contributions depends not only on the pension policy framework within which they work and operate. External factors such as the economy have an impact, which are not directly linked with any legislation. This section discusses the impact of the economy on the affordability of retirement savings, the perceived attractiveness of investment in pension funds and the cost of converting retirement savings into retirement income.

2.2.4.1 Cohort differences of the UK's economic performance and its impact on the affordability of pension contributions

The recent economic depression and uncertainty in the UK, which started in 2008 and continued through 2009, was expected to be the longest on record according to the National Institute of Economic and Social Research (Kirby, 2011). The economy continued to be troubled for several more years following the recessive period, with GDP dipping towards the end of 2011 (ONS, 2013b). It is highly likely that this precarious economic climate has affected, and will continue to affect, people's financial behaviour at least in the short to medium term, and the expected impact on levels of financial security for later life in longer term of this economic downturn is an area that merits further investigation. In particular, the financial slowdown will have affected people from different cohorts, in different circumstances, differently. A study carried out by the Social Issues Research Centre (SIRC), using a representative national poll conducted by OnePoll on a

sample of 3,800 adults across Britain, shortly after the start of the economic slump had some interesting findings (SIRC, 2009). It showed that there was greater adaptation of savings attitudes and behaviours by younger people (those under the age of 40 years, specifically, Millennials and GenXers) compared with their older counterparts, with higher levels of recognition of the benefits or need to increase savings since the recession began. Regarding pension contributions in particular, a poll carried out as part of this survey showed that despite reservations about the performance and reliability of pension funds, a significant number continued to make pension contributions since the beginning of the recession –especially younger people in full-time work – and significantly more than the proportion who had reduced their contributions or stopped them altogether (SIRC, 2009). This suggests that although older people, such as Late Baby Boomers, but excluding those near the end of their working lives, currently have a higher tendency to make pension contributions (ONS, 2013e), it is possible that the difference between older and younger people will change, especially if these habits persist.

A report by the ONS noted that this recession led to a large drop in the value of contributions paid by employees and individuals, especially to stakeholder and personal pensions (ONS, 2011k). Employer contributions, which dropped in 2007 due to pension scheme surpluses, fell sharply following the onset of the recession in 2008, although they have since recovered (ONS, 2011k). In a survey carried out for the DWP on attitudes towards pensions, Clery *et al* (2010) found that just over half of respondents indicated that they were unable to afford to put money towards their retirement provision at the current time. In 2012, the eighth annual Scottish Widows Pensions Report 2012 indicated that this level had fallen even further, to a historic low, with only 46 per cent saving enough for their retirement (Scottish Widows, 2012). Furthermore, as women generally have lower earnings, and hence lower disposable income, in the first place, they are likely to be even more affected than men due to their lack of ability to make pension contributions, increasing the impact of the gender gap, which is discussed in more detail in Section 3.1.2.

2.2.4.2 Economy and investment performance

The attractiveness of investment into pension funds is also dictated by current market performance. The introduction of widespread personal pensions came at time of attractive pension fund returns. In the 1980s and 1990s, average pension fund returns were well in excess of 10 per cent per annum, achieving approximately an annualised real return of 12 per cent per annum in the 1980s, and 8.5 per cent in the 1990s (see Appendix 2, Table A2.2b). Cohorts of working age during this period, namely those who were born in the 1970s or prior, including Late Baby Boomers, will have benefited the most from these returns, with younger individuals missing out. This compares to a 10-year annualised return from 2000-2009 of only 2.5 per cent per annum.

The cost of investing into pension schemes has been a topic of much interest in recent years. The introduction of increasingly lower caps on fund charges will ensure that individuals realise a higher proportion of their investment returns in the future, particularly compared with contributions made to funds prior to 2001 (Office of Fair Trading (OFT), 2013). This affects especially cohorts, born in the 1970s and prior (i.e. GenXers and older). The most recent restriction on pension fund annual management charges from 1 per cent to 0.75 per cent announced in the 2014 Budget (HM Treasury, 2014a), will improve the returns for savers paying into auto-enrolment schemes. It has been shown that whilst the average annual management fee for pension funds set up in 2012 was 0.51 per cent (OFT, 2013) fees were as high as 2.3 per cent in older pension schemes.

The adequacy too, of pension fund performance, will reflect the different cohort experiences. Cohorts who have started out facing a period of relatively low investment returns, but who experience higher market returns as their pension fund reach more mature levels and have accumulated more pension contributions at the time of high investment returns will be in a much more attractive position than those who face a bear market in the years just prior to retirement.

Finally, the prevailing market conditions also impact on the cost of retirement. For example, the average pension fund fell 17.2 per cent in 2008 (UBS Global Asset

Management, 2012), when the recession took hold. Where retirees are required to purchase an annuity on retirement, this would have a significant impact on the level of income they would be able to purchase. Following the 2014 Budget statement however, it is no longer compulsory for any pensioner reaching 55 after 6 April 2015 to purchase an annuity (HM Treasury, 2014a), although for many this may still be the preferred approach to accessing their retirement savings. The next section discusses how the historical trends in annuity rates have impacted the level of retirement incomes received by different cohorts.

2.2.4.3 Changing annuity rates

How much income an individual receives on retirement can be affected by the annuity rates available to individuals when they choose to convert their funds into annuity income on retirement. Life expectancy has been increasing steadily in the UK for some time. Table 2.2b provides the cohort life expectancies for men and women for selected ages in 2010 and in 2030 for comparison purposes.

Table 2.2b Cohort life expectancies in the UK

Total life expectancy					
Age	Birth year	Men		Women	
		2010	2030	2010	2030
20	1990	87.8	90.9	91.7	94.2
25	1985	87.2	90.2	91.1	93.6
30	1980	86.7	89.7	90.5	93.0
35	1975	86.3	89.1	90.0	92.5
40	1970	85.9	88.8	89.5	92.0
45	1965	85.6	88.4	89.1	91.6
50	1960	85.3	88.1	88.7	91.2
55	1955	85.2	88.0	88.6	91.0
60	1950	85.5	88.1	88.6	90.9
65	1945	86.0	88.4		

Source: ONS (2011a), 2010-based period and cohort life expectancy tables.

For example, men and women who were born in 1950 are currently expected to live to 85.5 and 88.6 years respectively (ONS, 2011a). For a younger cohort such as the 1990 birth cohort, life expectancies at birth have increased to 87.8 and 91.7 years respectively (ONS, 2011a). Future cohorts are projected to continue experience this increasing longevity. That each progressive cohort is expected to survive longer on average means younger cohorts of future pensioners will need to ensure that they have accumulated additional funds. This is because the annuity rates that prevail at the time of their retirement will need to reflect the longer expected payment period for their pension income from these funds. This has been partially addressed by the future SPA increases introduced by the government, but life expectancy is projected to increase at a faster rate than the increases in SPA (ONS, 2012e). Furthermore, annuity rates are affected not only by future life expectancies, but also by prevailing gilt yields. The sustained decline of annuity rates since the financial crisis (McPhail, 2011) is also likely to compound the effect of the reduced levels of retirement provision.

2.3 Chapter summary and key expectations of the impact of macro level determinants on cohorts' pension contribution prospects

This chapter has explored the current pension policy framework, how it evolved and current developments. It has also discussed the societal (external) level factors influencing individual propensities to make private pension contributions, as set out in the conceptual framework. It has set out how the development of pension policy in the UK and the unique lifecourse exposures of different cohorts to the UK pension legislative framework and macro level influences on the pension economy have created specific cohort experiences which could directly affect their pension contribution patterns. These are summarised below.

2.3.1 Late Baby Boomers – expected macro-level determinant effects on pension contributions

- Legislation – Late Baby Boomers have been more likely to become and remain members of occupational pension schemes than their younger counterparts, a

combination of the ***period*** and ***cohort effects*** of the pension environment this cohort experienced as they entered the workplace. However, the timing of benefit equalisation before the period under investigation means that there is an additional ***cohort effect*** on part-timers. Women are more likely to work part-time, and therefore it is these women who will have found it more challenging to access retirement schemes and make private pension contributions until the introduction of such legislation; they may also therefore continue to be, for historic reasons, less likely to be contributing as they progress on with their working lives. Men, who are still less likely to work part-time, will have benefited from the better access to pension schemes when they started work, and are expected to be more likely to make private pension contributions than younger cohorts. They are not likely to be significantly affected by equality legislation relating to part-timers.

- Population structure and new social risks – those born in the first part of the 1960s will have been aged between 35 and 49 during the period chosen for this analysis. Past literature suggests that married men were more likely to be making pension contributions than single men, and married fathers more likely than single fathers (ONS, 2014d). In the case of women, data also shows that married women and mothers less likely to do so than those who were single or childless (*ibid*). An ***age effect*** of the timing of this study will be reflected in that most of these individuals will have already entered partnerships and have had children (at least for the first time) if they were going to do so. The ages of this cohort at the time of the study might be reflected in higher propensities of men to contribute to both private and personal pensions, and correspondingly lower propensities for women, compared with younger cohorts to reflect the expected transition that many from this cohort would have made into marriage and parenthood. Furthermore, the ***cohort effect*** relating to the emergence of new social risks means that a higher proportion of this cohort were likely to be in more traditional breadwinner-type relationships compared with cohorts born after them (Sefton *et al*, 2011). It might therefore be expected that a marked consequence of these effects is a lower propensity of women to make any (private or personal) pension contributions than women of younger cohorts (ibid).
- Institutional change – there has been a clear move towards a more neo-liberal system, with the state's redistributive and guarantor's functions reducing (see also

Section 2.2.3.1), and a shift towards a greater burden of the investment risk on individuals and a shift in expectations of wealth (Hammond *et al,* 2015). Older cohorts such as Late Baby Boomers and those before them will be more likely to assume the membership of more generous pension schemes, expect to fully own their own properties, and other more accumulated wealth and earnings than younger cohorts (Hawksworth & Lund, 2011). The changing economic environment will also be a significant factor on private pension contributions, especially the economic downturn towards the end of the period under investigation, and several expectations may arise in relation to late baby boomers, for men and women alike. Firstly, the economic slump will have impacted this cohort when they would have been in their mid to late 40s, when their savings lifecycle would have been expected to be at a peak. An ***age effect*** of job loss, change, or decreased earnings for example, is likely to have resulted in larger absolute numbers of individuals ceasing both private and personal pension contributions, compared with other cohorts. For those making pension contributions into occupational schemes, where they remained in long-term employment, there would have likely been little impact on their ability to pay into and access a pension scheme. Furthermore, the ***cohort effect*** in terms of differential reactions and adaptation to economic downturns will have likely had a negative impact on this cohort; Late Baby Boomers and GenXers have been found to be less resilient and less willing to recognise the need to increase or continue their savings than their younger Millennial counterparts (see also Section 2.2.4.1).

2.3.2 Members of Generation X– expected macro-level determinant effects on pension contributions

- Legislation – GenXers have been more likely to benefit from the introduction of a range of pension savings vehicles, including personal pension arrangements, open to them for the whole of their working lives. A ***cohort effect*** is that this cohort would have been more likely to have taken up a personal pension arrangement earlier in their working life, and once contributing, will be more inclined to continue making personal pension contributions than their older counterparts. Another expected ***cohort effect*** would be reflected by this cohort having experienced greater gender equality of pension benefits than their older

counterparts, including access for part-timers, from the start of their working lives. This cohort would be expected to continue to make private pension contributions as they progressed in their life courses, and for the duration of this study. This will have benefited women in particular.

- Population structure and new social risks – those born in the first part of the 1970s will have been aged between 25 and 39 during the period chosen for this analysis. An ***age effect*** of the timing of this study will be reflected in that most of these individuals will also have already entered partnerships and had children (at least for the first time) if they were going to do so. Literature suggests that whilst men's marital and fatherhood status are not associated with a significant change to their propensity to make pension savings, for women, there is a recognised pension cost associated with marriage and caring for children (Ginn & Arber, 1996; Evandrou & Glaser, 2003; Sefton *et al*, 2011). For this cohort, therefore, women are less likely to make any pension contributions. The ***cohort effect*** relating to the emergence of new social risks means that a there will be a move away from the traditional breadwinner models towards a more heterogeneous distribution of relationship decisions (see Section 2.2.2), whereby women are more likely to make private and personal pension contributions, although the impact on men making pension contributions is likely to be limited. There will have been some delay in both marriage (ONS, 2012c; see also section 3.1.3) and in the age of first birth for this cohort (Berrington, 2015) and an increasing number opting to remain childless compared with older cohorts (ibid). It has been shown that women have been more likely to cease pension contributions after having children. As a result of delayed marriage and parenthood, and increased childlessness, this may lead to a larger proportion of this cohort of women making pension contributions, for longer, than their older counterparts when they were the same age.
- Economy – for the 1971-1975 cohort, a negative ***age effect*** of the economic downturn may be expected at a time when they would have been approaching their late 30s/ early 40s and the peak of their savings lifecycle. It might be expected that a high proportion of men and women would be making pension contributions, while job losses, job change or reduced income would have a particularly large impact on the contribution patterns of this cohort. However, for those who remained in employment, the effect would be limited as they would have likely

continued with their existing pension arrangements. An additional impact related to ***age*** is that the downturn would have occurred at a time when there would have been more competing financial demands, including starting families or house purchases, again likely to reduce the proportion making pension contributions. Literature suggests that it is Millennials who are most able to adapt to a financial downturn and appreciate the need to save (Zick *et al*, 2012); as with Late Baby Boomers, GenXers, the ***cohort effect*** on men and women, might also be a further potential decrease in the numbers making pension contributions, and especially into personal pension arrangements.

2.3.3 Early Millennials – expected macro-level determinant effects on pension contributions

- Legislation – Early Millennials have been fully exposed to the reduced occupational benefit offerings available to employees compared to their older counterparts, and this is a combination of the ***period*** and ***cohort effects*** of the pension environment this cohort experienced as they entered the workplace. Such effects are likely to have a downward pressure on the proportion from this cohort making private pension contributions. The effects of equalisation, however, are likely to result in a similar positive ***cohort effect*** as for GenXers compared with those from much older cohorts, such as the Late Baby Boomers.
- Population structure and new social risks – those born in the first part of the 1980s will have been aged between 16 and 29 during the period of this analysis. Being younger is associated with both men and women being less likely to make savings, which is an ***age effect*** for the Early Millennials. Another ***age effect*** of the timing of this study will be reflected in that few of these individuals will have entered partnerships or had children, which has been shown to be associated with reduced levels of women making private and personal pension contributions; and therefore, the 'pension penalty' of having younger children will not generally apply to women among Early Millennials (Evandrou & Glaser, 2003).The ***cohort effect*** relating to the emergence of new social risks means that a higher proportion of Early Millennials were likely to remain single longer (ONS, 2012c; ONS, 2015h). For those who entered partnerships, a larger proportion would be expected to cohabit, and this includes both those who choose not to marry and those who cohabit

before marriage. For women, this may mean that more from this cohort than older cohorts will be in work, single and without children, which existing literature suggests are linked to a higher propensity to make pension contributions (Pensions Commission, 2005). Amongst those who do not have children, single men are less likely than married men to make pensions savings; similarly, men who are lone parents are much less likely to make pension savings than married fathers (ONS, 2014d). It might therefore be expected that a delay in entering partnerships and increased numbers remaining unmarried may be reflected in a decreasing proportion making both private and personal pension contributions.

- At an institutional level, Early Millennials who have entered the workplace will have entered a period where there has been a shift towards a less generous provision and safety net, through moves including the shift towards investment risk on the individual, changing state provision, reduced pension credit limits, and increased state retirement ages (see Section 2.1.2.2; HM Treasury, 2011b; Bozio et al, 2010; Office for Budget Responsibility (OBR), 2016). Many will have entered the labour force just before or around the time of economic depression coupled with the ushering of an era of less secure work patterns (Taylor-Gooby, 2013; ONS, 2011f). This may have a negative overall ***cohort effect*** on the propensity to be making any types of pension contributions, but especially personal pension arrangements, as they may not have had as much financial security to do so. On the other hand, the other ***cohort effect*** of increased adaptation and resilience may lead to a relatively increased propensity for both men and women to make pension contributions compared with their older counterparts when they were the same age.

Chapter 3 follows the macro-level overview of pension policy covered in this chapter with a discussion of the micro-level influences on private pension contribution behaviour, addressing in turn the major demographic factors and then the socio-economic factors that are linked to differences in individual private pension decisions. These micro-level influences and socio-demographic factors will be of importance in differentiating pension contributions within cohorts in particular.

3. Literature Review: Micro-level determinants of propensities to make private pension contributions

This chapter explores in detail micro-level determinants of the variations in individuals' propensity to make private pension contributions (as set out in the conceptual framework in Section 1.2). Within the context of historical pension regimes experienced by different cohorts over time in the UK, the existing UK pension policy framework and macro-level factors such as the economy (see Chapter 2), variations in individuals' likelihoods of making private pension contributions are associated with both demographic and socio-economic characteristics. Where individuals are in their lifecourse, whether they are male or female, their marital status, their existing wealth and earnings, level of education, economic activity and occupational sector, and even their care roles can influence their decision to make provision for their financial needs in later life. Section 3.1 explores the key demographic characteristics from the conceptual framework (see Figure 1.2), and these are outlined below.

- ***Age.*** This ties into the savings life-cycle model (Banks & Rohwedder, 2003), which suggests that younger people are more willing to take risks, but are also more inclined to discount the future than their older counterparts. Furthermore, variation in savings behaviour is not only associated to different ages, but cohorts also appear to demonstrate distinct savings behaviour over time, which may be linked to the timing of their exposures to distinct economic cycles and social and policy developments during the course of their working lives. There is a growing trend over the last several decades in individuals delaying their entry to the workplace. Indeed, in the period from the first quarter of 1992 to the first quarter of 2011, the employment rate of 16-17 year olds halved (ONS, 2011f). Most recently, it has been shown that this trend is continuing with the Higher Education Initial Participation Rate (HEIPR) increasing from 42 to 49 per cent in the period from 2006/07 to 2011/12 (DBIS, 2014). Delaying their entry into the labour market means that people are likely to be delaying the time at which they will be able to either afford pension contributions or be offered access to an occupational pension scheme. The impact which the ageing population has will also vary

depending on each cohort under consideration, as the dependency ratio is expected to increase in future years; the dependency ratio will affect the affordability of the PAYG pension system in the UK (Hammond *et al*, 2015), and this in turn will affect the overall pension policy direction governments choose to take. Other differences in the propensity of men and women to save that are associated with differences in age and cohort are discussed further in Section 3.1.1.

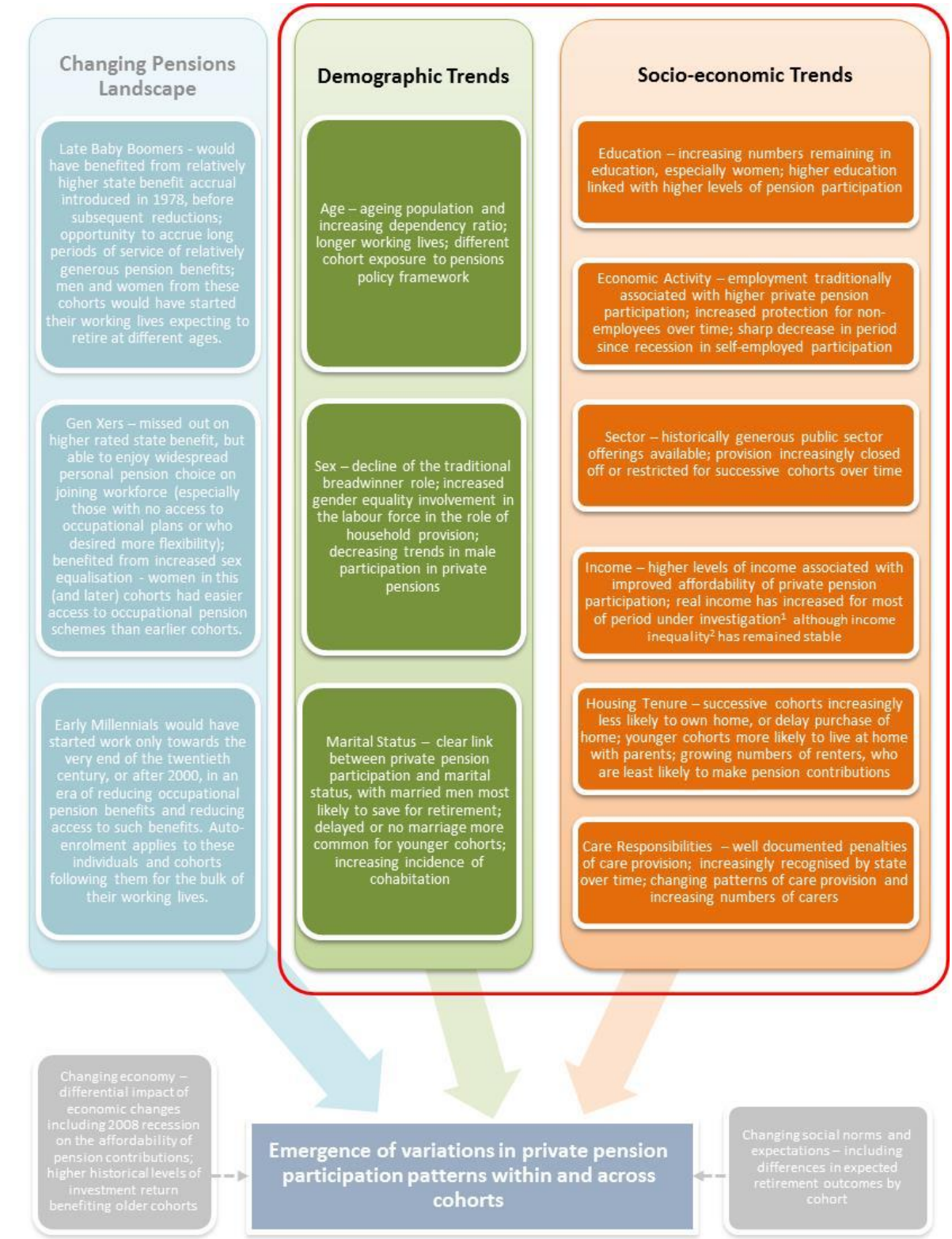
- ***Gender.*** It has long been recognised that there are marked differences in pension savings and outcomes between men and women (Ginn & Arber, 1996; Ginn & Arber 1999, Falkingham & Rake, 2001). This is due to a combination of factors, some of which are touched upon in this section, and reflect the different life courses experienced by men and women (Price, 2007; PPI, 2016a). Furthermore, gender differences in life course decisions have changed over time, as societal changes have taken place, and have led to differing impacts for different cohorts according to the life courses individuals are exposed to. These gender differences in pensions behaviour are discussed in detail in Section 3.1.2.

- ***Relationship status.*** There is a marked difference between the proportions of people who are in relationships making pensions savings compared with those who are single, and this is reflected in both occupational and personal pensions (Price & Ginn, 2003, Clark & Strauss, 2008). At a cohort level, it is worth noting how the proportion of persons who have never married has increased for men and women (ONS, 2015h). Marriages are taking place at older ages; with an almost 8-year increase in the mean age at marriage for both men and women over the last forty years (ONS, 2017b). A further example of the inter-cohort differences emerging are shown in divorce statistics published by the ONS (2011), which show an increase in the proportions of those who were ever divorced by age 50 amongst both men and women; for men, 21.6 per cent of 1940 birth cohort were divorced by age 50, for the 1950 and 1960 cohorts, these were 27.8 and 29.0 per cent respectively. For women, the corresponding figures were 20.6, 27.7 and 30.2 percent. It would follow that the propensity to make private pension contributions may vary according to the relationship status of individuals, and by extension their household composition, with respect to the financial demands or the responsibilities these different statuses entail.

Differences in socio-economic characteristics are also associated with people's retirement savings decisions. Participation in private pension schemes depends on individuals' ability to making contributions. Firstly, the level of earnings income, at the individual and household level, is likely to influence an individual's decision regarding pensions. This was not analysed specifically in this study as it has already been shown in past studies and official statistical figures that there is a direct link between the levels of earnings and the likelihood of pension participation (ONS, 2014b). However, in this thesis, income will be added as an additional variable after the models are run to demonstrate the level of variance it explains. Alternative sources of wealth, such as housing tenure, may also influence their private pension decisions (ONS, 2014c). In addition, caring responsibilities (children or dependent adults) may also affect private pension contributions in terms of budgetary considerations, including the impact on employment and income, along with needs to plan for the future (Arksey *et al*, 2005), albeit these may be with differing impacts and will therefore be investigated separately in the analysis carried out later in the thesis.

A discussion of these socio-economic characteristics and influences on decisions relating to private pension contributions is set out in Section 3.2. The key demographic and socio-economic determinants on the propensities of individuals to make private pension contributions within the conceptual framework introduced in Section 1.2. are illustrated in Figure 3 below, followed by a brief outline of each of these characteristics and how these impact cohorts. These factors will then be discussed in turn over the rest of the chapter.

Figure 3 Micro-level influences on individuals' private pension decision-making process



Source: Author's own interpretation, adapted from the World Bank (2004) three-pillar system for provision of old-age income security and Holzmann & Hinz (2005) subsequent extension to the World Bank model

- ***Educational attainment.*** The level of educational attainment reached by individuals along with their economic activity will influence whether they have access to, or choose to make, private pension contributions, as shown in previous studies. For example, the ONS showed a significant link between the levels of household private pension wealth and the level of educational attainment for the household head (ONS, 2009). It has been shown that for all those cohorts born after 1961, women are more likely to have a degree level or above qualification compared to men, however, amongst those aged 50-64 in 2011, men educated to at least degree level outnumber women (29.1 percent vs 26.3%) (ONS, 2014g). Further, the level of private pension wealth was shown to be linked strongly to the type of employment, with both men and women in higher managerial or professional roles managing to accrue much larger private pension funds, although the level of savings achieved by women was lower than for men in all socio-economic groups (ONS, 2009).

- ***Economic activity and sector.*** It has long been evidenced that economic activity and occupation have a strong influence on the accessibility to, and affordability of, occupational or personal pensions (ONS, 2012f). In particular, there are significant variations in the propensity of individuals to pay pension contributions depending on whether they are working full-time or part-time, with part-timers often receiving correspondingly smaller incomes (Price & Ginn, 2003). Figures from the ONS showed that the proportion of part-time workers increased from 23 per cent to 28 per cent of the total working population in the UK from the 1992 to 2012 (ONS, 2017) with women being much more likely to be part-timers for all ages. For example, amongst those aged 50-64 in 2012, which mainly includes the cohorts born in 1950s to early 1960s, there are more than four times as many female part-time employees as male, yet among those aged 25-34, typically Millennials, the ratio is under 3:1, and for those younger still, the ratio reduces even more (ONS, 2017c). Furthermore, for each progressive cohort of those of working age, i.e. aged 16 and over, in 2012, the proportion of both men and women who are self-employed increases (ONS, 2017c). The likelihood of making private contributions is also affected by whether individuals are employees and offered access to occupational pension schemes or whether they are self-employed, with the onus on themselves

to set up their own pension arrangements (ONS, 2013e). Many of these differences have been explored in literature on gendered pension outcomes and the differences in lifecourse experience between men and women (Bridgen & Meyer, 2007). Further, there are variations between public versus private sector workers (historically a higher proportion of female employees are in the public sector, compared with males), for whom the occupational pension offering, if it is available, is often quite different (Meyer & Bridgen, 2011; ONS, 2013e), although the proportion of public sector workers is decreasing in more recent years (from 20.6 per cent in March 2012 to 17.0 percent in March 2017 (ONS, 2017c).

- ***Income.*** There has long been an established link between income and private pension contributions. Typically, earnings follow a 'hump' reaching a peak around 40-49 before reducing slightly in the oldest ages prior to retirement. These differences may be linked to both the changes in educational differences over time as well as the changing composition of the labour market between cohorts in addition to the general upward movement income one might expect of people who have progressed in their careers over their working lives. In April 2010, ONS figures show that full-time male and female employees aged 40-49 (typically born in the 1970s, or GenXers) earnt more than all other cohorts (ONS, 2010). There was also a gender pay gap advantaging men for all cohorts except those aged 22-29, and this pay gap typically increased for older cohorts (ONS, 2010). However, although low earners tend to be less likely to make private pension contributions, the role of private pensions needs to be considered in the context of the overall pension system, in which the state provides a basic level of protection. In 2016/17, the New State Pension of £155.65[6] per week (in 2016/17) is equivalent to a replacement income of over 60% for workers on a full-time (35 hours per week) national minimum wage of £7.20[7] per hour in the case of a full National Insurance contribution record (or those with HRP or similar credit). In a government's

[6] Gov.uk (2016). *The new State Pension*. Retrieved 10 August, 2016, from https://www.gov.uk/new-state-pension/how-its-calculated

[7] Gov.uk (2016). *National Minimum Wage and National Living Wage rates*. Retrieved 10 August 2016, from https://www.gov.uk/national-minimum-wage-rates.

recent report on the workplace pension participation released in 2015, the close relationship between occupational pension participation and employee earnings was illustrated clearly (DWP, 2015). The highest earners (earning over £40,000 per annum) showed the highest levels of occupational pension participation for both the public and private sectors, with each lower band of earnings associated with a decreasing level of participation. It is important to note that the level of occupational scheme participation had been at steady and high levels (indeed increasing for lower earnings) amongst public sector workers in the decade to 2014. However, for private sector workers, a falling trend of pension participation was reflected, especially amongst lower earners, which reversed sharply since the introduction of auto-enrolment, leading to higher occupational pension participation levels in 2014 than seen in the 10 years previously (DWP, 2015).

- ***Total wealth.*** Retirement savings cannot be considered without also considering other forms of wealth accumulated by individuals, which will include for example, house ownership/tenure status and liquid savings. High overall household wealth is linked to higher private pension wealth, for instance the ONS showed that combined private pension and property wealth accounted for approximately three quarters of household wealth (ONS, 2014c). Drawing on the 2010/2012 Wealth and Assets Survey, this report showed that private pension wealth was the largest contributor to overall wealth for the top two wealth deciles, but physical wealth (as defined for the Wealth and Assets Survey series[8]) made the largest contribution for the lowest three deciles. By contrast, net property wealth contributed the most towards overall household wealth for the other deciles (ONS, 2014c). Individuals born in the 1980s were more than one and a half times as like as individuals born in the 1960s to have no property wealth at all (ONS, 2014c); this is not surprising as the average age of a first-time buyer is in the early 30s (at 31.4 years in 2016 (ONS,

[8] ONS (2014). *Wealth in Great Britain Wave 3, 2010-2012*. Retrieved 1 September 2017, from http://webarchive.nationalarchives.gov.uk/20160109101033/http://www.ons.gov.uk/ons/dcp171776_362809.pdf. Definition of 'physical wealth' to include respondent estimates of the value of the contents of their main residence and any property which the household owns other than the main residence plus collectables, valuables, vehicles and personalised number plates, but excluding business assets.

2016c)). Although such patterns do not necessarily imply a lack of property for those in the lowest wealth decile, or indeed full ownership of property in the top decile, nonetheless housing tenure is a useful proxy for 'other wealth'. Most recently, Bryan and Lloyd (2014) showed that renters were much less likely to join a workplace pension scheme, even after controlling for earnings, age and education.

- ***Care responsibilities.*** Past studies have shown that women who have children, especially those with more than one or two children, are less likely to make pension savings, especially personal pension savings, than women without children (Evandrou & Glaser, 2003; Ginn & Arber, 2001). It has been shown that successive cohorts of women are increasingly likely to remain childless, or delay having children (Berrington, 2015). Care responsibilities may also extend to adults who require assistance, whether residing in the same household, or elsewhere. Figures from the 2011 census shows that the proportion of both men and women providing unpaid care has increased amongst cohorts of working age, with those born in 1960 or before (i.e. aged 50-64) about one and half times as likely as those aged 25-29 (i.e. born in the 1960s to early 1980s), although women are more likely to do so at all ages (ONS, 2013a). Providing care for dependants other than children has also been shown to be associated with lower pension savings (Evandrou & Glaser, 2003).

The next two sections of this chapter review existing literature and discuss the relationship between demographic changes and socioeconomic changes respectively and how they may be associated with making private pension contributions.

3.1 Demographic characteristics

Changes to pension policy are often linked to the changing demographic profile of a population. Although the extent to which changes in legislation is driven by changes to the population structure is not always clear, within government consultations, there are frequently clear references to developing policy in light of the challenges perceived to have been raised by demographic pressures (Pensions Commission, 2004 and 2005, DWP, 2011a). This section discusses some of the potential issues for the development of pension

policy and the implications for individuals making pension contributions, caused by demographic changes that have been experienced in the UK, which include changing patterns of work entry and retirement, the changing roles for men and women, and increased heterogeneity in lifecourse patterns for successive cohorts, and that are expected to be seen in the future.

3.1.1 Age effects on cohorts and pensions: changing age at withdrawal from the workplace and timing of retirement

The average age at which older people withdraw from the workplace, and are generally assumed to retire has increased steadily in recent years (ONS, 2011i). However, the trend for the average retirement age actually decreased for men from 1984 until the mid-1990s before increasing again. The net effect therefore, since 1984 is an increase in the average retirement age of only about a year during the period to 2010. In contrast the trend for women has been a steadily increasing retirement age since 1984 until 2010, from around 60.7 years to 62.5 years in 2010 (ONS, 2011a), although the statutory age for retirement for women was lower than for men during this time.

Despite these increasing retirement ages, the need to make financial provision to see out old age has never been more important as each successive cohort of the population are expecting to have longer periods of time in retirement due to increasing longevity. To put this into context, the life expectancy of a male of the average retirement age in 1984, aged 63.7 years, was approximately 15.5 years (ONS, 2011g). At an average retirement age of 64.7 in 2010, a typically newly retired male could expect to live another 21.3 years (ONS, 2011g). For a female typically retiring at the age of 60, the life expectancies in 1984 and 2010 were approximately 21.7 and 26.1 years respectively (ONS, 2011g). Cohorts who have not yet retired may find themselves less well off than they expected to be, as funds have to stretch for longer periods of time, with annuity rates falling not solely due to market pressures, but also due to revised mortality projections (Aquilina *et al*, 2014). For those accessing defined contribution pension savings, the burden may be higher for women than for men; despite the recent equalisation of annuity rates, the introduction of Pensions Freedom means that if women decide against the annuitisation of the retirement

savings, but instead withdraw money from their retirement funds on an ad-hoc basis, their savings will need to last for longer periods of time due to their increased longevity (Franklin, 2014), especially if they retire before or at their SPA. An additional risk arises from the propensity of women to underestimate their life expectancy (Franklin, 2014).

Additionally, the number of people working past the age of 65 is increasing. In March 2011, it was reported that there were 870,000 people in this category, more than doubling in the last decade (ONS, 2011g), and the highest figure recorded since the ONS began collecting this data in 1992. Although this figure may not be a true indication of the levels of older people's desire to continue working; it has been argued that means-tested benefits in the UK provide a disincentive for the poorest to work (OECD, 1998) despite encouragement by the UK government for people to work longer (HM Government, 2009), and research suggesting that older people, i.e. baby boomer generations, do want greater choice in terms of the timing of their retirement (Vickerstaff, 2006).

However, the investment returns achieved by pension funds have varied enormously over the last few decades, and in identifying optimal levels of pension contributions that individuals have to make in order to meet their desired levels of retirement incomes at the age they are likely to cease working, it is important to take account of the differentials in outcomes expected according to cohort experience. Table 2.2b showed how the real rate of return on the average pension fund has varied in the past several decades, with a strong performance during the late 1980s and in the 1990s, benefiting older cohorts in particular. Therefore, despite the increasing pressure on older people (such Late Baby Boomers and those from earlier birth cohorts) to supplement their incomes in later life, overall it may well be younger people, such as the Early Millennials, who are likely to face a higher pressure on their retirement provision (The Actuary, 2010). The actuarial profession calculates that today's students need to make high levels of savings if they are to achieve pension levels of half of their final pay from their expected SPA; those who delay saving for retirement until age 40 facing contribution rates of up to 50 per cent of their pay even if investment returns were a reasonable 2 per cent above inflation (The Actuary, 2010). In addition to age, gender is also a significant demographic consideration and the effect of this on private pension contributions is discussed in this next section.

3.1.2 **Women and pensions: the gender effect**

Past studies have focused on gender differences in saving for, and the receipt of, a retirement income (Ginn & Arber, 1996; Ginn & Arber 1999, Falkingham & Rake, 2001, Price, 2008, Foster, 2012b). Most have focused on analysing the differences existing at specific points in time. This thesis aims to build upon existing literature by putting these differences into the context of period and cohort variations that exist between men and women. The study will also discuss some of the implications of proposed future pension reform for safeguarding the financial security of these individuals and the potential imbalances that may remain following these reforms. This section now explores the gender gap in pension income; examines how this discrepancy in retirement provision has arisen between men and women, and then discusses how the position has changed over time, and its effect on different cohorts.

In 2005, only 13 per cent of women pensioners were entitled to the full basic state pension compared with 92 per cent of men, and typically were in receipt of much lower average occupational pensions (Thane, 2006). Additionally, the disadvantage faced by women has been traditionally reflected not just in absolute monetary amounts but also in replacement ratios (the ratio of income in retirement versus income immediately prior to retirement). However, with regards to those most at risk of poverty, the relative risk of low incomes of men and women in retirement is now much closer than historically, mainly due to recent pensions legislation introduced in the UK which has improved the basic level of pension income (DWP, 2005b). By the end of the period under investigation in this thesis, according to a study carried out for over 10,000 non-retired adults by a market research organisation for Prudential in 2011, women were more than twice as likely as men to retire in 2011 with an income of less than £10,000 a year (Prudential, 2011). This figure is significantly lower than the £14,400 per annum calculated by the Joseph Rowntree Foundation (JRF) to be the minimum level of income to ensure a "basic but acceptable" standard of living in the UK in 2010 (Davis *et al*, 2010:5).

This gender discrepancy has historical origins. The modern pension system in the UK was originally conceived by William Beveridge (1942) as one which provided a pension to

individuals who were based in a household where men and women conformed to stereotypical gender roles with men working continuously throughout their working lifetime in paid labour and women being financially dependent on them through marriage. This has led to legacy issues of gender assumptions that influence the structure of the existing social security system (Ginn & Arber, 2001). For example, women have been able to pay reduced national insurance contributions and receive a reduced state pension benefit, based on their husbands' contribution records; furthermore, due to a traditional reliance on husbands, many women may not have collected 'stamp' during their working years and received correspondingly reduced entitlement to state benefits (Sefton *et al*, 2011). The last year during which married women and widows could elect to pay reduced national insurance contributions was 1977 (i.e. those born before 1960s, and therefore unlikely to impact on any of the three cohorts analysed in this study); at which time an estimated 3.5 million women had chosen this option; the numbers of women affected had decreased significantly to around 50,000 women in 2005 (DWP, 2005c).

Financial disadvantages in retirement for women are due to a number of reasons including: a lower SPA for older cohorts, with women born before 1950 having an SPA of 60, increasing to 65 for those born in December 1953, and to older ages those born after (see Section 2.1.3.1); the predominance of part-time and low paid work combined with significantly lower levels of participation in any employment; broken work histories as a result of caring obligations towards children and, increasingly, older adults; a greater tendency to work in service sectors where occupational pension provision was less prevalent; and the existence of a gender pay gap (Price & Ginn, 2003; Pensions Commission, 2005; Thane, 2006). Section 3.2.3, discusses some of the impacts economic activity, including employment, may have with retirement savings, exploring the gender aspect of employment in more detail. Section 3.2.4 discusses the impact of caring responsibilities and care provision.

However, it is not only structural effects that have led to a gender difference in retirement provision. Differences between men and women in their financial attitudes and behaviour also have an effect on the forms and levels of provision they accumulate for old age. A study by the ONS found that men are more inclined than women to prioritise general savings, which include retirement savings, especially in the older age groups (ONS, 2011l),

although the Fawcett Society (2007a) found that women had a similar propensity to save as men, but at lower rates. Whilst the recent ECJ ruling on insurance pricing (ECJ, 2012) will remove the current disadvantage women experience with annuity rates, and hence future cohorts of female pensions, typically born after the 1950s, women have a tendency to lag behind men with regards to savings, including the increasing numbers who are expecting to receive defined contribution retirement benefits rather than defined benefit retirement income and lump sums. According to one industry survey, women are also less likely to save for the longer term, with many not seeing retirement savings as a priority (ABI, 2004). Nevertheless, reports on the proportions of people of working age actively earmarking funds for retirement indicate there has been a traditional, if now closing, gender gap (DWP, 2011c). However, it is important to consider the reliability of surveys carried out through industry bodies, as these are often not peer-reviewed. Although the ABI carries out its research via YouGov, a third party market research provider, using a nationally representative sample of respondents weighted by age, gender age, gender, social class, region, party identity and the readership of individual newspapers, with target weights derived from the census, the National Readership survey, and national polls for party identity (YouGov, 2013), the extent of the impartiality of the questionnaires themselves need to be borne in mind.

The lower level of earnings that women generally receive, especially for women born before the 1970s, further compounds the potential problems such attitudes may cause. According to Eurostat, in 2011, women in the UK were paid on average 20.3 per cent less than their male counterparts in the public sector and 26 per cent in the private sector (Eurostat, 2013a). The gender pay gap varies across occupation types; in financial and insurance activities this gap was sizeably higher than in the business economy as a whole (Eurostat, 2013c). Research has shown that if pay growth continues at current rates for female executives, the gender pay gap will not close until 2109 (Chartered Management Institute (CMI), 2011). It is also important to note that many women work part-time and are often concentrated in lower-paid jobs, which have lower prospects of earnings increases. However, despite its persistent presence, it should also be noted that the gender gap in earnings varies dramatically according to cohort and socio-economic factors such as education and social class (Lanning *et al*, 2013). Using data from the 1958 National Child Development Study, the 1970 British Cohort Study, and Understanding Society,

researchers found for example that the pay gap between men and women narrowed for workers born in the 1970 cohort compared with those in the 1958 cohort for similar ages (Lanning *et al*, 2013). Interestingly, the earnings gap between professional and unskilled workers was shown to be far wider between women than between men. Tertiary education was also found to be a greater advantage to women than for men in the workplace, and again the differences were more marked for the older (1958) cohort. Despite findings from the report showing that the pay gap between men and women when they were in their 20s was much reduced for younger cohorts, earnings differences widen as individuals approach their 30s and 40s, especially for women with children (Lanning *et al*, 2013). Indeed, the analysis in this thesis will further explore whether these differences are reflected in the private pension participation rates between the Late Baby Boomer and Generation X cohorts, and the extent to which these differences have widened or narrowed, if at all, for younger cohorts such as the Early Millennials.

The decision regarding the form of benefits taken from pension funds at retirement will also impact in the long term on the adequacy of benefits. For example, members may opt to receive relatively low levels of annual increase on their pensions, or even none at all, which provides higher levels of pension income at the outset, but which also lead to a reduction in the value of the pension income receipts in the future, as the value of their benefits reduce in real terms (and attaching spouse's pensions). Other pensioners may opt to take out the maximum tax-free cash lump sum they are able to on retirement, leaving a smaller fund with which to secure pension income. As mentioned in Section 1.1, tackling the issue of low income for the elderly is a potentially growing issue, given the increasing proportions of the population expected to live longer in the years ahead (see Section 2.2.1). For women, who are generally expected to survive men, this can lead to a real risk of poverty at old age. Whilst in recent years the percentage of pensioners in households in the UK with incomes below 60 per cent of median net disposable household income before housing costs has fallen (DWP, 2011d), a significant number (1.8 million) were classified as low income for these purposes in 2012/13 (DWP, 2014b). From 2014 to 2039, there is expected to be a 33 per cent increase in the number of single member households, many of within the oldest age groups, those aged 65 and over (in 2039, these will come from the 1970s cohorts and before) and those 85 and older (ONS, 2016a) and women will represent the large majority of these; it is vitally important that future generations of these pensioners are adequately financially provisioned. These social risks raised by the changing life courses

experienced by women in particular, can be analysed in the context of the challenges created by new social risks which were explained in Section 2.2.2. The next section discusses the trends and implications of changing relationship and household status and formation in more detail.

3.1.3 Changing relationship statuses and household configurations

The growth in single member households mentioned in Section 3.1.2 above is not the only household type that is changing; this section explores changing household statuses and discusses the related changing landscape for relationship statuses in the UK, and how these are associated with pensions. Indeed, it has already been suggested for some time that the second demographic transition, which covers the set of changes including changes to partnership status and household formations, is associated with different patterns of employment and pension acquisition (Ginn, 2003). Pensioner couples tend to have more than twice the level of occupational pension income and investment income as single pensioners and also have approximately seven times their earnings levels (DWP, 2011h). An increasing number of people choosing to marry later or who are choosing cohabitation as a precursor or alternative to marriage, has led to a decline in marriage rates in England and Wales since the 1970s (Smallwood and Wilson, 2007). Despite an increase from 2009 to 2010, at 8.7 persons marrying per 1,000 unmarried population aged 16 and over, provisional general marriage rates (GMR) in England and Wales are lower in 2010 than they were in 2000, when the GMR was 10.3 per 1,000 (ONS, 2012c). The mean age at first marriage has increased by an average of almost 2 years per decade since the 1970s (ONS, 2012c). There has been a changing landscape in the UK with regards to household formation and trends in household growth.

Although there has a been a very long standing general increase in the rate of divorces in England and Wales since the 1930s (ONS, 2012b), more recently, there has been a steady fall in divorces between 2003 to 2009 which has been linked to the increasing numbers of people choosing to cohabit instead of marry, rather than because the rate of marriage dissolution is decreasing per se (Beaujouan & Bhrolcháin, 2011). Divorce statistics for 2010 show that divorce rates increased again for 2009 to 2010 (ONS, 2012b).

Understanding the trends in divorce is important, as according to the Consumer Financial Education Body (CFEB) (2010), those who are least likely to have savings are on average older and single, in particular, widowed or divorced and lone parents. At a cohort level, the latest figures released by the ONS (2015e) show rates of divorce for women in their early thirties to reduce for each progressively younger cohort (185 per 1,000 for women born in 1960; 144 per 1,000 and 81 per 1,000 for 1970 and 1980 cohorts respectively). This is likely due to a combination of increasing age at first marriage as well as the decreasing rate of marriage. For women born in 1950, the rates of divorce at all ages (available for comparison) from age 21 to 54 are lower than for the 1960 cohort, and compared with the 1970 and 1980 cohorts, the 1960 cohort were most likely to experience divorce at each age for which data was available (ONS, 2015e).

Additionally, the ONS (2012h) reports that cohabiting, defined as individuals choosing to live with a partner, but not married to or in a civil partnership with them, has doubled since 1996. Cohabitees now account for 11.7 per cent of the population in the UK aged over 16 (ONS, 2012i). For younger people aged 25-34 (which includes Early Millennials), this relationship status now accounts for 27 per cent (ONS, 2012i). Cohabiting couples may exhibit different attitudes and behaviours compared with their single or married counterparts, and so this increasing trend in cohabitation may have an effect on the patterns and trends in the level of people saving for retirement. Results from a study of a random sample of the UK population suggest that there was a positive relationship between marital status and risk tolerance (an important factor in defined pension contribution decision making) although this was not significant at the 10 per cent level (Clark & Strauss, 2012). Cohabitation is not the only different form of partnership status available; civil partnerships have been permitted in the UK since December 2005. Whilst comprising a small proportion of the population as a whole, by the end of 2011, the number of people in civil partnerships surpassed 100,000, far exceeding the impact assessment figures of 11,000 to 22,000 estimated prior to the Civil Partnership Act 2004 taking effect (from December 2005). Female civil partnerships, which account for 45 per cent of all civil partnerships, saw a greater rate of dissolution than for men, with 4.6 per cent of female partnerships ending in dissolution by the end of 2011 compared with 2.2 per cent for men (ONS, 2012a). At the time it was expected that the proportion of the population who choose to form a civil partnership would grow. However, in 2013, legislation (Marriage (Same Sex Couples) Act 2013) was passed that permitted same sex

marriages with effect from March 2014 (www.parliament.gov.uk, 2013). If it transpires over time that people in civil partnerships tend to have different attitudes and behaviours compared with their single, cohabiting or married counterparts, then this may result in further diversity in the attitudes and behaviours towards financial provision for retirement in the future. However, figures from the ONS show that only 861 civil partnerships were formed – and they were mainly by men in 2015, with almost half formed by people aged over 50 (ONS, 2016b). This supports earlier findings that suggested that the introduction of same-sex marriages would reduce the number of civil partnerships, and indeed, a number of civil partnerships have converted to same sex marriages since 2014 (ONS, 2015g).

There is a propensity for individuals to not save at younger ages, instead often waiting until their thirties or middle age to begin putting money away in earnest, leading to a 'savings' hump (Demery & Duck, 2006). It therefore follows that older divorcees who have been financially dependent on their spouses are exposed to the risk that they have insufficient periods from their divorce until their retirement in which to accrue adequate funds for old age, as the bulk of the savings they would have expected to share with their former spouses will not have yet been made at the time assets are split on divorce. With divorce occurring at increasingly older ages (Haskey, 1999, ONS, 2011n), there is the issue of increasing numbers of divorcees having shorter periods in which to make up pension savings. Since 2000, pension sharing on divorce has been possible, but is not a compulsory aspect of asset division. In 2008 the Ministry of Justice (2009) showed that pension sharing orders in that year were made in less than 10 per cent of divorces, although this may be mitigated somewhat by cases where divorcing couples may choose not to share pensions if they each have accrued pension funds in their own name. This suggests that recent changes in legislation on divorce have had limited impact on delivering improved pension positions for women. This may be because asset sharing on divorce is a complex issue, and research which shows that contrary to assumptions inherent in pension policy development assumptions, that assets are shared equally on divorce (Joseph & Rowlinson, 2012). It has been found that divorced women have disproportionately lower levels of savings compared with divorced men (Westaway & McKay, 2007), although this study did not consider housing wealth. A report by the Centre for Economic Policy Research observed that often divorced women were not able to accrue as much pension as they could have had access to

had they remained married or become widowed (Joshi & Davies, 1992). However, a recent study by Sefton *et al* (2011) found that although women's family histories were linked to their incomes in later life, the value of benefits in the UK were generally so low, and offset by individual entitlements, that the impact of these family histories appeared to be low.

For married individuals, an additional risk may arise where one or both parties have the option, available from most occupational defined benefit pension schemes, of taking cash equivalent transfer values. These transfer values can be then used to purchase pension income with no or reduced attaching spouse's pension on member death in retirement, or without any escalation built into the annual income. Indeed, following the introduction of the Pensions Freedom (see Section 2.1.3.4; HM Treasury, 2014b), the entire fund could possibly be cashed in leading to a lack of income security for later years. Younger cohorts, such as the Early Millennials or cohorts born after them, might be expected to accrue larger defined contribution funds by retirement on the whole, compared with older cohorts, such as the Late Baby Boomers, due to the increased opportunity (and quasi-mandatory requirement, due to auto-enrolment) to pay into one for a longer part of their working lives. The most recent guidance from the Financial Conduct Authority stipulates that independent financial advice must be sought for transfers over a certain limit (£30,000) (The Pensions Regulator, 2015), but this will have no bearing on transfers already undertaken or future transfers of small to moderate sizes. This is particularly relevant for those who are financially reliant on their spouse, as it leads to an increased likelihood of inadequate financial provision if they survive their spouse, and in the case of flat-rated benefits, where they survive their spouses for a long period of time, especially in the case of female survivors.

This section has covered key demographic trends that are strongly linked to changing trends in how individuals choose to make retirement savings over the last few decades, with younger members of the current workforce, such as GenXers, Early Milliennials and those born after then being more likely to have *some* private pension provision, but with older cohorts such as the Late Baby Boomers advantaged by more generous earlier provision and more traditional lifecourse expectations of longer employment periods and more traditional household formations, albeit with more gendered differences in private pension outcomes. However, it is also important to take account of the socioeconomic

trends that have also taken place alongside these demographic changes, and these are now explored in Section 3.2.

3.2 The impact of changing socio-economic characteristics on the propensity to make pension contributions

This section discusses key socioeconomic influences that may affect individuals' decisions to make private pension contributions, specifically, the trends and changes in educational attainment, housing wealth, economic activity and occupational sector, and care responsibilities and earnings, which have all evolved over the last decades and years, and how they have had different impacts on different cohorts, will now be deliberated in turn.

3.2.1 Younger cohorts, their increasing levels of educational attainment and the associated differences in pension contributions for successive cohorts

In this section, we consider the link between education and private pension saving. In April 2011, the ONS showed a significant link between levels of pension and household saving for households where the head of house is aged between 50-64, and their level of educational attainment. The median defined benefit pension saving for those living in a household where the head is educated to degree level or above was £296,400 in 2006/08 compared with £91,700 for those in a household where the head had no qualifications. The corresponding figures for DC pension savings were £38,000 and £14,500 respectively (ONS, 2011l). Furthermore, strong correlations have been noted between numeracy levels and measures of both retirement knowledge and pension arrangements (Banks & Oldfield, 2007).

It has been suggested that income, education, age, gender and marital status can be considered proxies for financial literacy and experience in UK society (Clark & Strauss, 2008). In this section the potential link between education and financial literacy and experience are discussed further. In particular, when investigating the link between educational attainment and pension saving, especially when considering educational

attainment as a proxy for financial literacy, it is important to bear in mind the differences between educational attainment, numeracy and financial education. Educational attainment is often defined as the highest level of education an individual has completed in terms of the highest level of schooling or highest degree attained. Related to educational attainment but restricted to the numerical ability is numeracy, defined by National Numeracy in the UK (National Numeracy, 2013) as:

> *"… an individual's capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgements and to use and engage with mathematics in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen"*

The extent to which educational attainment, in particular numeracy, may be considered a proxy or directly associated with an individual's capacity to understand and utilise mathematics and finance rather than the formal educational milestone which they may or may not have achieved is not clear cut.

According to the OECD (2013a), financial literacy is defined as:

> *" knowledge and understanding of financial concepts, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life"*

The question of the degree of relevance of education attainment, or more specifically, numeracy, for financial provision in retirement is also raised by a number of studies. In a study using data from the English Longitudinal Study of Ageing (ELSA) between 2002-2006, examining how cognitive ability is related to economic outcomes, Banks *et al* (2010) confirm a strong link between numeracy and financial decision making for individuals (controlling for literacy, memory and executive function, education and accumulated wealth). However, in attempting to predict the trajectories of these key economic

outcomes, they find no strong link between numeracy and the level of welfare in retirement (including wealth, income, food, expectations and life satisfaction); despite differing wealth trajectories with those more numerate, it was found that across numeracy groups, the distributions of retirement expectations and net replacement rates are similar. This finding is supported by a report released by the DWP in which Wicks & Horack (2009) who found that there was limited evidence as to the level of effectiveness of financial education on the overall level of retirement provision. A study carried out for the OECD in 2012 (Atkinson & Messy, 2012), also demonstrates that it is not a simple relationship between education and financial literacy.

Differences in the level of financial capability associated with different socio-economic and demographic characteristics should be considered in understanding the variations that may occur in the level of financial provision for retirement for these groups. This should also be done bearing in mind the need to consider financial capability through examining the financial knowledge, behaviour and attitudes of individuals; Atkinson & Messy (2012) found that each of these three different areas had significant gender differences for respondents in the UK. For example, Clery *et al* (2007) find that men are more confident than women with regards to their understanding of pension issues across most age groups (18-24 age group, ie the youngest cohorts such as the Late Millennials, the only exception). Age also, possibly due to increased exposure to financial choices and decisions, played a noticeable role with UK respondents in Atkinson & Messy's study scoring high on financial capability typically between 30-60 years of age (Atkinson & Messy, 2012). Reduced levels of financial literacy amongst those aged over 60 could have been due to a number of factors including reduced cognitive capability associated with old age, which could restrict the financial ability of the oldest individuals. In addition, the speed with which the financial market place has evolved, including technologically, may have proved difficult for these older cohorts to keep apace. The cohort effect may also be associated with differential exposure to financial information and products in addition to technological changes, which will also have an impact on the choices which different cohorts have made with regards to private pension contributions over their life course. The length of time spent in education is also changing, with younger cohorts tending to stay in education for longer. For example, overall participation in higher education which was less than 10 per cent in the post war period to 1970, was as high as 19.3 per cent by 1990 (typically including those of

the birth cohort born in the early 1970s) and 33 per cent by 2000 (the early 1980s birth cohort) (Bolton, 2012). This reinforces the need to carry out this investigation on the propensity to make pension contributions using a cohort perspective.

As discussed above, successive cohorts are increasingly likely to remain in education to later ages and there is more parity between men and women. However, it is important to bear in mind that educational attainment is not only a proxy for financial literacy. Education is also strongly correlated to the employment activity and types of employment, which in turn are key factors in dictating the affordability of pension contributions and the ability of individuals to make savings, whether for retirement or not, and these will be discussed in the next section.

3.2.2 **Economic activity and occupation**

Pension policies need to take account of new social risks, which include the changing patterns of employment over time (see Section 2.2.2). In addition to the move away from the relatively secure, long-term employment during the post Second World War period to a more transient service sector labour market (Taylor-Gooby, 2013), there has been an increase in the proportion of the UK workforce working part-time over the last 20 years (ONS, 2011e), but especially more so since the economic downturn in 2008 (ONS, 2011f). For those born in the 1970s and 1980s, for example, this will be the trend they have seen for the whole of their working lives. Not only do part-timers generally earn less than full-time employees as a result of their reduced working hours, but for older cohorts who were working prior to 1995, until the introduction of the Pensions Act 1995 and the Occupational Pension Schemes (Equal Treatment) Regulations 1995, SI 1995/3183, it was commonplace to exclude part-timers from occupational pension schemes. The only cohort being investigated in this study which would have managed to avoid this discrimination against part-timers would have been the Late Millennials, as cohorts born after 1980 would have not commenced their working life before the regulations took effect.

Despite the measures to tackle the traditionally lower tendency of part-time employees to take up membership of occupational pension schemes than full-time employees, there is

still a marked difference between the two (ONS, 2013d). Figures from the 2011 census (ONS, 2011c) show that older cohorts are progressively more likely to be self-employed than younger cohorts, with men being more likely than women at all ages. Some of this may be historic, or it may be linked to other reasons such as affordability. Historically, employees with short service periods were disadvantaged prior to the introduction of the Social Security Act 1973, before which members did not have any statutory right to accrued occupational pension scheme benefits on leaving service. From 1975, vesting periods, which are the qualifying periods that members of occupational pension schemes had to complete in their employers' pension schemes before becoming entitled to scheme benefits, including preserved benefits, were limited to five years. The vesting period was subsequently reduced to two years from 6 April 1988, following the Social Security Act 1986 (Thurley, 2012a). Members leaving with less than five years' service would be entitled to a refund of their own contributions. From 2006, preserved pensions, which are pension benefits accrued in respect of a pension scheme member, preserved within the scheme after an individual ceased to be a member, and made payable on retirement, became an automatic entitlement for employees with at least three month's service. Although short service refunds (occupational pension scheme members who leave a scheme with few than 2 years' pensionable service) may choose to take a refund of their contributions made during their service, subject to a tax charge, instead of leaving their preserved pensions in the scheme) have been common (Wood *et al*, 2011), they will not be permitted under auto-enrolment (DWP, 2011g).

3.2.3 **Income and affordability of retirement savings**

The well documented differences in the levels of occupational pension participation according to income bands were highlighted in at the beginning of this chapter. Existing literature confirms that propensity to contribute to individual pension pots vary according to income and consumption needs (Smith, 2006), which are both affected by lifecourse events including economic activity or the change to household composition. Pension decisions, whilst an individual decision, may also be influenced by the overall level of household income (Smith, 2006), despite the 'individual' participating in a private pension. Chapter 4 further discusses the choice of earnings variable to be used the analysis.

It is also important to note that there is a link between income and each of the other socio-economic factors discussed thus far. In Section 3.1.2, the gender gap in income and its likely impact on private pension participation (as well as the overall level of private pension benefit accrued) was explored. Appendix A5 provides a table of the correlation coefficients between the various variables, which shows the extents to which each of these variables are related. For example, income tend to increase with age, with a steady increase of average income from school leaving age until the workforce reaches 40-49, after which there is a small decline until retirement (ONS, 2015c); educational attainment, which is shown to be positively correlated to private pension participation (Crawford *et al*, 2010), is also positively correlated to earnings (ONS, 2011c). Younger cohorts are therefore likely to be earning less, indeed recent research suggests the youngest cohorts current in the workplace will be the first to earn less than their predecessors (Gardiner, 2016); on the other hand, they are also likely to be more highly educated on average, than their predecessors. This study investigates the overall effect on private pension participation of confounding factors such as these.

Finally, women with broken work histories, which may be as a result of caring responsibilities or different types of employment, often face a disadvantage when they return to work having missed out on both promotions and relevant increases in earnings (Möhring, 2017). Indeed, for the cohorts from the 1960s to the 1980s, work histories are still being played out, but previous studies amongst older cohorts i.e. those born in 1950s or prior, suggest that the older the cohort, the larger the out-of-work penalty (Sefton *et al*, 2009). The next Section, 3.2., discusses care responsibilities and care provision and their impact on benefits in retirement in more detail.

3.2.4 **Care roles and responsibilities**

Home responsibilities have historically affected women disproportionately, as they have been more likely to take on roles providing care (see Section 3.1.2), impacting on their ability to accumulate adequate retirement incomes. Such impact has been discussed widely in previous studies (Jefferson, 2009; Evandrou & Glaser, 2003; Ginn & Arber, 2001). It has been shown historically that women are more likely than men to have provided care, which include looking after children or adults, and this occurs across the life course, with

women still more likely to provide care than men in later life (Vlachantoni, 2011). In 2010, the end of the period being studied, economic inactivity due to looking after family or home affected 35.3 per cent of women compared with 6.3 per cent of men (ONS, 2017a). More recent figures for 2017 of 34.8 per cent and 7.3 per cent for women and men respectively show that the gender disparity persists (ibid). It has also been shown that women who postpone having children are more likely to earn higher wages than those who become mothers at an early age (Lanning *et al*, 2013).

In the UK, the pension system has been progressively changed over time to ensure that women who spend time outside of the labour market to provide care are not disadvantaged. Measures, which were outlined earlier in Section 3.1.2, have included the decoupling of spouse and survivor benefits (women are no longer entitled to pension benefits based on their husbands' own contribution records) and the linking of contribution credits for women whilst they are providing care via HRP (Finch, 2014). It might be expected that care responsibilities for children impact on an individual's ability or decision to make private pension contributions to differing extents depending on the age of dependants. It also follows that the analysis carried out in this thesis should show private pension participation reflecting the particular circumstances of each cohort. For example, it might be expected that, controlling for all other variables, a cohort with very young children, especially females within that cohort, might be less likely to be participating in a private pension that those who are yet to have children or whose children, if any, are on average likely to be much older. Furthermore, it might also hold that depending on what age individuals are, and that priority is attached to other forms of saving rather than for retirement. The next section discusses how a key component of individual and household savings, housing wealth, varies by cohorts and how it is associated with retirement outcomes.

3.2.5 **Cohort differences in housing wealth**

The English Housing Survey (EHS) 2010-2011 report shows a large range in the level of equity that owners had available in their homes (Department for Communities and Local Government (DGLG), 2012). Although homeowners aged between 50-64 years in 2010-

2011 held the highest levels of housing wealth compared with other cohorts, they were also subject to the largest levels of negative equity as well. On the whole, households with owners aged over 65 were more likely to own their properties outright, with younger households less likely to enter house ownership (DGLG, 2012). Over the last 2 decades, there have been decreasing numbers of younger people (aged 35 years or under) buying their home, opting to rent instead (DGLG, 2012). Accordingly, over time, each younger cohort is less likely to accumulate the same level of housing equity as their older counterparts, and will therefore have fewer overall assets upon which they may rely upon in old age, or be even more likely to have a need for additional income in retirement to meet housing needs. As such, it becomes even more important that younger cohorts make adequate pension provision.

Byrne (2007) found that pension scheme members in the UK displayed a high level of conviction that property ownership or other investment in property is a preferable means of retirement provision with 83 per cent indicating it was an appropriate or very appropriate means of funding for retirement. This compares with only 52 and 50 per cent respectively who felt similarly regarding investment in financial assets such as equity funds and gilts. However, the 2008-2009 downturn in the UK economy led to a weakened confidence in property. In a representative survey carried out for 18-69 year olds in Great Britain, the DWP on attitudes towards pensions, Clery *et al* (2010) found that there was a decline in confidence in investing in property, with only 19 per cent believing it would be the safest way of saving for retirement compared with 26 per cent of respondents in 2006; corresponding figures for employer pensions remained static over the same period at 26 per cent. Despite this, housing wealth, which made up about 40 per cent of UK households' net wealth in 2009 (PPI, 2009) remains an important element of financial provision in retirement. Some studies find that it is becoming increasingly acceptable to use assets including housing equity during a person's lifetime (Rowlingson & McKay, 2005). The increasing popularity of equity release has been used to fund a variety of purposes, including domiciliary care (Overton, 2010; Department of Health, 2013). In the UK, annual spending on long-term care is projected to rise from 1.1 per cent to 2 per cent of GDP between 2016/17 and 2061/62 (Silcock, 2012). A report for industry specialist Liverpool Victoria in 2012 suggested that almost a quarter of people would opt to fund long-term care in old age by utilising their housing wealth, whether via equity release, the sale of a home, or remortgaging (Liverpool Victoria, 2012), more than those who suggested

that this care could be paid for by using existing savings or by relying on their pension income. Furthermore, increasing numbers of individuals are considering using housing equity not only to fund their long-term care, but to supplement or form part of their later life financing, with research carried out by the Equity Release Council (ERC) in 2012 showing almost three-quarters of the individuals they questioned indicating that they would do so (ERC, 2012).

3.3 Chapter summary and key expectations of the impact of micro level determinants on cohorts' pension contribution prospects

There are juxtaposing impacts from each of the influences set out in the conceptual framework (Figure 1.2) on the propensities of different cohorts to make private pension contributions and which of these will have a stronger impact, and what the overall effects of these will be are not clear. However, some of the key expectations of the age, period and cohort effects of the demographic and socioeconomic determinants explored in this chapter are summarised in the rest of this section.

3.3.1 Late Baby Boomers – expected micro-level determinant effects on pension contributions

3.3.1.1 Demographic determinants

- Age – Late Baby Boomers will have been aged 35-49 during the study. The existence of a savings life-cycle (Banks & Rohwedder, 2003) has long been recognised, with this age range falling across the expected peak of savings ages. As a result, an expected ***age effect*** is that of higher propensities to make private pension contributions for this cohort than for younger cohorts who have not yet reached this peak saving age. Longevity in retirement has been shown to increase at a much quicker rate than the age of retirement in recent decades (Section 3.1.1; ONS, 2011g). If this continues, it might be expected that Late Baby boomers will require smaller pension funds than younger cohorts such as the GenXers and Early Millennials. Yet this cohort will have benefited from the ***period and cohort effect***

of relatively high investment returns on pension funds, accumulated prior to and during the late 1980s and the 1990s (Appendix A2.2; Pension Fund Indicators, 2012; UBS Global Asseet Management, 2012).

- Gender – there has been a long-established gender gap in pay and pensions for women (Price & Ginn, 2003; Pensions Commission, 2005; Thane, 2006), which has persisted particularly for those born in earlier cohorts, such as the Late Baby Boomers and those born before them (Lanning *et al*, 2013). Due to this larger gender pay disadvantage, it might be expected that a lower proportion of women in this cohort make private pension contributions, since the propensity to make private pension contributions is associated with the affordability of making them.
- Relationship status – ***cohort effects*** are likely to present as respondents from this cohort are more likely to be married or re-married, and less likely to cohabit than younger cohorts – and being married has been associated with a higher propensity to contribute amongst men (Section 3.1.3). Amongst women, an expectation might be a higher number of women not contributing to any type of pensions, as they may be more aligned to the traditional breadwinner model, compared with younger cohorts (Section 3.1.2). Both men and women from this cohort will be more likely to be married, if they were going to be married at all; this is an ***age effect,*** again with the corresponding expectations of higher propensities to make pension contributions that are associated with being married (ONS, 2011j). On the other hand, a further ***age effect*** is that divorce is more likely to have taken place for this cohort for both men and women; and divorced individuals may well have different savings patterns than those in who are not (CEFB, 2010).

3.3.1.2 Socioeconomic determinants

- Educational attainment –men and women amongst this cohort are less likely to have been in higher education compared with younger cohorts, partly due to the accessibility and wider education policies existing at the time they were in education, a ***period effect***, and a less established norm of entering tertiary education for this cohort, a ***cohort effect*** (Bolton, 2012). Higher education has been positively associated with higher earnings and higher pensions, so it might be expected that this cohort is at a relative disadvantage to younger cohorts.

- Economic activity –women aged between 35-49 during period of study – are of an age when they might be likely to be caring for younger children (the mean age at first birth ranging from 29.1 to 29.6 years from 2000 to 2010) (ONS, 2011b). There has long been an associated penalty of caring (Evandrou & Glaser, 2003). This is an ***age effect***.
- Income – both male and female Late Baby Boomers have had more time to reach higher earnings levels than younger cohorts, especially if they have remained in employment over the period, and from the period prior to the start of the study. Indeed, April 2010 data provided by the ONS showed that it was the 40-49 age group who were the peak earners amongst full-time male and female employees (with more men than women falling into the full-time employee category) (ONS, 2010). This is mainly an ***age effect***, although the downturn of 2008-2009 is a ***period effect*** – which may be smaller for those in more stable and long-standing employment, than compared with younger cohorts.
- Care roles – respondents from this cohort are more likely to be taking on care roles as they are more likely to have had children if they were going to have children; they are also more likely to have parents who are reaching an age when they might expect to require more assistance – this is an ***age effect***.
- Housing tenure and wealth– unique timing in terms of the housing market for Late Baby Boomers is expected to have led them to be generally regarded as more financially advantaged than younger cohorts (Ready for Ageing Alliance, 2015, Section 3.3) – a ***cohort effect***. Additionally, this cohort, being older than the other comparator cohorts, have had time to accumulate wealth and pay down mortgages where they have been taken out – this is an ***age effect***.

3.3.2 Members of Generation X – expected micro-level determinant effects on pension contributions

3.3.2.1 Demographic determinants

- GenXers – this cohort would be aged 25-39 during the period being analysed. An ***age effect*** that might be expected is a lower propensity to make private pension contributions than for Late Baby Boomers, given literature showing how savings

increase with age during the first couple of decades of working life (Banks & Rohwedder, 2003).

- Gender – a ***cohort effect*** relating to gender is expected as differences in pay narrowed for those from the GenXer cohort (and those born after) compared with those from the Late Baby Boomer cohort (Lanning *et al*, 2013), and therefore women from this cohort will be expected to narrow the gender gap in pensions savings compared with women among the Late Baby Boomers.
- Relationship status –as with Late Baby Boomers, given their ages, respondents from this cohort are more likely to be married if they were going to be married than Early Millennials – this is an ***age effect*** (mean age at first marriage being 32.4 years for men and 30.3 years for women in 2012 (ONS, 2012c), and being married has been associated with a higher propensity to contribute amongst men. However, from a ***cohort*** perspective, it might be expected that not as many respondents from this cohort as from older cohorts would choose to get married, as literature shows an increasing propensity over time for individuals to cohabit within a partnership or remain single (Smallwood & Wilson, 2007).

3.3.2.2 Socioeconomic determinants

- Education – over the period being studied, the proportion of the working population aged 30-34 with a higher education qualification grew by approximately two-thirds (Universities UK, 2012). The ***cohort effect*** is such that GenXers are much more likely to have remained in education for longer than Late Baby Boomers– and higher education is associated with both higher earnings and financial capability, and indirectly with higher pension saving.
- Economic activity – self-employed and caring responsibilities. Given average age at first birth is just under 30 years (ONS, 2011b), a related negative ***age effect*** on private pension contributions is expected due to this cohort being the most likely to have young children, along with the Early Millennials. However, this cohort is unlikely to have as many elderly and dependent relatives as the Late Baby Boomer cohort, which is also an age effect. A positive ***cohort effect*** (for both GenXers and Early Millennials) would be expected in terms of personal pension contributions, given the widespread availability of personal pension schemes as they would have had access to these pension schemes for the whole of their working lives.

- Income – GenXers will have been approaching the expected peak in their earnings by the end of the period of investigation (ONS, 2010). An ***age effect*** therefore is that their propensity to contribute to private pensions might be slightly lower than for Late Baby Boomers over the period, especially during the time of the first survey wave, but that the difference will have been reducing as they aged over the period.
- Housing tenure – during the period from 1999-2000 to 2009-2010, many GenXers would have made the transition from predominantly private rental to home ownership. In 2009/10, more than two-thirds of individuals aged 35-44 taking part in the English Housing Survey indicated that they owned a property, with or without a mortgage (ONS, 2011d), and this is ***an age effect***.

3.3.3 Early Millennials – expected micro-level determinant effects on pension contributions

3.3.3.1 Demographic determinants

- Early Millennials – this cohort would have been aged between 16-29 over the period analysed. It has long been established that individuals do not tend to reach their highest propensity to make savings until they are approaching their 40s (Demery & Duck, 2006), and as such, an expected ***age effect*** might be that this cohort will be less likely to make private pension contributions. A further age effect relates to their education and that is discussed further in section 3.3.3.2 below.
- Gender – data provided by the ONS in 2010 showed that the gender pay gap affected all cohorts especially those aged over 30 (ONS, 2010). A consequence of this is that female Early Millennials might be expected to have a higher propensity to make contributions than older female cohorts, controlling for age, reducing the difference in the propensity between men and women making private pension contributions compared with their older counterparts.
- Relationship status – many individuals in this cohort would remain single for most of the period under investigation (mean age at first marriage being 32.4 for men and 30.3 for women in 2012 (ONS, 2012c). An ***age effect*** of this might be that

respondents from this cohort may be less likely to make private pension contributions than their older counterparts. Literature has also shown that successive generations are less likely to adopt the traditional marriage and breadwinner household type (Smallwood & Wilson, 2007), and hence a ***cohort effect*** might relate to a lower propensity to make private pension contributions associated with non-married statuses, controlling for age.

3.3.3.2 Socioeconomic determinants

- Educational attainment, and attitudes towards savings – continuing the trend shown by GenXers, Early Millennials were much more likely to entered tertiary education (Bolton, 2012). Whilst this is likely to result in a lower propensity to make private pension contributions at the youngest ages than older cohorts, as many from this cohort would have been still in education during the start of the period being analysed (***age effect)***, it might be expected that when they did enter the workplace, they would be more likely to save than older cohorts generally (Zick et al, 2012), which is ***a cohort effect***. A further cohort effect has been the evolving attitudes towards savings, with literature suggesting that the youngest cohorts are more likely to prioritise savings than their older counterparts (Zick *et al*, 2012).
- Economic activity:
    - There are increasing numbers of self-employed and zero-hour contracted staff (ONS, 2011f), particularly amongst the young; given the timing of the changing workplace, this affects Early Millennials especially compared with GenXers and Later Baby Boomers (***both age and cohort effects***). This might be expected to lead to a lower propensity amongst this cohort to make private pension contributions, even controlling for age.
    - A ***cohort effect*** for GenXers and Early Millennials, especially those who were self-employed, would be expected given the widespread availability of personal pension schemes as they would have had access to these pension schemes for the whole of their working lives.
- Care roles – from a caring perspective, many from this cohort will not yet have had children, and this cohort is unlikely to have as many elderly and dependent relatives as older cohorts, which means fewer would be expected to be taking on caring roles. The negative impact associated with care responsibilities on pension savings

(see also Section 3.2.4) will therefore not be expected to affect this cohort as much as older cohorts – an ***age effect***.

- Housing tenure and wealth – Early Millennials are less likely than older cohorts to have purchased a house yet. The English Housing Survey in 2009-2010 showed that more than 60 per cent of 16-24-year-olds privately rented (ONS, 2011d). ***Cohort and period effects*** of house prices relative to incomes mean that this cohort are less likely to be buying a house compared with older cohorts at the same age and it will also likely require a longer period for individuals to save up for a deposit to do so (Hamptons International, 2016). This will likely compete with the ability to save elsewhere, such as in pensions, so the ***age effect*** relating to this might lead to Early Millennials having a lower propensity to make private pension contributions.

The objective of this thesis is to study both the extent of the variations in private pension contributions according to each of these different influences and how they differ to the expectations that might arise based on existing understanding from current literature, but also to examine the **net** overall effect of making private pension contributions on each of these different cohorts under investigation.

Chapter 8 discusses the findings and reflects on how these results compare with these expected impacts. The next chapter describes the data and methodology adopted in this thesis to carry out the research objectives of identifying these intra- and inter-cohort variations in private and personal pension contributions and to contextualise these findings in the changing policy context.

4. Data and Methodology

The first sections of this chapter provide a description of the datasets selected for the analysis carried out in this thesis including why they were used, along with brief outline of alternative datasets that have been considered but not used. The chapter then outlines the methodologies adopted for the analysis along with a discussion of why the methods are suitable in delivering the aims and objective of this thesis.

4.1 Data

The research has been carried out using secondary data and quantitative methodology. The Family Resources Survey (FRS) (see Section 4.1.1) has been used for this thesis. The research questions seek to analyse trends in the propensity to make private pension contributions and systematically investigate the associations between private pension contributions and demographic and socio-economic characteristics for men and women of different age groups over time in the UK. The FRS already contains all the pertinent data, and permits trends at a national level to be discerned as the data is derived from across the nation, and grossing weights are provided to allow for nationally representative data analysis to be carried out. All the data obtained was on an anonymised basis.

Appendix 4 outlines other datasets that exist and which hold data related to the thesis subject, that were considered for the purposes of this research but were ultimately not used; the reasons for their exclusion are included in the appendix.

4.1.1 **Family Resources Survey (FRS)**

Using repeated cross-sectional data to investigate the characteristics that are associated with differing pension income accrual and retirement savings behaviour means we can establish the extent of the links between a number of socio-economic characteristics and pension contribution for different cohorts of men and women. To this end, this first part of this study considers three waves of data (1999-2000, 2004-2005 and 2009-2010) from the FRS.

The FRS is an ongoing survey based in the UK, which started in 1992. The original annual target sample size, (for the period from April to March) was around 25,000 households, although this was reduced to around 20,000 from April 2011 (DWP, 2012a). The data includes a detailed breakdown of assets, income, benefits and pension scheme information, including whether individuals are making pension contributions, which will enable a three-way cohort analysis (cross-sectional by age, cohort and period) of the demographic trends and differences in proportions making private pension contributions amongst people of working age. Although the FRS was carried out in 1994-1995, respondents were not asked for specific information, namely current pension scheme membership, and therefore the datasets have been restricted to those from 1999 onwards (see Section 4.1). This enables the most recently available data from the FRS to be examined over a period of the longest available duration.

Analysis is carried out using 5-year cohorts up to State Pension Age, except for the youngest age group, of 16-19-year olds, for whom the age group has been restricted to start from age 16, which is the age from which individuals are permitted to work full-time in the UK (Gov.uk, 2016a). Cohort comparison is carried out using pseudo-cohorts constructed from the repeated cross-sectional data and the methodology for this is set out in Section 4.3. Five-year age bands have been used to enable a manageable number of categories, which are sufficiently narrow for behaviour and characteristics to be similar, and this is a consistent approach with that used in many demographic datasets (Eurostat, 2013b p12). More specifically, the approach adopted for cohort comparison, using 5-year age bands is also consistent governmental and supranational surveys such as the General Household Survey Pseudo Cohort Dataset, and is discussed further in Section 4.1.12. The selection of the waves of data from 1999-2000 to 2009-2010 will enable the most recently available and comparable data from the FRS to be examined over a period of the longest available duration.

4.1.1.1 Dependent variables

This study primarily focuses on explaining the differences in the propensity to make private and personal pension contributions that can be associated with a number of demographic and socio-economic characteristics.

There is a broad and wide-ranging set of existing literature in the area of pension provision, particularly relating to gender differences in savings for retirement and pension outcomes (see Section 3.1.2), although there has been limited research carried out to disaggregate the inter and intra cohort differences in private and personal pension coverage over time. Furthermore, although there have been many studies on overall retirement provision, private pensions and personal pensions, there has been less work carried out to compare and contrast them. Although personal pensions is included in the overall definition of private pension (see Section 1.2), the nature of personal pensions is quite distinct from the other constituent element of private pensions, occupational pensions. This study aims to add to the existing literature by comparing and contrasting the changing differences in the propensity of men and women to make private and personal pension contributions both within and across cohorts. These cohort variations will be discussed in light of the different influences each cohort is exposed to, including the impact of differing pension regimes and the emergence of new social risks over time (see also Section 2.1.1). Furthermore, although much past study has looked at actual differences in current old age retirement incomes, this study focuses on the propensity of individuals to participate in private and pension arrangements rather than investigating the differences associated with different levels of pension contributions (which themselves are influenced and dictated by a great range of factors). Indeed, reports produced by the ONS from the FRS data report scheme participation rather than pension contribution levels (ONS, 2015f). This study takes this approach further, in its objective to understand the extent to which people participate when they effectively must decide to make (or not opt-out of making) contributions of any sort. This may aid in the development of any retirement planning strategy intended to encourage future pension participation.

The dependent variables used for each of the three waves of FRS data analysed, are therefore PRIV (a derived variable using the PRIVPEN, EMPPAY and PERSPEN variables to indicate whether an individual had made private pension contributions in the year that the data was collected); and PERSPEN1 (a variable indicating whether an individual had made personal pension contributions in the year that the data was collected). It should be noted that for the 2009-2010 survey wave, respondents aged over 69, and those who had never worked are excluded from these questions (UK Data Service, 2009).

4.1.1.2 Explanatory variables

The conceptual framework set out in Section 1.2 provides the basis for this research. Firstly, in Chapters 5 and 6, bivariate analysis is carried out to investigate how the propensity for individuals to make private pension contributions varies over the period under investigation, according to demographic and socio-economic indicators, between and within different cohorts of men and women due to age, period or cohort effects (research question R1). The extents of intra-cohort differences in the proportions of people making private pension contributions over time are also investigated (research question R2). Chapter 7 further addresses research question R1 with regards to the age and cohort dimensions, as well as research question R3.

Demographic variables

The age-period-cohort (APC) investigation in Chapter 5 aims to shed light on how membership for private pensions varies across age groups and birth cohorts, and what factors may account for such variations according to age (see Sections 2.2.1, 3.1.1 and 3.3.2), gender (Section 3.1.2) and marital status (Section 3.1.3). Firstly, this thesis concerns the changing private pension behaviour of the population in the UK. Analysis of populations according to age and sex is a fundamental aspect of any demographic study due to the direct linkage of both variables with a population's composition and dynamics (Population Reference Bureau (PRB), 2017), and at the same time, demographic behaviour is often a function of age and sex (Timæus, 2005). As changes in status such as getting married or divorced interact with population structure in a similar way, marital status is therefore included in this study. Other demographic characteristics include place of residence (in this case, the UK), marital status and health (Timæus, 2005). For the purposes of this study, health is accounted for by way of the economic activity variable detailed later in this in the sub-section on socio-economic variables.

FRS provides several age variables. In each wave, respondent ages are included, either through asking respondents their date of birth, or age last birthday, with a number of derived variables for age in bands. In each case of age, this is calculated or provided as the

age last birthday at the time the respondent was surveyed (DWP *et al*, 2005; DWP *et al*, 2014a; DWP *et al*, 2014b). For the purposes of this study, cohorts from 5-year periods are used, and for consistency, 5-year age groups were used to categorise the ages of the respondents from the surveys. The use of five-year cohorts is an approach consistent with those carried out by the Office for National Statistics on the GHS Pseudo Cohort Dataset (Uren, 2006) and more specifically for analysis of trends such as those in smoking (Davy, 2015); which allow for aggregate data to be used without excessive loss of information unique to each cohort which could occur in analysing a broader age group. Existing derived variables for these 5-year age groups were used for each of the survey waves analysed in this study.

There is a single variable for gender provided in the FRS data, SEX. This is a binary variable i.e. male or female (DWP *et al*, 2005; DWP *et al*, 2014a; DWP *et al*, 2014b).

The FRS has a single raw data variable, MS, for legal marital status, for all the survey waves. In each of the three survey waves studied, there are two further marital status variables which have been derived, DVMARDF and MARITAL. In the 1999/2000 and the 2004/2005, DVMARDF, there were seven de-factor marital status categories: Married; Cohabiting; Single; Widowed; Divorced; Separated; and Same sex couple. However, following the introduction of the Civil Partnership Act 2004, which introduced civil partnerships with effect from 5 December 2005, it follows that by the 2009/2010 wave of the FRS, the categories had changed. In the 2009/2010 wave, the married status category in MS included civil partnerships, and divorces included dissolved civil partnerships. For the DVMARDF variable, the categories had reduced to six, with same-sex relationships distributed amongst the cohabiting; married/civil partnership or the divorced/civil partnership categories as appropriate. The MARITAL variable on the other hand, has always historically combined MS with a cohabitation indicator, and is therefore a more directly comparable variable for repeated cross-sectional analysis, as the categories have remained consistent over time. For the purposes of terminology used in this thesis, respondents who indicated they were either married or in a civil relationship have been classified as 'married', and respondents who were divorced or who had been in a civil partnership now dissolved are classified as 'divorced'. MARITAL, with its six status

classifications of Married; Cohabiting; Single; Widowed; Divorced and Separated is therefore used and is consistent with usage in the Family Resources Surveys reports produced by the ONS in more recent years (including the one from the 2009/2010 wave (ONS, 2011c)).

Socio-economic variables

It has been acknowledged that pension gaps or differences often occur not only as a result of the pension framework that exists but accumulate over the lifecourse due to a number of socioeconomic factors (Tinios *et al.*, 2015). Betti *et al.* (2015) specifically refer to education and gender difference (with reference to how these both are associated with the level of earnings), the type of economic activity (i.e. full-time vs part-time, employment vs self-employment) and work interruptions (including those due to care provision and unemployment); Bryan *et al.* (2011) further identifies public vs non-public sector as a determinant of pension eligibility and savings, and also indicates household ownership may favour pension saving. In this study therefore, the key socio-economic determinants used in the analyses are as follows: educational attainment (discussed in detail earlier in Section 3.2.1), housing tenure (Section 3.2.2), standard industry classification and economic activity (Section 3.2.3), caring responsibilities and care provision (Section 3.2.4) and earnings (Section 3.2.5).

A derived variable, banding ages at which respondents left full-time education has been used for the educational attainment variable (details below in Table 4.1a). One limitation of this approach is that it does not account correctly for mature students (or indeed other respondents such as those with accelerated education, i.e. skipping the curriculum of one or more years of school), as it uses the age at which individuals left full-time education as a proxy for their highest level of qualification. However, this approach is consistent with other analyses which use also the age at which individuals left education as proxy for categorising educational attainment (Feinstein & Sabates, 2006; Jackson, 2013). Whilst there is a comprehensive highest qualification variable provided in the 2009-2010 wave, the only qualification variable available in the 1999-2000 and 2004-2005 waves is an indicator of whether one's highest educational attainment is a degree or above. Taking this banded

approach to create a proxy for educational attainment allows for consistent treatment at a more detailed level than the binary variable provided in the earlier waves.

There are three housing tenure variables in the three waves of the FRS in this study. PTENTYP2 is a derived variable, which specifies the tenure types used for the FRS publication; however, category definitions and allocations for this variable for FRS datasets prior to 2003-04 are inconsistent with those after 2003-04 and the National Statistics guidance for a harmonised approach advises users not to use this (UK Data Service, 2006). TENTYPE is another derived variable, which classifies renters in more detail, including type of tenancy and term (REF). For the purposes of this study however, TENURE, which classifies respondents according to six standard tenure categories (Owns outright; Buying with the help of a mortgage; Part owns, part rent; Rents; Rent-free and Squatting) will be used, and which is consistently defined across the waves (REF).

In order to identify the extent of the differences in private pension participation that can be associated with working in the public versus the private sector, this study uses a binary derived public sector indicator variable; this has been included due to the well documented differences in typical occupational pension provision offered between private and public sector employment, and the very apparent differences in proportions of men and women who work in each sector (see Chapter 3; Meyer & Bridgen, 2011; ONS, 2013e). The data provided by the FRS does not include a derived public-sector indicator, but in each of the survey waves, respondents have been asked to identify the Standard Industrial Classification (SIC) of the economic activity group to which they belong. In the first two waves used, 1999-2000 and 2004-2005, these have been provided using the historical codes (1992); for the 2009-2010 wave, the 2007 SIC codes are available.

There are three distinct variables provided in the FRS for economic activity; EMPSTATB, a derived economic status variable which uses total hours worked and incorporates a separate category for individuals who are not working due to taking industrial action plus four ill-health categories (part-time or full-time worker not working at the time of survey due to being off sick, and respondents who were not in employment and identified with

being temporarily sick, or long-term ill health); EMPSTATC, which provides a broad breakdown of economic activity according to the variables used for Households Below Average Income analyses; and EMPSTATI, an economic variable indicating a person's economic activity using standard International Labour Organization (ILO) classifications: Full-time employee; Part-time employee; Full-time self-employed; Part-time self-employed; Unemployed; Retired; Student; Looking after family/home; Permanently sick/disabled; Temporarily sick/injured and Other inactive (UK Data Service, 2010). For the purposes of this thesis, the final variable has been used, which is both comprehensive, and also ensures that the findings in this study may be discussed in the context of other studies both in the UK (e.g. ONS, 2013e) and beyond, given the international nature of ILO standard.

CAREAB and CAREAH which were variables provided to indicate whether the respondent provided care to any adults at home or away from home at the time they were interviewed were amalgamated to produce a single variable indicating that care was provided to an adult regardless of location, CAREADULT.

The FRS provides the total (gross) income individuals receive via the variable INDINC; a derived banded version of this variable, HDINDINC, supplies this information split by income bands. This is the same form of variable as used in previous studies of individual income (Government Equalities Office (GEO); DWP, 2011b). For the purposes of this study, several of the lowest categories (those relating to weekly income of less than £100) and the highest categories (weekly income above £600) have been banded, so as to have statistically significant numbers falling into each of the income categories under consideration; the number of respondents in each of the manually derived categories in the variable HDINDINCX are detailed in Table 4.1. It is acknowledged that some statistics series, such as the Households Below Average Income (HBAI), use income at the household level, assuming all members of a household benefit equally from the combined household income (also see Chapter 3). However, the income definition used in this study reflects the position of the individual, as it is an individual who joins a pension scheme, or sets up a pension plan, even if the decision is affected by the overall household position.

In Chapter 7, a third analysis is presented, carrying out logistic regression modelling to determine the extent of the associations between the various demographic and socio-economic characteristics explored already. As data was compared across several waves for the age-period-cohort analysis carried out in Chapters 5 and 6, it can be expected that some variables may be named differently or that some categories within raw data variables may change over time. In the case of the variables used for these two chapters, which are set out in Table 4.1.a, the only difference was with the age variable used; for the 1999-2000 and 2004-2005 waves, IAGEGRP was used, and in 2009-2010, IAGEGR4 was used as described earlier in this section. In each case, however, the definitions of the age groups provided in the datasets remained unchanged. MARITAL was unchanged inasmuch as it was derived from legal marital status categories with an additional category for cohabitation but was slightly different in 2009/2010 due to the incorporation of civil partnerships as a legal marital status.

Table 4.1a Explanatory variables used for age-period-cohort investigation and logistic regression modelling

Variable	1999-2000	2004-2005	2009-2010	Variable measure
Age (derived variable provided directly from datasets)	IAGEGRP	IAGEGRP	IAGEGR4	Banded age groups, from 16-19, followed by 5-year age bands up to SPA as follows: 4 = 16 – 19 years 5 = 20 – 24 years 6 = 25 – 29 years 7 = 30 – 34 years 8 = 35 – 39 years 9 = 40 – 44 years 10 = 45 – 49 years 11 = 50 – 54 years 12 = 55 – 59 years 13 = 60 – 64 years
Sex (raw variable provided directly from datasets)	SEX	SEX	SEX	Male/Female indicator
Marital Status (derived variable provided directly from datasets)	MARITAL	MARITAL	MARITAL[1]	Split into 6 categories as follows: 1 = Married (plus Civil Partnership) 2 = Cohabiting 3 = Single 4 = Widowed 5 = Separated 6 = Divorced (plus Civil Partnership dissolved)

Variable	1999-2000	2004-2005	2009-2010	Variable measure
Age completed education (manually derived from raw data variable TEA provided from data sets)	TEA	TEA	TEA	Banded age groups as follows: 1 = 16 or under 2 = 17-18 3 = 19-21 4 = 22-25 5 = 26 and over
Economic activity (provided directly from datasets)	EMPSTAT1	EMPSTAT1	EMPSTAT1	Employment classification according to ILO categories: 1 = Full-time employee 2 = Part-time employee 3 = Full-time self-employed 4 = Part-time self-employed 5 = Unemployed 6 = Retired 7 = Student 8 = Looking after family/home 9 = Permanently sick/disabled 10 = Temporarily sick/injured 11 = Other inactive
Sector (manually derived from raw data provided via the SIC variable provided from datasets)	SECTOR	SECTOR	SECTOR	70, 75, 80 = proxies for public sector for 1999-2000 and 2004-2005 waves. 84-88 inclusive for 2009-2010 wave All others = proxies for private sector
Housing tenure (directly provided from datasets)	TENURE	TENURE	TENURE	Classification of household ownership type according to the following categories: 1 = Owns outright 2 = Buying with the help of a mortgage 3 = Part owns, part rents 4 = Rents 5 = Rent-free 6 = Squatting
Number of children under 5 (manually derived from the KID04 variable provided from datasets)	KID04	KID04	KID04	Yes/No
Providing care for adult (manually derived from CAREAB and CAREAH variables from datasets)	CAREADULT	CAREADULT	CAREADULT	Yes/No
Gross weekly income (manually derived from derived variable HDINDINC provided in datasets)	HDINDINCX	HDINDINCX	HDINDINCX	Banded categories as follows: 1 = Less than £100 2 = £100 to < £150 3 = £150 to < £200 4 = £200 to < £250 5 = £250 to < £350 6 = £350 to < £450 7 = £450 to < £600 8 = £600 and over

Note: [1] The 2009/2010 survey wave includes civil partnerships in the 'married' category, and dissolved civil partnerships in the 'divorced' categories following the introduction of civil partnerships in 2005.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Recent studies in this area (Bryan et al, 2011) also include ethnicity as another key characteristic use to differentiate savings likelihoods. Ethnicity has been shown to be a strong determinant of having access to an occupational pension scheme (Vlachantoni *et al*, 2015), although once individuals are employees, the difference tend to reduce. However, due to the limited ethnicity data available from the FRS being insufficient to draw statistically significant findings, ethnicity in not included in this study; other datasets could be used to explore this dimension in future studies.

4.1.1.3 Grossing factor, data summary and missing values

A grossing factor supplied with each of the FRS datasets has been incorporated into the summary statistics and logistic regression analysis for the purposes of this study. Grossing factors have been provided with the FRS since the 1992 survey to enable a grossing to provide a representative population and to compensate for non-response (DWP, 2012a). The grossing factors available for the period being analysed in this thesis are GROSS3 for the 1999-2000 dataset (DWP *et al*, 2005) and GROSS4, which replaced GROSS3 in a release provided by the UK data service in 2014 (DWP *et al*, 2014a; DWP *et al*, 2014b), for the 2004-2005 and 2009-2010 waves. These grossing factors are intended to align with ONS population estimates (DWP, 2005a) by age, sex and region, and control for the number of lone parents and overall number of families with children, which allows for analysis to be made representative of the population at large.

Table 4.1b summarises the cell counts for the working age respondents used in the analysis. There are no missing values or non-responses for any of the major demographic variables (age, sex, marital status), for each survey wave used. Similarly, there are no missing values for the economic activity or care responsibility variables. However, for educational attainment, the variable used requests an indication of the age at which full-time education was completed. Some respondents have not provided this information; this may be due to them still being in full-time education, or it may simply be a non-response. Not all respondents have given details relating to the sector in which they work; this may be due to them to being in work at the time the survey was carried out e.g. still in education, retired, or other.

Table 4.1b Summary and cell counts of FRS demographic and socio-economic data variables used for APC and logistic regression analyses by gender and survey wave

	Men			Women		
	1999-2000	2004-2005	2009-2010	1999-2000	2004-2005	2009-2010
Age						
16-19	674	797	513	650	752	544
20-24	1,270	1,502	1,300	1,488	1,756	1,578
25-29	1,657	1,548	1,396	1,926	1,825	1,786
30-34	2,090	2,009	1,600	2,299	2,384	1,839
35-39	2,199	2,344	1,864	2,479	2,640	2,065
40-44	1,937	2,313	1,932	2,042	2,545	2,190
45-49	1,782	2,016	1,885	1,914	2,190	2,124
50-54	1,965	1,961	1,781	2,017	2,040	1,826
55-59	1,536	2,053	1,664	1,634	2,137	1,764
60-64	1,477	1,763	1,833	n/a	n/a	n/a
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**
Marital Status						
Married	9,786	10,361	8,677	9,308	9,758	7,924
Cohabiting	1,807	2,212	2,182	1,783	2,179	2,115
Single	3,850	4,418	3,758	3,171	3,996	3,751
Widowed	146	155	138	292	267	216
Separated	280	345	328	618	710	590
Divorced	718	815	685	1,277	1,359	1,120
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**
Age left full-time education						
16 or under	10,226	10,258	7,966	9,342	9,258	6,701
17-18	2,771	3,376	3,164	3,639	4,271	3,972
19-21	1,613	1,936	2,010	1,774	2,330	2,354
22-25	141	247	1,881	89	182	1,888
26 and over	378	531	255	448	589	181
Not given	1,458	1,958	492	1,157	1,639	620
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**
Economic activity						
Full-time employee	10,451	11,370	9,268	6,170	7,201	6,380
Part-time employee	643	813	805	4,207	4,610	3,711
Full-time self-employed	1,787	2,046	1,671	464	489	415
Part-time self-employed	219	237	230	394	399	359
Unemployed	854	678	1,049	551	455	644
Retired	426	568	534	207	307	218
Student	247	359	359	301	408	490
Looking after family/home	89	125	98	2,231	2,178	1,641
Permanently sick/disabled	1,323	1,576	1,250	1,013	1,455	1,192
Temporarily sick/injured	83	115	93	91	131	104
Other inactive	465	419	411	820	636	562
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**
Sector (using Standard Industry Classification)						
Public Sector	1,937	2,406	2,284	4,530	5,657	5,235
Private Sector	11,763	12,614	10,148	7,331	7,640	5,924
Not given	2,887	3,286	3,336	4,588	4,972	4,557
Total	16,587	18,306	15,768	16,449	18,269	15,716
Household tenure						
Owns outright	2,995	3,887	5,358	2,474	3,266	5,396
Buying with mortgage	9,224	9,629	4,962	9,041	9,512	4,963

	Men			Women		
	1999-2000	2004-2005	2009-2010	1999-2000	2004-2005	2009-2010
Part owns, part rents	44	56	59	55	68	61
Rents	4,137	4,539	5,183	4,697	5,218	5,092
Rent-free	187	194	206	182	203	204
Squatting	0	1	0	0	2	0
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**
Providing care for adult						
Yes	448	455	398	488	499	436
No	16,139	17,851	15,370	15,961	17,770	15,280
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**
Has children aged 0-4						
Yes	1,275	1,634	2,376	1,627	1,984	3,060
No	15,312	16,672	13,392	14,822	16,285	12,656
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**
Gross weekly income						
Less than £100	2096	2169	2095	5099	4117	2853
£100 to < £150	1,394	1,106	942	2,360	2,020	1,336
£150 to < £200	1,472	1,309	913	2,362	2,223	1,408
£200 to < £ 250	1,691	1,504	1,068	1,822	2,046	1,566
£250 to < £350	3,151	3,051	2,282	2,269	3,225	2,886
£350 to < £450	2,413	2,564	1,987	1,119	1,889	2,033
£450 to < £600	2,075	2,788	2,406	901	1,444	1,669
£600 and over	2,295	3,815	4,075	517	1,305	1,965
Total	**16,587**	**18,306**	**15,768**	**16,449**	**18,269**	**15,716**

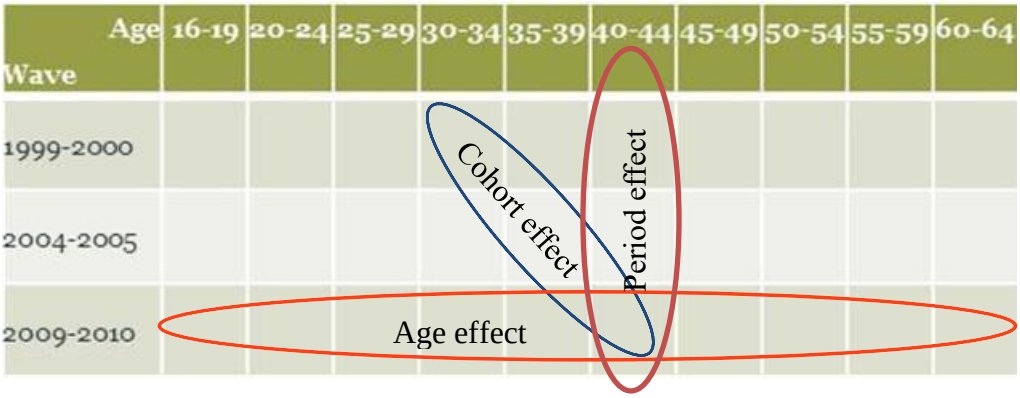
Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

4.2 Methodology

The research incorporates several different approaches in investigating private pension contribution trends. Historically, both qualitative (e.g. Peggs, 2000; Gough, 2004; Foster, 2012a) and quantitative (e.g. Ginn & Arber, 1999; Evandrou *et al*, 2009) methodology has been employed in addressing the issue of pension provision, and particularly in previous research on the gender gap in pension provision. Although qualitative research can yield results rich in detail about human behaviour, often the results and observations specifically relate to individual behaviour and decision-making, and cannot be representative of national trends. This thesis aims to examine the private and personal pension trends and patterns for men and women in the UK to inform the policy debate in this area; to this end, quantitative analysis with data that is adjusted to be representative of the wider population is the most appropriate approach to address the research questions set out in Section 1.2.

As outlined in Section 4.1.1.2, the first two analyses comprise retrospective studies using repeated cross-sectional univariate examination of FRS data from 1999-2000 to 2009-2010, to disaggregate changes to private and personal pension contributions, from an age-period-cohort (APC) perspective. In order to carry out analysis from a cohort perspective, it is first necessary to create pseudo-cohorts. In this thesis, the pseudo-cohort analysis involves investigating the average experiences of respondents who were born in the same five-year period. This approach is taken because the FRS is a cross-sectional survey, and unlike conventional longitudinal analyses, respondents are not the same for different survey waves. Whilst some individuals will die in this period, mortality for individuals of working ages is low, especially for males aged less than 55 and women aged less than 60 (ONS, 2014e), and it is assumed that the remaining population is representative of the cohorts at each age. This pseudo-cohort analysis approach has been used in studies for some time. For example, in 2000, pseudo-cohorts were created using BHPS data in order to examine the differences in social and economic experiences for different cohorts (Evandrou & Falkingham, 2000). Other studies which have adopted this approach include research into social inequality trends by the ONS on the General Household Survey (Uren, 2006) and the Department for Education and Skills in tracking changes in national population qualifications over time (McIntosh, 2005).

Figure 4.3: Proposed three way (age, cohort, period) analysis



Note: Representation shown above applies to men (with a SPA of 65); a similar analysis is carried out for women (with a SPA of 60) for ages up to 59

Source: Author's own interpretation

An APC summary of the changing propensities for men and women to make private (and personal) pension contributions, broken down by age group over time, should help to identify the trends and variations existing between and within different birth cohorts. To

this end, this analysis will produce findings relating to the first and third research questions, which were set out in Section 1.3. The trends associated with demographic characteristics will be set out in Chapter 5. Chapter 6 builds upon these findings by extending the APC exploration of the trends in the propensities to make pension contributions that are associated with variations in socio-economic characteristics.

The third analysis, carried out in Chapter 7 using the 2009-2010 wave of the FRS data, involves bivariate analysis by way of logistical regression, which was carried out to investigate whether there are any associations between the proportions of respondents making contribution and key socio-economic characteristics. Whilst at a fixed point in time individuals will have same pension choices available to them, analysing the differences that transpire between different cohorts will give insight into how different behaviour may be attributed to each cohort, and therefore associated with the typical lifecourse exposure to the legislative environment each cohort will have had. This period effect is considered in relation to the key changes to pension policy that have been introduced during this time, from 1999-2000 to 2009-2010, and which falls within the relatively liberal 1980-2007 regime (Bridgen & Meyer, 2011). It will provide valuable insight into the differences in pension participation for each cohort in relation to the intended improvements or changes to pension participation key legislation was intended to achieve.

Three separate pseudo-cohorts (individuals born in the periods from 1961-1965, 1971-1975 and 1981-1975) are further examined and compared to highlight any inter- and intra-cohort differences in the propensities of these cohorts to make private pension contributions. These pseudo-cohorts have been selected on the basis that they will have been exposed differentially to the various pension regimes that have been in place in the UK over recent decades (see Section 2.1.1), but also that they will have been exposed to uniquely different lifecourse experiences as a result of the major social changes that have taken place in the UK in recent decades which include not only significant changes to job patterns and work place participation, but also changes to education, relationships and relative wealth.

The following sections provide a more detailed breakdown of the methodology approach adopted, and the justification for the methodology adopted, for the three analysis chapters. A discussion of the limitations of the methods used will be included in Chapter 8.

4.2.1 **Univariate and bivariate analysis**

In the first analysis, analysis is carried out to investigate how the propensity for individuals to make private pension contributions varies over the period from 1999-2000 to 2009-2010, according to demographic characteristics (age, gender, marital status). Microsoft Excel[9] and SPSS[10] software modelling package was used to produce the descriptive APC investigation carried out in Chapter 5, including both the basic data analysis and the creation of graphs. Chi-squared tests were carried out to test for the significance of the results observed. This Pearson's chi-squared analysis (Pearson, 1900) was used detect whether the explanatory variables had a significant predictive influence on the private and personal pension response variables, i.e. were associated with variations in the likelihood of private and personal pension contributions. It should be noted that the analysis does not suggest a causal relationship.

Bivariate relationships between categorical variables and the response variables were examined using cross-tabulation. As outlined in the conceptual framework set out in Section 1.2, these key demographic factors which have been strongly associated with differences in the extents of pension contributions in past studies and are discussed in detail in Section 3.1. For example, it has long been recognised that age is a major aspect of social organisation (Riley *et al*, 1972); due to the changing societal environment, and the changing legislative environment, each cohort will experience unique events or have a different experience of events as they are at different stages of the life course when these

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[9] Microsoft Excel: Office 2010.

[3] The versions of software used were as follows: PSAW Statistics v.18.0, referred to by its more common moniker, 'SPSS', due to it being more widely understood

events occur. We might therefore not only expect respondents of different ages to show differing propensities to take up private pensions at any given time, but we might also expect respondents from different birth cohorts to show different behaviour in their private pension decisions. For example, women in from the Late Baby Boom cohort may be less likely to work, and hence be less likely than men to have access to occupational pension schemes.

However, younger respondents, such as the Early Millennials, may be reasonably expected to show a higher rate of making private pension contributions due to their increasing educational levels and their increased level of participation in the workplace, despite the trend for less generous occupational pensions over recent years, at least compared with their male counterparts. The second analysis, in Chapter 6, builds on the analysis focusing on the differences associated with demographic determinants by exploring the variations in the propensities of men and women to make private pension contributions over time, according to differences in key socioeconomic characteristics as set out in Section 4.1.1.2.

4.2.2 **Logistic regression modelling**

Chapter 7 builds upon the first and second analyses by examining the extent to which variations in the propensities of men and women to make private and personal pension contributions may be attributed to different explanatory variables, through the application of logistic regression models, focusing on the most recent survey wave, 2009-2010. Standard linear regression assumes a normal distribution in a continuous form, which cannot be achieved with a binary response variable, which is the form the response variable for the analyses carried out in this study. Instead, binomial logistic regression modelling has been selected as an appropriate method for this investigation (Field, 2009), as it will enable the investigation to identify the relationship, if any, between these explanatory variables and the propensity of respondents making private pension (and personal) contributions.

Starting with a simple model, preliminary analysis was carried out on each of the response variables (i.e. variables indicating whether respondents were making private pension

contributions and personal pension contributions) with all of the potential explanatory variables detailed in Section 4.1. The variables selected are based on the conceptual framework presented in Figure 1.2, and the theoretical grounding for their inclusion in this analysis has been provided in Chapters 2 and 3. The Wald statistic was utilised to identify which predictors could be safely interpreted with confidence for the preferred model. The Wald statistic, which is the value of each regression coefficient divided by its associated standard error, has a χ^2 distribution, and can be used to ascertain the significance of the contribution made by each of the variables within a model (Burns & Burns, 2009).

In this next stage, a more complete investigation was carried out using fixed effects modelling to produce a preferred model. The response variables for this study are binary, either respondents reporting making a pension contribution, so a "Yes" outcome is associated with a probability θ, i.e. $\Pr(Y = 1) = \theta$ or a "No" outcome $\Pr(Y = 0) = 1 - \theta$.

Dummy variables were created using one category within each explanatory variable. Each model created estimated regression coefficients β_i for each category within the variables except for the dummy variable, to which the other categories were then compared.

The logit function used in logistic regression is defined as:

$$\sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i} > \chi^2_{k-1,\alpha}$$

This function enables the prediction of the log-odds of a positive response, in this study this relates to respondents making private or personal pension contributions. The corresponding logistic regression model with each of the regression coefficients β_i representing the log-odds of having a "Yes" response to making private or personal pension contributions compared with those in the baseline categories is as follows:

$$Logit(\theta) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ \ldots + \beta_k X_k.$$

Where α is a constant, and $\beta_1 \ldots \beta_k$ are the regression coefficients of explanatory variables $X_1 \ldots X_k$ (i.e. demographic characteristics being investigated, such as sex, age range, marital status, economic activity, employment sector, having young children or adult dependants, household tenure and highest level of education attained) and each of these log-odds is estimated controlling for all other variables.

Odds ratios are the exponentials of these regression coefficients. Where odds of a "Yes" response are higher than in the baseline category, the odds ratio will take a value above 1. Odds ratios smaller than 1, i.e. $0 < \theta < 1$, arise where the odds of a "Yes" response in that category are lower than in the baseline category.

For categorical variables, the baseline (or 'reference') categories selected are as follows:

Table 4.3a Baseline categories selected for categorical explanatory variables in logistic regression analysis

Variable	Baseline category
Age	For women, 55-59 For men, 60-64
Marital status	Single
Age completed full-time education	22-25 years
Housing tenure	Owns house outright
Economic activity	Full-time employed
Public Sector	Public sector
Have children aged 0-4	Does not have children aged 0-4
Provides care for adults	Does not provide care for adults
Gross weekly income	Weekly income of £600 and over

Source: Family Resources Survey 2009-2010.

In each case, the baseline category had to fulfil an initial criterion of having sufficient respondents within that category to be reasonably statistically robust. For this reason, a number of categories for the marital status variable, for example, widowed, were excluded.

Furthermore, it is typical in logistic regression to choose either the most common category (especially for categorical variables) or the last one (for ordinal variables) (Agresti, 2013), once the condition of robustness is fulfilled. The approach taken for each variable has been made on a variable by variable basis and the case for each will now be set out. The case for robustness is applied for the age variable, in which the oldest age group has been selected for both men and women. Although some studies in the field have used the youngest age category as a reference (Vlachantoni *et al.* 2015), in this particular study, the oldest group is used from a robustness perspective to enable clearer interpretation of the results. (The youngest age groups included in the analysis firstly, comprise the lowest numbers of respondents, and secondly, comprise those who are much less likely to be in the work place, and who are least likely to be eligible or choose to become pension scheme members at the time the data was collected.) Single status has been selected as the baseline category for the marital status category, for several reasons. Firstly, the number of cases falling within this category is relatively large compared with separated or widowed categories (and hence more likely provide more statistically rigorous findings). The breakdowns of the numbers of cases by category for each of these variables have already been set out in Table 4.1b in Section 4.1.1.3. Secondly, 'single' provides a logical comparator to all other marital statuses – which must all have followed on from a single status earlier in an individual's life course.

The most common categories for the socio-economic determinants economic activity and housing tenure are 'full-time employee' and 'owns house outright' respectively and these are reflected in their selection as baseline categories for their respective variables. They are commonly used reference categories in other studies relating to retirement provision (e.g. Vlachantoni *et al.* 2017). It could also be reasonably be expected that respondents falling into these categories will be the most likely to be able to make pension contributions i.e. the most likely to be positively associated with the outcome variable. As set out in Table 4.3a, the base line category for age completed full-time education is the age 22-25 category. This proxy for the highest level of educational attainment is consistent with other studies (Vlachantoni *et al.,* 2015). The 'not given' category is too ambiguous as an alternative – it could include both people who left education very early, at any age, or even people who are still in education and therefore have not completed their full-time education. The high proportion of public sector employees who make occupational pension contributions is well documented, and public sector is therefore utilised as the reference category for the

sector variable. Research has shown that having children, or other care responsibilities, may affect the ability of an individual (and particularly women) to make pension contributions (Evandrou & Glaser, 2003; ONS, 2014b). For the purposes of this analysis, the care variables reference categories are set such that the reference is the category which is most likely to be associated with the outcome, i.e. not having responsibility for young children or caring for an adult. With respect to the income variable, the last category '£600 and over' has been chosen as the reference category, as both the 'end' category, but also the category which might reasonably be expected to be most positively associated with the outcome variable.

Predicted probabilities can also be calculated in the following form:

$$\hat{\pi} = \frac{exp^{(\beta_{CONST}+\beta_1 x_1+ \beta_2 x_2+ \ldots+ \beta_k x_k)}}{1+exp^{(\beta_{CONST}+\beta_1 x_1+ \beta_2 x_2+ \ldots+ \beta_k x_k)}}. \quad \text{(adapted from Agresti, 2007)}$$

Where $\hat{\pi}$ is the probability of having private (or personal) pension provision at retirement.

Variables, or combinations thereof, which have been selected based on the conceptual framework (see Section 1.2), were added to a baseline model in stages. As more than one explanatory variable was being investigated, variable interactions were also included in the modelling process. When carrying out the logistic regression, variable interactions can be an important part of the analysis, as it is important to consider confounding contributing impacts of different variables. For example, it is very likely that a significant proportion of individuals aged 16-19 and even 20-24 would still be in education. In light of this, in addition to affecting the decision on the age group baseline category, it is also important that interaction between age and the age at which an individual completed full-time education was explored as an additional variable within the logistic model. The results of these are investigated further in Chapter 7.

These variants to the baseline model were added using an entry method, with decisions made by the researcher as to which variables should be added at each stage, the entry

requirement being a reduction in the log likelihood ratio significant at $p < 0.05$. This manual 'enter' approach, as opposed to the automatic 'stepwise' regression option for the regression process allows the researcher to investigate the significance of each step (Bursac *et al.,* 2008), according to both a substantive as well as statistical basis. The predictors used in this modelling processed have been discussed, and built upon at length in the Chapters 2 and 3 and it is upon the basis of the literature that supports the inclusion of these determinants, and the likely substantive interactions between them, that the researcher will investigate the models. This process enables the researcher to also focus on a parsimonious model, to provide the best fit with fewest elements, but without losing relevant predictors, which may not always result from a stepwise approach, if there are redundant predictors (Judd & McClelland, 1989). At each stage, these revised models were fitted to the data and their log-likelihood estimated. The suitability of the introduction of each of these extra variants was then determined through the application of the likelihood ratio test statistic (Agresti, 2007), twice the difference in these log-likelihoods.

As this was a hierarchical nested model approach, tests such as the Pearson's χ^2-squared tests could be carried out on the differences in the -2 log-likelihood (-2LL) between each progressive fuller model, to test for significance of any improvements to the previous model. These differences in -2LLs have a χ^2 distribution, the degrees of freedom being equal to the number of parameters within the newer model less the number of parameters in the earlier model (Burns and Burns, 2009). The Pearson's χ^2 statistic is calculated as follows:

$$\chi^2 = \sum \frac{(n_{ij} - \mu_{ij})^2}{\mu_{ij}}$$

The null hypothesis H_0 is that of statistical independence between variables, with the observed values n_{ij} compared against the expected frequencies, μ_{ij}. Therefore, each revised model that led to a difference in -2LL with $p<0.05$, which indicated that the inclusion of that additional variable significantly changed the model at the 5 per cent level, was retained for further consideration.

Whilst the likelihood ratio statistic was the main criteria used for model selection, the R^2 statistic was used to confirm the suitability of each progressive model for a general goodness of fit of the models with the data. Additional variables were only added if they *also* met the criteria of increasing the R^2 statistic by more than the selected margin of tolerance(see sections 7.1, 7.2 and 7.4), to ensure only variables or interactions that made significant contributions to explaining the model were included.

Although SPSS provides both Cox and Snell's R^2 and Nagelkerke R^2, this study uses the latter, as Cox and Snell's R^2 does not reach 1, its theoretical maximum value. Nagelkerke (1991) suggested the following measure for R^2 as follows:

$$\text{Nagelkerke's } R^2 = \frac{1-e^{-\frac{2}{N}(LL(new)-LL(baseline))}}{1-e^{\frac{2}{N}LL(baseline)}}$$

Finally, the Wald statistic was utilised to identify which predictors could be safely interpreted with confidence for the preferred model. The Wald statistic, which is the value of each regression coefficient divided by its associated standard error, has a χ^2 distribution, and can be used to ascertain the significance of the contribution made by each of the variables within a model (Burns & Burns, 2009).

The final model was used to identify whether men and women, from different cohorts, were more or less likely to make private (or personal) pension contributions, taking into account of their marital status and educational attainment, and where there were differences in savings or retirement provision behaviour, the extent of those differences, in line with the overall objectives of this research.

Bivariate relationships between categorical variables and the response variables were examined using cross-tabulation, and chi-squared tests were used to test for the significance of the results observed. For continuous variables, t-tests were used to compare the means

between the 'Yes' and 'No' binary variables, and one-way ANOVAs[11] were used for variables with more than 2 categories (Agresti, 2007 and Field, 2009). The following Chapters 5,6 and 7 set out the results of each of these analyses in turn.

[3] Note on notation: ANOVA = Analysis of Variance

5. Results I: Private and personal pension contributions in the UK: differences associated with demographic characteristics by age, period and birth cohort

The research questions that this thesis aims to address were set out in Section 1.3, of which this chapter aims to address the following:

- R1: How does the propensity to make private pensions contributions vary for men and women across age groups and birth cohorts and what factors may account for such variations?
    - In particular, what differences in the incidence of private pension contributions exist between and within different cohorts due to age, period or cohort effects?
    - Do personal pension contribution patterns follow the same trends as private pension contributions?

- R2: To what extent are there intra-cohort differences in the proportion of men and women making private pension contributions over time?

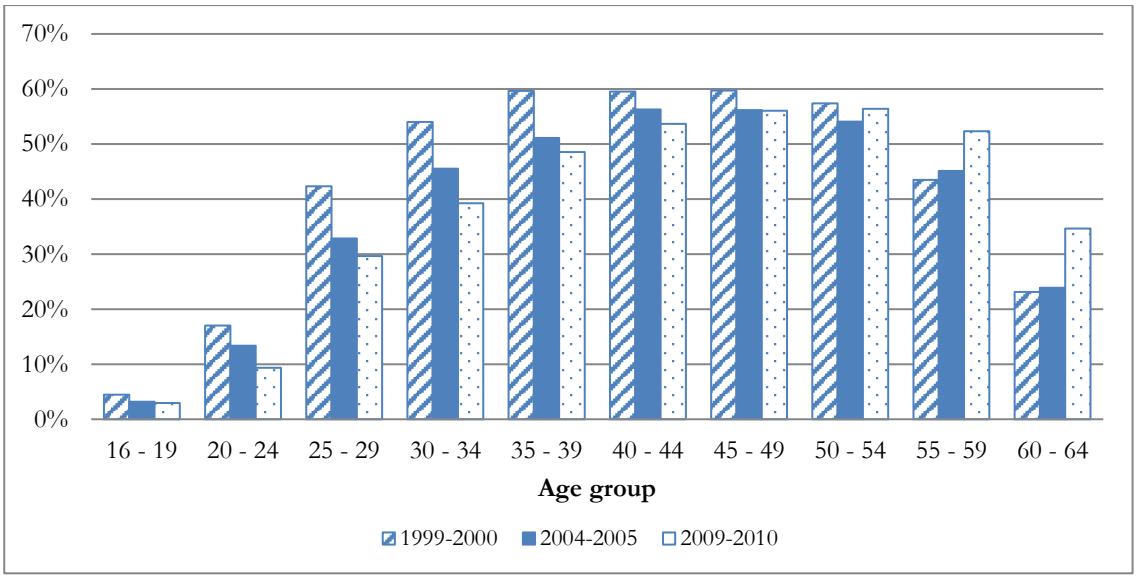
This chapter also aims to investigate the extent to which selected birth cohorts are likely to have differing retirement provision, and therefore, outcomes. It focuses on trends in the propensities of individuals to make private (non-state) contributions associated with differences in demographic characteristics as set out in the conceptual framework in Figure 1.2, namely age, sex and marital status. Firstly, this chapter will focus on the differences in private pension contributions. Private pensions are effectively savings made by individuals on an elective basis. Individual decision-making is influenced by both the societal context in which people are situated and their institutional settings (Taylor-Gooby, 2008); these often differ between men and women. It will investigate how the proportions of men and women making contributions towards private pensions vary for different age groups, and how these differences vary over time. The rates of private pension participation split by gender and age group will then be further examined for any trends or patterns associated

with different marital status and education levels. A further investigation will then be carried out by analysing the levels of incidence of personal pension plan contributions only. These personal pension contribution trends will be compared with those of private pension contributions overall. By carrying out analysis at both the private pension and the personal pension components of pension provision, the findings should provide both a breakdown of the general private pension contribution trends, and perhaps some insight into the associations that might be made with the introduction of personal pensions via the Social Security Act 1986 with effect from April 1988 (Table 2.1b) for different cohorts over time. The chapter concludes with a brief summary and outline of the implications of the key findings from these results.

5.1 Trends in private pension contributions from 1999-2000 to 2009-2010

Figures 5.1a and 5.1b show the propensity of men and women in the UK to make private pension contributions over the period from 1999-2000 to 2009-2010 (a breakdown of these figures are provided in Section 5.1.1, in Tables 5.1a and 5.1b respectively).

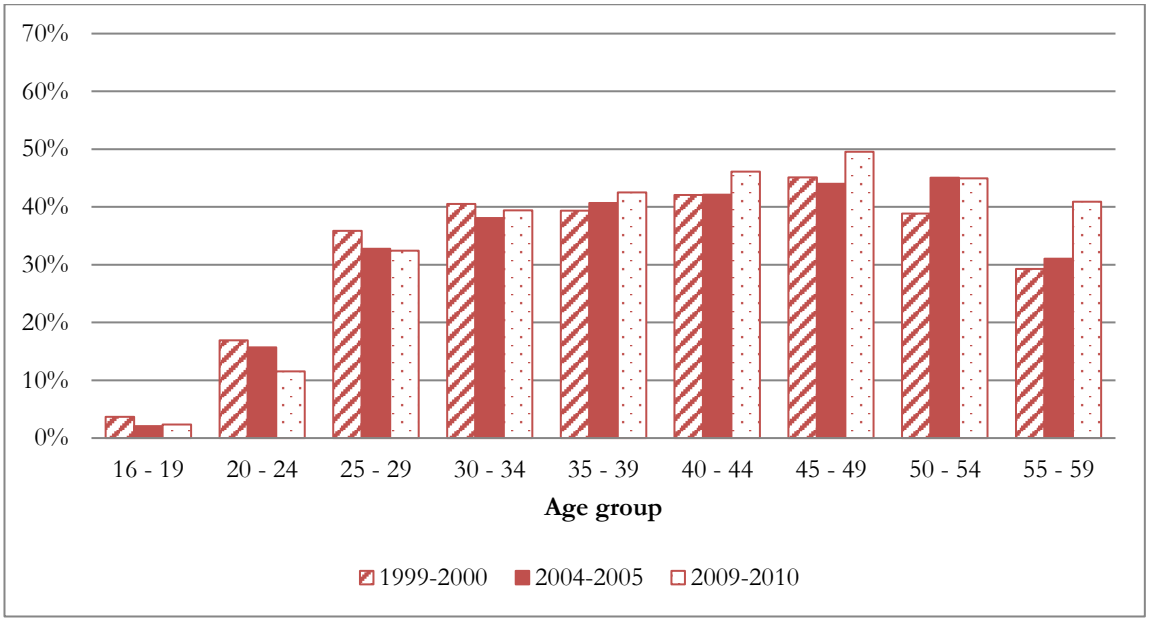
Figure 5.1a Proportion of men making private pension contributions from 1999-2000 to 2009-2010, by age group



Note: Proportions shown are weighted by a grossing factor. Unweighted survey sample sizes for men included in figure are as follows: 1999-2000 N=16,587; 2004-2005 N=18,306; 2009-2010 N=15,768. The statistical significances for these results (the differences within age group over the period are significant at the 5% for ages 20-39 and 55-64 inclusive) are included in Table 5.1a.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Figure 5.1b Proportion of women making private pension contributions from 1999-2000 to 2009-2010, by age group



Note: Proportions shown are weighted by a grossing factor. Unweighted survey sample sizes for women included in figure are as follows: 1999-2000 N=16,449; 2004-2005 N=18,269; 2009-2010 N=15,716. The statistical significances for these results (the differences within age group over the period are significant at the 5% for ages 20-24 and age groups 45 and over) are included in Table 5.1b.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

It should be noted that it is possible to make private (and personal) pension contributions without being employed; these figures therefore include all respondents (i.e. a combination of those who are employed, self-employed or not in paid employment) and may slightly over-estimate the proportions of individuals making contributions.

It is clear from these figures that a number of different trends emerge, depending on the perspective undertaken; there are a number of clear differences between men and women, and between different age groups over time, which are distinctive to the variations found between different cohorts over time. These will be discussed in turn.

5.1.1 Age and period effects on private pension contributions over time

The life-cycle hypothesis has been utilised extensively to examine savings and retirement behaviour of older persons (Modigliani & Brumberg, 1954; Modigliani & Ando, 1957). This hypothesis suggests that consumption needs and income vary at different points in the life-cycle and this is reflected in individuals' savings behaviour. At younger ages, people tend to have higher consumption needs, for example in the areas of housing and education, and therefore the level of their savings is relatively low. As people approach middle age, their incomes generally increase, debts accumulated in earlier years tend to be paid off, and savings are accumulated at a higher rate. Finally, at older ages, towards retirement, income fall and so do saving as well as consumption rates.

Over the period under investigation, for individuals of working age (20-64 for men and 20-59 for women) a number of different trends in the proportions contributing towards private pensions could be seen. Firstly, it can be seen that the age profile of private pension contributions follows an inverted U shape, which appears to tie-in with the life-cycle savings hypothesis described above. In other words, the propensity of individuals to make private pension contributions is relatively low at younger ages, then increases as they approach middle age, and taper off as they approach retirement. Secondly, looking at each of the age groups over the period under review (period effect), the proportion of men within most of these age groups making private pension contributions is falling (for ages 20-49, it is significant at the α=0.05 level). Except for the 20-24 age group, where the proportion of women making private pension contributions falls (significant for α=0.05), the corresponding proportions for women do not change significantly during the period from 1999-2000 to 2009-2010. Thirdly, only within the oldest age groups, for men within 10 years of state retirement age and for women within 5 years of state retirement age, do the proportions of respondents making private pension contributions increase significantly (for α=0.05) over the period from 1999-2000 to 2009-2010. These results will be revisited in the discussion chapter.

The upward trend in private pension contribution amongst older cohorts (aged 55 and above) may correspond somewhat to increased employment participation rates amongst older cohorts (from 68.9 per cent to 71.3 per cent for men and from 64.4 per cent to 70.5

per cent for women from the second quarter of 2000 to the second quarter of 2010 respectively) and the increased average age of exit from the workforce from 63.3 to 64.7 years and 61.2 to 62.5 years over the same period for men and women respectively (ONS, 2011i). Tables 5.1a and 5.1b show these proportions banded into 5-year age groups (except for those aged 16-19 for both men and women) for all working ages up to the state retirement ages of 65 for men and 60 for women respectively.

Table 5.1a: Proportions of men making private pension contributions, by age group

Age group	Period						
	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
16-19	4.4%	674	3.2%	797	3.0%	513	2.50
20-24	17.0%	1,270	13.3%	1,502	9.3%	1,300	28.91 *
25-29	42.3%	1,657	32.9%	1,548	29.6%	1,396	38.20 *
30-34	54.0%	2,090	45.5%	2,009	39.3%	1,600	43.06 *
35-39	59.6%	2,199	51.1%	2,344	48.6%	1,864	26.56 *
40-44	59.5%	1,937	56.3%	2,313	53.7%	1,932	5.89
45-49	59.7%	1,782	56.1%	2,016	56.0%	1,885	2.80
50-54	57.4%	1,965	54.1%	1,961	56.4%	1,781	1.99
55-59	43.5%	1,536	45.1%	2,053	52.3%	1,664	15.72 *
60-64	23.1%	1,477	23.9%	1,763	34.7%	1,833	52.43 *
Total	46.7%	16,587	42.0%	18,306	42.4%	15,768	51.79 *

Notes: [1]N given as total number of respondents falling within specific category.
* Significant at the 5% level.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Table 5.1b: Proportions of women making private pension contributions, by age group

Age group	Period						
	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
16-19	3.7%	650	2.1%	752	2.3%	544	3.44
20-24	16.9%	1,488	15.7%	1,756	11.5%	1,578	16.92 *
25-29	35.9%	1,926	32.7%	1,825	32.4%	1,786	4.04
30-34	40.5%	2,299	38.1%	2,384	39.4%	1,839	1.73
35-39	39.4%	2,479	40.7%	2,640	42.5%	2,065	2.66
40-44	42.1%	2,042	42.1%	2,545	46.1%	2,190	5.52
45-49	45.1%	1,914	44.0%	2,190	49.6%	2,124	8.00 *
50-54	38.8%	2,017	45.1%	2,040	44.9%	1,826	11.65 *
55-59	29.3%	1,634	31.0%	2,137	40.9%	1,764	41.53 *
Total	35.6%	16,449	35.5%	18,269	38.1%	15,716	18.39 *

Notes: [1]N given as total number of respondents falling within specific category.
* Significant at the 5% level.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

It is clear from the numbers from an age and period perspective that there are notable differences both across age groups and between men and women. There are significant differences in the proportions of both men and women making private pension contributions depending on their age. For example, in 1999-2000 only 4.4 per cent of 16-19 year-old men made contributions, compared with nearly 60 per cent for men aged between 35 and 49 (Table 5.1a). For women, the proportions range from a low of 3.7 per cent at 16-19 years to 45.1 per cent for the 45-49 age group (Table 5.1b). These differences across the ages are mirrored in each of the other waves. The extent of the variation over time for the age groups also differs between men and women. Statistically, there are significant decreases from 1999-2000 for most of the age groups for men, but only there are only significant changes for several age groups for women (those aged 20-24 and aged over 50). Furthermore, there is also a clear and significant trend overall for the proportion of men making private pension contributions to fall in the period from 1999-2000 to 2009-2010, which is not the experience for women. At the α=0.05 level, there was a significant fall from 46.7 per cent of all men of working age in 1999-2000 making contributions to 42.4 per cent in 2009-2010 (Table 5.1a). There was also a significant contrasting increase for women, whose propensity to contribute changed from 35.6 per cent to 38.1 per cent during the same period (Table 5.1b). For men, this is also reflected in the important changes to the levels of respondents within age groups making contributions over time,

which were described earlier in this section. However, to understand more fully the overall patterns of changes to private pension contributions, the cohort perspective will be considered, and this is provided in more detail in the next section below.

5.1.2 **Cohort effect on private pension contributions over time**

In contrast to the period effect on private pension contributions of different age groups, analysis of the cohort effect shows that proportions of people making private pension contributions do not fall so dramatically within birth cohorts over time as they do for age groups over time, especially for men. For example, the proportions of the younger working age cohorts of men (including both the Late Baby Boomers and GenXers, born between 1961 and 1975 and who were aged 25-39 in 1999-2000) change at a much smaller rate over time, than the corresponding age groups over the same period, i.e. men aged 25-39 in each of the waves from 1999-2000 to 2009-2010 (Table 5.1a). Possible reasons for these findings are explored in the discussion in Chapter 8.

Tables 5.1c and 5.1d provide the figures for the changing proportions making private pension contributions for different cohorts of men and women respectively. There is a clear difference between the cohorts in the results seen for men, where each birth cohort is clearly differentiated from the cohort immediately preceding and succeeding it. For women, however, the proportions of respondents making private pension contributions remain very similar at each chronological age regardless of birth cohort, highlighting greater stability across cohorts. Figures 5.1c and 5.1d show the changes from 1999-2000 to 2009-2010 for these different cohorts of men and women respectively.

Table 5.1c: Proportions of men making private pension contributions, by age group: cohort perspective

Age group in 1999-2000	Birth period[1]	Time period			χ^2 statistic
		1999-2000	2004-2005	2009-2010	
16-19	1981-1984	4.4%	13.3%	29.6%	128.57 *
20-24	1976-1980	17.0%	32.9%	39.3%	112.71 *
25-29	1971-1975	42.3%	45.5%	48.6%	6.59 *
30-34	1966-1970	54.0%	51.1%	53.7%	1.91
35-39	1961-1965	59.6%	56.3%	56.0%	3.03
40-44	1956-1960	59.5%	56.1%	56.4%	2.50
45-49	1951-1955	59.7%	54.1%	52.3%	9.76 *
50-54	1946-1950	57.4%	45.1%	34.7%	105.62 *
55-59	1941-1945	43.5%	23.9%	N/A[2]	104.85 *
60-64	1936-1940	23.1%	N/A[2]	N/A[2]	n/a

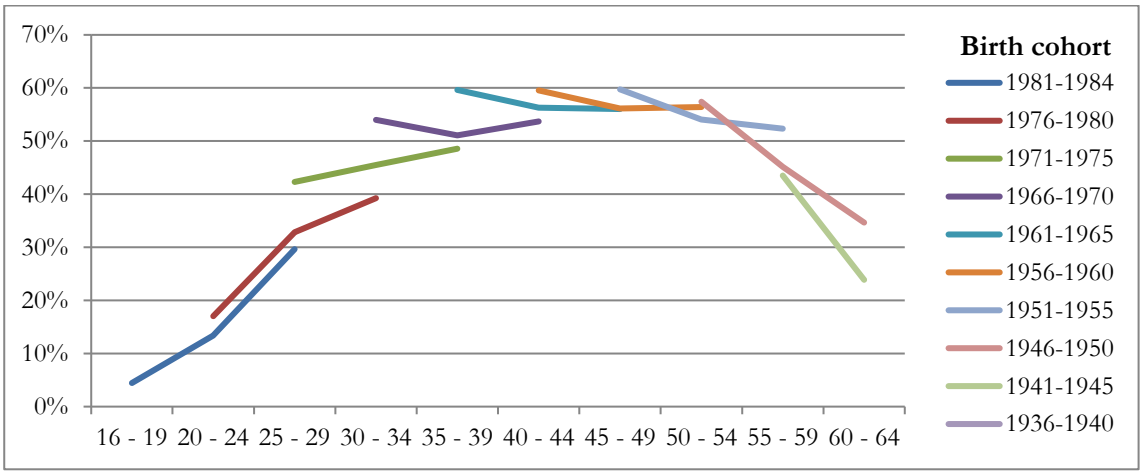
Notes: [1] Birth periods are actually 9 months of the year stated plus the 3 months in the following year, due to the timing of the survey. For example, 1976-1980 covers the period from March 1976 to March 1981, but the dates have been rounded to the nearest whole year for summary purposes.

[2] Pension contributions for these age groups at these periods are not included because participants would have been over SPA, and this analysis focuses on individual of working age only.

* Significant at the 5% level.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Figure 5.1c Proportion of men making private pension contributions from 1999-2000 to 2009-2010, by age group according to birth cohort



Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Table 5.1d: Proportions of women making private pension contributions, by age group: cohort perspective

Age group in 1999-2000	Birth period[1]	Time period			χ^2 statistic
		1999-2000	2004-2005	2009-2010	
16-19	1981-1984	3.7%	15.7%	32.4%	149.18 *
20-24	1976-1980	16.9%	32.7%	39.4%	135.48 *
25-29	1971-1975	35.9%	38.1%	42.5%	10.79 *
30-34	1966-1970	40.5%	40.7%	46.1%	9.55 *
35-39	1961-1965	39.4%	42.1%	49.6%	28.53*
40-44	1956-1960	42.1%	44.0%	44.9%	2.07
45-49	1951-1955	45.1%	45.1%	40.9%	5.56
50-54	1946-1950	38.9%	31.0%	N/A[2]	663.66*
55-59	1941-1945	29.3%	N/A[2]	N/A[2]	

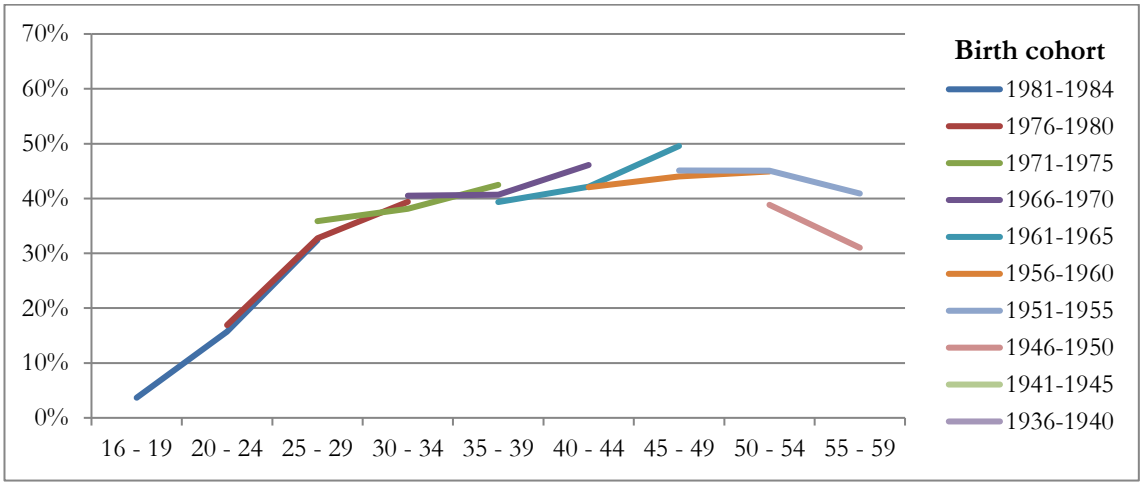
Notes: [1] Birth periods are actually 9 months of the year stated plus the 3 months in the following year, due to the timing of the survey. For example, 1976-1980 actually covers the period from March 1976 to March 1981, but the dates have been rounded to the nearest whole year for summary purposes.

[2] Pension contributions for these age groups at these periods are not included because participants would have been over SPA, and this analysis focuses on individual of working age only.

* Significant at the 5% level.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Figure 5.1d Proportion of women making private pension contributions from 1999-2000 to 2009-2010, by age group according to birth cohort



Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

The comparison of private pension contribution levels of different birth cohorts by age shows that the proportion of individuals making contributions was rising most sharply amongst youngest cohorts (those born in the period 1971-1984, and aged between 16-29 at the time of the first wave, and which include both GenXers and Early Millennials) for both men and women, with the greatest rises for the youngest cohorts. On the other hand, there

was no significant change at the α=0.05 level in the proportion of Late Baby Boomer males, or indeed of those any male cohort born between 1956-1970, making private pension contributions (see Table 5.1d) over the period. For example, Late Baby Boomer males, aged 35-39 in 1999-2000 (i.e. men born in 1961-1965), 59.6 per cent made contributions in 1999-2000 and the proportion had dropped to 56.0 per cent by the time these men were 45-49 years old in 2009-2010, which was not significant (at α=0.05). Among men born before 1956, however, the decline in each cohort making private pension contributions was significant at the α=0.05 level (Table 5.1d), and these cohorts were increasingly less likely to make contributions over the 10-year period. For example, for men born during 1946-1950 (and aged 50-54 in 1999-2000) the proportion making private pension contributions fell the sharpest, from 57.4 per cent in 1999-2000 to 34.7 per cent in 2009-2010. On the other hand, from the age-period perspective, the proportion of men in the 50-54 age group making private pension contributions only fell slightly from 57.4 per cent in 1999-2000 to 56.4 per cent of men aged 50-54 in 2009-2010. At the oldest age groups, one contributing factor to this difference between the trends for birth cohorts compared with age groups is that men of a specific cohort, such as those born in 1951-1955 (i.e. aged 50-54 in 1999-2000), are ageing during the period under investigation and as they approach the SPA, they may be less likely to be in employment, and hence less likely to pay into a pension compared with men aged 50-54 in the later survey waves.

Although the trends for male and female cohorts aged 16-29 in 1999-2000 were similar for the period from 1999-2000 to 2009-2010, for older cohorts, i.e. those born before 1970 and who were aged 30 and over in 1999-2000, the trends in the proportions making private pensions diverged for men and women. For women born between 1956 and 1975 (i.e. aged 25-44 in 1999-2000, and including both Late Baby Boomers and GenXers), the proportion making contributions continued to increase over the period under investigation, although for the cohort born between 1956-1960 the increase was not significant at the 5 per cent level. For the oldest cohort for whom data is available for the whole period under investigation (i.e. 1999-2000 to 2009-2010 and meaning women born during 1951-1955), the proportion making private pension contributions decreases from 45.1 per cent to 40.9 per cent. This is significant at the α=0.05 level but is nevertheless a much smaller scale decrease than the decline observed in private pension contributions for the oldest cohort of men. These are noteworthy differences to the trends seen for men.

Table 5.1e: Comparison of proportions of male cohorts making private pension contributions from 1999-2000 to 2009-2010, by age group

Birth period[1]	Age group at start of period	Time period		
		1999-2000	2004-2005	2009-2010
1981-1984	16-19	4.4%	13.3%	29.6%
1976-1980	20-24	17.0%	32.9%	39.3%
1971-1975	25-29	42.3%	45.5%	48.6%
1966-1970	30-34	54.0%	51.1%	53.7%
1961-1965	35-39	59.6%	56.3%	56.0%
1956-1960	40-44	59.5%	56.1%	56.4%
1951-1955	45-49	59.7%	54.1%	52.3%
1946-1950	50-54	57.4%	45.1%	34.7%
1941-1945	55-59	43.5%	23.9%	N/A[2]
1936-1940	60-64	23.1%	N/A[2]	N/A[2]

Notes: [1] Birth periods are actually 9 months of the year stated plus the 3 months in the following year, due to the timing of the survey. For example, 1976-1980 actually covers the period from March 1976 to March 1981, but the dates have been rounded to the nearest whole year for summary purposes.

[2]Pension contributions for these age groups at these periods are not included because participants would have been over SPA, and this analysis focuses on individual of working age only.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Table 5.1f: Comparison of proportions of female cohorts making private pension contributions from 1999-2000 to 2009-2010, by age group

Birth period[1]	Age group at start of period	Time period		
		1999-2000	2004-2005	2009-2010
1981-1984	16-19	3.7%	15.7%	32.4%
1976-1980	20-24	16.9%	32.7%	39.4%
1971-1975	25-29	35.9%	38.1%	42.5%
1966-1970	30-34	40.5%	40.7%	46.1%
1961-1965	35-39	39.4%	42.1%	49.6%
1956-1960	40-44	42.1%	44.0%	44.9%
1951-1955	45-49	45.1%	45.1%	40.9%
1946-1950	50-54	38.8%	31.0%	N/A[2]
1941-1945	55-59	29.3%	N/A[2]	N/A[2]
1936-1940	60-64	N/A[2]	N/A[2]	N/A[2]

Notes: [1] Birth periods are actually 9 months of the year stated plus the 3 months in the following year, due to the timing of the survey. For example, 1976-1980 actually covers the period from March 1976 to March 1981, but the dates have been rounded to the nearest whole year for summary purposes.

[2]Pension contributions for these age groups at these periods are not included because participants would have been over SPA, and this analysis focuses on individual of working age only.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Table 5.1g: Differences in the proportions of female vs. male cohorts making private pension contributions between 1999-2000 and 2009-2010, by age group

Birth period[1]	Age group at start of period	Time period		
		1999-2000	2004-2005	2009-2010
1981-1984	16-19	-0.8%	2.3%	2.8%
1976-1980	20-24	-0.1%	-0.1%	0.1%
1971-1975	25-29	-6.4%	-7.4%	-6.1%
1966-1970	30-34	-13.5%	-10.4%	-7.6%
1961-1965	35-39	-20.3%	-14.1%	-6.5%
1956-1960	40-44	-17.5%	-12.1%	-11.5%
1951-1955	45-49	-14.6%	-9.0%	-11.4%
1946-1950	50-54	-18.6%	-14.1%	N/A
1941-1945	55-59	-14.2%	N/A	N/A

Notes: [1] Birth periods are actually 9 months of the year stated plus the 3 months in the following year, due to the timing of the survey. For example, 1976-1980 actually covers the period from March 1976 to March 1981, but the dates have been rounded to the nearest whole year for summary purposes.

[2]Pension contributions for these age groups at these periods are not included because participants would have been over SPA, and this analysis focuses on individual of working age only.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Despite these differing patterns of contributions, the levels of women making private pension contributions did not reach the levels of men making contributions for all cohorts in the period from 1999-2000 to 2009-2010, although there was much more parity by 2009-2010. This can be seen in the tables showing the proportions of different cohorts of men and women making private pension contributions, and the differences between the corresponding cohorts of men and women set out in Tables 5.1e to 5.1g above. The gender difference in the average level of contribution across all working ages fell from 11.1 per cent in 1999-2000 to 4.3 per cent in 2009-2010. Most of this decrease can be attributed to the overall decrease in the proportions of men making private pension contributions (see Table 5.1e). The generally lower level of private pension contributions for women may be expected in accordance with previous literature on the gender gap in income and pensions and women's interrupted work histories (Jefferson, 2009; Evandrou & Glaser, 2003; Ginn & Arber, 2001; see Section 3.1.2). The next section will now investigate the differences in private pension contributions that are associated with marital status.

5.1.3 Differences in private pension contributions associated with marital status

A number of studies have identified links between differences in life course decisions, particularly with regards to relationships, with differences to the level of saving that people choose or are able to make for retirement (Ginn, 2003, Glaser *et al*, 2009). Gender differences in the level of retirement provision due to earlier life course decisions and experiences are well-established, such as the tendency towards having shorter or broken work histories that limit women's capacity to accrue retirement benefits (Ginn & Arber, 2001; Price, 2006; Glaser *et al*, 2009). However, whilst the gender gap in pension provision is widely known, there has been less focus on the differences between men and women and also within genders that can arise due to the diversification in marriage or partnership patterns (see Section 3.1.4). This section therefore details the results of further analysis of the data, on a cross-sectional basis using the 2009-2010 survey dataset, investigating the private pension trends associated with marital status. Figures 5.1e and 5.1f show the patterns emerging for the largest four marital status categories: married; cohabiting relationship; single and divorced.

Figure 5.1e: Proportions of men making private pension contributions by marital status from 1999-2000 to 2009-2010

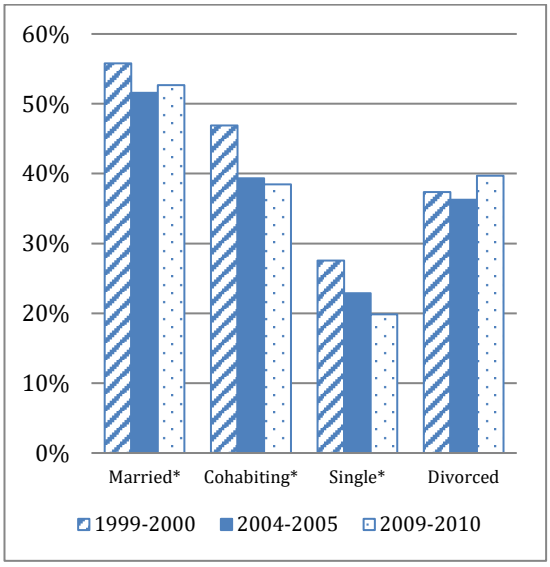
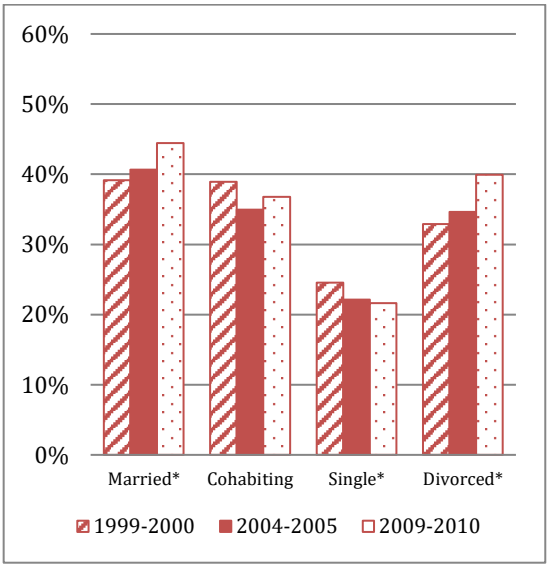


Figure 5.1f: Proportions of women making private pension contributions by marital status from 1999-2000 to 2009-2010



* Significant at the 5% level. The differences in the proportions between each of the marital status categories are also significant at the 5% level for each of the years under consideration.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

There are notable differences (significant at the α=0.01 level) between the proportions of men and women making private pension contributions, according to marital status, across each wave of the investigation. Tables 5.1h and 5.1i provide a detailed breakdown of the numbers of respondents within each category and an indication as to the whether the differences over time for each category of marital status are significant at the α=0.05 level.

Table 5.1h Proportions of men making private pension contributions by marital status from 1999-2000 to 2009-2010

	1999-2000	N	2004-2005	N	2009-2010	N	χ^2 statistic (period)
Married	55.8%	9,786	51.6%	10,361	52.7%	8,677	17.7 *
Cohabiting	46.9%	1,807	39.4%	2,212	38.5%	2,182	19.9 *
Single	27.5%	3,850	22.9%	4,418	19.9%	3,758	49.0 *
Divorced	37.3%	718	36.2%	815	39.7%	685	1.2
Total	47.2%	16,161	42.2%	17,806	42.0%	15,302	64.8 *

* Significant at the 5% level. The differences in the proportions between each of the marital status categories are also significant at the 5% level for each of the years under consideration.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Table 5.1i Proportions of women making private pension contributions by marital status from 1999-2000 to 2009-2010

	1999-2000	N	2004-2005	N	2009-2010	N	χ^2 statistic (period)
Married	39.2%	9,308	40.7%	9,758	44.4%	7,924	30.3 *
Cohabiting	38.9%	1,783	35.0%	2,179	36.8%	2,115	4.2
Single	24.5%	3,171	22.1%	3,996	21.6%	3,751	7.1 *
Divorced	32.9%	1,277	34.6%	1,359	39.9%	1,120	8.8 *
Total	35.6%	15,539	35.2%	17,292	37.3%	14,910	10.5 *

* Significant at the 5% level. The differences in the proportions between each of the marital status categories are also significant at the 5% level for each of the years under consideration

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

The variation by marital status in the proportion of men making private pension contributions is more pronounced for men than for women. Married men were most likely

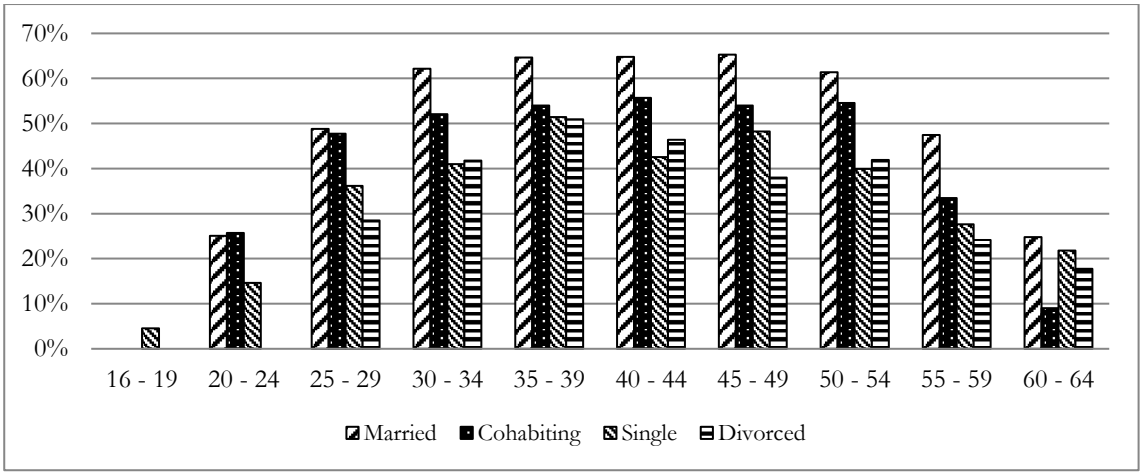
to pay into a private pension scheme, varying from 55.8 per cent in 1999-2000 to 51.6 per cent in 2004-2005 (see Table 5.1f). In particular, the proportion of married men who were contributing to private pensions was more than twice the level of single male respondents for the whole period under investigation, which fell from 27.5 per cent in 1999-2000 to 19.9 per cent in 2009-2010. For the three largest categories (married, cohabiting and single), there was a consistent and significant decline over the period in the proportions of men making contributions. This contrasts with divorced men for whom there was no significant change to the proportions making contributions from 1999-2000 to 2009-2010.

Similarly, women who were in relationships (married or cohabiting) were also more likely than single women to be making private pension contributions during the whole period under consideration. Reflecting the findings already shown in Sections 5.1.1 and 5.1.2, the proportions of women making contributions did not decline to the same degree as for men; the only significant (for α=0.05) decline was seen in single women. There was a significant upward trend in the proportion of women making private pension contributions for those who were married. There was also a slight increase in the proportion of divorced women making contributions from 1999-2000 to 2009-2010 which was also significant at the α=0.05 level. At the beginning of the period under investigation, there was a similar propensity for women cohabitees to make private pension contributions as for married women. There was an overall decrease in the likelihood of women who were cohabiting or who were single to make private pension contributions from 1999-2000 to 2009-2010 (from 38.9 per cent to 36.8 per cent and from 24.5 per cent to 21.6 per cent respectively). The result of this was that by 2009-2010, a higher proportion of married women were making private pension contributions than their cohabiting counterparts.

Interestingly, although in 1999-2000 the proportions of men making private pension contributions were higher than women for all marital statuses, by 2009-2010, the strong decline in the levels of single men making contributions and the smaller decline in single women and upward trend for divorced women making contributions meant that women in these two categories (changing from 24.5 to 21.6 per cent and 32.9 to 39.9 per cent respectively) exceeded the corresponding proportions of men contributing to private pensions (which fell from 27.5 to 19.9 per cent and rose 37.3 to 39.7 per cent respectively).

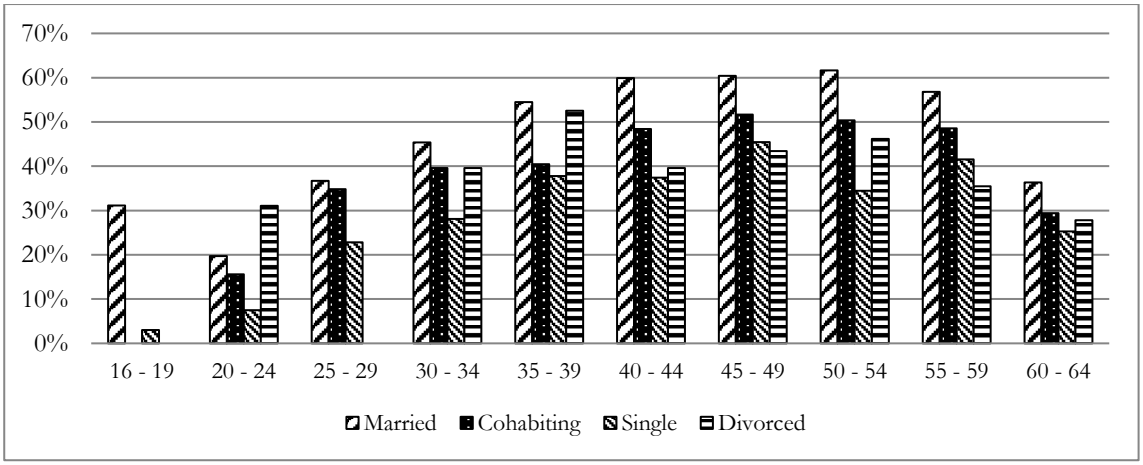
These figures so far have been for men and women overall. In order to investigate the differences between men and women of different marital status and different ages, a further breakdown of the proportions making private pension contributions by marital status and by age group for beginning and end of the period under investigation is shown below in Figures 5.1g-j.

Figure 5.1g: 1999-2000 Proportion of men contributing to a private pension by age group and selected marital status



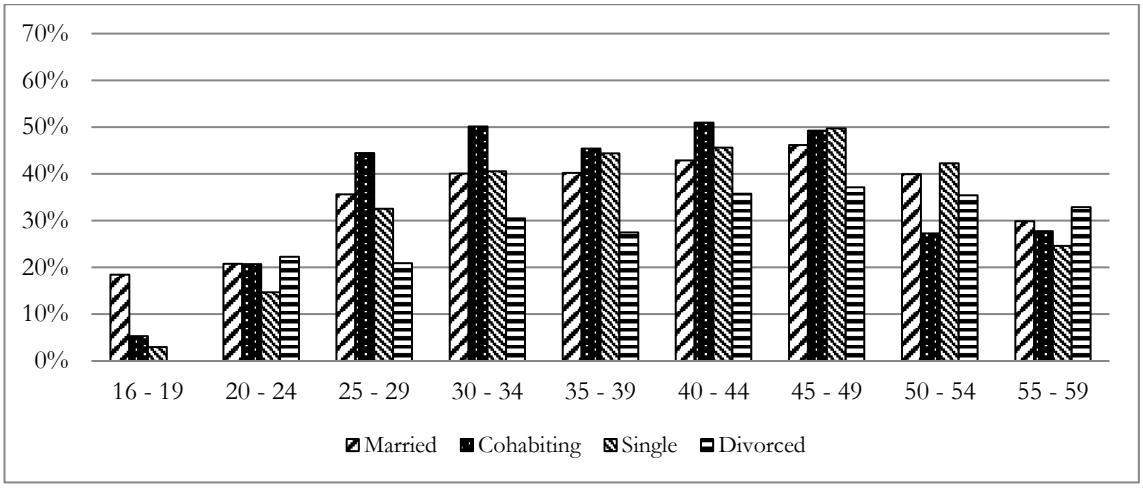
Source: Family Resources Survey, 1999-2000.

Figure 5.1h: 2009-2010 Proportion of men contributing to a private pension by age group and selected marital status



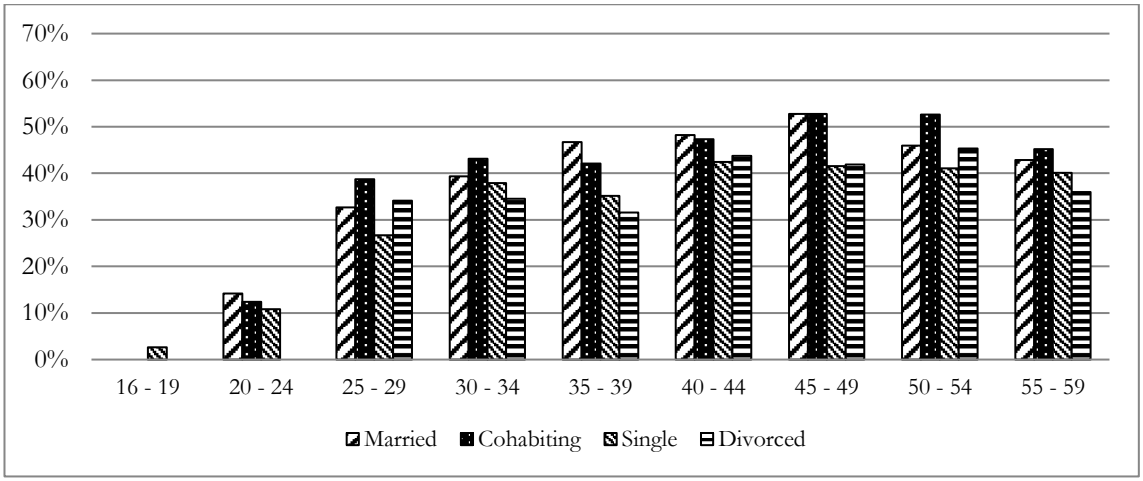
Source: Family Resources Survey, 2009-2010.

Figure 5.1i: 1999-2000 Proportion of women contributing to a private pension by age group and selected marital status



Source: Family Resources Survey, 1999-2000.

Figure 5.1j: 2009-2010 Proportion of women contributing to a private pension by age group and selected marital status



Source: Family Resources Survey, 2009-2010.

On the whole, cohabiting women were either as likely, or more likely than their married counterparts to be contributing to a private pension; this was more pronounced by 2009-2010 when this applied at all ages between 25 and 59, except for those in the 35-44 age group. Amongst women, divorcees are more likely to make personal pension contributions in 2009-2010 than in 1999-2000 across the ages. In contrast, male cohabitees were less likely at all age groups than married men to have made private pension contributions. This

suggests strong differences in either attitudes towards planning for older age, or the ability to provide for older age, depending on both a combination of gender *and* marital status, although it may also suggest differences between married and cohabiting men in terms of characteristics such as social class, occupational sector or income range which can also be linked to differences in private pension contributions. Not only were married men generally more likely than cohabitees to make contributions, but there was a lower likelihood of single or divorced men making personal pension contributions over the period as well. Older cohorts of male and female cohabitees, within 10 years of retirement age, are more likely to be making personal pension contributions in 2009-2010 compared with their counterparts in 1999-2000.

A more detailed breakdown of the figures for all marital status categories, including respondents who were separated (but whose relationship had not been formally dissolved) or widowed can be found in Appendix 2. These two categories have been excluded for the purposes of this section due to the small numbers of respondents who fall under them, although they are taken into account in Chapter 7 when logistic regression analysis is carried out on this data for completeness.

At a cohort level, it is worth noting that younger married women were more likely to be making private pension contributions; further analysis of whether this is indicative of a trend towards reduced reliance on spouses, away from the traditional breadwinner model or not may be desirable. Similar proportions of older women (for example, Late Baby Boomers), continued to make private pension contributions over the period, and younger cohorts were increasingly likely to do so over successive waves under investigation. For men, married or cohabiting GenXers were more likely than their younger (i.e. Early Millennial) counterparts to make private pension contributions.

Another consideration relates to financial decision making at the household level. In a study of over 2,500 people from the RAND American Life Panel[12], Fonseca *et al* (2012) suggest that responsibility for financial decision-making within couples (including those who were married as well as those cohabiting with partners) correlates with higher levels of literacy for men, but not for women. These findings will be discussed further in Chapter 8.

5.1.4 **Private Pensions: Summary of Key Results from APC analysis on demographic characteristics**

Section 5.1 has explored the age and cohort trends in the proportions of men and women making private pension contributions in the period from 1999-2000 to 2009-2010. There have been a number of different findings, which are now listed to provide the reader with a brief summary of the key results:

- Results from an age perspective show that the older a respondent is, the more likely they are to make private pension contributions. However, this is reflected more in earlier than later years, especially among men. Additionally, the proportions of men making private pension contributions have been decreasing for most age groups over the period from 1999-2000 to 2009-2010. For women, the proportions making private pension contributions remain approximately constant or show a slight increase over the same period. Within the oldest age groups for both sexes, however, the proportions of respondents making private pension contributions increase notably over the ten year period.

- This contrasts with the cohort findings which show that within birth cohorts, the proportions of men and women making private pension contributions do not fall so dramatically over time. For example, for Late Baby Boomer men (i.e. who were born in the period 1961-1965), the proportion making private pension

[12] The RAND Corporation is a US based non-profit research organisation which carries out a regular nationally representative survey of over 6,000 members aged 18 and older (the American Life Panel), with all data made available for free to researchers.

contributions in 1999-2000 is 59.6 per cent. The corresponding figures for men aged 35-39 in 2009-2010 is 48.6 per cent, i.e. a drop of 11.0 per cent. However, figures show that 56.4 per cent of male Late Baby Boomers were making private pension contributions in 2009-2010, a much smaller decrease of 3.6 per cent. In other words, older cohorts are more likely to make private pension contributions and continue to make private pension contributions as they age. For the youngest cohorts, there is a clear increase in the proportions making private pension contributions. In 1999-2000, Early Millennials (aged 16-19 years old), 4.4 per cent of men and 3.7 per cent of women made private pension contributions. By 2009-2010, the corresponding figures for the same age group (16-19 year olds) were 29.6 per cent and 32.4 per cent respectively. *This is likely due to a combination of factors, which may include a larger proportion of those cohorts entering the workplace if they were still in education in 1999-2000, and increased prioritisation of savings.*

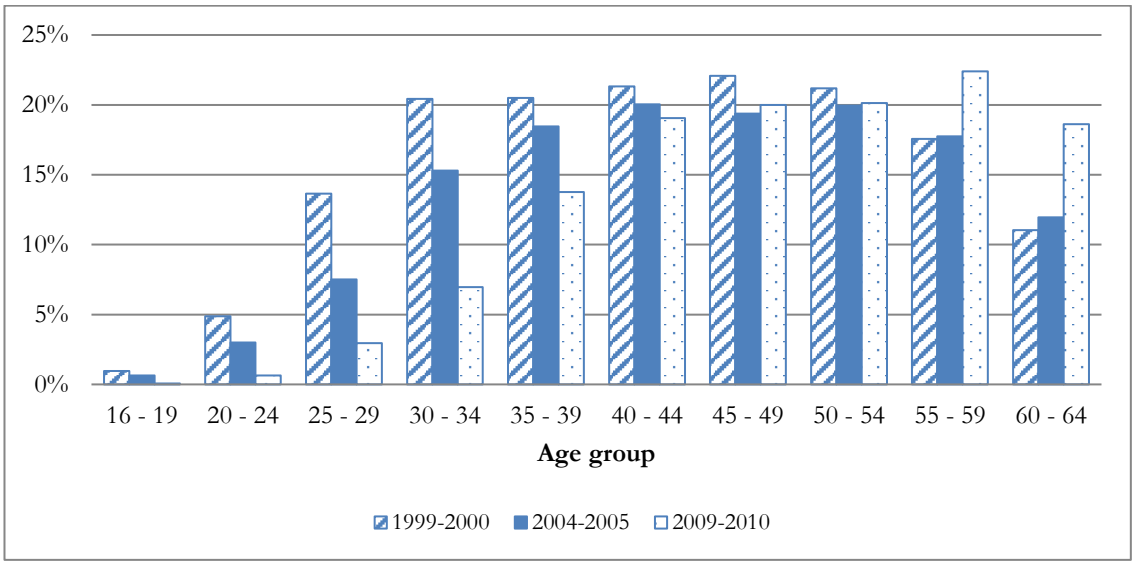
- There is a clear difference in trends of the proportions of people making private pension contributions associated with marital status and between men and women, with more pronounced variation for men than for women. Although married men and women were both much more likely than their single counterparts to make contributions for the whole period under investigation, there were consistent and significant declines in the proportions of men making private pension contributions for most marital status categories, whereas for women, the only category showing a decline over the period was those who were single. These trends need to be considered in the context of new social risks and the continuing evolution of relationship trends and household formation.

Although some comments have already been made on these findings throughout this section, a more detailed discussion of these findings, along with the results of the other analyses carried out for this thesis will be carried out in Chapter 8. Section 5.2, which now follows, investigates the trends in the proportions of men and women making contributions to *personal* pensions.

5.2 Investigation of trends in contributions to personal pensions

Following the investigation into the trends for private pension contributions, further analysis was carried out into the trends in the incidence of personal pension contributions. This is particularly important in the light of the introduction of auto-enrolment in 2012 (see Section 2.1.3). Auto-enrolment is intended to improve the level of private pension participation in occupational pension schemes, through the automatic enrolment of employees earning over a particular threshold into employer plans. The threshold was £8,105 per annum in 2012/13, when auto-enrolment was introduced (The Pensions Regulator, 2013). Employees who do not wish to be enrolled have to make the decision to opt-out. Whilst this pension policy is hoped to improve the level of occupational pension participation, personal pensions remain a retirement savings option that requires a decision to opt-in. Although the period being researched is prior to the introduction of auto-enrolment, an investigation of personal pensions in addition to private pensions overall should provide some insight into the potential pension policy implications of those not covered by new occupational pension participation rules, such as the self-employed. As for Section 5.1.1, figures and tables are shown in this section for age bands up to state retirement ages (65 for men and 60 for women).

Figure 5.2a Proportion of men making personal pension contributions from 1999-2000 to 2009-2010, by age group



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Figure 5.2b Proportion of women making personal pension contributions from 1999-2000 to 2009-2010, by age group

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

The proportions of men and women making personal pension contributions from 1999-2000 to 2009-2010 are shown above in Figures 5.2a and 5.2b. It is possible to identify a number of different trends and patterns on personal pension contributions due to the effects of time on both age groups and cohorts, and these are discussed further in the rest of Section 5.2.

5.2.1 Age and period effects on personal pension contributions over time

Similar patterns of propensity to make contributions for the period from 1999-2000 to 2009-2010 as seen for private pensions (Section 5.1.1) can be seen for personal pensions. At younger ages (16-24), only a small proportion of respondents reported making contributions towards personal pensions. For older age groups, the proportions making private pension contributions increased, and then plateaued in higher age groups. During the first two waves, 1999-2000 and 2004-2005, the levels of men and women aged 55 and over making personal pension contributions were lower than the levels of those aged under 55. By 2009-2010, however, the proportions of men and women making personal pension contributions were markedly higher for the oldest age groups (55 and older). These results are shown in Figures 5.2c and 5.2d, and set out in more detail in Tables 5.2a and 5.2b below.

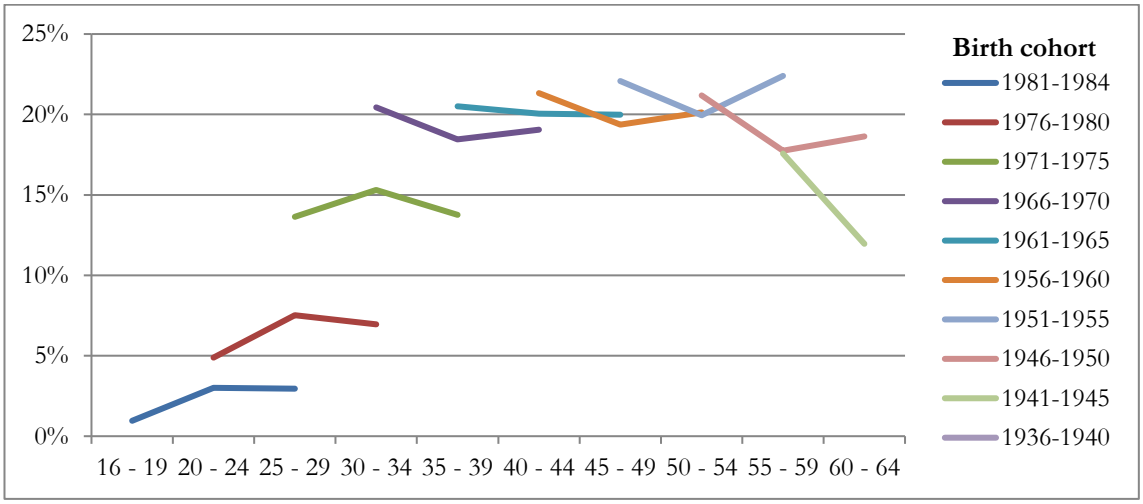
Table 5.2a Proportions of men making personal pension contributions, by age group

Age group	Period						
	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
16-19	1.0%	674	0.6%	797	0.1%	513	4.29
20-24	4.9%	1,270	3.0%	1,502	0.6%	1,300	41.66 *
25-29	13.6%	1,657	7.5%	1,548	2.9%	1,396	106.18 *
30-34	20.4%	2,090	15.3%	2,009	7.0%	1,600	111.71 *
35-39	20.5%	2,199	18.5%	2,344	13.8%	1,864	26.46 *
40-44	21.3%	1,937	20.1%	2,313	19.0%	1,932	2.49
45-49	22.1%	1,782	19.4%	2,016	20.0%	1,885	3.63
50-54	21.2%	1,965	19.9%	1,961	20.1%	1,781	0.85
55-59	17.6%	1,536	17.7%	2,053	22.4%	1,664	13.40 *
60-64	11.0%	1,477	12.0%	1,763	18.6%	1,833	41.90 *
Total	17.1%	16,587	14.9%	18,306	14.2%	15,768	47.84 *

Notes: [1]N given as total number of respondents falling within specific category.
* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Figure 5.2c Proportion of men making personal pension contributions from 1999-2000 to 2009-2010 according to age group and birth cohort



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 5.2b Proportions of women making personal pension contributions, by age group

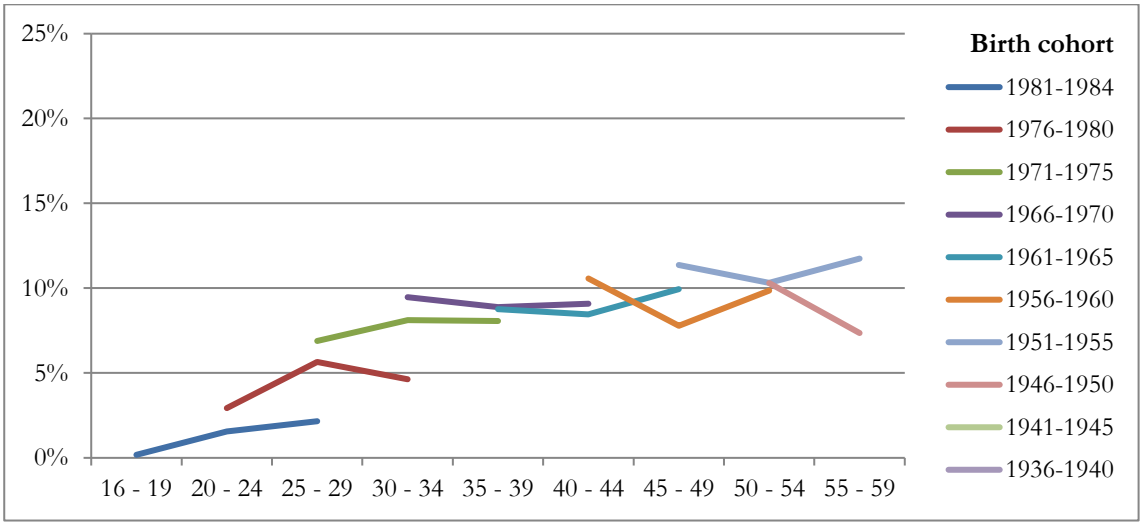
Age group	Period						
	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
16-19	0.2%	650	0.0%	752	0.4%	544	2.77
20-24	2.9%	1,488	1.5%	1,756	0.5%	1,578	28.23*
25-29	6.9%	1,926	5.7%	1,825	2.2%	1,786	44.11*
30-34	9.5%	2,299	8.1%	2,384	4.6%	1,839	32.99*
35-39	8.8%	2,479	8.9%	2,640	8.1%	2,065	0.97
40-44	10.6%	2,042	8.5%	2,545	9.1%	2,190	5.68
45-49	11.4%	1,914	7.8%	2,190	9.9%	2,124	14.31*
50-54	10.3%	2,017	10.3%	2,040	9.9%	1,826	0.25
55-59	6.9%	1,634	7.4%	2,137	11.7%	1,764	29.85*
Total	8.3%	16,449	7.2%	18,269	7.0%	15,716	22.52*

Notes: [1]N given as total number of respondents falling within specific category.

* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Figure 5.2d Proportion of women making personal pension contributions from 1999-2000 to 2009-2010 according to age group and birth cohort



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

From 1999-2000 to 2009-2010, the proportions of men who were aged 16-54 making personal pension contributions fell. This decrease is significant at the α=0.05 level for men aged between 20-39. For women, personal pension contribution patterns are slightly different to private pension contributions. Whilst the proportions of women making private pension contribution remained approximately constant or improved slightly during the period from 1999-2000 to 2009-2010, for personal pensions, the patterns are very similar to men, with the proportion of women making contributions at most age groups falling over time. The strongest declines are seen in younger age groups (aged 20-34). These decreases are significant at the α=0.05 level. This may be due to decreased resonance and perceived relevance of pensions with these age groups (Johnson, 2012) or it may be due to individuals feeling they are unable to afford to make personal pension contributions.

For both men and women, however, respondents aged 55 and over were increasingly likely to be making private pension contributions from 1999-2000 to 2009-2010. For example, in 1999-2000 and 2004-2005, 11.0 per cent of men aged 60-64 were making personal pension contributions – by 2009-2010 this had increased to 18.6 per cent. The corresponding figures for the oldest age group of women (aged 55-59) were around 7 per cent in both 1999-2000 and 2004-2005, followed by a marked increase again in 2009-2010 to 11.7 per cent. There are significantly lower proportions of women making personal pension contributions at all age groups throughout the period from 1999-2000 to 2009-2010 than for men.

5.2.2 **Cohort effect on personal pension contributions over time**

The cohort experience differs to the age-period effect and the figures for different age cohorts are shown in Tables 5.2c and 5.2d for men and women respectively.

Table 5.2c Proportions of men making personal pension contributions, by age group: cohort perspective

Age group in 1999-2000	Birth period[1]	Time period			χ^2 statistic
		1999-2000	2004-2005	2009-2010	
16-19	1981-1984	1.0%	3.0%	2.9%	8.56 *
20-24	1976-1980	4.9%	7.5%	7.0%	7.88 *
25-29	1971-1975	13.6%	15.3%	13.8%	1.90
30-34	1966-1970	20.4%	18.5%	19.0%	2.14
35-39	1961-1965	20.5%	20.1%	20.0%	0.16
40-44	1956-1960	21.3%	19.4%	20.1%	2.00
45-49	1951-1955	22.1%	19.9%	22.4%	3.22
50-54	1946-1950	21.2%	17.7%	18.6%	6.42 *
55-59	1941-1945	17.6%	12.0%	N/A	
60-64	1936-1940	11.0%	N/A	N/A	

Notes: [1] Birth periods are actually 9 months of the year stated plus the 3 months in the following year, due to the timing of the survey. For example, 1976-1980 actually covers the period from March 1976 to March 1981, but the dates have been rounded to the nearest whole year for summary purposes.
[2] Pension contributions for these age groups at these periods are not included because participants would have been over SPA, and this analysis focuses on individual of working age only.

* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 5.2d Proportions of women making personal pension contributions, by age group: cohort perspective

Age group in 1999-2000	Birth period[1]	Time period			χ^2 statistic
		1999-2000	2004-2005	2009-2010	
16-19	1981-1984	0.2%	1.5%	2.0%	9.69*
20-24	1976-1980	2.9%	5.7%	4.5%	13.06*
25-29	1971-1975	6.9%	8.2%	8.3%	2.83
30-34	1966-1970	9.5%	9.1%	9.2%	0.23
35-39	1961-1965	8.8%	8.6%	9.7%	1.97
40-44	1956-1960	10.6%	7.9%	9.8%	9.16*
45-49	1951-1955	11.4%	10.5%	11.6%	1.28
50-54	1946-1950	10.3%	7.5%	N/A	
55-59	1941-1945	6.9%	N/A	N/A	

Notes: [1] Birth periods are actually 9 months of the year stated plus the 3 months in the following year, due to the timing of the survey. For example, 1976-1980 actually covers the period from March 1976 to March 1981, but the dates have been rounded to the nearest whole year for summary purposes.
[2] Pension contributions for these age groups at these periods are not included because participants would have been over SPA, and this analysis focuses on individual of working age only.

* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

For the youngest male birth cohorts (men born between 1971 and 1984, aged 16-29 in 1999-2000, and which included Early Millennials), the proportion making personal pension contributions increased from 1999-2000 to 2004-2005 and then fell again in 2009-2010. These falls were significant at the α=0.05 level for the 1976-1980 and 1981-1984 cohorts. For all other birth cohorts, including Late Baby Boomers and GenXers, (i.e. those born before 1966), there was little change over the period under investigation, although the general pattern was a slight decrease in the proportion of individuals making personal pension contributions from 1999-2000 to 2004-2005 and then a slight increase again from 2004-2005 to 2009-2010. These changes however, were not significant at the α=0.05 level. Women showed similar trends, although for the 1956-1960 cohort – this variation in the proportions of women making personal pension contributions was significant at the α=0.05 level but not at the α=0.01 level. The levels of women making contributions were consistently lower, and the highest proportions of women making contributions did not match those of men at any point.

As with private pension contributions, the differences between men and women from an age or a cohort perspective, vary with other socio-demographic characteristics and the following sub-section explores the variation associated with marital status and educational attainment.

5.2.3 **Differences in personal pension contributions associated with marital status**

There is a clear association between marital status and the numbers of men and women making personal pension contributions. Figures 5.2e and 5.2f below show these trends in personal pension contributions from 1999-2000 to 2009-2010 for men and women overall (across all working ages, up to 65 for men and 60 for women respectively), for four of the marital status categories: married; cohabiting; divorced and single.

Figure 5.2e: Proportion of men making personal pension contributions by marital status from 1999-2000 to 2009-2010

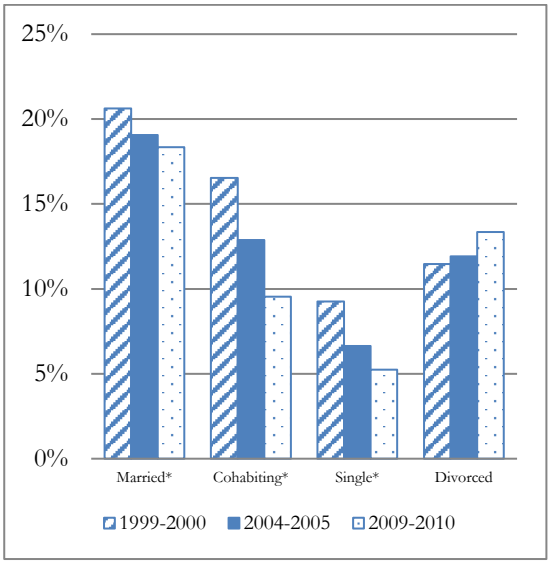
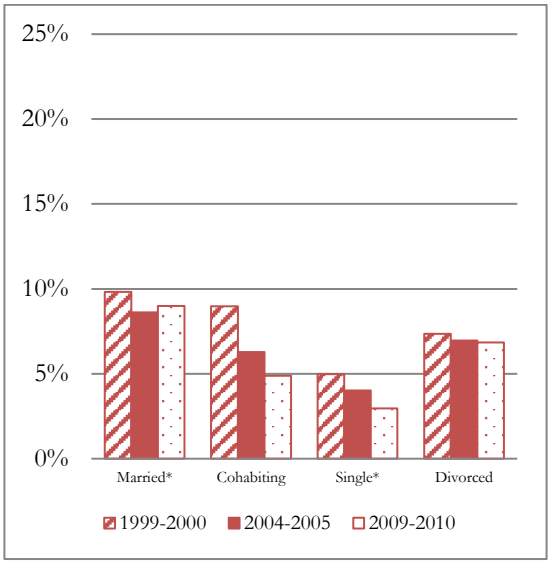


Figure 5.2f: Proportion of women making personal pension contributions by marital status from 1999-2000 to 2009-2010



* Significant at the 5% level. The differences in the proportions between each of the marital status categories are also significant at the 5% level for each of the years under consideration.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Widowed and separated categories have not been included, as they constitute less than 3 per cent of the respondents. Detailed breakdown of the figures for all marital status categories, for all age groups can be found in Appendix 2.

The variation in the proportion of men making personal pension contributions is more pronounced for men than for women, with married respondents most likely to pay into a personal pension scheme (more than twice the incidence rate compared with single respondents across the whole duration under investigation). However, the patterns of contributions are similar for women, although the extent of the differences between women of different marital status is smaller. Cohabitees were less likely to make personal pension contributions than their married counterparts, but at all times, both men and women cohabitees were more likely than those who were single to pay into a personal pension. In 1999-2000, both male and female cohabitees were more likely than divorcees to be making personal pension contributions. However, the declining levels of cohabitees

making contributions from 1999-2000 to 2009-2010 (from 16.5 per cent to 9.2 per cent for men and from 8.9 per cent to 4.7 per cent for women) mean that a higher proportion of divorced respondents were paying into a personal pension by the end of the period under investigation, as the level of incidence of individuals in this category making contributions did not change significantly for either men or women (at the α=0.05 level) during the period under investigation.

There is also an overall downward trend during this period in the incidence of these contributions by both men and women. This downward trend is more pronounced amongst respondents of both sexes who were cohabiting or single than for married respondents. For both men and women who were married, cohabiting or who were single, the changes in the proportions making personal pension contributions from 1999-2000 to 2009-2010 were significant at the α=0.05 level.

Table 5.2e Proportions of men making personal pension contributions by marital status from 1999-2000 to 2009-2010

	1999-2000	N	2004-2005	N	2009-2010	N	χ^2 statistic (period)
Married	20.6%	9,308	17.8%	9,758	18.0%	7,924	25.0*
Cohabiting	16.5%	1,783	12.7%	2,179	9.2%	2,115	41.2*
Single	9.3%	3,171	6.7%	3,996	5.2%	3,751	42.6*
Divorced	11.5%	1,277	12.5%	1,359	12.8%	1,120	1.1
Total	17.1%	15,539	14.2%	17,292	13.1%	14,910	88.2*

* Significant at the 5% level. The differences in the proportions between each of the marital status categories are also significant at the 5% level for each of the years under consideration.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

Table 5.2f Proportions of women making personal pension contributions by marital status from 1999-2000 to 2009-2010

	1999-2000	N	2004-2005	N	2009-2010	N	χ^2 statistic (period)
Married	8.8%	9,786	7.0%	10,361	8.4%	8,677	21.9*
Cohabiting	8.9%	1,807	5.6%	2,212	4.7%	2,182	30.1*
Single	4.9%	3,850	3.6%	4,418	3.2%	3,758	14.3*
Divorced	6.7%	718	6.5%	815	6.6%	685	0.0
Total	7.8%	16,161	6.0%	17,806	6.5%	15,302	42.4*

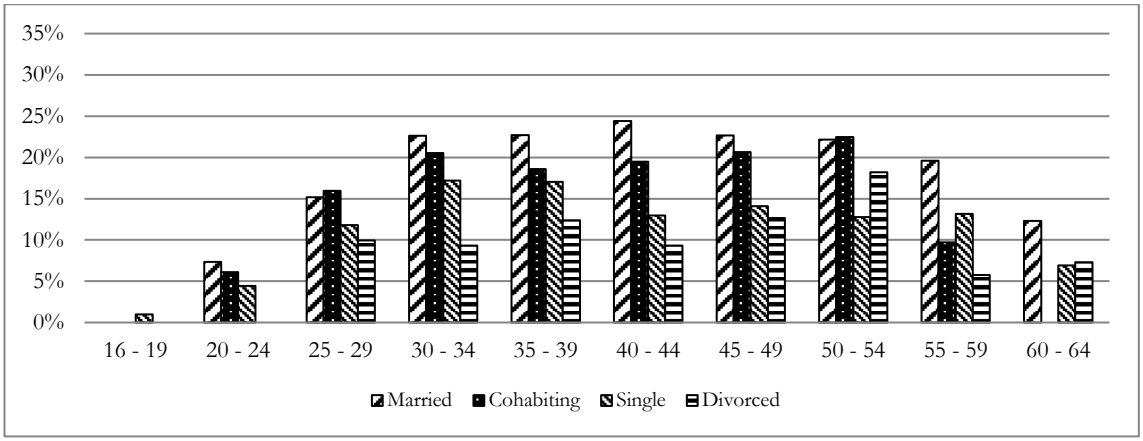
* Significant at the 5% level. The differences in the proportions between each of the marital status categories are also significant at the 5% level for each of the years under consideration.

Source: Family Resources Survey 1999-2000, 2004-2005 and 2009-2010.

One deviation, however, that can be seen from the figures, relates to divorced respondents as they do not follow this downward trend over time. In this category, for both men and for women, the proportion of respondents making personal pension contributions was slightly higher or at a similar level in 2009-2010 compared with the corresponding figures in 1999-2000. At the $\alpha=0.05$ level, this was the only category of respondents for whom there were no significant changes to the propensity to make personal pension contributions over the 10-year period.

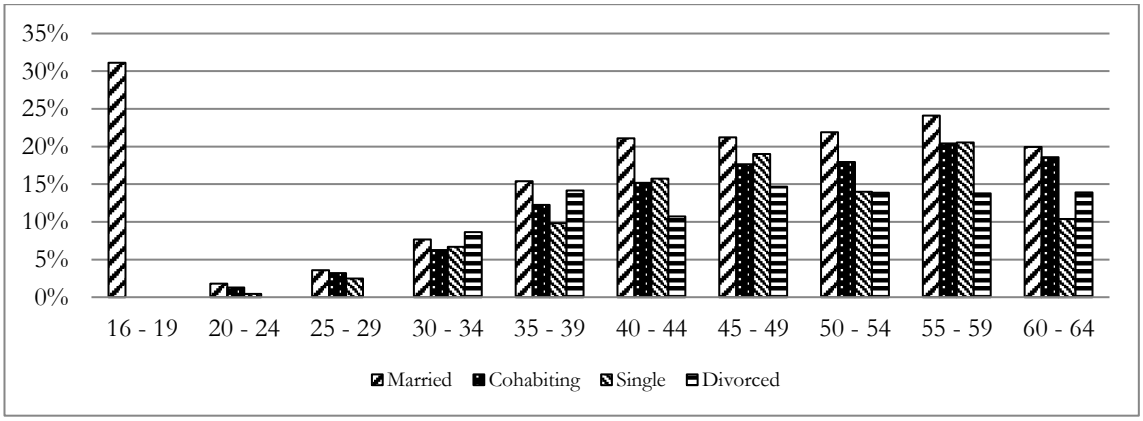
A further breakdown of these patterns is shown below in Figures 5.2-j, which disaggregate the figures for 5-year age bands for the beginning and end of the period under investigation (the 1999-2000 and 2009-2010 waves). Again, the four largest categories of marital status are included in these figures (a full breakdown of details for all categories, including widowed and separated respondents is provided in Appendix 2).

Figure 5.2g: 1999-2000 Proportion of men contributing to a personal pension by age group and selected marital status



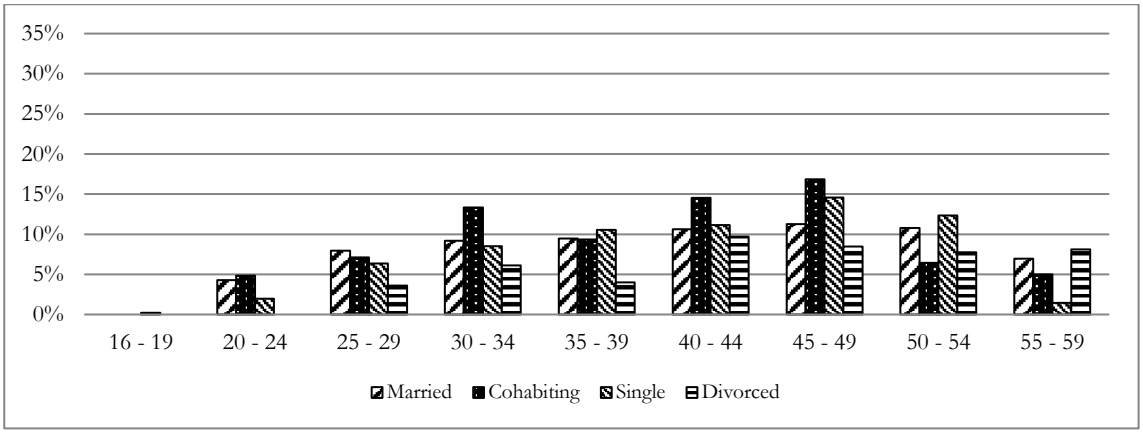
Source: Family Resources Survey, 1999-2000

Figure 5.2h: 2009-2010 Proportion of men contributing to a personal pension by age group and selected marital status



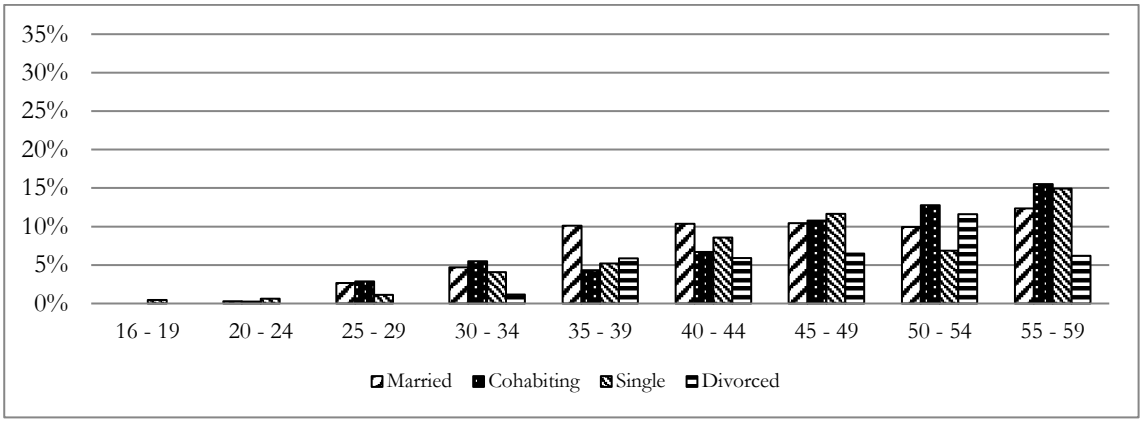
Source: Family Resources Survey, 2009-2010

Figure 5.2i: 1999-2000 Proportion of women contributing to a personal pension by age group and selected marital status



Source: Family Resources Survey, 1999-2000

Figure 5.2j: 2009-2010 Proportion of women contributing to a personal pension by age group and selected marital status



Source: Family Resources Survey, 2009-2010

The changes in the period from 1999-2000 to 2009-2010 again differ for men and women. For male late baby boomers (born 1961-65, and aged 45-49 in 1999-2000), the cohort perspective shows an *increase* in the proportion making contributions over the period, which may reflect the increasing importance attached to pension provision as that cohort ages, and become closer to retirement. However, the 45-49 age groups in 1999-2000 and 2009-2010 make *similar* levels of personal pension contributions overall – the key difference over the period is the 'flattening' of rates, whereby there are fewer differences in the levels of men making contributions according to marital status. From a cohort perspective, Early Millennials and GenXers on the other hand, continue to be about as likely to contribute

towards personal pensions over the period, although within the cohort, there is less heterogeneity across the marital classes. From a period perspective, 25-29 year olds are *less* likely to be making personal pension contributions in 2009-2010 compared with 1999-2000 across all marital status categories; amongst 35-39 year olds, cohabiting and single men are less likely to be contributing in 2009-2010 compared with their counterparts in 1999-2000, although the proportion of married and divorced 35-39 year old men making contributions remain approximately the same.

The 2009-2010 data indicate a high proportion of 16-19 year old married men make personal pension contributions (31 per cent). This might be attributed to the different attitudes towards savings the few respondents may have, and could be investigated further elsewhere. Furthermore, the statistical significance of this figure is unreliable as the number of respondents in this category is small (less than 0.02 per cent (weighted) of male respondents). The overall trend in personal pension contributions across the other age groups, however, is very similar to Figure 5.2a, in which there is a general increase in personal pension contributions from the youngest working age bands to middle age (over 40), and a notable decline in the oldest age groups nearest to SPA.

From a cohort perspective, Late Baby Boomers and GenXers, the pattern of women making personal pension contributions remain similar over the period. However, amongst Early Millennials, the proportion of women making personal pension contributions drops for cohabiting and single women, although the proportion of married women from the cohort making personal pension contributions increases. From a period perspective for women, one key finding shows the likelihood of cohabitees making personal pension contributions reduced for all ages under 50 over the period. For women aged over 50, there is a marked increase in the proportion making personal pension contributions regardless of marital status, but particularly for single and cohabiting females. In 2009-2010, the pattern of personal pension trends for each age group are different to those shown for private pension contributions overall. Firstly, although cohabiting women were more likely than their married counterparts to be contributing towards a private pension at most ages from 25-59 (excluding only those aged 35-39); with personal pensions, cohabiting women aged 35-44 were less likely to pay into a scheme than married women,

and those aged 45-49 were as likely to make contributions. Secondly, the proportions of women making personal pension contributions continue to increase with each age group until their early fifties (50-54). This is departure from the findings for private pension contributions, which see a younger peak in the proportion of women making contributions, aged 45-49.

5.2.4 Personal Pensions: Summary of Key Results from APC analysis on demographic characteristics

Section 5.2 has explored the age and cohort trends in the proportions of men and women making personal pension contributions in the period from 1999-2000 to 2009-2010. A brief summary of the key findings is as follows:

- There was an overall fall in the proportions of both men and women making personal pension contributions in 2009-2010 compared with 1999-2000.

- The levels of women making contributions were consistently lower than for men, and the highest proportions of women making contributions did not match those of the corresponding age group or cohort of men at any time.

- Similar patterns of propensity to make personal pension contributions as seen for private pensions, especially for men. Over the period a decreasing proportion of men are making personal pension contributions for all but the oldest ages (55 and older, i.e. Late Baby Boomers). Again, markedly higher proportions of men and women make personal pension contributions at the oldest age groups (55 and older). However, women also show a declined propensity to make personal pension contributions for most age groups over the period, which is in marked contrast to the private pension trend seen for women in Section 5.2.1, where it was shown that the proportions of women contributing to private pensions remained fairly constant over the period.

- This contrasts with the cohort findings, where there were some increased propensities to make personal pension contributions within some birth cohorts over time. For the youngest male cohorts, the proportion making contributions

increased and then fell; for some older cohorts, there was a slight decrease in the proportions making personal pension contributions, before a slight increase again.

- There was a stronger downward trend for men and women who were cohabiting or single to make personal pension contributions than for those who were married. In contrast to the generally declining inclination to make personal pension contributions shown for most men and women, respondents of both sexes who were divorced were more likely to be making contributions in 2009-2010 than 1999-2000.

Again, as for Section 5.1, whilst the results on the APC analysis on the proportions of men and women making personal pension contributions have already been briefly discussed in this section, the results highlighted here will be explored in more detail in Chapter 8. This chapter now concludes with the Section 5.3, which summarises the overall findings from the APC analysis.

5.3 Overall findings from age-period-cohort analysis on demographic characteristics

Findings show strong differences in both in the proportions of people making private and personal pension contributions depending on both a combination of gender and marital status in addition to notable age-sex variation. There is a clear difference in the trends of the proportions of people making private pension contributions associated with marital status and between men and women, with more pronounced variation for men than for women. Over the period under investigation, from 1999-2000 to 2009-2010, the levels of men making private pension contributions fall for most age groups. For women, these levels remain approximately constant or show slight improvement. Within the oldest age groups for both sexes, however, the proportions of respondents making private pension contributions increase notably.

There is a clear distinction in the patterns of contribution behaviour depending on the angle of analysis adopted, for example, proportions of people making private pension contributions do not fall so dramatically within cohorts compared with age groups over time. This emphasises the importance of interpreting the results according to both actual age as well as cohort, as this suggests that behaviour varies with an individual's age, but also depends on when an individual was born.

There are also clear differences between the trends in the proportions making private pension contributions compared with personal pension contributions. There are demarcated variations in trends of the proportions making personal pension contributions across the different cohorts for men and women which do not correspond with the clear 'humped curve' pattern shown for private pension contributions.

These findings have implications regarding the likely impact of any new pension regime that may be introduced in the UK. In particular, sub-groups with limited existing levels of private pension provision, especially those nearer retirement, are unlikely to benefit extensively from recent and proposed measures, such as auto-enrolment and longer working lives, which are intended to help improve pension coverage for retirees in the UK in the longer term. The next chapter presents the results of further APC analysis, by breaking down the proportions of men and women making private and personal pension contributions vary according to the socio-economic variables set out in the conceptual framework (see Figure 1.2).

6. Results II: Private and personal pension contributions in the UK: differences associated with socio-economic characteristics by age, period and birth cohort

6.1 Trends in private pension contributions from 1999-2000 to 2009-2010 associated with variations in key socio-economic characteristics

This chapter develops the work carried out in Chapter 5 by investigating the trends in the propensity of men and women to make private and personal pension contributions associated with variations in socio-economic characteristics over time (namely educational attainment, economic activity including industry sector, housing tenure and care responsibilities). Key differences in trends have already been highlighted between men and women according to age and cohort over time, many of which reinforce previous studies in this area. By investigating the nuances in these trends, it is hoped that this analysis will help to identify the extent of, and the specific groups of individuals most likely to be at risk of, potential shortfalls in retirement savings to date, and future pension participation.

6.1.1 Differences in private pension contributions associated with educational attainment

As discussed in Section 3.2.1, whilst educational attainment is not the sole proxy for financial literacy, it is often used as one, and research has been carried out to investigate the links between pensions and savings and educational attainment (e.g. ONS, 2011c). The age at which full-time education was completed has been used as an approximation of educational attainment in this investigation. Figures 6.1a and 6.1b show the proportions of respondents making private pension contributions according to the ages at which they completed full-time education. For the purposes of this investigation, individuals who did not provide this information and respondents who indicated they were still in education beyond the age of 25 have not been included in the graphical summaries. These two

categories account for approximately 10 per cent and 3 per cent of the total respondents respectively (after weighting).

Figure 6.1a: Proportion of men making private pension contributions by age left full-time education from 1999-2000 to 2009-2010

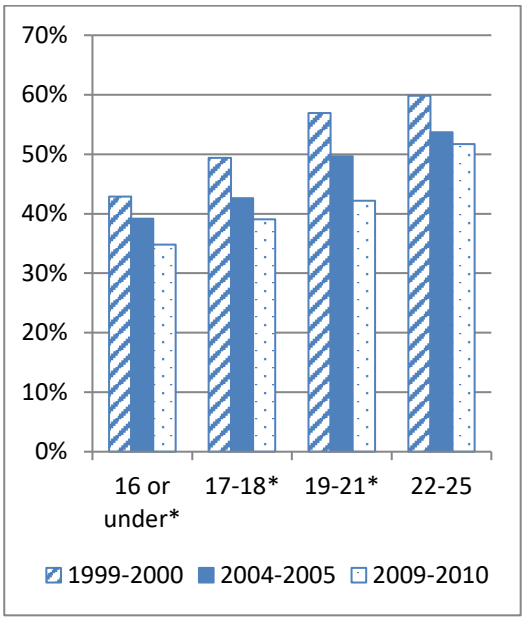
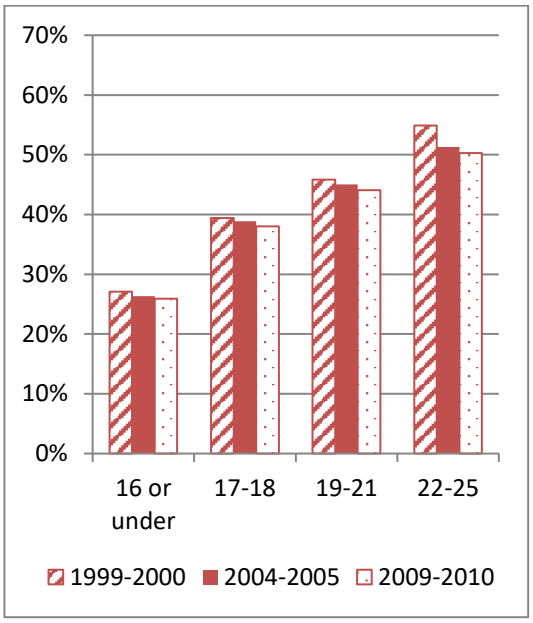


Figure 6.1b: Proportion of women making private pension contributions by age left-full-time education from 1999-2000 to 2009-2010



Note:. Unweighted sample sizes included in figures above are as follows: 1999-2000 N=14,751; 2004-2005 N=15,817; 2009-2010 N=15,024 for men and 1999-2000 N=14,844; 2004-2005 N=16,041; 2009-2010 N=14,915 for women respectively.
*Indicates where differences in the proportions within each of categories for age left full time education are significant at the 5% level over the period.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

It can be seen that there is a clear trend of increased propensity to make private pension contributions as an individual's level of educational attainment increases. For men and women, at all ages of completed full-time education, there is a decline in the proportion of respondents making private pension contributions over time, although the extent of this decrease is much smaller on the whole for each of the categories for women than for men. The largest decrease for women has been for those who have been in education the longest (from 59.8 to 51.7 per cent over the 10-year period).

Although the proportion of women making private pension contributions falls within each of the educational attainment categories, earlier results show that overall the rates of private pension participation have increased slightly. This dichotomy is due in part to the increased numbers of women who now continue their studies into higher education (see Section 3.2.1). It has been shown that on average, individuals who have the highest levels of education are more likely to be in employment (ONS, 2013b) and have higher levels of savings, along with higher paid employment (Bozio *et al*, 2013). The next two sections of this chapter looks at the extents of the variation in propensity to make private pension contributions that are associated with housing tenure, an indicator of the largest potential forms of non-retirement savings, and economic activity.

6.1.2 **Differences in private pension contributions associated with variations in housing tenure**

The complex link between housing, housing wealth and pension participation has been discussed in some detail in Section 3.2.2. This section investigates whether there are any discernible trends over the period from 1999-2000 to 2009-2010 in the propensity of men and women to make private pension contributions according to their housing tenure.

Figures 6.1c and 6.1d show how the proportions of men and women making private pension contributions have changed over the period of time investigated, according to the four largest category of housing tenure (the two categories covering respondents who 'part-rent, part-own' or squat have been excluded from the figures due to the low numbers of respondents who fall into these categories, representing no more than 0.37 and 0.01 per cent of the data sets respectively). The differences between different household tenure types are significant for $\alpha=0.05$, across all waves for men and women. For men, the changes in the proportions making private pension contributions over time are significant for $\alpha=0.05$ for house owners with a mortgage and renters. For women, the changes within each type of household tenure is significant for $\alpha=0.05$ for all types of tenures except those living rent free. There are no clear patterns emerging if the housing tenure categories are considered across the age groups in their entirety.

Figure 6.1c: Proportion of men making private pension contributions by housing tenure from 1999-2000 to 2009-2010

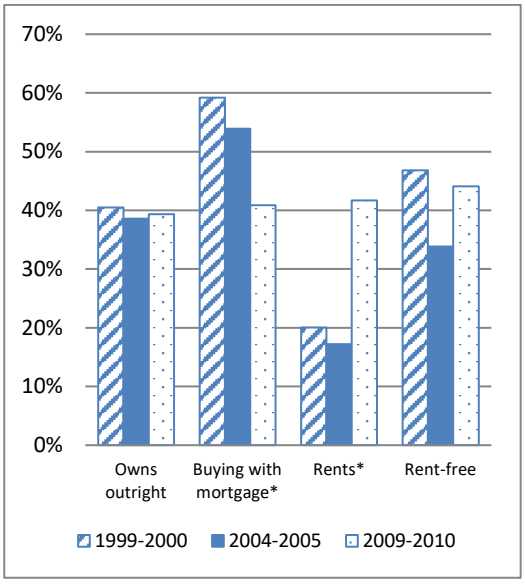
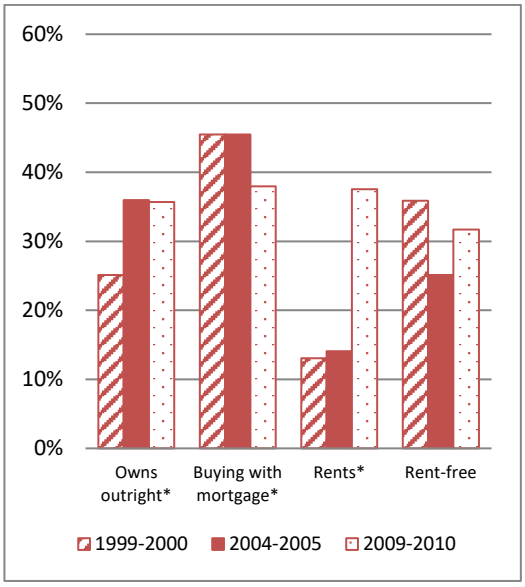


Figure 6.1d: Proportion of women making private pension contributions by housing tenure from 1999-2000 to 2009-2010



Note:. Unweighted sample sizes included in figures above are as follows: 1999-2000 N=16,543; 2004-2005 N=18,249; 2009-2010 N=15,709 for men and 1999-2000 N=16,394; 2004-2005 N=18,199; 2009-2010 N=15,655 for women respectively.
*Indicates where differences in the proportions within each of the housing tenure categories are significant at the 5% level over the period.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

The results, however, should be considered in light of the revised approach in classifying and weighting data adopted for the latest edition of the 2009-2010 wave of data according to newer tenure data, which may not be entirely consistent with earlier data waves. The findings according to this analysis show that housing tenure is less strongly associated with the likelihood of both men and women to make private pension contributions, with a flattening of the difference between the propensities associated with different categories of housing tenure over time. There is also a sharp increase in the propensity of both male and female renters to make private pension contributions over the period. Nonetheless, the lack of other additional patterns suggests that the relationship between the housing tenure and propensity to make private pension contributions, if it exists, is a complex one, and more discussion on this finding will be included in Chapter 8.

6.1.3 Differences in private pension contributions associated with economic activity

As discussed in Section 3.2.3, it is expected that the ability, and therefore the propensity of individuals to make private pension contributions will be strongly linked to their economic activity. It has been shown that there is a positive correlation between income and the likelihood an individual will make private pension contributions (DWP, 2014c); this could be due to the increased affordability from income earned, the increased choice and access to pension plans for workers and the enhanced attractiveness of joining pension schemes due to the existence of employer contributions, or a combination of these factors. As such, it is not surprising that the highest level of private pension participation is among those respondents who are employed or self-employed. Tables 6.1a and 6.1b below show how the proportions of respondents making private pension contributions change over the period from 1999-2000 to 2009-2010, for key economic status categories, namely, those economically active and earning income and those providing care, for men and women respectively. All other categories, which cover economically inactive statuses, including unemployment and retirement are included as a single combined category for comparison.

Table 6.1a Proportions of men making private pension contributions according to economic activity from 1999-2000 to 2009-2010

	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
Full-time employee	60.5%	10,032	55.2%	10,100	57.6%	9,080	24.63*
Part-time employee	17.5%	2,911	18.3%	3,353	19.9%	3,131	4.55
Full-time self employed	54.9%	9,107	41.2%	7,551	35.3%	5,568	334.99*
Part-time self-employed	20.4%	3,384	18.1%	3,307	22.8%	3,594	18.83*
Looking after family/home	2.5%	418	2.0%	365	6.5%	1,031	16.95*
Other	3.7%	616	3.8%	700	6.5%	1,023	8.19*
Total	46.5%	16,587	39.1%	18,306	37.4%	15,768	

Note: [1]N given as total unweighted number of respondents falling within specific category.
* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 6.1b Proportions of women making private pension contributions according to economic activity from 1999-2000 to 2009-2010

	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
Full-time employee	58.9%	9,691	55.8%	10,198	58.2%	9,151	9.11*
Part-time employee	36.6%	6,026	38.5%	7,040	42.4%	6,668	28.48*
Full-time self employed	39.6%	6,519	30.2%	5,523	27.2%	4,267	142.62*
Part-time self-employed	21.9%	3,595	16.5%	3,011	21.7%	3,417	29.64*
Looking after family/home	2.9%	479	3.2%	578	4.5%	701	2.32
Other	2.9%	475	3.3%	606	3.9%	615	0.75
Total	42.2%	16,449	39.4%	18,269	40.8%	15,716	

Note: [1]N given as total unweighted number of respondents falling within specific category.
* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

The most striking change for male respondents has been the fall in the level of full-time self-employed men making private pension contributions over time, from 54.9 to 35.3 per cent. It is worth noting that more than half of this decrease had occurred by the second wave of data, which was collected in 2004-2005, when only 41.2 per cent of full-time self-employed men were making contributions. This suggests that it was not a temporary fall in the propensity of self-employed men to make private pension contributions that could be solely attributable to events such as the downturn in the economy (see Section 2.2.4). A similar fall, to a lesser degree, was also evident for full-time self-employed women (a fall from 39.6 to 27.2 per cent from 1999-2000 to 2009-2010). The results are both significant at the α=0.05 level. For other categories of economic status, for both men and women, the levels of private pension participation either remained at similar levels or rose slightly. The findings are discussed further in Chapter 8.

Section 6.1.3 now investigates the results amongst the economically active in more detail, firstly looking at employees compared with the self-employed and those working full-time compared with those who are part-time. Further commentary is made on the findings of workers according to whether they work in the public or the private sector. Next, in

Section 6.1.4, a more detailed analysis is on the propensity of individuals to make private pension contributions according to total weekly income.

6.1.3.1 Employed vs Self-employed

It is clear from Tables 6.1a and 6.1b above that amongst employees who are full-time economically active, a higher proportion of both men and women are more likely to make private pension contributions if they are employed compared with if they are self-employed. This may due to several reasons, including the relative attractiveness of occupational pension provision, which often includes the benefit of employer contributions, the generally more predictable nature of income received via employment compared with self-employment and also the relatively less onerous task of joining an existing scheme compared with setting up a plan as a self-employed individual. There are always exceptions to these generalisations, such as the existence of zero-hours contracts, and these exceptions are discussed in more detail in the discussion in Chapter 8.

It is also interesting that self-employed women are far less likely to make private pension contributions compared with their male counterparts. It is noteworthy to see that for full-time employees, the propensity to participate in private pensions is roughly similar for men and women over the period under investigation (between 55.2 and 60.5 per cent), although the participation rate for full-time self-employed men and women both fall significantly from 1999-2000 to 2009-2010. Figures 6.1e-h show the trends for men and women in full-time employment with those who are self-employed full-time.

Figure 6.1e: Proportion of men making private pension contributions from 1999-2000 to 2009-2010, by age group: Full-time employees

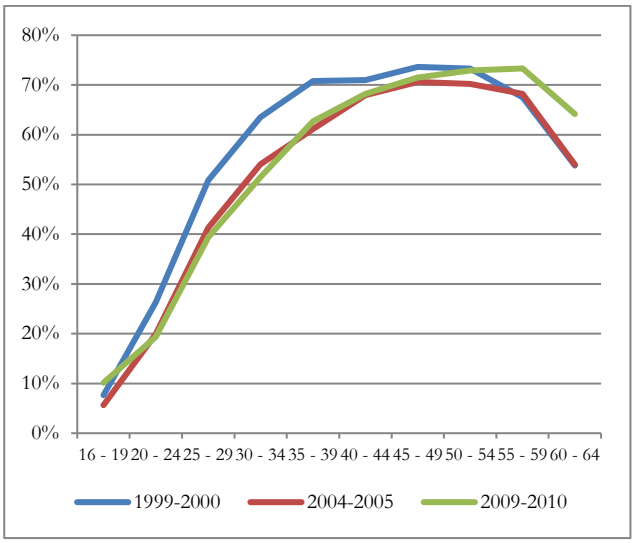
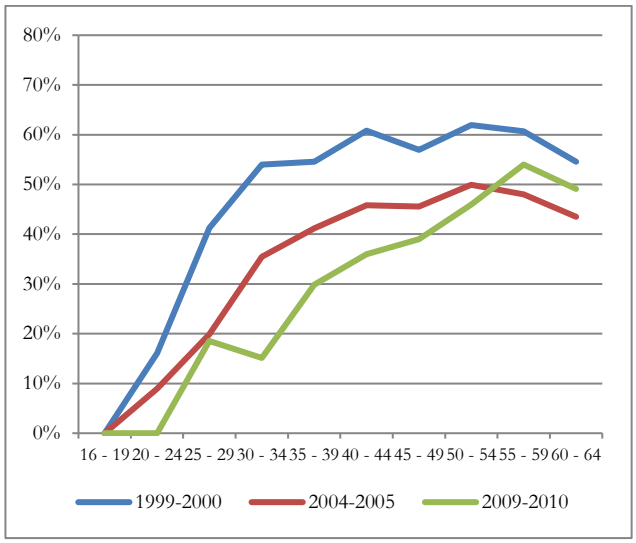


Figure 6.1f: Proportion of men making private pension contributions from 1999-2000 to 2009-2010, by age group: Full-time self-employed



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Figure 6.1g: Proportion of women making private pension contributions from 1999-2000 to 2009-2010, by age group: Full-time employees

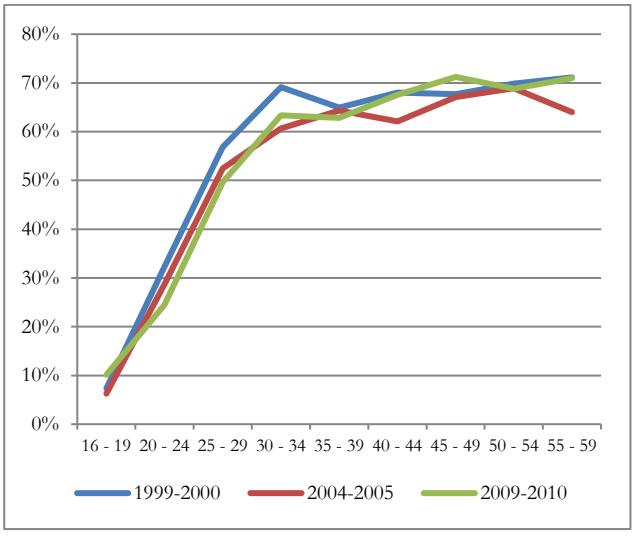
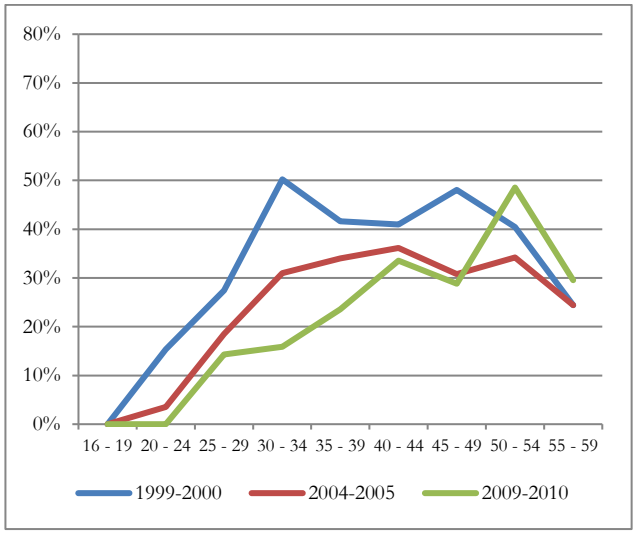


Figure 6.1h: Proportion of women making private pension contributions from 1999-2000 to 2009-2010, by age group: Full-time self-employed



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

There are several key findings. Firstly, as might be expected, the likelihood of making private pension contributions follow the curve of the traditional life-cycle savings model (Modigliani & Brumberg, 1954; Modigliani & Ando, 1957), and indeed a similar pattern to the mean savings in private pensions as described by Banks & Rhowedder (2003), for both employed and self-employed respondents.

Secondly, although the proportions making private pension contributions overall does not change significantly for either men or women employees who are working full-time (the largest category of respondents, accounting for approximately two thirds of males and almost forty per cent of females), nevertheless it is clear that there has been a decreasing overall propensity for both men and women who are full-time self-employed to make private pension contributions.

Thirdly, the figures also suggest a marked difference when comparing the behaviour *between* cohorts versus *across* cohorts. For example, if we consider respondents aged 35-39 at each wave over the period (cohorts born in the periods from 1961-65, 1971-1975 and 1981-1985), for full-time self-employed men, the propensity to make private pension contributions falls from 54.6 per cent in 1999-2000, to 41.2 per cent in 2004-2005, to 29.8 per cent in 2009-2010. For women, there is a corresponding fall from 41.6 per cent to 34.0 per cent to 23.6 per cent. These trends indicate that individuals born to younger cohorts are less likely to make private pension contributions. However, if we follow the propensity of specific cohorts to make pension contributions, a smaller decrease is observed. For example, the 1961-65 cohort of men only saw a fall in private pension participation from 54.6 per cent to 39.0 per cent over the period, a much smaller decrease (with a smaller corresponding fall from 41.6 per cent to 28.8 per cent for women).

The findings suggest that there are cohort differences in private pension participation trends for self-employed individuals over time. This experience is not reflected by full-time employees, for whom cohort private pension participation levels remain similar. The next section now explores the differences between full-time and part-time workers.

6.1.3.2 Full-time vs Part-time

Unlike the results for full-time employment compared with full-time self-employment, which saw notably lower rates of participation for the self-employed, the rates of private pension participation for men in part-time work is similar for both those who are employed or self-employed, and at a much-reduced rate compared with their full-time counterparts (between 17.5 and 19.9 per cent of part-time employees and 18.1 and 22.8 per cent of part-time self-employed). There is a clear gender difference, however, as the findings for women working part-time, show the take up of private pensions is higher for those in employment compared with those who are self-employed (between 36.6 and 42.4 per cent vs. 16.5 and 21.7 per cent respectively).

How the figures change over time must also consider the different working patterns observed for different cohorts. Within each cohort, the proportions of individuals working part-time change significantly as individuals move through their lifecourses. Of female workers aged 25-29 in 1999-2000 (women born in 1971-1975), only 23.8 per cent were part-time, in 2009-2010, the 1971-1975 cohort, now aged 35-39) showed that 39.7 were part-time. There are also differences in the split of full-time versus part-time workers according to cohort. For example, although the proportion female workers in the 25-29 age group who were part-time workers did not change much during the period from 1999-2000 to 2009-2010 (from 23.8 to 23.0 to 21.4 per cent for each of the three waves), the 20-24 age group saw a large increase in the proportion of workers who were part-time workers (from 22.3 per cent in 1999-2000 to 26.0 per cent in 2004-2005 to 32.0 per cent in 2009-2010). Differences in cohort behaviour are investigated further in Chapter 7, when detailed modelling of different demographic and socio-economic characteristics and their associations with the propensity of men and women of different cohorts to make private and personal pension contributions are carried out.

Economic activity is included as a characteristic included in the logistic modelling carried out in the next chapter. The next section discusses the public sector versus private sector context that should be taken into account when considering the findings of this thesis.

6.1.3.3 Public vs Private sector

There were also differences driven by the different patterns of private pension participation associated with the public vs private sectors. It has been noted that pension provision is substantively different between private and public sectors (Meyer & Bridgen, 2011). Tables 6.1c-f show the different trends in the proportions of respondents who provided an industry classification making private pension contributions.

In 1999-2000 the proportion of men and women in the public sector accounted for 15.5 and 39.2 per cent of men and women aged 16-64 and 16-59 in the work place respectively. It can be seen from Tables 6.1c and 6.1e below that the private pension participation rates differ significantly between public and private sectors for both men and women. For example, average public-sector participation rates fell slightly from 74.6 to 73.0 per cent for men over the period, and 66.5 to 62.3 per cent for women. The corresponding participation rates for private sector men and women are 55.6 to 43.3 per cent and 40.7 to 37.2 per cent respectively.

As a result, it can be seen from Tables 6.1d and 6.1f that public sector workers account for a relatively higher proportion of respondents making private pension contributions, covering almost 20 per cent and over 51 per cent of men and women making private pension contributions respectively in 1999-2000. The proportions rise further to 26.4 per cent and 58.1 per cent by 2009-2010. This is mainly due to the decreasing participation rates for private sector workers.

Table 6.1c Comparison of public vs private sector worker private pension participation rates, by age group, for men aged 16-64 from 1999-2000 to 2009-2010

	1999-2000			2004-2005			2009-2010		
	Public	Private	Difference	Public	Private	Difference	Public	Private	Difference
Age 16-19	19.9%	6.5%	13.3%	8.4%	4.9%	3.5%	31.8%	3.6%	28.3%
Age 20-24	39.7%	23.0%	16.7%	45.3%	15.1%	30.1%	50.7%	8.6%	42.1%
Age 25-29	68.6%	47.1%	21.5%	66.5%	34.4%	32.1%	62.9%	27.4%	35.5%
Age 30-34	77.3%	60.3%	17.0%	69.2%	50.5%	18.8%	69.5%	36.2%	33.2%
Age 35-39	78.8%	67.9%	11.0%	77.8%	57.1%	20.7%	76.5%	49.0%	27.5%
Age 40-44	82.3%	67.3%	14.9%	79.9%	63.7%	16.2%	83.5%	54.3%	29.1%
Age 45-49	84.0%	69.4%	14.7%	86.9%	65.2%	21.7%	82.1%	59.2%	23.0%
Age 50-54	78.5%	69.7%	8.7%	81.4%	66.4%	15.0%	81.0%	59.6%	21.4%
Age 55-59	70.4%	63.3%	7.1%	75.6%	62.5%	13.1%	75.3%	59.5%	15.8%
Age 60-64	56.7%	46.0%	10.7%	61.3%	44.2%	17.1%	59.5%	49.4%	10.1%
All ages 16-64	74.6%	55.6%	19.1%	73.7%	48.7%	25.0%	73.0%	43.3%	29.7%

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 6.1d Public versus private sector split of male respondents who have made private pension contributions 1999-2000 to 2009-2010, by age group

	1999-2000		2004-2005		2009-2010	
	Public	Private	Public	Private	Public	Private
Age 16-19	11.2%	88.8%	6.1%	93.9%	32.9%	67.1%
Age 20-24	12.6%	87.4%	26.7%	73.3%	41.3%	58.7%
Age 25-29	17.5%	82.5%	27.0%	73.0%	30.8%	69.2%
Age 30-34	18.1%	81.9%	19.6%	80.4%	33.5%	66.5%
Age 35-39	18.2%	81.8%	22.9%	77.1%	26.0%	74.0%
Age 40-44	22.6%	77.4%	23.8%	76.2%	27.6%	72.4%
Age 45-49	25.2%	74.8%	24.6%	75.4%	22.1%	77.9%
Age 50-54	20.1%	79.9%	24.7%	75.3%	24.7%	75.3%
Age 55-59	18.0%	82.0%	26.1%	73.9%	23.1%	76.9%
Age 60-64	22.2%	77.8%	24.6%	75.4%	22.4%	77.6%
All ages 16-64	19.8%	80.2%	23.9%	76.1%	26.4%	73.6%

Note: Unweighted survey sample sizes for men included in figure are as follows: 1999-2000 N=13,700; 2004-2005 N=15,020; 2009-2010 N=12,432. Differences between public and private sector are significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 6.1e Comparison of public vs private sector worker private pension participation rates, by age group, for women aged 16-59 from 1999-2000 to 2009-2010

	1999-2000			2004-2005			2009-2010		
	Public	Private	Difference	Public	Private	Difference	Public	Private	Difference
Age 16-19	19.3%	3.6%	15.7%	9.8%	2.7%	7.2%	10.9%	2.7%	8.2%
Age 20-24	42.4%	22.1%	20.3%	44.7%	14.8%	29.8%	32.3%	9.2%	23.1%
Age 25-29	66.3%	43.1%	23.3%	60.2%	37.4%	22.8%	56.8%	29.9%	26.9%
Age 30-34	69.0%	50.4%	18.7%	65.0%	47.0%	18.1%	63.6%	41.9%	21.7%
Age 35-39	64.8%	48.0%	16.8%	66.7%	48.8%	17.9%	65.4%	43.8%	21.6%
Age 40-44	70.2%	46.1%	24.2%	70.5%	42.9%	27.6%	67.2%	48.8%	18.4%
Age 45-49	73.1%	46.1%	27.0%	71.8%	43.7%	28.1%	72.2%	48.4%	23.8%
Age 50-54	69.5%	43.8%	25.7%	76.5%	44.7%	31.8%	66.1%	47.3%	18.7%
Age 55-59	66.7%	43.8%	22.9%	64.9%	42.3%	22.6%	65.6%	49.1%	16.6%
All ages 16-59	66.5%	40.7%	25.8%	66.0%	37.3%	28.7%	62.3%	37.2%	25.1%

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 6.1f Public versus private sector split of female respondents who have made private pension contributions 1999-2000 to 2009-2010, by age group

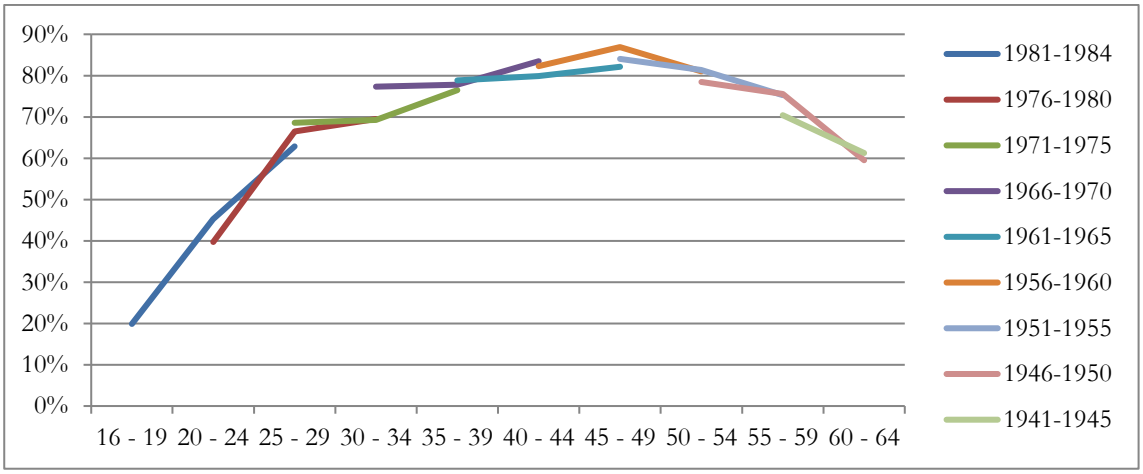
	1999-2000		2004-2005		2009-2010	
	Public	Private	Public	Private	Public	Private
Age 16-19	47.3%	52.7%	36.9%	63.1%	49.8%	50.2%
Age 20-24	35.8%	64.2%	55.5%	44.5%	62.7%	37.3%
Age 25-29	39.6%	60.4%	50.3%	49.7%	58.5%	41.5%
Age 30-34	45.7%	54.3%	44.9%	55.1%	52.1%	47.9%
Age 35-39	49.5%	50.5%	52.2%	47.8%	56.5%	43.5%
Age 40-44	57.6%	42.4%	59.8%	40.2%	56.7%	43.3%
Age 45-49	58.7%	41.3%	63.8%	36.2%	59.7%	40.3%
Age 50-54	59.0%	41.0%	67.6%	32.4%	64.6%	35.4%
Age 55-59	59.1%	40.9%	62.0%	38.0%	56.5%	43.5%
All ages 16-59	51.3%	48.7%	57.2%	42.8%	58.1%	41.9%

Note: Unweighted survey sample sizes for women included in figure are as follows: 1999-2000 N=11,861; 2004-2005 N=13,297; 2009-2010 N=11,159. Differences between public and private sector are significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

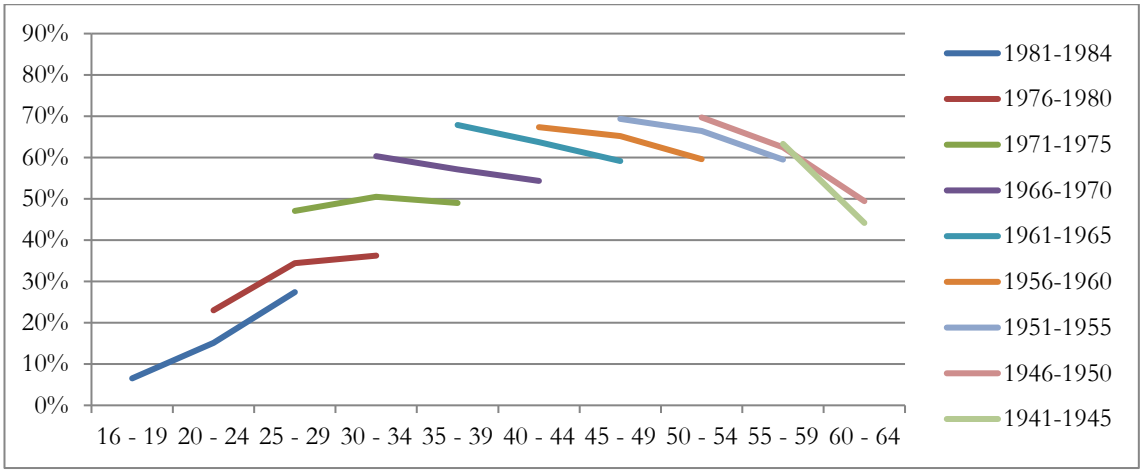
Clearly, of the respondents who have made private pension contributions, a much higher proportion of women are employed in the public sector compared with men, for all age groups across all the survey waves included in this study (ranging from 19.8 to 26.4 per cent for men versus 51.3 to 58.1 per cent for women over the period). Furthermore, if the findings are investigated further from a cohort perspective, it is shown clearly that there are cohort differences in private versus public sector pension participation over time. Figures 6.1i and 6.1j compare the differences in the propensities of cohorts of men to make private pension contributions for the period from 1999-2000 to 2009-2010 according to whether they work in the public or private sectors respectively. Figure 6.1i shows that there is little difference in the behaviour of different cohorts and that the trends follow the same curve over time. Figure 6.1j however, shows that there is a decreasing likelihood over time within cohorts of men to make pension contributions if they are working in the private sector. This is possibly a reflection of the continued perceived attractiveness of public sector pensions, and the changing provision in the private sector described in Section 2.1. The implications of this are explored further in discussion in Chapter 8.

Figure 6.1i Propensities of male cohorts working in the public sector to make private pension contributions from 1999-2000 to 2009-2010, by age group



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

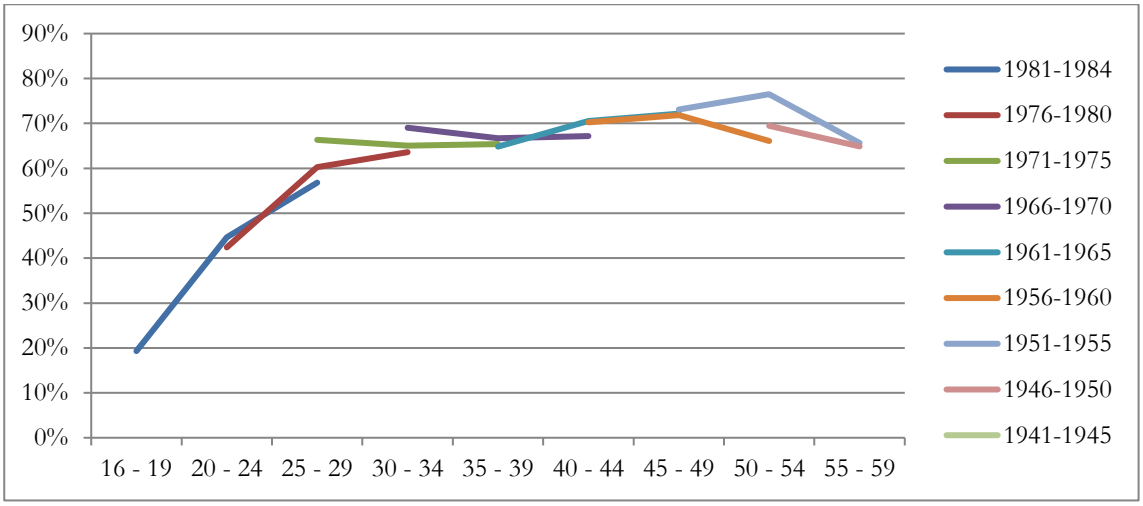
Figure 6.1j Propensities of male cohorts working in the private sector to make private pension contributions from 1999-2000 to 2009-2010, by age group



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

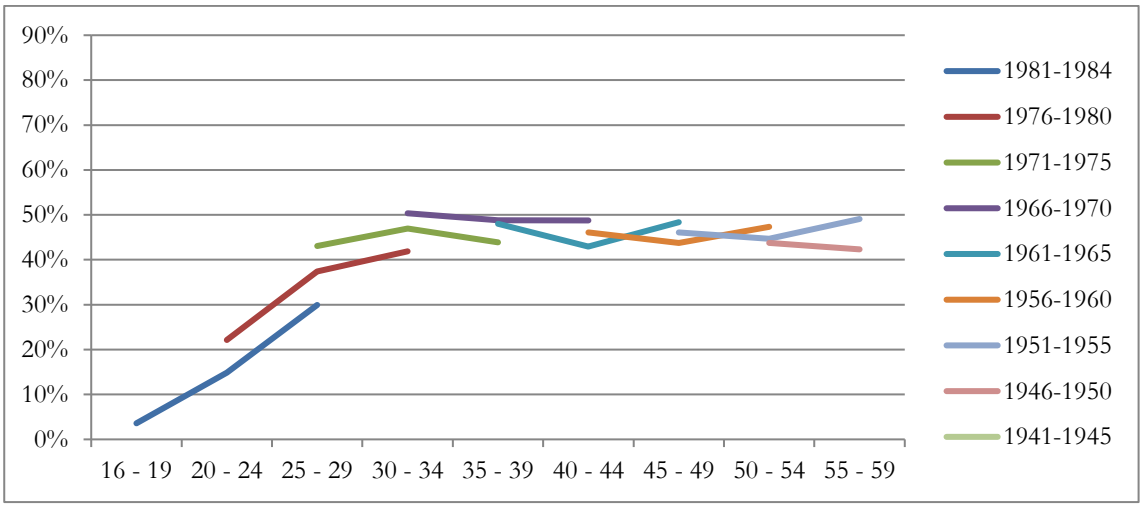
There is a less pronounced difference between public and private sector women. Figure 6.1k shows a general adherence to an age-related pension participation curve for public sector women workers. Figure 6.1l shows a strong cohort effect for younger women, where there is clear distinction between each 5-year cohort for those born after 1966-1970. However, for older women, there is a less discernible pattern, and indeed for those cohorts born before 1966-1970 working in the private sector, it appears that there is no noticeable cohort difference in private pension participation, but a common pattern of a slight decrease in propensity in the period from 1999-2000 to 2004-2005, followed by a slight *increase*.

Figure 6.1k Propensities of female cohorts working in the public sector to make private pension contributions from 1999-2000 to 2009-2010, by age group



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Figure 6.1l Propensities of female cohorts working in the private sector to make private pension contributions from 1999-2000 to 2009-2010, by age group



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

These differences in trends between men and women are not restricted to the industries that they work in, but also the type of their economic activity. Differences in propensities to make private pension contributions arising due to gender lifecourse differences, due to care responsibilities (discussed in Section 3.2.4) are explored further in the following Sections 6.1.3.4 and 6.1.4.

6.1.3.4 Looking after the family/home

Finally, Tables 6.1a and 6.1b also showed the findings for another significant category, that is, those who are primarily responsible for looking after family or home. This affects women in particular. Whilst only a small number of men fall into this category (less than 1 per cent), this category accounts for as much as 13.5 per cent of female respondents in 1999-2000, although this falls to 10.4 per cent by 2009-2010. Most of the women in this category do not contribute towards private pensions (only 2.9 per cent in 1999-2000 increasing to 3.9 per cent in 2009-2010, which contrasts strongly with the corresponding proportions of women in full-time employment of 58.9 and 58.2 per cent respectively). This supports existing literature that identifies the gendered issue of the pension penalty of caring, and which has been discussed in Section 3.2.4. Separate care variables are discussed in Section 6.1.5

6.1.4 Differences in private pension contributions associated with gross weekly income

Tables 6.1g and 6.1h show the proportions of men and women making private pension contributions from 1999-2000 to 2009-2010 according to their total weekly incomes. The numbers of respondents falling into each income band have been included, which gives an indication of how the distribution income has changed over the period.

Table 6.1g Proportions of men making private pension contributions according to gross weekly income from 1999-2000 to 2009-2010

	1999-2000		2004-2005		2009-2010	
	N	% making contributions	N	% making contributions	N	% making contributions
Less than £100.00	2,096	10.3%	2,169	9.0%	2,095	10.9%
£100.00 to £149.99	1,394	10.3%	1,106	9.0%	942	10.8%
£150.00 to £199.99	1,472	18.3%	1,309	12.9%	913	10.5%
£200.00 to £249.99	1,691	33.9%	1,504	20.7%	1,068	15.2%
£250.00 to £349.99	3,151	52.8%	3,051	34.8%	2,282	27.1%
£350.00 to £449.99	2,413	65.6%	2,564	53.0%	1,987	42.0%
£450.00 to £599.99	2,075	74.3%	2,788	59.6%	2,406	59.7%
£600.00 and over	2,295	75.1%	3,815	71.1%	4,075	74.1%

Note: Proportions calculated as making private pension contributions have been weighted. Unweighted survey sample sizes for men included in figure are as follows: 1999-2000 N=16,587; 2004-2005 N=18,306; 2009-2010 N=15,768. Differences across the income bands within waves are significant at the 5% level. Differences across waves are significant at the5% level for weekly incomes above £150 per week.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 6.1h Proportions of women making private pension contributions according to gross weekly income from 1999-2000 to 2009-2010

	1999-2000		2004-2005		2009-2010	
	N	% making contributions	N	% making contributions	N	% making contributions
Less than £100.00	5,099	9.0%	4,117	7.6%	2,853	7.4%
£100.00 to £149.99	2,360	21.5%	2,020	17.9%	1,336	14.6%
£150.00 to £199.99	2,362	30.6%	2,223	23.3%	1,408	23.4%
£200.00 to £249.99	1,822	43.2%	2,046	30.7%	1,566	27.2%
£250.00 to £349.99	2,269	57.7%	3,225	45.1%	2,886	36.0%
£350.00 to £449.99	1,119	71.7%	1,889	59.3%	2,033	47.9%
£450.00 to £599.99	901	81.0%	1,444	67.7%	1,669	67.7%
£600.00 and over	517	73.1%	1,305	77.0%	1,965	80.2%

Note: Proportions calculated as making private pension contributions have been weighted. Unweighted survey sample sizes for women included in figure are as follows: 1999-2000 N=16,449; 2004-2005 N=18,269; 2009-2010 N=15,716... Differences across the income bands within waves are significant at the 5% level. Differences across waves are significant at the5% level for weekly incomes above £100 per week.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

As might be expected, there is a positive correlation between gross weekly income and proportions making private pension contributions. For men and women on low income, the propensity to make private pension contributions is low over the entire period. For men receiving income of less than £150 per week, the proportions making private pension contributions remains similar over the period, with a decline for all other income levels except those in the highest income band. For women, there is a decrease in the number of respondents making private pension contributions across all income bands except for those in receipt of income of more than £600 per week. This finding is discussed further in Section 8.1.

However, it is also important to consider the circumstances of those who receive the lowest incomes, who are often those with care responsibilities (Section 3.2.4 and 6.1.3.4 above). The next section investigates the relationships and trends in the propensities of men and women who have care responsibilities and/or provide care to make private pension contributions in more detail.

6.1.5 Differences in private pension contributions associated with care responsibilities and roles providing care

For the purposes of this study, two key care variables are considered, namely whether respondents in the survey indicated that they provided care to an adult (at home or outside of their home), and also whether they had children under compulsory school entry age (aged between 0-4 years at last birthday), who are most likely to require more care

Tables 6.1i-k show how the propensities of men responsible children aged 0-4 to make private pension contributions compare with those without children aged 0-4 change over the period from 1999-2000 to 2009-2010, and also contrast them with the corresponding figures for men who provide care for adult dependants. For all survey waves, men caring for adults are much less likely to make private pension contributions than their counterparts who do not provide care for adults. However, this is not the same trend emerging for adults responsible for young children (aged 0-4). At the beginning of the

period under investigation, in the 1999-2000 survey wave, men with young children were more likely than those without to make private pension contributions (54.2 per cent compared with 45.3 per cent, a difference of almost 10 per cent). By 2009-2010, this difference had decreased to less than 4 per cent (44.0 per cent versus 40.1 per cent). This suggests that for men at least, having children is not a barrier to making retirement provision, and may indeed even be an incentive to make contributions, although the effect appears to be less pronounced over time.

Table 6.1i Proportions of men making private pension contributions according to care responsibilities in 1999-2000, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	0.0%	2	4.5%	672	0.0%	9	4.5%	665
Age 20-24	19.2%	52	17.0%	1,218	8.8%	19	17.2%	1,251
Age 25-29	39.8%	184	42.6%	1,473	24.7%	23	42.5%	1,634
Age 30-34	55.9%	420	53.6%	1,670	17.1%	20	54.3%	2,070
Age 35-39	62.5%	367	59.1%	1,832	30.1%	33	60.1%	2,166
Age 40-44	61.0%	170	59.4%	1,767	42.4%	40	59.9%	1,897
Age 45-49	61.1%	47	59.7%	1,735	46.8%	57	60.2%	1,725
Age 50-54	53.4%	29	57.5%	1,936	36.9%	65	58.1%	1,900
Age 55-59	0.0%	3	43.6%	1,533	28.5%	84	44.4%	1,452
Age 60-64	100.0%	1	23.1%	1,476	16.4%	98	23.6%	1,379
All ages 16-64	**54.2%**	**1,275**	**45.3%**	**15,312**	**28.4%**	**448**	**46.3%**	**16,139**

Source: Family Resources Survey, 1999-2000

Table 6.1j Proportions of men making private pension contributions according to care responsibilities in 2004-2005, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	7.7%	17	3.1%	780	0.0%	9	3.2%	788
Age 20-24	15.6%	79	13.2%	1,423	8.8%	31	13.4%	1,471
Age 25-29	31.8%	195	33.0%	1,353	0.0%	13	33.1%	1,535
Age 30-34	57.3%	428	43.5%	1,581	18.0%	18	45.8%	1,991
Age 35-39	58.8%	445	49.7%	1,899	30.2%	28	51.4%	2,316
Age 40-44	65.0%	248	55.4%	2,065	34.4%	48	56.8%	2,265
Age 45-49	57.5%	93	56.1%	1,923	23.6%	56	57.2%	1,960
Age 50-54	57.9%	58	54.0%	1,903	39.1%	77	54.8%	1,884
Age 55-59	36.6%	40	45.3%	2,013	32.9%	97	45.8%	1,956
Age 60-64	18.9%	31	24.0%	1,732	17.2%	78	24.2%	1,685
All ages 16-64	**50.7%**	**1,634**	**40.3%**	**16,672**	**26.1%**	**455**	**41.4%**	**17,851**

Source: Family Resources Survey, 2004-2005

Table 6.1k Proportions of men making private pension contributions according to care responsibilities in 2009-2010, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	3.7%	11	2.9%	502	0.0%	11	3.0%	502
Age 20-24	8.5%	97	9.4%	1,203	0.0%	21	9.5%	1,279
Age 25-29	27.7%	341	30.1%	1,055	2.8%	19	30.0%	1,377
Age 30-34	41.5%	606	38.2%	994	14.9%	21	39.6%	1,579
Age 35-39	53.9%	686	46.0%	1,178	36.2%	28	48.7%	1,836
Age 40-44	56.0%	435	53.1%	1,497	29.0%	34	54.2%	1,898
Age 45-49	52.3%	150	56.3%	1,735	35.6%	49	56.6%	1,836
Age 50-54	54.9%	37	56.4%	1,744	26.0%	62	57.5%	1,719
Age 55-59	42.4%	8	52.4%	1,656	37.7%	63	52.9%	1,601
Age 60-64	47.8%	5	34.6%	1,828	30.4%	90	34.9%	1,743
All ages 16-64	**44.0%**	**2,376**	**40.1%**	**13,392**	**25.5%**	**398**	**41.0%**	**15,370**

Source: Family Resources Survey, 2009-2010

The next three tables, 6.1l-6.1n show the corresponding figures for women. In 1999-2000 it can be seen that there is a marked difference between both women who have young children and for women who provide care for adults compared with their non-carer counterparts, who have a much higher propensity to make private pension contributions.

Table 6.1l Proportions of women making private pension contributions according to care responsibilities in 1999-2000, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	5.8%	35	3.6%	615	0.0%	22	3.8%	628
Age 20-24	4.0%	193	18.5%	1,295	16.9%	23	16.9%	1,465
Age 25-29	17.5%	405	39.9%	1,521	14.5%	28	36.2%	1,898
Age 30-34	31.0%	495	43.0%	1,804	26.8%	24	40.7%	2,275
Age 35-39	32.2%	382	40.6%	2,097	22.1%	42	39.7%	2,437
Age 40-44	32.6%	111	42.5%	1,931	27.2%	63	42.6%	1,979
Age 45-49	43.5%	5	45.1%	1,909	30.3%	80	45.8%	1,834
Age 50-54	n/a	-	38.8%	2,017	26.3%	92	39.4%	1,925
Age 55-59	100.0%	1	29.2%	1,633	18.3%	114	30.1%	1,520
All ages 16-59	**24.2%**	**1,627**	**36.2%**	**14,822**	**22.6%**	**488**	**35.5%**	**15,961**

Source: Family Resources Survey, 1999-2000

Table 6.1m Proportions of women making private pension contributions according to care responsibilities in 2000-2005, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	1.3%	53	2.1%	699	6.3%	12	2.0%	740
Age 20-24	7.3%	231	16.6%	1,525	3.0%	24	15.9%	1,732
Age 25-29	20.1%	358	34.8%	1,467	18.7%	23	32.9%	1,802
Age 30-34	36.3%	579	38.5%	1,805	15.5%	31	38.4%	2,353
Age 35-39	39.1%	463	41.0%	2,177	7.5%	39	41.2%	2,601
Age 40-44	32.4%	174	42.7%	2,371	22.5%	56	42.6%	2,489
Age 45-49	27.0%	55	44.5%	2,135	17.0%	76	45.2%	2,114
Age 50-54	57.6%	33	44.9%	2,007	28.4%	99	46.0%	1,941
Age 55-59	28.9%	38	31.1%	2,099	23.0%	139	31.7%	1,998
All ages 16-59	**28.9%**	**1,984**	**35.4%**	**16,285**	**19.7%**	**499**	**35.3%**	**17,770**

Source: Family Resources Survey, 2004-2005

Table 6.1n Proportions of women making private pension contributions according to care responsibilities in 2009-2010, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	0.0%	51	2.6%	493	0.0%	14	2.4%	530
Age 20-24	6.9%	381	12.7%	1,197	4.1%	33	11.7%	1,545
Age 25-29	22.4%	706	37.6%	1,080	31.0%	20	32.4%	1,766
Age 30-34	33.0%	806	43.9%	1,033	9.2%	23	39.8%	1,816
Age 35-39	43.2%	756	42.1%	1,309	17.1%	29	42.9%	2,036
Age 40-44	46.3%	302	46.1%	1,888	20.2%	53	46.8%	2,137
Age 45-49	49.1%	44	49.6%	2,080	14.6%	81	51.1%	2,043
Age 50-54	45.9%	8	44.9%	1,818	24.4%	88	46.1%	1,738
Age 55-59	13.8%	6	41.0%	1,758	28.9%	95	41.6%	1,669
All ages 16-59	**30.2%**	**3,060**	**38.4%**	**12,656**	**19.2%**	**436**	**37.5%**	**15,280**

Source: Family Resources Survey, 2009-2010

The gender difference in the extent of the associated impact of home responsibilities and carer roles on the propensities to make private pension contributions is discussed further in Chapter 8.

6.1.6 Private pensions: Summary of Key Results from APC analysis on socio-economic characteristics

Section 6.1 has explored the age and cohort trends in the proportions of men and women making private pension contributions in the period from 1999-2000 to 2009-2010. There have been several different findings, which are now listed to provide the reader with a brief summary on the key results:

- As might be expected, there is a clear trend of increased propensity to make private pension contributions for both men and women and across cohorts, as an individual's level of educational attainment increases, although for women the level of pension participation has fallen slightly for each of the educational attainment

age categories. The slight increase in private pension participation for women over time is therefore partly due to the increased proportion of women who are staying on in higher education.

- There is an increased likelihood over time for both men and women to make private pension contributions if they are renting. There are no other clear trends associated with housing tenure and the propensity to make private pension contributions, although there appears to be a reduction in the extent of the differences associated with different housing tenure and the propensity of both men and women to make private pension contributions over time.

- There are clear differences in men's and women's propensity to make private pension contributions, according to different economic statuses.
    - There is a reduced propensity of self-employed respondents to make private pension contributions over time.
    - Although overall men are more likely to make private pension contributions than women, when the findings are split according to private versus public sector workers, there are higher levels of private pension participation for both men and women in the public sector, and the men continue to be more likely to make contributions than women. However, the large proportion of women in the public sector suggests that women in the private sector are even less likely to make private pension contributions than the overall figures shown in Section 5.1.
    - Whilst the propensity to make private pension contributions is positively associated with income levels, and that over the period, has decreased for most income bands, it is important to note that for women, at least, the effect of increased income over time more than compensates for the falling likelihood of making private pension contributions at each increasing income band.

- Responsibility for children and care provision
    - Results show that providing care for adult dependants is associated with a significantly reduced propensity to make private pension contributions. Despite this, having young children or providing care for dependant adults

is still a gendered issue, particularly with regards to child care; having young children is not strongly associated with a decline in private pension participation for men, but it is for women. This is exacerbated by more women than men identifying their key economic status as looking after the family or home.

6.2 Trends in personal pension contributions from 1999-2000 to 2009-2010 associated with variations in key socio-economic characteristics

This section investigates the trends in the propensities of men and women to make personal pension contributions that are associated with varying socio-economic characteristics and compares the differences with those of private pension contributions found in Section 6.1.

6.2.1 Differences in personal pension contributions associated with educational attainment

As with private pension contributions, there is a general trend of higher proportions of personal pension contributions for respondents who completed their full-time education at older ages (Section 6.1.1). Analysis of the data showed a generally higher incidence of men making personal pension contributions compared with women. However, within the context of this statement, there are some interesting differences. Firstly, there is a strong positive correlation for both men and women in 1999-2000 between the levels of incidence of respondents contributing towards personal pensions and the age they completed full-time education. In the latter waves, 2004-2005 and 2009-2010, there is noticeably less variation between men of differing educational attainment. In these latter years, the proportions of men making personal pension contributions are at a similar level across all ages of leaving full-time education. For example, the proportions of men making personal pension contributions in 2004-2005 vary between just under 14 per cent for men who left full-time education between ages 17-18 to just over 16 per cent for men who left full-time education between ages 22-25 (Figure 6.2a).

For women (Figure 6.2b), too, the strong positive association between the propensity to make personal pension contributions and the age at which individuals completed full-time education seen in 1999-2000 becomes less pronounced in the latter survey waves, but a general upward trend can still be seen for the 2009-2010 wave.

Figure 6.2a: Proportion of men making personal pension contributions by age left full-time education from 1999-2000 to 2009-2010

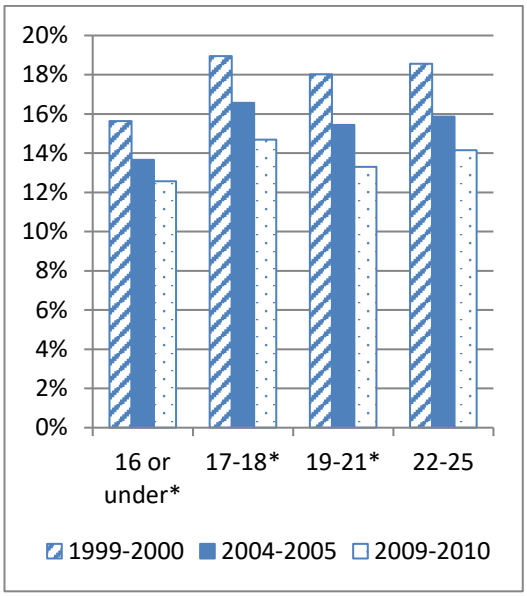
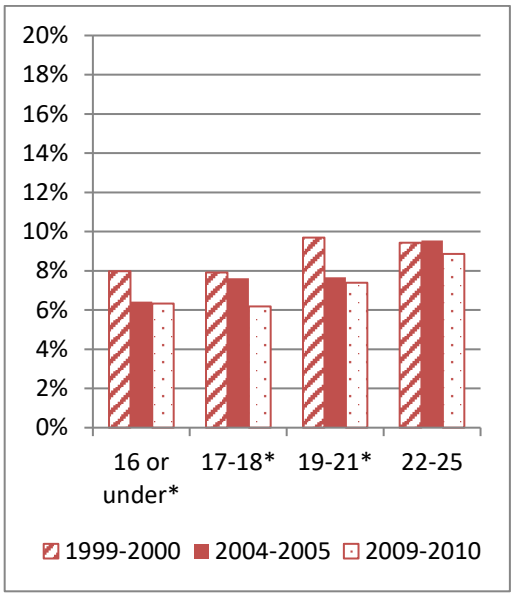


Figure 6.2b: Proportion of women making personal pension contributions by age left-full-time education from 1999-2000 to 2009-2010



Note: The level of non-response varied between 0.0 and 1.5 per cent for the three survey waves. Non-responders have been excluded for the purposes of this descriptive analysis. Unweighted sample sizes included in figures above are as follows: 1999-2000 N=14,751; 2004-2005 N=15,817; 2009-2010 N=15,024 for men and 1999-2000 N=14,844; 2004-2005 N=16,041; 2009-2010 N=14,915 for women respectively.

*Indicates where differences in the proportions within each of categories for age left full time education are significant at the 5% level over the period.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

As for private pension contributions (Section 6.1.1) the results show that there is a decreasing likelihood for individuals to make personal pension contributions over the period for regardless of the age at which they completed full-time education. Furthermore, whilst the findings also suggest that personal pension participation increases with the ages at which individuals complete full-time education, it is not such a linear trend as was seen for private pension contributions. For men who completed their full-time education between 19-21 there is a slightly reduced propensity to make personal pension contributions across each of the waves compared with those who had stayed until 17-18 or 22-25 years. For women, staying in education beyond 18 is linked to higher propensities to make personal pension contributions for the whole period.

6.2.2 Differences in personal pension contributions associated with variations in housing tenure

Figures 6.2c and 6.2d show how the proportions of men and women making personal pension contributions have changed from 1999-2000 to 2009-2010, according to the four largest category of housing tenure. As with Section 6.1.2, which investigated the patterns emerging between housing tenure and the propensities of individuals to make private pension contributions, there are no clear overall trends emerging.

Figure 6.2c: Proportion of men making personal pension contributions by housing tenure from 1999-2000 to 2009-2010

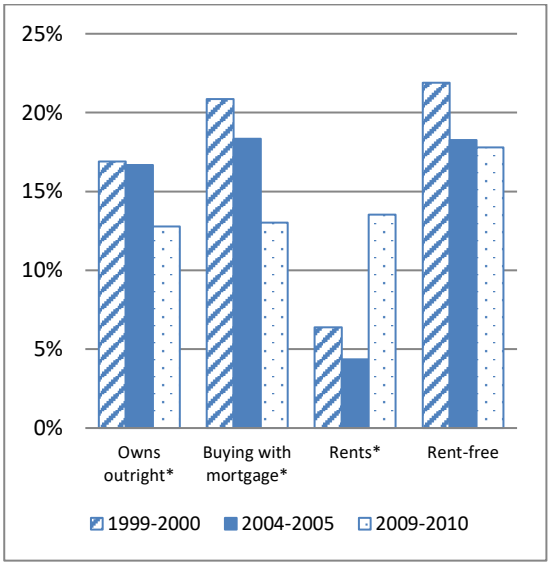
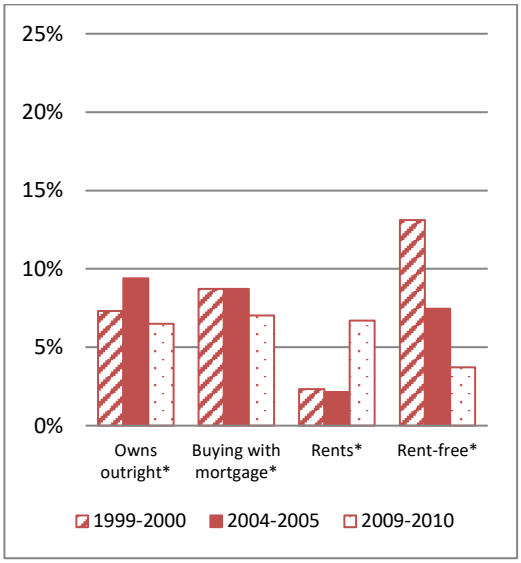


Figure 6.2d: Proportion of women making personal pension contributions by housing tenure from 1999-2000 to 2009-2010



Note:. Unweighted sample sizes included in figures above are as follows: 1999-2000 N=16,543; 2004-2005 N=18,249; 2009-2010 N=15,709 for men and 1999-2000 N=16,394; 2004-2005 N=18,199; 2009-2010 N=15,655 for women respectively.
*Indicates where differences in the proportions within each of the housing tenure categories are significant at the 5% level over the period.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

One noticeable finding, which reflects the findings for private pensions in Section 6.1.2, is how there has been a significant increase in the propensities of both men and women renters to make personal pension contributions (from 6.4 per cent to 13.5 per cent and 2.5 per cent to 6.7 per cent for men and women respectively from 1999-2000 to 2009-2010). These results are significant at the 5 per cent level. In particular, this increase in the

propensity to make personal contributions only appears to apply to men and women aged 35-39 or over, which suggests that younger age groups are either disinclined to or unable to afford to make retirement savings despite the overall increasing trend to do so. For male respondents, all other categories saw a decrease in the likelihood of respondents to make personal pension contributions over time. The findings were not so conclusive with female respondents, although there was a strong decrease in the proportions of women making personal pension contributions if they did not either own property or pay rent ('rent-free'). The findings will be discussed further in Chapter 8.

6.2.3 Differences in personal pension contributions associated with economic activity

In Section 6.1.3, a strong association between having an economic activity in which income is earned (such as employment or self-employment) and making private pension contributions was shown. However, it might be expected that those making personal pension contributions will have slightly different economic status characteristics to those making private pension contributions. Firstly, those in employment often have access to an occupational pension scheme, and if they are members of such scheme, may not be inclined to also make personal pension contributions, unless they are offered the option of a group personal pension plan. Self-employed individuals often have no choice by to make contributions to personal pension schemes as they have no access to other forms of pension plans beyond the state retirement provision they are able to build up via Class 3 national insurance contributions, so it may be expected that a higher proportion of self-employed individuals will be paying in to personal pension compared with employees. In 2010, the ONS showed that only 8.6 per cent of employees were paying into group personal pension schemes (ONS, 2013f). This contrasts with 37 per cent of self-employed males (who remain the dominant gender in self-employment) (ONS, 2013f). Furthermore, it might be expected that those respondents who are not earning income from employment, but are in a position to make retirement savings (for example from another earning member of the same household or through their own income earned via investments or other sources other than employment), might do into a personal pension plan. According to the ONS, in 2010, 0.1m individuals contributing to personal pensions in 2010/11 were not in employment (ONS, 2013f).

Tables 6.2a and 6.2b below show how the proportions of respondents making personal pension contributions change over the period from 1999-2000 to 2009-2010, for key economic status categories, namely, those economically active and earning income and those providing care, for men and women respectively. As in Section 6.1.3 (Tables 6.1a and 6.1b), all other categories covering economically inactive statuses, including unemployment and retirement, are included as a single combined category for comparison purposes.

Table 6.2a Proportions of men making personal pension contributions according to economic activity from 1999-2000 to 2009-2010

	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
Full-time employee	15.8%	2,621	14.4%	2,636	13.0%	2,050	6.3
Part-time employee	5.9%	979	4.8%	879	6.6%	1,041	2.8
Full-time self employed	53.4%	8,857	40.5%	7,414	33.2%	5,235	337.0
Part-time self-employed	19.2%	3,185	17.3%	3,167	20.2%	3,185	7.2
Looking after family/home	2.5%	415	0.7%	128	6.5%	1,025	15.0
Other	2.1%	348	2.7%	494	5.9%	930	13.3
Total	35.5%	16,587	27.1%	18,306	21.1%	15,768	

Note: [1]N given as total unweighted number of respondents falling within specific category.
* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 6.2b Proportions of women making personal pension contributions according to economic activity from 1999-2000 to 2009-2010

	1999-2000	N[1]	2004-2005	N[1]	2009-2010	N[1]	χ^2 statistic
Full-time employee	11.1%	1,826	8.9%	1,626	7.1%	1,116	12.6
Part-time employee	6.8%	1,119	6.8%	1,242	7.2%	1,132	0.2
Full-time self employed	38.0%	6,251	29.7%	5,426	21.0%	3,300	206.3
Part-time self-employed	18.6%	3,060	16.2%	2,960	19.1%	3,002	8.0
Looking after family/home	2.1%	345	2.7%	493	3.7%	581	2.5
Other	1.6%	263	2.3%	420	3.4%	534	2.4
Total	25.1%	16,449	19.3%	18,269	15.2%	15,716	

Note: [1]N given as total unweighted number of respondents falling within specific category.
* Significant at the 5% level.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

It is clear that there is a strong association with earning income through self-employment and making personal pension contributions. Interestingly, amongst employees, there has been a larger drop in women making personal pension contributions than men (from 11.1 per cent to 7.1 per cent compared with 15.8 per cent to 13.0 per cent over the period).

6.2.3.1 Employed vs Self-employed

Figures 6.2e-h show the trends in the propensities of men and women in full-time employment and those who are self-employed full-time to make personal pension contributions.

Figure 6.2e: Proportion of men making personal pension contributions from 1999-2000 to 2009-2010: Full-time employees

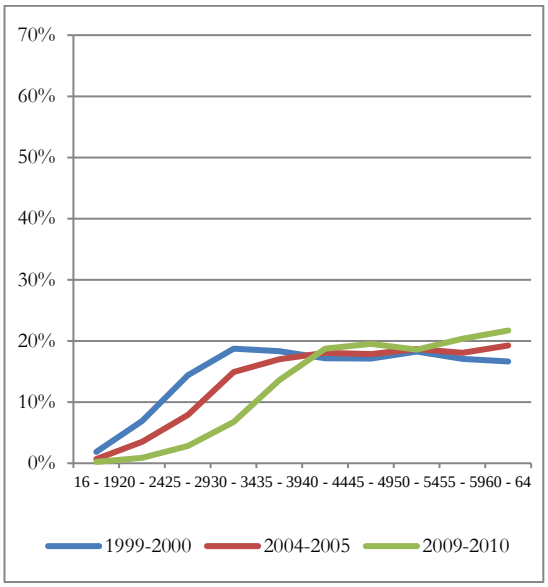
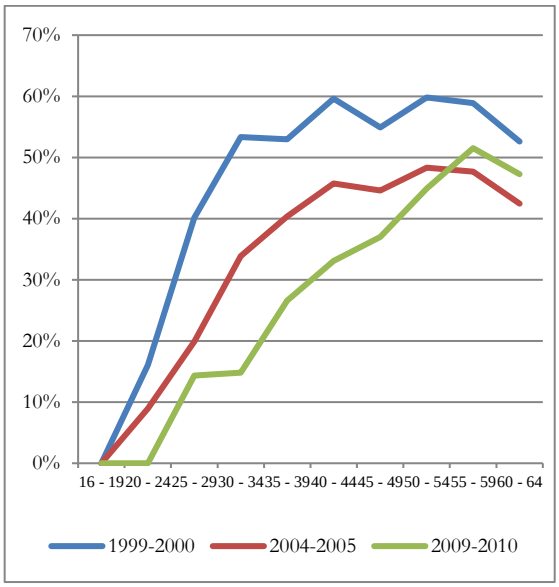


Figure 6.2f: Proportion of men making personal pension contributions from 1999-2000 to 2009-2010: Full-time self-employed



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Figure 6.2g: Proportion of women making personal pension contributions from 1999-2000 to 2009-2010: Full-time employees

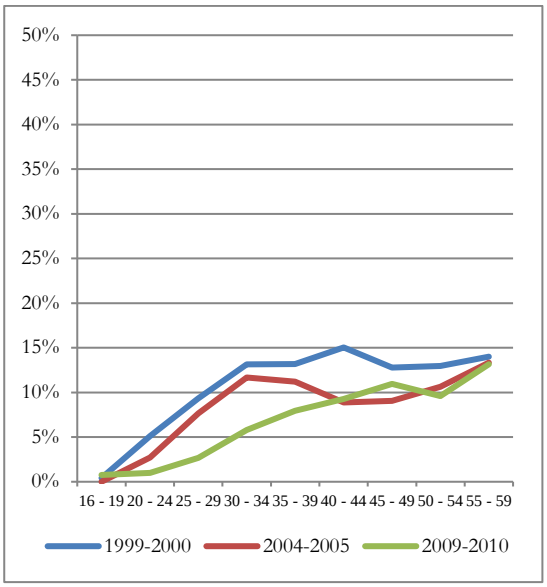
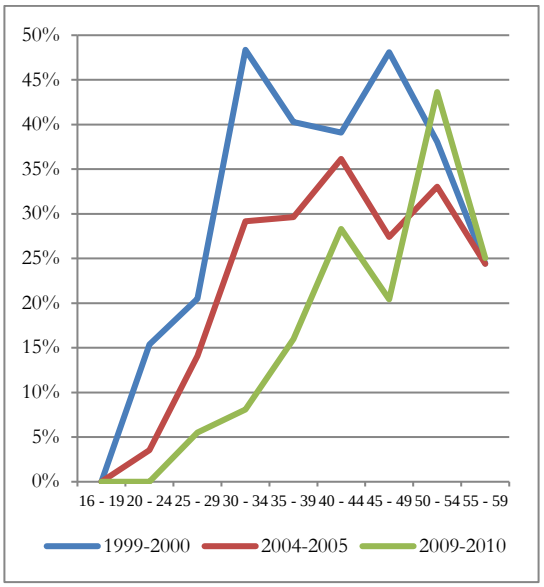


Figure 6.2h: Proportion of women making personal pension contributions from 1999-2000 to 2009-2010: Full-time self-employed



Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

In stark contrast to the private pension findings set out in Section 6.1.3, the link between self-employment and personal pensions is clear. As might be expected, a much smaller proportion of full-time employees made personal pension contributions than their self-employed counterparts. This is likely to be because a majority of full-time employees are already paying into an occupational pension scheme. Indeed, this is reflected in Figures 6.1e and 6.1g for men and women respectively, which show *private* pension participation rates in excess of 70 per cent for some age categories of both full-time men and women employees.

6.2.3.2 Full-time vs Part-time

Whilst the propensity of self-employed men working part-time to make personal pension contributions has remained fairly constant from 1999-2000 to 2009-2010 (from 19.2 per cent to 20.2 per cent), it is notable that the proportion of full-time self-employed men who make personal pension contributions has fallen significantly, from 53.4 per cent to 33.2 per cent. These figures contrast with the figures for full-time male employees making private pension contributions, which as we saw in Section 6.1.3.2 remained stable over the period. Women too have experience similar trends, albeit consistently lower levels throughout the

period under investigation (from 38 per cent of full-time self-employed women in 1999-2000 to 21.0 per cent in 2009-2010). Again, for self-employed women working part-time, there was little change over the 10-year period to their propensity to make personal pension contributions. These findings suggest that there are a unique set of factors affecting respondents in this specific group (full-time self-employed males), and this will be discussed further in Chapter 8. This Section 6.2.3 has discussed at a broader level the differences in personal pension contributions associated with economic activity. Section 6.2.4 develops on this by investigate the proportions making personal pension contributions according to income.

6.2.4 Differences in personal pension contributions associated with gross weekly income

Tables 6.2c and 6.2d show the proportions of men and women making personal pension contributions from 1999-2000 to 2009-2010 according to their total weekly incomes.

Table 6.2c Proportions of men making personal pension contributions according to total weekly income from 1999-2000 to 2009-2010

	1999-2000		2004-2005		2009-2010	
	N	% making contributions	N	% making contributions	N	% making contributions
Less than £100.00	2,096	8.8%	2,169	7.0%	2,095	9.2%
£100.00 to £149.99	1,394	6.5%	1,106	6.4%	942	8.7%
£150.00 to £199.99	1,472	10.0%	1,309	8.4%	913	8.4%
£200.00 to £249.99	1,691	15.9%	1,504	9.8%	1,068	9.3%
£250.00 to £349.99	3,151	19.2%	3,051	12.3%	2,282	10.0%
£350.00 to £449.99	2,413	20.0%	2,564	17.0%	1,987	12.1%
£450.00 to £599.99	2,075	19.8%	2,788	17.8%	2,406	16.4%
£600.00 and over	2,295	25.5%	3,815	22.5%	4,075	19.0%

Note: Proportions calculated as making personal pension contributions have been weighted.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

Table 6.2d Proportions of women making personal pension contributions according to total weekly income from 1999-2000 to 2009-2010

	1999-2000		2004-2005		2009-2010	
	N	% making contributions	N	% making contributions	N	% making contributions
Less than £100.00	5,099	4.2%	4,117	3.8%	2,853	4.4%
£100.00 to £149.99	2,360	5.4%	2,020	5.3%	1,336	6.1%
£150.00 to £199.99	2,362	7.8%	2,223	6.0%	1,408	6.2%
£200.00 to £249.99	1,822	10.0%	2,046	5.9%	1,566	5.5%
£250.00 to £349.99	2,269	11.7%	3,225	8.2%	2,886	5.7%
£350.00 to £449.99	1,119	10.9%	1,889	8.4%	2,033	6.0%
£450.00 to £599.99	901	14.4%	1,444	10.1%	1,669	8.2%
£600.00 and over	517	19.9%	1,305	14.6%	1,965	12.8%

Note: Proportions calculated as making personal pension contributions have been weighted.

Source: Family Resources Survey, 1999-2000, 2004-2005 and 2009-2010

As might be expected, there is a positive correlation between total weekly income and proportions making personal pension contributions. For both men and women earning less than £200 per week, the proportions making personal pension contributions remains similar over the period, with a decline for all other earners. The decrease in the propensity of the higher earners to make personal pension contributions contrasts with the results for private pension contributions (Tables 6.1g and h).

In this section there has been no comparison of the propensity to make personal pension contributions according to public versus private sector. This is simply because they are not directly comparable. Most public-sector workers by definition are *employees*. During the period of the investigation, personal and stakeholder pensions were the *only* option available to self-employed individuals (ONS, 2011j). It is clear that the types of primary economic activity that respondents undertake are linked to strongly different outcomes in relation to pension participation. So far, this section has considered individuals who are in receipt of employment income. However, respondents who are, for example, unable to take up employment due to their primary role of providing care for children or adults, will not have access to occupational pension schemes. Whilst they will all have the option of setting up a personal pension plan (to which all individuals may make contributions up to a

limit regardless of income), their propensity to make pension contributions are likely to follow different trends. Other carers may combine caring responsibilities with employment, including part-time employment, but pension contributions may be less of a priority for these individuals. The next section looks at the trends in the propensities of men and women who have care responsibilities to make personal pension contributions in more detail.

6.2.5 Differences in personal pension contributions associated with care responsibilities

Tables 6.2e-6.2g compare and contrast the propensities of men to make personal pension contributions for the period from 1999-2000 to 2009-2010, according to whether they provide care for children of pre-school age, or for adults.

Table 6.2e Proportions of men making personal pension contributions according to care responsibilities in 1999-2000, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	0.0%	2	1.0%	672	0.0%	9	1.0%	665
Age 20-24	4.8%	52	4.9%	1,218	0.0%	19	5.0%	1,251
Age 25-29	12.3%	184	13.8%	1,473	5.7%	23	13.7%	1,634
Age 30-34	24.2%	420	19.6%	1,670	11.9%	20	20.5%	2,070
Age 35-39	24.3%	367	19.8%	1,832	5.0%	33	20.7%	2,166
Age 40-44	23.8%	170	21.1%	1,767	15.4%	40	21.5%	1,897
Age 45-49	25.8%	47	20.3%	1,735	14.2%	57	20.6%	1,725
Age 50-54	25.8%	29	21.1%	1,936	14.4%	65	21.4%	1,900
Age 55-59	0.0%	3	17.6%	1,533	7.0%	84	18.2%	1,452
Age 60-64	100.0%	1	11.0%	1,476	5.2%	98	11.5%	1,379
All ages 16-64	**21.5%**	**1,275**	**16.1%**	**15,312**	**8.8%**	**448**	**16.7%**	**16,139**

Source: Family Resources Survey, 1999-2000

Table 6.2f Proportions of men making personal pension contributions according to care responsibilities in 2004-2005, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	7.7%	17	0.5%	780	0.0%	9	0.6%	788
Age 20-24	4.5%	79	2.9%	1,423	0.0%	31	3.1%	1,471
Age 25-29	8.4%	195	7.4%	1,353	0.0%	13	7.6%	1,535
Age 30-34	21.1%	428	14.3%	1,581	12.4%	18	15.3%	1,991
Age 35-39	21.8%	445	17.9%	1,899	7.4%	28	18.6%	2,316
Age 40-44	27.1%	248	19.4%	2,065	15.8%	48	20.1%	2,265
Age 45-49	22.9%	93	19.2%	1,923	8.5%	56	19.7%	1,960
Age 50-54	24.1%	58	19.8%	1,903	10.9%	77	20.4%	1,884
Age 55-59	13.5%	40	17.8%	2,013	11.6%	97	18.1%	1,956
Age 60-64	9.1%	31	12.0%	1,732	7.9%	78	12.2%	1,685
All ages 16-64	**19.0%**	**1,634**	**14.0%**	**16,672**	**9.2%**	**455**	**14.5%**	**17,851**

Source: Family Resources Survey, 2004-2005

Table 6.2g Proportions of men making personal pension contributions according to care responsibilities in 2009-2010, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	3.7%	11	0.0%	502	0.0%	11	0.1%	502
Age 20-24	0.0%	97	0.7%	1,203	0.0%	21	0.6%	1,279
Age 25-29	3.5%	341	2.8%	1,055	0.0%	19	3.0%	1,377
Age 30-34	6.5%	606	7.2%	994	0.0%	21	7.1%	1,579
Age 35-39	16.4%	686	12.5%	1,178	10.2%	28	13.8%	1,836
Age 40-44	16.9%	435	19.6%	1,497	5.4%	34	19.3%	1,898
Age 45-49	12.9%	150	20.5%	1,735	10.7%	49	20.2%	1,836
Age 50-54	19.4%	37	20.1%	1,744	15.9%	62	20.3%	1,719
Age 55-59	42.4%	8	22.3%	1,656	14.8%	63	22.7%	1,601
Age 60-64	0.0%	5	18.7%	1,828	20.4%	90	18.5%	1,743
All ages 16-64	**10.8%**	**2,376**	**13.5%**	**13,392**	**10.9%**	**398**	**13.2%**	**15,370**

Source: Family Resources Survey, 2009-2010

The findings for men with adult dependants show similar trends as for private pensions overall, detailed in Section 6.1.3.4. For all survey waves, men caring for adults are much less likely than their counterparts who do not provide care for adults to make personal pension contributions. Again, the results for men with pre-school children differ. At the beginning of the period under investigation, in 1999-2000, men with young children were more likely than men without young children to make private pension contributions (21.5 per cent compared with 16.1 per cent). This continued through to 2004-2005, when the corresponding figures were 19.0 and 14.0 per cent respectively. By 2009-2010, however, fewer men who had young children were making personal pension contributions than those without (10.8 per cent compared with 13.5 per cent). This suggests that for men, at least, that having children was not a barrier to making retirement provision at the beginning of the period, but by 2009-2010, circumstances had changed sufficiently that they were less likely to make personal pension contributions. This will be discussed further in Chapter 8.

The next three tables, 6.2h-6.2j show the corresponding figures for women. There is a less noticeable difference between those who provide care, and those who do not.

Table 6.2h Proportions of women making personal pension contributions according to care responsibilities in 1999-2000, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	0.0%	35	0.2%	615	0.0%	22	0.2%	628
Age 20-24	1.0%	193	3.2%	1,295	3.7%	23	2.9%	1,465
Age 25-29	5.0%	405	7.3%	1,521	3.5%	28	6.9%	1,898
Age 30-34	10.2%	495	9.3%	1,804	3.5%	24	9.5%	2,275
Age 35-39	7.3%	382	9.0%	2,097	5.9%	42	8.8%	2,437
Age 40-44	9.7%	111	10.6%	1,931	5.0%	63	10.8%	1,979
Age 45-49	26.2%	5	11.3%	1,909	4.9%	80	11.7%	1,834
Age 50-54	n/a	-	10.3%	2,017	11.8%	92	10.2%	1,925
Age 55-59	100.0%	1	6.8%	1,633	3.8%	114	7.1%	1,520
All ages 16-59	**7.0%**	**1,627**	**8.3%**	**14,822**	**5.6%**	**488**	**8.2%**	**15,961**

Source: Family Resources Survey, 1999-2000

Table 6.2i Proportions of women making personal pension contributions according to care responsibilities in 2000-2005, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	0.0%	53	0.0%	699	0.0%	12	0.0%	740
Age 20-24	0.0%	231	1.7%	1,525	0.0%	24	1.6%	1,732
Age 25-29	5.7%	358	5.6%	1,467	6.9%	23	5.6%	1,802
Age 30-34	6.9%	579	8.4%	1,805	0.0%	31	8.2%	2,353
Age 35-39	10.2%	463	8.7%	2,177	2.1%	39	9.0%	2,601
Age 40-44	9.9%	174	8.4%	2,371	6.5%	56	8.5%	2,489
Age 45-49	8.2%	55	7.8%	2,135	2.7%	76	8.0%	2,114
Age 50-54	7.6%	33	10.4%	2,007	6.4%	99	10.5%	1,941
Age 55-59	14.2%	38	7.2%	2,099	3.1%	139	7.7%	1,998
All ages 16-59	**6.8%**	**1,984**	**7.0%**	**16,285**	**3.7%**	**499**	**7.1%**	**17,770**

Source: Family Resources Survey, 2004-2005

Table 6.2j Proportions of women making personal pension contributions according to care responsibilities in 2009-2010, by age group

	Children 0-4				Adults			
	Has children 0-4		Does not have		Provides care		Does not provide care	
	Makes contributions	N	Makes contributions	N	Makes contributions	N	Makes contributions	N
Age 16-19	0.0%	51	0.5%	493	0.0%	14	0.4%	530
Age 20-24	0.1%	381	0.6%	1,197	0.0%	33	0.5%	1,545
Age 25-29	1.8%	706	2.3%	1,080	0.0%	20	2.2%	1,766
Age 30-34	3.1%	806	5.7%	1,033	0.0%	23	4.7%	1,816
Age 35-39	10.8%	756	6.6%	1,309	1.6%	29	8.2%	2,036
Age 40-44	12.7%	302	8.6%	1,888	2.3%	53	9.3%	2,137
Age 45-49	18.7%	44	9.8%	2,080	3.5%	81	10.2%	2,043
Age 50-54	20.3%	8	9.8%	1,818	1.5%	88	10.3%	1,738
Age 55-59	13.8%	6	11.7%	1,758	5.0%	95	12.1%	1,669
All ages 16-59	**5.4%**	**3,060**	**7.0%**	**12,656**	**2.3%**	**436**	**6.8%**	**15,280**

Source: Family Resources Survey, 2009-2010

The lack of variation is mainly because the proportions of women making personal pension contributions are much lower than for men. Secondly, there is a smaller difference between women who have pre-school children and women who do not to make personal pension contributions than for women who have adult care responsibilities. There is a

small cohort effect emerging, which shows that younger cohorts of women aged under (i.e. Early Millennials) with preschool children are even less likely to make personal pension contributions over time. Interestingly, in the last survey wave under investigation, women aged 35-39 and above (GenXers and cohorts born before them) are all more likely to make personal pension contributions if they had young children than their counterparts who did not.

6.2.6 Personal pensions: Summary of Key Results from APC analysis on socio-economic characteristics

- There is strong evidence that personal pension participation is positively correlated with the age at which individuals complete full-time education. One noticeable finding is the increase in the proportion of people with the lowest age of leaving education making personal pension contribution, in light of personal pension contribution levels generally falling over the period.

- There is clear increase in the proportion of renters making personal pension contributions over time.

- There is a clear link between self-employment and personal pension contributions, with a marked fall in the propensity of men and women who are working full-time as self-employed individuals to make contributions over time. This trend is not seen in those who are part-time self-employed.

- The general trend for decreasing propensity in men and women to make personal pension contributions over the period from 1999-2000 to 2009-2010 prevails regardless of income levels.

- There is a clear negative impact on the propensity to make personal pension contributions where men and women who look after adults. This reduced level of personal pension participation is present throughout the period under investigation. Having responsibilities for young children however, impacts on men and women

differently. In 1999-2000 and 2004-2005, men were more likely to make personal pension contributions if they had children under school age, although this had reversed by 2009-2010. For all survey waves, women were overall less likely to make personal pension contributions if they had children aged 0-4. By 2009-2010, however, there the pattern changes with younger women showing a continued trend of a lower propensity to make personal pension contributions contrasting with older women who are more likely to make personal pension contributions if they happened to have children aged 0-4.

6.3 Overall findings from age-period-cohort analysis on socio-economic characteristics

This chapter has investigated the association between key socio-economic characteristics and the propensity of men and women to make private and personal pension contributions, at different ages over time.

There are striking similarities and clear differences. For both men and women, there is a positive correlation between private and personal pension participation and the age at which people leave full-time education. Some findings reinforce existing literature, particularly with regards to the positive correlation between educational attainment and the propensity to make pension contributions, the clear difference between higher level of pension participation associated with full-time versus and part-time work. It contrasts the findings between workers in the private and public sectors, highlighting the impact that working in different industry sectors has on the propensity of individuals to participate in private retirement savings plans, confirming the attractiveness of public sector pensions. It also highlights the long-held differences that exist between those who are in employment versus self-employment and compares and contrasts the findings for respondents who work full-time compared with those who are part-time; women are more disadvantaged because of the numbers who work part-time, but part-time men are also less likely to make pension contributions. Results find that lower earners are less likely to make pension contributions. Other findings confirm for example, the pension penalty of caring, especially in the case of women.

There are however, results that suggest that more nuances exist within these overall findings. As with part-time workers, the pension penalty of caring is not restricted to women – a clear pension penalty exists for men who care for adults, and this pension penalty does not appear to be present in the most recent findings for women where they care for young children. This chapter has also shown how these trends are not necessarily applicable across ages, with contrasting behaviour between cohorts. For example, in Section 6.1.4, the results show that whilst there is a very small overall decrease in the proportion of men caring for adults to make private pension contributions from 1999-2000 to 2009-2010, this trend was bucked by the 55-59 age group for example, which saw an increased pension participation rate over time. Further, the findings in Section 6.1.3.3 have also shown how there are different patterns of pension participation for different cohorts of women in the public sector. These interesting results will be discussed critically in later, in Chapter 8.

These findings suggest that any attempt to identify specific characteristics associated with risk of inadequate retirement saving should also take the inter-cohort context into account. Chapter 7 now follows the repeated cross-sectional bivariate and multivariate analysis carried out in Chapters 5 and 6 with an exploration of the relationship between the key demographic and socio-economic explanatory variables. This will be achieved by applying logistical regression analysis to data from the latest wave, 2009-2010, in an attempt to describe the extents of the association between demographic and socio-economic variables with propensities to make private and personal pension contributions, including the variation due to birth cohort.

7. Results III: Logistic regression analysis into private and personal pension contributions using the FRS

This chapter develops on the findings from Chapters 5 and 6 by investigating the association between private and personal pension contributions using variables selected with reference to the conceptual framework that was introduced in Section 1.2 by carrying out a cross-sectional logistic regression analysis. In addition to expanding upon the findings in Chapters 5 and 6, which were used to answer research questions R1 and R2 (see Section 1.3), this chapter also aims to answer research question R3:

- *To what extent are men and women likely to make differing private and personal pension contributions according to different demographic and socio-economic factors and how do these vary according to age group?*

where these different factors are as set out in the conceptual framework (Figure 1.2).

Data from the 2009-2010 wave of the FRS will be used for the purposes of this analysis (the methodology used is provided in more detail in Section 4.3.2). In order to carry out this investigation, the derived variables indicating whether individuals were making private pension contributions and personal pension contributions were selected as the dependent variables.

Chapter 5 showed that the propensity of individuals to contribute towards private and personal pensions varies depending on age (both in terms of specific age groups and different cohorts). In addition, for both men and women, there were differences in pension contribution behaviour depending on the age at which individuals completed their full-time education. Strong variations between the proportions of people making private and personal contributions were also shown for different categories of marital status, particularly for men. Chapter 6 explored the different trends in pension participation

associated with key socio-economic variables such as education, housing tenure, economic activity and care responsibilities.

In this chapter, work is carried out building upon these APC analyses, to determine the extent of the inter- and intra-cohort differences for men and women associated with each of these demographic and socio-economic characteristics. Logistic regression analysis was carried out firstly on all the potential explanatory variables together (age group, marital status, age completed full-time education, housing tenure, economic activity, gross weekly income and care indicators). Models were run for private pension contributions and then for personal pension contributions. In each case, models were run separately for men and women, as it is clear from Section 5.1 that the patterns of contributions made by men and women are different. It should be noted that individuals living in institutions such as care homes are excluded from the survey as it is aimed at collecting household data (see Section 4.1.1). Furthermore, for completeness, the regressions carried out consider fully each of the marital statuses and each of the age categories for age completed full-time education, including non-responders for specific variables (in order to ensure that all survey respondents were captured in the models).

In Sections 5.1.3 and 5.2.3 the findings suggested that there may be some interaction between variables such as age and marital status, and hence there is a possibility that one or more variables may confound other variables. An example of where variable interaction may affect our findings includes the age at which individuals completed their full-time education, which is likely to be different depending on when individuals were born. For instance, there have been increasing proportions of the population continuing on to complete university education over time; in 1980 just over 68,000 students attained first degrees in the UK, and this figure had increased to over 330,000 by 2010 (Bolton, 2012). Tests of correlations between each of the explanatory variables show that there is significant correlation between each two-way pairing (see Tables A5.1 and A5.2 in Appendix 5). The models that are set out in the rest of this section attempt to address this issue by considering each possible two-way interaction between variables (see Section 4.2.2).

7.1 Multivariate models: private pension contributions made by men and women in 2009-2010

This section shows the results of the logistic regression modelling for the propensity to make private pension contributions for men and women. In each case, the preliminary model is run using all the explanatory variables in the conceptual framework (see Figure 1.2) to identify the extent of their associations with making pension contributions. Where these predictors are shown to be significantly relevant, they are included in the subsequent model selection process. The model selection processes, whereby each explanatory variable, including interaction variables, have been introduced on a step-by-step basis to identify a best fit model of the selected predictor variables (see Section 4.3.2) which are then summarised.

7.1.1 Logistic regression model fitted for men making private pension contributions

The initial model run without interactions indicates that each of the explanatory variables and their constituent categories is significant for men. The reference categories for each variable are 60-64 (age); single (married status); 22-25 (age completed education); house owner (housing tenure); full-time employee (economic activity); public sector (sector); gross weekly income of over £600 (income), has children aged 0-4 (children aged 0-4) and does provide care for adults (cares for adults) (see Section 4.3.2). The full results of this model are set out in Appendix 6 (Table A6.1a).

Key findings from the fitted model without interactions detailed in Table A6.1a in Appendix 6 as now discussed. Age is positively correlated with the likelihood of men to be making private pension contributions, although there is a slight drop for the oldest age group (60-64, also the reference category). Single, cohabiting and divorced men were similarly as likely to make pension contributions; all were less likely to make contributions than married and widowed men (respectively 19.6 and 24.3 per cent more likely than single men). Overall, there appears to be a positive correlation between the age at which male respondents completed full-time education and their propensity to make private pension contributions. Men who completed full-time education aged 22-25 years were the most

likely to make private pension contributions. The odds of men aged 16 or under when they left education to make contributions are 0.862 times the odds among those who stayed in education until they were aged 22-25; the corresponding ratios for those aged 17-18 and 19-21 when they left education are 0.957 and 0.950 respectively, compared with those aged 22-25 on leaving education. Men aged over 25 when they completed full-time education were the least likely to make pension contributions. Individuals who have not provided the age at which they completed full-time education were also less likely to make private pension contributions than those aged 22-25 when they completed full-time education. This may be due to several reasons, such as still being in education, and therefore not in a position to make private pension contributions. The link between education and private pension contributions was discussed in Chapter 3.2.

Men who were living rent-free (1.3 per cent of male respondents) were the most likely to make pension contributions but there was little difference between the categories of household tenure, except for individuals who part-owned and part-rented their homes. This category was over 40 per cent less likely than any other category to make contributions.

For men receiving income in excess of £150 per week, the higher an individual's gross weekly income, the higher their likelihood of making private pension contributions. However, for those in receipt of the lowest income (less than £150 per week), there is a comparatively higher propensity to make contributions than those receiving income in the middle bands, in the region of £150-£350 per week. It is worth noting, however, that a higher proportion of men in the lowest income bands are part-time workers, or self-employed or both.

Unsurprisingly, given that occupational pensions, which constitute a large part of private pensions, are only available to those in employment, it is those respondents who are in full-time employment who are the most likely to be making private pension contributions. Interestingly, despite this, a significant proportion of self-employed males do make pension contributions (42.4 per cent of the proportion of full-time employed males). There is a

higher propensity for full-time self-employed males to make private pension contributions than part-time employed men (exp(β) of 0.424 compared with 0.293 respectively, i.e. 44.7 per cent higher). This may be due to the relative affordability of pension contributions amongst those higher earning self-employed individuals.

Having caring responsibilities is positively linked to making contributions. Men with children aged 0-4 were 11.1 per cent more likely than men without young children to make private pension contributions. However, it is care provision for other adults that shows a much larger impact on the propensity to make pension contributions – 26.5 per cent more men who provided care to other adults made private pension contributions than those who did not. It may be that caring for older adults may be associated with a higher age and thus a higher disposable income which allows one to make contributions.

A step-by-step process to determine a multivariate model appropriate for identifying the extent to which men make private contributions according to each of the explanatory variables is set out below in Table 7.1a. Each row represents a new model, each model being given a unique label in the first column. The second column indicates the 'parent' model against which the -2log likelihood statistics is compared. Additional variables added relative to the 'parent' model are detailed in the third column. The remaining columns detail the relevant statistics for each model.

Table 7.1a: Model selection process: men making private pension contributions

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant			25,557,030				
1	Constant	Age	23,046,734	2,510,296	9	0.168	0.000
2a	1	+ Marital Status (Mar)	22,710,482	336,251	14	0.189	0.000
2b	2a	+ Age*Marital	22,639,357	71,125	55	0.193	0.000
3a	2a	+ Age left full-time education (Education)	22,642,587	67,896	19	0.193	0.000
3b	3a	+ Education*Age	22,558,119	84,467	64	0.198	0.000
3c	3b	+ Education*Marital	22,489,828	68,291	89	0.202	0.000
4a	3b	+ Tenure	22,551,980	6,139	68	0.198	0.000

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
4b	4a	+ Tenure*Age	22,470,083	81,897	104	0.203	0.000
4c	4b	+ Tenure*Marital	22,427,332	42,752	123	0.206	0.000
4d	4b	+ Tenure*Education	22,440,724	29,359	122	0.205	0.000
5a	4b	+ ILO activity	18,864,036	3,606,047	114	0.402	0.000
5b	5a	+ ILO activity*Age	18,696,179	167,857	200	0.411	0.000
5c	5b	+ ILO activity*Marital	18,601,103	95,076	247	0.415	0.000
5d	5b	+ ILO activity*Education	18,592,377	103,802	249	0.416	0.000
5e	5d	+ ILO activity*Tenure	18,539,669	52,708	286	0.418	0.000
6a	5d	+Public sector (Public)	18,005,204	587,172	251	0.444	0.000
6b	6a	+Public*Age	17,926,073	79,132	269	0.448	0.000
6c	6a	+Public*Marital	17,986,907	18,297	261	0.445	0.000
6d	6a	+Public*Education	17,981,761	23,444	261	0.445	0.000
6e	6a	+Public*Tenure	17,991,190	14,014	259	0.445	0.000
6f	6a	+Public*ILO activity	17,937,471	67,733	271	0.447	0.000
7a	6a	+Gross weekly income (Income)	16,950,165	987,306	258	0.493	0.000
7b	7a	+Income*Age	16,761,126	189,039	320	0.502	0.000
7c	7b	+Income*Marital	16,712,837	48,289	355	0.504	0.000
7d	7b	+Income*Education	16,673,367	87,759	355	0.506	0.000
7e	7b	+Income*Tenure	16,698,127	62,999	348	0.505	0.000
7f	7b	+Income*ILO Activity	16,561,426	199,700	388	0.511	0.000
7g	7f	+Income*Public	16,523,463	37,963	402	0.512	0.000
8a	7f	+Care for children under 5 (CareChild)	16,558,067	3,359	389	0.511	0.000
8b	8a	+CareChild*Age	16,547,008	14,418	398	0.511	0.000
8c	8a	+CareChild*Marital	16,547,177	14,249	394	0.511	0.000
8d	8a	+CareChild*Education	16,555,785	5,641	394	0.511	0.000
8e	8a	+CareChild*Tenure	16,556,372	5,054	393	0.511	0.000
8f	8a	+CareChild*ILO activity	16,534,999	26,427	399	0.512	0.000
8g	8a	+CareChild*Public	16,557,345	4,081	391	0.511	0.000
8h	8a	+CareChild*Income	16,548,969	12,457	396	0.511	0.000
9a	7f	+CareAdults	16,557655	3,771	389	0.511	0.000
9b	9a	+CareAdults*Age	16,538,311	23,115	398	0.512	0.000
9c	9a	+CareAdults*Marital	16,549,351	12,075	394	0.511	0.000
9d	9a	+CareAdults*Education	16,546,605	14,821	394	0.511	0.000
9e	9a	+CareAdults*Tenure	16,553,240	8,186	393	0.511	0.000
9f	9a	+CareAdults*ILO activity	16,549,149	12,277	399	0.511	0.000
9g	9a	+CareAdults*Public	16,555,419	6,007	391	0.511	0.000
9h	9a	+CareAdults*Income	16,534,818	26,608	396	0.512	0.000
9i	9a	+CareAdults*CareChild	16,554,125	7,301	390	0.511	0.000

Source: Family Resources Survey, 2009-2010

Where the introduction of a variable or related interaction did not lead to an improvement to the R^2 fit of the model of at least 0.005, they have been excluded from the final model, even if the introduction of the variable led to a statistically significant change to the fit of the model. The model chosen as a best fit to describe how the characteristics associated with men making private pension contributions vary is therefore model 7f above. It comprises the following variables:

Age + Marital status + Age left education +Age by Age left education +Tenure + Age by Tenure + Economic activity + Age by Economic activity + Age left education by Economic activity + Public Sector + Income + Age by Income + Economic Activity by Income

The values of the significant predictor coefficients for each of these variables and the categories within these variables are set out in Table A6.1b in Appendix 6. The largest predictors of making private pension contributions were economic activity, followed by age and then by income.

7.1.2 Logistic regression model fitted for women making private pension contributions

For women, there was a similar level of significance found for the explanatory variables when running a logistic regression using the explanatory variables only. These results are shown in Appendix 6 (Table A6.2a), and as each of these variables are significant predictors ($p<0.001$), the model selection process for women making private contributions will incorporate a step-by-step process testing each of them.

As for men, age was a significant and strong predictor of the likelihood among women to make private pension contributions. Women who completed full-time education aged 26 or above were the most likely to make private pension contributions (83.6 per cent more likely than those who completed their education aged 22-25); while those who completed full-time education aged 16 or under were the least likely (2.9 per cent less likely than those

aged 22-25 when completing their education). Unsurprisingly, economic activity was also strongly associated with private pension contributions among women. Female part-time employees were shown to only 18.4 per cent less likely full-time employees to make contributions. Both full-time and part-time self-employed women were much less likely than their employed counterparts to make private pension contributions. All other economic activity categories were associated with lower propensities to make contributions than any of the employed or self-employed categories. The model selection process for women making private pension contributions is shown in Table 7.1b.

Table 7.1b: Model selection process: women making private pension contributions

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant			22,969,985				
1	Constant	Age	21,381,020	1,588,965	8	0.119	0.000
2a	1	+ Marital Status (Mar)	21,259,951	121,069	13	0.128	0.000
2b	2a	+ Age*Marital	21,211,751	48,201	50	0.131	0.000
3a	2a	+ Age left full-time education (Education)	21,198,324	61,627	18	0.132	0.000
3b	3a	+ Education*Age	21,142,730	55,594	58	0.136	0.000
3c	3b	+ Education*Marital	21,112,689	30,042	82	0.138	0.000
4a	3b	+ Tenure	21,135,767	6,963	62	0.136	0.000
4b	4a	+ Tenure*Age	21,088,519	54,211	94	0.140	0.000
4c	4a	+ Tenure*Marital	21,111,872	30,858	82	0.138	0.000
4d	4a	+ Tenure*Education	21,112,006	30,724	81	0.138	0.000
5a	3b	+ ILO activity	16,538,816	4,603,914	68	0.421	0.000
5b	5a	+ ILO activity*Age	16,414,084	124,732	146	0.428	0.000
5c	5b	+ ILO activity*Marital	16,291,965	122,119	196	0.435	0.000
5d	5c	+ ILO activity*Education	16,207,683	84,282	245	0.439	0.000
5e	5c	+ ILO activity*Tenure	16,280,303	11,662	206	0.435	0.000
6a	5c	+Public sector (Public)	15,824,935	467,031	198	0.459	0.000
6b	6a	+Public*Age	15,786,018	38,917	214	0.461	0.000
6c	6a	+Public*Marital	15,813,199	11,736	208	0.460	0.000
6d	6a	+Public*Education	15,804,124	20,811	208	0.460	0.000
6e	6a	+Public*Tenure	15,814,654	10,281	206	0.460	0.000
6f	6a	+Public*ILO activity	15,749,645	75,290	218	0.463	0.000
7a	6a	+Gross weekly income (Income)	14,644,612	1,105,033	205	0.519	0.000
7b		+Income*Age	14,515,421	129,191	261	0.525	0.000
7c		+Income*Marital	14,443,192	72,229	296	0.528	0.000
7d		+Income*Education	14,452,631	62,790	296	0.528	0.000

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
7e		+Income*Tenure	14,492,233	23,188	289	0.526	0.000
7f		**+Income*ILO Activity**	**14,323,663**	**191,758**	**330**	**0.534**	**0.000**
7g		+Income*Public	14,281,758	41,905	344	0.536	0.000
8a		+Care for children under 5 (CareChild)	14,314,679	8,984	331	0.534	0.000
8b		+CareChild*Age	14,298,644	25,019	339	0.535	0.000
8c		+CareChild*Marital	14,306,046	17,617	336	0.535	0.000
8d		+CareChild*Education	14,306,649	17,014	336	0.535	0.000
8e		+CareChild*Tenure	14,309,787	13,876	335	0.535	0.000
8f		+CareChild*ILO activity	14,292,905	30,758	341	0.535	0.000
8g		+CareChild*Public	14,311,363	12,300	333	0.535	0.000
8h		+CareChild*Income	14,298,145	25,518	338	0.535	0.000
9a		+CareAdults	14,315,362	8,301	331	0.534	0.000
9b		+CareAdults*Age	14,306,073	17,590	339	0.535	0.000
9c		+CareAdults*Marital	14,312,488	11,175	336	0.535	0.000
9d		+CareAdults*Education	14,313,332	10,331	336	0.534	0.000
9e		+CareAdults*Tenure	14,309,074	14,589	335	0.535	0.000
9f		+CareAdults*ILO activity	14,291,981	31,682	341	0.536	0.000
9g		+CareAdults*Public	14,310,131	13,532	333	0.535	0.000
9h		+CareAdults*Income	14,292,287	31,376	338	0.535	0.000
9i		+CareAdults*CareChild	14,306,347	17,316	332	0.535	0.000

Source: Family Resources Survey, 2009-2010

As for men, each step is shown to make a significant contribution to explaining the extent to which each characteristic contributes to whether a woman of working age is likely to be making private pension contributions. In the final model selection process, as for men, all steps which improved the Nagelkerke R^2 by less than 0.005 were excluded. The model therefore selected based on these regressions is 7f as set out in Table 7.1b. It comprises the following variables (the significant predictor coefficients of which are set out in full in Table A6.2b in Appendix 6):

Age + Marital status + Age left Education + Age by Age left Education by + Economic activity + Age by Economic activity + Marital status by Economic activity + Public Sector + Income + Age by Income + Economic Activity by Income

However, within the model focusing on women there are several notable differences to men. Firstly, age group appears to be less of a differentiator for women in terms of the extent to which it explains their likelihood to make private pension contributions. For men, the age group variable explains 16.8 per cent of the variance, compared with only 11.9 per cent for women. Secondly, marital status explains a greater proportion of the variance of the model for men compared with women (2.1 per cent versus 0.9 per cent). This supports the findings from descriptive analysis in Section 5.1.3 which showed that there was less variation in the proportions of women making private pension contributions according to their marital status than for men.

Tenure appeared to be a significant predictor for men's propensity to make private pension contributions whereas it did not have such a large association with women's contributions, and indeed tenure was not a significant predictor in the model for women. The model for women deviated from the model for men in that the interaction between marital status and economic activity was significant. Caring for family or home is a strong predictor variable – but the effect of this varies appears to depend on the individual's marital status. For example, women who care for family or home are more likely to make pension contributions if they are married, widowed or separated. Divorced, single and cohabiting women are less likely to do so. Section 7.3 and Chapter 8 discusses these findings in more detail.

7.2 Multivariate models: personal pension contributions made by men and women in 2009-2010

A similar process to the model selection process carried out in Section 7.1 on private pension contributions was carried out to investigate the characteristics associated with respondents making personal pension contributions, and to examine how these findings differed between private and personal pensions.

7.2.1 **Logistic regression model fitted for men making personal contributions**

The initial investigative regression analysis carried out for men to identify the significance associated with the potential explanatory variables is included in Appendix 6 (Table A6.3a).

All explanatory variables and each of the categories within these variables are highly significant ($p<0.001$). As for men making private pension contributions, the propensity to make personal pension contributions increased with age, and again, the peak age associated with making contributions was the second oldest age group (55-59). Divorced, widowed and cohabiting men were the least likely to make personal pensions, all with a lower propensity to do so than for the control category of single men. In contrast, married men and men who were separated were most inclined to do so. Similarly, respondents who completed their full-time education at the reference age group (22-25) were the most likely to make personal pension contributions. This corresponds to literature which suggests a positive relationship between education and personal pension contributions (Guariglia & Markose, 2000). Men who left full-time education before they were 16 were the least likely to contribute (17.5 per cent less likely than the reference category).

In Section 7.1, men who were rent-free were shown to be the most likely to be contributing towards private pensions. The initial model shows again it is also those who live rent-free who are the most likely to make personal pension contributions, and this might reflect the ability of these individuals to afford contributions. Men who part-owned, part-rented were the least likely to make contributions (only 62.8 per cent as likely as the reference category, men who owned their homes outright, and 50 per cent as likely as those who live rent-free).

As might be expected, the preliminary model shows that full-time self-employed men are the most likely to make personal pension contributions (almost three times more likely than full-time employees). This is likely because personal pensions are the default pension option for those who are self-employed and wishing to supplement their expected basic state retirement benefits when they retire, and who have not been entitled to either membership of occupational pension schemes nor the state secondary pension scheme

(S2P/SERPS) (Pensions Commission, 2004). Amongst those who are self-employed, full-time self-employed men are twice as likely as part-time self-employed to make personal pension contributions. Similar to the findings in Section 7.1 for private pension contributions, for men receiving an income in excess of £150 per week, the higher an individual's gross weekly income, the higher the likelihood of making private pension contributions. However, for those in receipt of lowest income (less than £150 per week), there is a comparatively higher propensity to make contributions than those receiving income in the middle bands, in the region of £150-£450 per week. It is worth noting, however, that a higher proportion of men in the lowest income bands who are receiving low levels of income are part-time workers.

On the other hand, responsibility rather than affordability may be a contributing factor associated with the increased likelihood of respondents to make personal pension contributions if they had dependent pre-school age children or provided care for another adult (14.6 and 26.3 per cent more likely than those without young children or adult dependants respectively).

As all of the variables run in this preliminary model have been shown to be significant, they have been included in the model selection process. The results of the step-by-step model selection process are set out in Table 7.2a below.

Table 7.2a: Model selection process men making personal pension contributions

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant			14,722,439				
1	Constant	Age	13,323,222	1,399,217	9	0.132	0.000
2a	1	+ Marital Status (Mar)	13,269,022	54,199	14	0.137	0.000
2b	2a	+ Age*Marital	13,234,010	35,012	55	0.140	0.000
3a	2a	+ Age left full-time education (Education)	13,247,664	21,358	19	0.139	0.000
3b	3a	+ Education*Age	13,170,907	76,758	64	0.146	0.000
3c	3b	+ Education*Marital	13,115,346	55,560	88	0.151	0.000
4a	3c	+ Tenure	13,111,369	3,978	92	0.151	0.000
4b	4a	+ Tenure*Age	13,062,467	48,901	128	0.155	0.000

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
4c	4a	+ Tenure*Marital	13,076,538	34,830	111	0.154	0.000
4d	4a	+ Tenure*Education	13,082,093	29,276	110	0.154	0.000
5a	3c	+ ILO activity	12,501,817	613,529	98	0.205	0.000
5b	5a	+ ILO activity*Age	12,386,096	115,721	184	0.215	0.000
5c	5b	+ ILO activity*Marital	12,304,374	81,723	231	0.222	0.000
5d	5c	+ ILO activity*Education	12,200,511	103,863	280	0.231	0.000
5e	5d	+ ILO activity*Tenure	12,190,748	9,763	290	0.232	0.000
6a	5d	+Public sector (Public)	12,111,531	88,980	282	0.238	0.000
6b	6a	+Public*Age	12,084,717	26,814	300	0.241	0.000
6c	6a	+Public*Marital	12,091,805	19,727	292	0.240	0.000
6d	6a	+Public*Education	12,079,471	32,060	292	0.241	0.000
6e	6a	+Public*Tenure	12,104,779	6,753	290	0.239	0.000
6f	6a	+Public*ILO activity	12,065,483	46,048	302	0.242	0.000
7a	6a	+Gross weekly income (Income)	12,111,531	79,217	282	0.238	0.000
7b	7a	+Income*Age	12,050,781	60,750	289	0.244	0.000
7c	7a	+Income*Marital	11,946,276	104,505	351	0.252	0.000
7d	7a	+Income*Education	11,905,701	40,575	386	0.256	0.000
7e	7d	+Income*Tenure	11,854,630	91,646	386	0.26	0.000
7f	7d	+Income*ILO Activity	11,848,894	5,736	393	0.261	0.000
7g	7f	+Income*Public	11,710,285	144,345	454	0.272	0.000
8a	7f	+Care for children under 5 (CareChild)	11,668,553	41,732	468	0.276	0.000
8b	8a	+CareChild*Age	11,707,255	3,030	455	0.272	0.000
8c	8a	+CareChild*Marital	11,685,296	24,989	464	0.274	0.000
8d	8a	+CareChild*Education	11,696,257	14,028	460	0.273	0.000
8e	8a	+CareChild*Tenure	11,704,628	5,657	460	0.273	0.000
8f	8a	+CareChild*ILO activity	11,705,674	4,611	459	0.273	0.000
8g	8a	+CareChild*Public	11,695,587	14,698	465	0.273	1.000
8h	8a	+CareChild*Income	11,705,897	4,388	457	0.273	0.000
9a	7f	+CareAdults	11,702,022	8,263	462	0.273	0.000
9b	9a	+CareAdults*Age	11,709,004	1,281	455	0.272	0.000
9c	9a	+CareAdults*Marital	11,698,721	11,564	464	0.273	0.000
9d	9a	+CareAdults*Education	11,698,820	11,465	460	0.273	0.000
9e	9a	+CareAdults*Tenure	11,700,962	9,323	460	0.273	0.000
9f	9a	+CareAdults*ILO activity	11,705,759	4,526	459	0.273	0.000
9g	9a	+CareAdults*Public	11,702,419	7,866	465	0.273	0.000
9h	9a	+CareAdults*Income	11,708,136	2,149	457	0.272	0.000
9i	9a	+CareChild*CareChild	11,698,598	11,687	462	0.273	0.000

Source: Family Resources Survey, 2009-2010

Each of the explanatory variables and the associated interactions between each of these variables are shown to be significant. As in Section 7.1, each step that improves the R^2 by less than 0.005 has been excluded for the purposes of parsimony. Where an interaction improved the R^2 by at least 0.005, the first level characteristic was also included. For example, although the 'age left full-time education' variable itself did not improve the model by more than 0.005, the interaction between age group and age left education did, so both this interaction and the age left full-time education variable have been included in the model. Therefore, for the purposes of discussion the selected model for this group of individuals is model 7f from Table 7.2a above and includes the following variables and interactions (a full breakdown of the values of the significant predictor coefficients for this model is set out in Table A6.3b in Appendix 6):

Age + Marital Status + Age left Education + Age by Age left Education + Marital status by Age left Education + Economic activity + Age by Economic activity + Marital status by Economic activity + Age left Education by Economic activity + Public sector+ Income + Age by Income + Education by Income + Economic activity by Income

7.2.2 Logistic regression model fitted for women making personal pension contributions

The odds ratios for the initial model for female respondents are set out in Appendix 6 (Table A6.4a). As all the variables run in this preliminary model are shown to be significant, they have been included in the model selection process. The results of the step-by-step model selection process are set out in Table 7.2b.

Table 7.2b: Model selection process women making personal pension contributions

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant			8,557,363				
1	Constant	Age	8,007,640	549,723	8	0.080	0.000
2a	1	+ Marital Status (Mar)	7,977,259	30,381	13	0.084	0.000
2b	2a	+ Age*Marital	7,932,170	45,090	50	0.091	0.000

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
3a	2b	+ Age left full-time education (Education)	7,906,162	26,008	55	0.095	0.000
3b	3a	+ Education*Age	7,837,721	68,441	95	0.104	0.000
3c	3b	+ Education*Marital	7,809,345	28,376	119	0.108	0.000
4a	3b	+ Tenure	7,832,075	5,646	99	0.105	0.000
4b	4a	+ Tenure*Age	7,790,347	41,728	131	0.111	0.000
4c	4b	+ Tenure*Marital	7,776,600	13,747	151	0.113	0.000
4d	4b	+ Tenure*Education	7,771,617	18,730	150	0.114	0.000
5a	4b	+ ILO activity	7,576,471	213,876	141	0.141	0.000
5b	5a	+ ILO activity*Age	7,483,029	93,442	219	0.154	0.000
5c	5b	+ ILO activity*Marital	7,417,750	65,279	269	0.163	0.000
5d	5c	+ ILO activity*Education	7,338,969	78,782	318	0.174	0.000
5e	5d	+ ILO activity*Tenure	7,291,906	47,062	356	0.180	0.000
6a	5e	+Public sector (Public)	7,211,280	80,626	358	0.192	0.000
6b	6a	+Public*Age	7,198,902	12,378	374	0.193	0.000
6c	6a	+Public*Marital	7,189,630	21,650	368	0.195	0.000
6d	6a	+Public*Education	7,202,033	9,247	368	0.193	0.000
6e	6a	+Public*Tenure	7,198,228	13,052	366	0.193	0.000
6f	6a	+Public*ILO activity	7,177,705	33,575	378	0.196	0.000
7a		+Gross weekly income (Income)	7,147,744	63,536	282	0.200	0.000
7b		+Income*Age	7,064,707	83,037	289	0.212	0.000
7c		+Income*Marital	7,000,654	64,053	351	0.220	0.000
7d		+Income*Education	6,957,212	43,442	386	0.226	0.000
7e		+Income*Tenure	6,920,203	37,009	386	0.231	0.000
7f		+Income*ILO Activity	6,812,557	107,646	393	0.246	0.000
7g		+Income*Public	6,798,544	14,013	454	0.247	0.000
8a		+Care for children under 5 (CareChild)	6,811,415	1,142	468	0.246	0.000
8b		+CareChild*Age	6,797,641	14,916	455	0.248	0.000
8c		+CareChild*Marital	6,805,145	7,412	464	0.247	0.000
8d		+CareChild*Education	6,802,669	9,888	460	0.247	0.000
8e		+CareChild*Tenure	6,809,571	2,986	460	0.246	0.000
8f		+CareChild*ILO activity	6,793,205	19,352	459	0.248	0.000
8g		+CareChild*Public	6,804,258	8,299	465	0.247	0.000
8h		+CareChild*Income	6,801,860	10,697	457	0.247	0.000
9a		+CareAdults	6,794,273	18,284	462	0.247	0.000
9b		+CareAdults*Age	6,790,487	22,070	455	0.248	0.000
9c		+CareAdults*Marital	6,787,940	24,617	464	0.249	0.000
9d		+CareAdults*Education	6,793,157	19,400	460	0.248	0.000
9e		+CareAdults*Tenure	6,794,133	18,424	460	0.248	1.000
9f		+CareAdults*ILO activity	6,780,987	31,570	459	0.250	0.000
9g		+CareAdults*Public	6,792,604	19,953	465	0.248	0.000

Model No	Compared to model	Additional variables	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
9h		+CareAdults*Income	6,787,602	24,955	457	0.249	0.000
9i		+CareAdults*CareChild	6,793,219	19,338	462	0.248	0.000

Source: Family Resources Survey, 2009-2010

The final model is therefore model 7f in Table 7.2b above and includes the following variables and interactions:

Age + Marital Status + Age by Marital status + Age left Education + Age by Age left Education + Tenure + Age by Tenure + Economic activity + Age by Economic activity + Marital status by Economic activity + Age left Education by Economic activity + Tenure by Economic activity + Public sector+ Income + Income by Age + Income by Marital Status + Income by Age left Education + Income by Tenure + Income by Economic Activity

A full breakdown of the values of the significant predictor coefficients for this model is set out in Appendix A6 (Table A6.4b). Age, followed by economic activity are the most significant predictor variables in this model, but on a much smaller scale than for the other models calculated in Sections 7.1 and 7.2 so far. There is much larger number of significant predictors in this model than for the model calculated for women making private pension contributions and also for the model calculated for men making personal pension contributions. This will be discussed further in Section 7.3 and addressed again in Chapter 8.

7.3 Comparison of logistic regression results for private and personal pension contributions for men and women

Compared with the propensity of men to make personal pension contributions, the propensity of women making personal pension contributions varies more notably with a wider range of variables and interactions. For example, education is only weakly associated

with men's propensity to make personal pension contributions (increases the R^2 by less than 0.005), and similarly, the interactive effects of age with marital status and education have only a mild effect. For women, however, they all increase the R^2 by more than 0.005. A discussion on what these interactions might mean, and what they suggest in terms of the characteristics affecting women contributions to personal pensions, will be included in Chapter 8.

For both private and personal pension contributions, more variance is accounted for by age groups for men than for women. The lowest propensity (for both men and women) to make pension contributions is at the youngest age groups and is more pronounced for personal pensions compared with private pensions, although it is clear in all models that there is a relative disinclination for younger respondents to make pension contributions. This is supported by existing literature which suggests that voluntary contributions to personal pensions increase strongly for individuals after they reach middle age (Guariglia & Markose, 2000).

The propensity of both men and women to make both private and personal pension contributions, is strongly linked with economic activity. This is to be expected, as occupational pensions, for example, are open to those in employment, but not in other categories of economic activity, such as self-employment, unpaid work, or training. As mentioned at the beginning of this chapter, interactions between variables in the models can also be expected. The interactive effects of economic activity with other characteristics such as age, marital status and education are all significant in improving each of the four extended models run in this section.

For private pension contributions, we have seen in Chapter 6 that both the proportions of men and women making contributions appear to vary with housing tenure. The variable of housing did not, on its own, significantly improve any of the models. However, for both men and women the interactions between tenure and other variables such as age, the age at which one left education or economic activity (in the case of women) improve the model fits significantly in the cases of both private and personal pension contributions.

As might be expected, income is generally positively correlated to the likelihood of making private and personal pension contributions. However, for both men and women in the lowest gross weekly income bands (i.e. under £100 per week or £100-£150 per week), there is a comparatively higher propensity to make contributions than those receiving income in the middle bands. It has already been noted, however, that a higher proportion of men in the lowest income bands are part-time workers, who may perhaps have a different perception of affordability or prioritisation of pension contributions. This is discussed further in Chapter 8.

Interestingly, the presence of young children (under 5) and whether respondents provide care for other adults made little difference to the models. This may be because where care for children or adults was provided at a significant level, this would be reflected in their economic activity. For example, category 8 of the economic activity is "Looking after family/home"; however, this would only account for those who have classified their main economic activity as providing care; it does not include those respondents who classify themselves primarily as economically active, yet still have care responsibilities.

7.4 Multivariate models: cohort differences in private and personal pension contributions

So far, the analysis carried out in this chapter has attempted to fit models describing the propensities of individuals to make private and pension contributions split by gender, and according to the various characteristics as set out in the conceptual framework (Figure 1.2). This thesis aims to also investigate and highlight the differences that may exist according to age group or birth cohort (Section 1.2). It is clear from Sections 7.1 and 7.2 that there were several significant improvements to the R^2 fit of the models with the introduction of interactions between the age and other explanatory variables associated with the models fitted for the propensities of men and women to make private pension contributions. Furthermore, in each case, the probability of change to the -2 Log likelihood of the model for all two-way interactions themselves were significant at the $\alpha=0.01$ level.

This section will now test and compare models for three different pseudo-cohorts of men and women, for both private and personal pensions to investigate how the variables associated with propensities to make pension contributions differ according to cohort. In developing these models, this section will also show the variations that exist within the cohorts according to different characteristics. In coherence with Chapter 1 (Section 1.1.1), the three cohorts being compared will be the **1981-1985** 'Early Millennials' cohort (aged 25-29 in 2009-2010) (this is the youngest category with at least n>30 respondents making personal pension contributions for both sexes, see Appendix 2), the **1971-1975** 'GenXers' cohort (aged 35-39 in 2009-2010) and the **1961-1965** 'Late Baby Boomers' cohort (aged 45-49 in 2009-2010). The oldest cohorts have been shown to have the highest propensity of the three to make private pension contributions in 2009-2010 (see Tables 5.1a and 5.1b). Variables, including interaction variables, are only included where they improve the Nagelkerke R^2 by more than 0.02, in order to focus on the predictors with a higher effect on the models.

7.4.1 Cohort differences in propensities to make private pension contributions for men and women

The selected models fitted for private pensions in the cases of both men and women, for the 1981-1985, 1971-1975 and the 1961-1965 cohorts, are as follows:

Table 7.4a Models fitted for propensities of men and women making private pension contributions for the 1981-1985, 1971-1975 and 1961-1965 cohorts

	Model fitted	Nagelkerke R^2
Men: Early Millennials (born 1981-1985)[1]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Age left education + Economic activity + Public sector + Gross weekly income (Income) + Income by Age left education	0.456
Men: GenXers (born 1971-1975)[2]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Marital status + Economic activity + Economic activity by Marital status + Public sector + Gross weekly income (Income) + Income by Marital status + Income by Economic activity	0.533

	Model fitted	Nagelkerke R^2
Men: Late Baby Boomers (born 1961-1965)[3]	Marital Status + Age left education + Age left education by Martial status + Economic activity + Economic activity by Age left education + Public sector + Gross weekly income (Income) + Income by Marital status + Income by Economic Activity	0.469
Women: Early Millennials (born 1981-1985)[4]	Marital status + Age left education + Age left education by Marital status + Economic activity + Economic activity by Age left education + Public sector + Gross weekly income (Income) + Income by Tenure + Income by Economic Activity	0.520
Women: GenXers (born 1971-1975)[5]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Age left education + Economic activity + Economic activity by Marital status + Economic activity by Age left education + Public sector + Gross weekly income (Income) + Income by Marital status + Income by Age left education+ Income by Economic activity	0.579
Women: Late Baby Boomers (born 1961-1965)[6]	Marital Status + Age left education + Age left education by Martial status + Economic activity + Economic activity by Marital status + Economic activity by Age left education + Public sector + Gross weekly income (Income) + Income by Economic Activity	0.571

Note: Sample sizes were as follows:
[1] 1,396; [2] 1,864; [3] 1,885; [4] 1,786; [5] 2,065; [6] 2,124.

Source: Family Resources Survey, 2009-2010

A full breakdown of the selection process for these groups and the values of the coefficients in the selected models is set out in Appendix 6 (Tables A6.5-16). The biggest improvement to the R^2 fit of the models occurs with the introduction of the economic activity variable in each case.

There are several interesting findings. Firstly, for the final models fitted for both men and women using the demographic and socio-economic variables set out earlier in this chapter, the Nagelkerke R^2 is smallest for Early Millennials (Table 7.4a). This suggests that there is more variation in pension contributions for this cohort and that more predictors would be needed to model the propensity of individuals to make contributions than for their older counterparts. This is particularly the case for women. Secondly, for both men and women, the GenXer models are more complex, with a larger number of significant variables (Table

7.4a). This suggests that for this cohort, pension contribution decisions are not as straightforward as for their younger or older counterparts. This is discussed further in Chapter 8.

In comparing cohorts, it is also clear from these models that the combinations of characteristics affecting the propensity of men and women to make contributions vary between older and younger respondents. For example, for Early Millennial females, it is cohabitees who are the most likely to make private pension contributions (more than twice as likely than single women) (Table A6.14), whereas it is single GenXers who are most likely to make private pension contributions within the 1971-1975 cohort (Table A6.15). GenXer males are most likely to make private pension contributions if they left full-time education at an older age (22-25); however, it is those who left full-time education between 19-21 who are most likely to make private pension contributions amongst the 1961-1965 male cohort compared with the 22-25 age group (with a log-odds $\hat{\beta}$=0.424, or exp($\hat{\beta}$) = 1.528) (Table A6.13). Similar trends exist for women; amongst Early Millennials it is those who left education after 21 who have the highest propensity to make private pension contributions (Table A6.14). Amongst GenXers, it is those who left education at 17-18 (Table A6.15), and amongst Late Baby Boomers, it is those leaving full time education at the age of 16 or younger (Table A6.16).

7.4.2 **Cohort differences in propensities to make personal pension contributions for men and women**

Table 7.4b shows the selected models fitted for personal pensions for men and women, for the three comparative cohorts as follows:

Table 7.4b Models fitted for propensities of men and women making personal pension contributions for the 1981-1985, 1971-1975 and 1961-1965 cohorts

	Model fitted	Nagelkerke R^2
Men: Early Millennials (born 1981-1985)[1]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Marital status+ Tenure by Age left education + Economic activity + Economic activity by Age left education + Public sector + Public sector by Marital status + Gross weekly income (Income) + Income by Marital Status + Income by Age left education + Income by Tenure + Income by Economic activity + CareChild + CareChild by Age left education + CareChild by Tenure + CareChild by Income	0.617
Men: GenXers (born 1971-1975)[2]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Marital status + Economic activity + Economic activity by Marital Status + Economic activity by Age left Education + Public sector + Public sector by Marital status + Public by Age left education + Gross weekly income (Income) + Income by Age left education + Income by Economic activity	0.325
Men: Late Baby Boomers (born 1961-1965)[3]	Marital Status + Age left education + Age left education by Martial status + Economic activity + Economic activity by Marital status + Public sector + Public sector by Age left education + Gross weekly income (Income) +Income by Age left education + Income by Marital status +Income by Tenure + Income by Economic Activity	0.302
Women: Early Millennials (born 1981-1985)[4]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Marital Status + Tenure by Age left education + Economic activity + Economic activity by Marital status+ Economic activity by Age left education + Public sector + Public sector by Age left Education + Public sector by Tenure + Public sector by Economic activity + Gross weekly income (Income) + Income by Marital Status + Income by Age left education + Income by Tenure + Income by Economic activity + Income by Public sector + CareChild + Carechild by Economic activity+ CareChild by Income	0.691
Women: GenXers (born 1971-1975)[5]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Age left education + Economic activity + Economic activity by Marital status+ Economic activity by Age left education + Economic activity by Tenure + Public sector + Public sector by Marital status + Gross weekly income (Income) + Income by Marital Status + Income by Age left education + Income by Tenure + Income by Economic activity + Income by Public sector + CareChild + CareChild by Income	0.451

	Model fitted	Nagelkerke R^2
Women: Late Baby Boomers (born 1961-1965)[6]	Marital status + Age left education + Age left education by Marital status + Tenure + Tenure by Marital status + Economic activity + Economic activity by Marital status + Economic activity by Age left education + Economic activity by Tenure + Public sector + Public sector by Marital status + Gross weekly income (Income) + Income by Marital status + Income by Age left education+ Income by Economic activity	0.373

Note: Sample sizes were as follows:
[1] 1,396; [2] 1,864; [3] 1,885; [4] 1,786; [5] 2,065; [6] 2,124.

Source: Family Resources Survey, 2009-2010

The explanatory variables account for more of the variance in the propensities to make personal pension contributions for Early Millennials than for their older counterparts (the Nagelkerke R^2 for the models being 0.617 vs. 0.325 and 0.302 for men and 0.691 vs 0.451 and 0.373 for women respectively). This contrasts with the findings in Section 7.4.1 where it was shown that the corresponding models fitted for private pensions showed a higher R^2 for the older cohorts. A large proportion of these R^2 differences are explained by the introduction of economic activity and gross weekly income to the models along with the inclusion of their related interactions with other variables. Details are set out in Appendix 6, where a full breakdown of the selection process for these groups and a full breakdown of the values of the coefficients in the selected models are provided in Tables A6.17-28. For both men and women, there are more significant predictors in the models relating to personal pension contributions than there are for private pension contributions (Section 7.4.2). Furthermore, the final models for the older cohorts are simpler (in that they have fewer significant predictor variables) than for younger cohorts.

As with private pensions, it is shown that the propensities to make personal pension contributions differ between younger and older cohorts, for both men and women. Housing tenure is a significant predictor for both men and women in the younger cohorts but amongst Late Baby Boomers, tenure is not a significant predictor for making pension contributions for men (Table 7.4b). Commonly, for both men and women the highest likelihood of making personal pension contributions occurs for individuals who are

cohabiting or married *and* renting (Tables A6.23, A6.24, A6.28). For women, there are several further differences between the younger and older cohorts. For example, GenXer females who left full-time education between 16 or under are the most likely to make personal pension contributions (Table A6.27); this compares with the 1961-1965 female cohort, of those who responded in this cohort, females who left full-time education between 19-21 are the most likely to make personal pension contributions (more than 2 times as likely than the next category, those leaving full time education at age 16 or under, $p<0.001$) (Table A6.28). For Early Millennial and GenXer female respondents, caring for children was a significant predictor (Table 7.4b). For men, have responsibility for young children was a significant predictor only for Early Millennials (Table 7.4b). This is discussed further in Chapter 8.

In this section, it has been shown that cohort differences exist for men and women in terms in the way in which different demographic and socio-economic variables are associated with their propensities to make private and personal pension contributions. The analysis has been carried out on a single dataset, the 2009-2010 wave of the FRS. Therefore, although it is revealing important cohort and gender differences in pension contributions, nevertheless it does not investigate any differences in how propensities to make private and personal pension contributions *change* for different birth cohorts over time. Limitations of this study and suggestions for future research are discussed further in Section 8.3.

7.5 Comments on the findings from logistic regression on FRS data

This chapter has aimed to investigate how the propensity of men and women to make private and personal pension contributions varies with different characteristics, and also to explore how propensities to make contributions differ between private and private pensions for men and women. It has also aimed to quantify the extent to which these propensities vary for different age groups. The explanatory variables included in the models run in this chapter explained the variance in the overall proportions of men and women making private pension contributions to a larger extent than the variance in the proportions making personal pension contributions. Furthermore, the final models for the

propensity to make personal pension contributions explain less of the variance in contributions amongst GenXers and Late Baby Boomer men and women than their Early Millennial counterparts. These findings are discussed further in Section 8.1.3.

It is not surprising to find a notable difference in the models for personal pensions between men and women; it has been suggested that differing social and institutional contexts that apply to men and women can lead to differences in pension decision-making (Foster, 2012b). For instance, Foster (2012b) highlighted a gender difference in attitudes towards savings for pensions including the views held by some women who cited their reliance on their partners as a pension strategy. Furthermore, research by Sefton *et al* (2008), found that older cohorts of women tended to dominate certain types of jobs which are less likely to provide access to an occupational pension scheme. Interestingly, very little association was found to exist between the propensity for men or women to make private or personal pensions and whether they provided care to either young children or to others; as already mentioned, this may be because the impact of care-related variables is already reflected in the employment or other variables.

In Section 7.4, differences in the propensities of men and women to make private and personal pension contributions associated with different characteristics have also been shown to vary within and across age groups. This suggests that as people age, different demographic and socio-economic characteristics are associated to varying degrees with pension contribution behaviour. Although differences in the propensities of men and women to make private and personal pension contribution by age group have been demonstrated in this chapter, this does not necessarily reflect the expected patterns of pension contributions of different birth cohorts over time. Pension contributions have been shown to be linked to an individual's position in the lifecourse (Ginn, 2003); inter-cohort differences in lifecourse experiences are expected, partly due to their social and historical circumstances (Morgan & Kunkel, 2011).

This chapter has explored the variation and the extents of the associations for key demographic and socio-economic characteristics with the propensities of selected cohorts

of men and women to make private and personal pension contributions. The next chapter reviews these results, along with the findings from earlier analysis on the patterns and trends in the propensities of men and women to make contributions within and across cohorts over time. It discusses the findings in relation to the expected outcomes given existing literature and the potential contribution that the findings have for future policy and research, in particular with regards to those specific groups that are identified as most likely to be at risk of not having sufficient private retirement savings (or indeed any).

8. Discussion and conclusion

This chapter explores the key findings from each of the Chapters 5, 6 and 7 in more detail, discusses these results in relation to the research questions set out in Section 1.3 and compares these findings with the age, period and cohort expectations arising from existing literature (details of which were set out in Sections 2.3 and 3.3).

The results summarised in Section 8.1 show a clear distinction between the trends in the propensities to make pension contributions according to gender, and notable differences in patterns of pension contributions depending on whether these trends were being considered from an age or cohort perspective. Section 8.2 summarises key nuanced findings from the cohort analysis arising from this thesis, and critically discusses how these compare with our expectations given existing knowledge and literature. Furthermore, an outline of the main policy implications arising is provided, where appropriate, for each of these findings. The chapter concludes with a short summary of the contribution that this thesis brings to existing literature and reflection on the limitations of the study, with some potential avenues for future research in this area.

8.1 Inter- and intra-cohort trends and differences in private and personal pension contributions – a summary

This thesis aimed to investigate the intra- and inter- cohort variations that existed in the propensity of men and women in the UK to make private and personal pension contributions over the period from 1999-2000 to 2009-2010. The research questions (see Section 1.3) were developed with this objective in mind, and each of these questions are now discussed.

- R1: How does the propensity to make private pensions contributions vary for men and women across all working age groups compared with men and women from

the 1961-65, 1971-75 and 1981-85 birth cohorts and what factors may account for such variations?

    - In particular, what differences exist in the levels of private pension contributions between and within different cohorts due to age, period or cohort effects?
    - Do patterns of personal pension contributions follow the same trends as private pension contributions, and if not, how do they differ?

- R2: To what *extent* are there intra-cohort differences in the proportion of men and women making private pension contributions over time?
- R3: To what *extent* is the propensity of men and women to contribute to private pensions likely to differ according to different demographic and socio-economic factors and how do these propensities vary according to age group?

Chapters 5 and 6 set out the trends in the population level propensities for men and women to make pension contributions, broken down by age group, and associated with key demographic and socio-economic determinants. In Section 7.1, detailed analysis was carried out to investigate the extent of the differences between men and women and their propensities to make private pension contributions. The following Section 8.1.1.1 seeks to summarise the population level findings and these trends that arise from the age perspective. This is then followed by a summary and discussion of key findings from a cohort perspective, looking at both across- and within-cohort findings in Section 8.1.1.2. A contrasting exercise is carried out on the findings relating to personal pensions in Section 8.1.1.3. Finally, Section 8.1.1.4 returns the focus to the differences which exist in the propensities to make private contributions between men and women.

8.1.1.1 Working population overall findings by key determinants

At the overall population level, the proportion of individuals making private pension contributions has fallen slightly over time (from 41.3 per cent of men and women in 1999-2000 to 40.3 per cent in 2009-2010). However, this masks the underlying differences between men and women. Results from Section 5.1 show that the propensity to make private pension contributions has fallen for men of working age over the period from 1999-2000 to 2009-2010, from 46.7 per cent to 42.4 per cent, whilst women have

experienced a moderate increase (increasing from 35.6 per cent to 38.1 per cent over the period).

More focused results by age group for each of the survey waves examined show that, generally, the older a respondent is, the more likely they are to make private pension contributions; this is in line with existing research (NAPF, 2013) and in line with expected age effects as discussed in Section 3.3. The age effects are more pronounced in the individuals' first half of working lives, especially among men. Once respondents reach their thirties or forties, these propensities to make private pension contributions level off somewhat, and once respondents are within 10 years of retirement age, then these propensities begin to tail off (Tables 5.1 and 5.1b). Across the working population it is respondents from the Late Baby Boomer cohort (1961-1965) who are the amongst those most likely to make private pension contributions (Tables 5.1c and 5.1d).

When the propensities are examined for each age group over time, results (Section 5.1) show that the proportions of men making private pension contributions have been decreasing for most age groups over the period from 1999-2000 to 2009-2010. For women, the proportions making private pension contributions remain approximately constant or show a slight increase of the same period. This gender difference at the age group level is broadly in line with existing literature covering pension trends for the same period and is in line with the expectations set out in Chapter 3 (Section 3.3.1; ONS, 2011j). However, for the oldest age groups for both sexes, the net effect of age and period effects is a contrasting and notable increase in the proportions of respondents making private pension contributions over the ten-year period.

At the population level, in addition to the significant differences in male and female propensities to make private pension contributions, other findings associated with key determinants were as follows:

- Relationship status – in Section 5.1.3, it was found that the propensity of men to make private pension contributions was positively associated with being married.

For women, cohabiting women were more likely to make pension contributions than their married counterparts. Single individuals remain less inclined to make pension contributions at all ages. Further results from Section 5.1.3 show there was more pronounced variation (both relative and absolute) in proportions making private pension contributions associated with relationship status for men than for women. These variations are line with expectations informed by existing literature (Clark & Strauss, 2008) and as outlined in Sections 2.1.1 and 3.1.2. Past studies have shown that the level of individual financial decision making versus overall household level financial decision making may differ according to relationship status (Fonseca *et al*, 2012). The dataset used by Fonseca *et al* does not provide information relating to how long couples have been married or cohabiting, and the results show only the overall findings for respondents based on their relationship status at the time of the survey waves. Whilst it is possible that there may be an effect of the duration of marriage or cohabitation on pension contributions, this heterogeneity in making pension contributions according to relationship status is in line with what might be expected (see Sction 2,3,1). The next sub-section 8.1.1.2 explores the variations at the cohort level.

- Education – for both men and women, there is a positive correlation between the propensity to make private and personal pension contributions and the age at which people leave full time education, which is also compatible with existing research (ONS, 2009; Bolton, 2012, Zick et al, 2012, Section 3.3). Section 6.1.1 presented a dichotomy whereby the proportion of women making private pension contributions fell within each of the categories for age left full-time education yet overall rates of private pension contributions increased slightly during the same period. This is in part due to the increased numbers of women who continue their studies into higher education (Section 3.2.1), which is predominantly a cohort effect.
- Housing tenure – findings show at a population level that in terms of housing tenure, the dominant effect appears to be a period one – with housing tenure less strongly associated with differences in propensities to make private pension contributions for both men and women over time (Section 6.1.2). There has also been a sharp increase in the propensity of both men and women who rent to make private pension contributions.

- Economic Activity – as might be expected, the likelihood of making private pension contributions following the traditional savings life-cycle, for both employed and self-employed respondents. There are several more interesting findings.
    - Firstly, as set out in Section 3.2.2.2, the expected impact of age and cohort effects on the type of economic activity would be a decrease in the propensity amongst younger cohorts to make private pension contributions overall. This is borne out in the results in Section 6.1.3.
    - Secondly, whilst the propensities of men and women who are employed full-time to make private pension contributions does not change much over time, despite the gender difference, with approximately two-thirds of men making contributions, compared with only around 40 per cent of women), there has been a decreasing propensity overall for both men and women who are self-employed (full-time) to make contributions.
    - Thirdly, an even more pronounced gender difference applies in the case of part-time employees. Male part-time employees are similarly inclined to make private pension contributions as their self-employed counterparts. However, for women, the proportion in part-time employment making private pension contributions is twice as high as their part-time self-employed counterparts.
    - Economic activity is strongly associated with the propensity to make pension contributions, and such association has been identified elsewhere in literature (Price & Ginn, 2003; Meyer & Bridgen, 2011; Bridgen & Meyer, 2007). It s interesting to find that the rates of private pension contributions for men in part-time work are similar when compared with those in full-time work (Section 6.1.3.2). For women, there is a striking difference with a much higher proportion of employed women making pension contribution compared with those who are self-employed (Section 6.1.3.1).
- Sector – working in the public sector is positively associated with making private pension contributions. Men working in the public sector have not experienced a significant decrease in the propensity to make pension contributions (a decrease from 74.6 to 73.0 per cent). Women working the public sector have experienced a slightly larger decrease from 66.5 to 62.3 percent. Despite these small decreases,

these majority proportions contrast with the findings for the private sector. In the private sector, significantly lower proportions of men and women make private pension contributions, and these fell for both men and women (from 55.6 to 43.3 percent for men and from 40.7 to 37.2 per cent for women overall) (Section 6.1.3.3). This is in line with existing literature (Meyer &Bridgen, 2011). The age versus cohort differences presented in relation to employment sector are discussed in Section 8.1.1.2.

- Care responsibilities – results in Section 6.1.5 show that for men, having young children is not a barrier to making private pension contributions; indeed, there is historical evidence of men with younger children being more likely to make private pension contributions than those who did not have young children, although this difference is reducing over time. Among men, those providing care for adults are much less likely to have made private pension contributions across all survey waves than men who did not provide care. The positive association between making pension contributions and having young children may be due to the breadwinner model, and men typically taking on more financial responsibility as a result of having a family. A corresponding minor reduction in this effect is possibly associated with the increasingly diverse range of household types and the slowly reducing prominence of the breadwinner model, which may be more pronounced at the cohort level, which is discussed in Section 8.1.1.2 (Smallwood & Wilson, 2007, Section 3.3.3.1). Those with higher levels of caring responsibilities are also likely to have less opportunity to achieve higher incomes; propensities to make contributions according to income are discussed in the next point.
- Income – there is a positive correlation between total weekly income and proportions of men and women making private pension contributions. For men receiving income of less than £150 per week, the proportions making private pension contributions remain similar over the period from 1999-2000 to 2009-2010 (between 10 and 11 per cent). For all other income bands, except the very highest (£600 and over), the proportion making contributions decreases over the period. For women, there is a decrease over the period for all but those earning over £600 per week.

8.1.1.2 Inter- and intra- cohort differences in the propensity to make private pension contributions

Analysing the trends from the inter-cohort perspective, the findings in Chapters 5 and 6 clearly demonstrate that the cohort effect leads to a contrasting experience for individuals born at different times, and a discussion of these differences now follows. Further, in focusing on these differences between cohorts, and this section also highlights key differences in private pension contribution patterns for men and women in this cohort context. In particular, this section details the main positively and negatively associated determinants and the strongest effects, which contribute to the cohort differences that have arisen.

Firstly, when specific cohorts of men and women are investigated, the proportions making private pension contributions do not fall so dramatically over time as suggested above. For example, for Late Baby Boomer males (i.e. those born in 1961-1965) aged 35-39 in 1999-2000, the percentage making private pension contributions is 54.6 per cent. The corresponding figure for male GenXers aged 35-39 in 2009-2010 (i.e. those born in 1971-1975) is 29.8 per cent, a drop of 24.8 per cent. However, figures show that 39.0 per cent of Late Baby boomer males were making private pension contributions in 2009-2010, a much smaller decrease of 15.6 per cent. In other words, older cohorts, such as Late Baby Boomers (and the cohorts before them) are more likely to make private pension contributions and continue to make private pension contributions as they age. It is clear here, that there are contrasting age vs. cohort trends; the rest of this section now considers the differences in private pension contributions trends across and within cohorts and the determinants that may contribute towards these differences.

Key findings relating to the experiences of male and female Late Boomers, GenXers and Early Millennials are now set out below, contrasted with the overall population trends already summarised and whether trends associated with key determinants different according to a cohort perspective:

- Relationship status – as outlined in Section 8.1.1.1, literature suggests financial decision making may differ according to relationship status (Fonseca *et al,* 2009).

Each successive birth cohort is increasingly diverse in their relationship and household formation statuses, so it might be expected that this increasing heterogeneity in relationships and household formations to be reflected in pension contributions for each cohort with differing trends for men and women. Findings show that amongst older women, such as Late Baby Boomers, a similar proportion continued to make private pension contributions from 1999-2000 to 2009-2010, contrasting with increasingly larger proportions of women from younger cohorts over time. In this context, results from Section 5.1.3 which show that younger married women were more likely to be making private pension contributions perhaps indicate a trend for younger women to move away from the traditional breadwinner model (Smallwood & Wilson, 2007, Taylor-Gooby, 2013). For men, married or cohabiting respondents from the Generation X cohort were more likely to make private pension contributions than their younger (Early Millennial) counterparts. This cohort effect is also likely to have bearing on likely future pension trends.

- Education – there is a clear cohort effect amongst women. As discussed in Section 8.1.1.1, younger cohorts of women are increasingly remaining in full-time education for longer. Higher education is often associated with higher levels of pension participation due to their increased likelihood of employment and higher pay (ONS, 2013b). Because of this trend, the dichotomy of reduced proportions of women making pension contributions for each category of age left education versus an overall slight increase in rates of private pension contributions presents itself.
- Economic activity – full-time self-employed Early Millennial males were only about 30 per cent less likely than full-time employees in the same cohort to make private pension contributions. For GenXers and Late Baby Boomers, the corresponding figures are approximately 80 and 90 per cent respectively. Women were much less likely to make pension contributions if they were self-employed, but there is no clear pattern across cohorts. The trend for men is in line with expectations set out in Section 3.3.3.2, and this will be discussed further in the next section.
- Sector – Section 6.1.3.3 showed a clear downward trend in the proportion of male cohorts based in the private sector to make pension contributions over time, whereas their public sector counterparts appeared to show little difference between cohorts in making pension contributions at each age. For women, a much less clear pattern of cohort behaviour over time emerged for both public and private sector

workers. Whilst similar patterns emerge for younger cohorts of women as for their male counterparts (including Early Millennials), at the older ages (those born before 1966-1970), there were no discernible patterns emerging within and across cohorts for either sector, which suggests that there are several other conflicting influences on their decisions to make pension contributions.

- Income – for both men and women with low income, the propensity to make private pension contributions is low over the entire period under investigation. Other research, using housing tenure, and renting as a proxy for low income, has also found evidence of such association (Bryan and Lloyd, 2014). From a period perspective, Section 6.1.4 finds for men receiving an income of between £150 and £600 per week, the proportions making private pension contributions remains similar over the period. This contrasts with women, for whom there is a decrease in the number of respondents making private pension contributions across all income bands except for those in receipt of income of more than £600 per week. However, it is important to note for women that the total proportion making private pension increases over the period (Section 5.1.1), and this is explained by the increasing numbers of women receiving higher levels of weekly income over the period – the effect of women increasingly earning more over time more than compensates for the falling likelihood of making private pension contributions transpiring at each increasing income band. Therefore, low-earners and part-timers continue to be groups at risk of low propensity to make private pension contributions, and there is a cohort effect which affects particularly respondents such as the Early Millennials, as it is the youngest cohorts who are mostly likely to enter the labour market on such contracts, at a time when it became widespread. Zero-hours and part-time employees may continue to be an increasingly at-risk group, given data which shows a doubling of such contracts from 2004 to 2011 and an apparent upward growth since (Pyper & Dar, 2015).
- Care responsibilities – younger cohorts of men such as the Early Millennials who identified as caring for adults, were much less likely to make private pension contributions that GenXers and Late Baby Boomers who cared for adults, although the pension penalty existed across all age groups. Amongst men who had young children, age did not make a difference; men with pre-school aged children were broadly similar to the propensity of men without young children to make private

pension contributions across the age distribution. On the other hand, amongst women, the pension penalty of caring for younger children appeared to be complicated by a combination of age and cohort effects. During the period under investigation, of those Early Millennials women who had young children, they likely had less opportunity to remain in education, and were likely less established in a career before becoming mothers – and the pension penalty was much higher than their Generation X counterparts, which seems to be predominantly an age effect. On the other hand, Late Baby Boomers, appeared to experience a larger penalty of caring than GenXers, and this is likely the dominant presence of a cohort effect, as this cohort would be more likely than younger cohorts to be less well educated, be more affected by gender pay discrepancy and adhere more to the traditional breadwinner model (Smallwood & Wilson, 2007). Amongst the much smaller numbers of respondents who provided care to an adult, there was also a clear pension penalty of caring, although this was present across the age distribution.

- Housing tenure - Whilst the research shows mortgage payments and rental costs to be broadly equivalent (ONS, 2011d), remaining on the private rental market does mean that Early Millennials are less likely to be able to accumulate capital wealth through housing that they might be able to draw upon in older age. Literature also suggests period effects associated with for example, increasing age at which individuals make their first house purchase, might result in an increased pressure to make pensions contributions due to the lack of other high value assets upon which individuals might rely upon as they age (Section 3.3.3.2). However, in this study, housing tenure in itself did not lend itself to explaining much of the variation in the propensities of different cohorts of men and women to make private and personal pension contributions.

These cohort effects, coupled with the expected period effects on private pension contributions, would lead to a generally expected closing of the difference between the propensities of men and women to make contributions for successive cohorts.

8.1.1.3 A contrast – propensities to make personal pension contributions – summary of findings

In addition to investigating the within and across cohort trends in private pension contributions, research question also sought to explain explore whether the patterns of personal pension contributions follow the same trends as private pension contributions, and if not, how the differed.

At a population level, like the general trend in private pension contributions for men, there was a decreasing proportion of men making personal pension contributions over time (Table 5.2a), the proportion of men falling from 17.1 per cent to 14.2 percent from 1999-2000 to 2009-2010. Most age groups of men experienced a decline in contributions save for the oldest ages (55 and older). However, women also showed a declined propensity to make personal pension contributions for most age groups over the period, falling from 8.3 per cent to 7.0 percent over the 10-year period (Table 5.2b), and this is in marked contrast to the relatively stable pattern of private pension contributions seen for women in Section 5.2.1. Such patterns are in line with expectations and reflect changing perceptions of the role of personal pensions in individual's overall financial welfare (Bonoli, 2000; Abrahamson, 2010). Markedly higher proportions of men and women make personal pension contribution at the oldest age groups.

When investigating the findings in more detail, the key findings relating to personal pension contributions associated with key determinants are as follows:

- Relationship status - there was a stronger downward trend for men and women who were cohabiting or single to make personal pension contributions than for those who were married. In contrast to the generally declining inclination to make personal pension contributions shown for most men and women, divorced respondents of both sexes were more likely to be making contributions in 2009-2010 than in 1999-2000.
- Education – whilst there is a general trend of higher propensities to make personal pension contributions amongst respondents who remained in full-time education

for longer periods, with men generally more likely to make contributions than women, there are some interesting differences compared with the trends emerging for private pension contributions (Section 6.2.1). Firstly, whilst the correlation between education and propensity to make personal pension contributions is much stronger at the beginning of the period (i.e. the 1999-2000 survey wave), by 2009-2010, the variation in personal pension contributions associated with age left full-time education reduces. Secondly, unlike the linear relationship that emerges between age left full-time education and the propensity to make private pension contributions, this is not the same case for men and personal contributions. For example, men who completed their full-time education between 19-21, were less likely to make contributions across all survey waves compared with those who left education aged 17-18 and also those who remained in education for longer, leaving when they had reached the ages 22-25.

- Economic activity. Section 3.3.2.2 – although there might be an expectation that there would be a higher level of personal pensions amongst the younger cohorts for a given age, findings from Section 6.2.3 show that the proportion of self-employed men and women making personal pensions has decreased for all three cohorts under investigation. In contrast to the results for private pension contributions, amongst employees, there has been a larger drop in women making personal pension contributions than men over the 10-year period.
- Income – the general trend for decreasing propensity of men and women to make personal pension contributions over the period from 1999-2000 to 2009-2010 prevails regardless of income levels.
- Care Responsibilities – providing care for adults is negatively associated with making personal pension contributions for both men and women; this is similar to the trends for private pension contributions. Having responsibilities for young children however, again affects men and women differently. In 1999-2000 to 2004-2005, men were more likely to make personal pension contributions if they had young children – but this had reversed by 2009-2010 (Section 6.2.5). For the whole period, women were less likely to make personal pension contributions if they had young children. However, there was a difference depending on age and cohort – women who were young when they had had young children were less likely than respondents in the same age group without children to make contributions; on the other hand, older women's cohorts with young children were more likely to make

personal pension contributions than those without. It is possible that mothers who are older when they have children are more likely to be in a position to afford to continue making personal pension contributions if they were already doing so. This effect is more pronounced for younger cohorts, so this difference suggests both age and cohort effects.

- Housing Tenure – as with private pension contributions, there were no strong trends emerging relating to the association between housing tenure and the propensity to make personal pension contributions (Section 6.2.2.). A notable finding, and similarity to the findings for private pension contributions, is the significant increase in the propensities of both male and female renters to make contributions, and this increase appears to apply only to those aged 35-39 or over, which suggests that younger respondents are either disinclined to or unable to afford to make retirement savings despite the overall increasing trend to do so.

It is clear from these findings, that future pension policy change relating to personal pensions should be developed taking into account these differences that have emerged in the trends of those making personal pension contributions compared with those making private pension contributions. In order to best target, improve coverage and incentivise participation in personal pensions, it is essential that policymakers treat personal pensions as a wholly different product and one that is taken up by people with different characteristics to those who contribution towards private pensions.

This section has discussed in some detail trends transpiring for the different cohorts, and it is clear that the propensities of men and women to make private and personal pension contributions delineate. The next section now discusses the most notable variations that exist between men and women and the extent to which they differ, taking age and cohort into context where appropriate.

8.1.1.4 The gender difference in the propensity to make private pension contributions.

This section summarises some of the differences in the propensities of men and women to make private pension contributions according to age and cohort perspectives, according to the selected demographic and socio-economic determinants.

- Age - over the period under investigation, the levels of men making private pension contributions fall for most age groups (Figure 5.1a). For women, these levels remain approximately constant or show slight improvements (Figure 5.1b). Within the oldest age groups for both sexes (60-64 for men and 55-59 for women), however, the proportions of respondents making private pension contributions increase notably (from 23.1 per cent in 1999-2000 to 34.7 per cent in 2009-2010 for men and from 29.3 per cent to 40.9 per cent for women respectively).
- Relationship Status – Section 5.1.3 showed a clear difference in the trends of the proportions of people making private pension contribution associated with Relationship status, with different patterns of contributions for men compared with women. These patterns showed more pronounced variation according to relationship status for men than for women; such variations are in line with existing literature (Clark & Strauss, 2008). Although both married men and women were much more likely than their single counterparts to be contributing towards pensions for the whole period under investigation, there were consistent and significant declines in the proportions of men making private pension contributions for most relationship status categories, whilst for women, the only category showing a decline over the period was those who were single. These trends need to be considered in the context of new social risks and the continuing evolution of relationship trends and household formation (Section 2.2).
- Education – Section 6.1.1 showed a similar positive association between education and the propensity to make private pension contributions for men and women over the period. At each age category of leaving education, there is decline in the proportion of respondents making private pension contributions over time, although the decrease is much smaller for each of the categories for women than for men. Whilst the proportion of women making private pension

contributions decreases within each age group at which respondents left full-time education, earlier results showed that the rates of private pension participation have increased slightly – this dichotomy is due in part to the increased numbers of women remaining in education for longer.

- Economic activity – whilst in Section 8.1.2 above, it was noted that full-time employed and self-employed men were similarly likely to make private pension contributions especially at the beginning of the period studied. Part-time employed and self-employed men were also as likely to make private pension contributions, albeit at a much lower propensity. For women, however, the patterns differed. Women employed part-time, whilst less likely than their full-time counterparts to make contributions, were much more likely than part-time self-employees to make private pension contributions. For women working full-time, those who were employed were much more likely to contribute than those who were self-employed. This may well be due to the types of employment or self-employment that men and women typically undertake (it is already known for example, that women are more likely to work in the public sector, where pension participation is relatively high (see Section 6.1.3.3; Meyer & Bridgen, 2011; ONS, 2013e)).
- Income – whilst the propensity of men and women on low income (less than £150 per week) to make private pension contributions is much lower than those who earn more, over the period from1999-2000 to 2009-2010, the proportions making contributions remained similar for men, but decreased for women. The increased propensity of women to make contributions was concentrated amongst the highest earners. This suggests that whilst more women are remaining in education and entering higher paid jobs, those who are lower earners continue to be unconvinced of the necessity of making pension contributions or consider themselves unable to do so.
- Sector – the decline of men working in the private sector to make private pension contributions goes some way to explain the decreasing gender gap in the propensity of men and women to make private pension contributions. In the public sector, the propensity to make private pension contributions has only decreased slightly for both sexes in the period from 1999-2000 to 2009-2010, and as discussed in Section 6.1.3.3, this is likely to be due in part to the generous

nature of these occupational schemes (Meyer & Bridgen, 2011). Women have also been as likely to make private pension contributions if they were employed in the private sector, albeit in both sectors, they are less likely than men to make contributions.

- Care responsibilities – the results confirm the existence of a pension penalty of caring. Having young children is not associated with a significant decrease in the propensity to make private pension contributions for men as it does for women. Whilst there appears to be a pension penalty amongst both men and women who care for adults, the penalty appears for both women than for men.
- Housing tenure - whilst the results suggest that the relationship between the housing tenure and propensity to make private pension contributions, if it exists, is a complex one, there still exists a small significant difference between men and women. For men, the changes in the proportions making private pension contributions over time are significant for $\alpha=0.05$ for house owners with a mortgage, where there is a significant decrease and for renters, who have become more likely to make contributions. For female house owners with a mortgage and renters, a similar trend emerges. Divergence takes place amongst those who own a house outright – there is a significant increase in the propensity of women in this category to make private pension contributions. This may be linked to the increasing importance attached to savings by successive cohorts and by women over time; once a significant outgoing (i.e. mortgage or rent) is no longer a competing priority, it might allow pension contributions to emerge as a priority.

Finally, in modelling the best fit models using the selected demographic and socioeconomic variables in Chapter 7 for each of the three main cohorts, several further details were noted. Firstly, the models selected explained the variance in the overall propensities of men and women making private pension contributions to a larger extent than the variance in the propensities making personal pension contributions. Controlling for age, the models also explained more variance for women than for men. This suggests that other factors are involved in the making personal pension contributions than for private pensions, and also the determinants selected were more pertinent for women than for men. Certainly, in the case of personal pensions, this is in line with expectations, given existing research carried out into personal pensions in other countries. The final models for personal pension contributions also explained less of the variance in the propensities to contribute amongst

older cohorts (i.e. GenXers and Late Baby Boomers) than for Early Millennials. This again suggests that a more complex combination of factors is involved in the personal pension decision making process as people age or depending on which cohort they belong.

Section 8.1.1 has set out the summary of the key findings from the analysis, discussing these critically in the context of existing literature in this area. In Chapters 2 and 3, a literature review was carried out to set out the main expectations of the propensities of men and women to make pension contributions according to micro and macro level determinants. The next section now discusses the actual trends in pensions contributions evidenced from the analysis in context of the expectations suggested by existing studies.

8.1.2 **Actual trends in private and pension contributions amongst three cohorts compared with expectations.**

Sections 2.3 and 3.3 detailed some of the age, period and cohort effects relating to key demographic and socio-economic determinants on the propensities of three key cohorts, namely the Late Baby Boomers, GenXers and Early Millennials to make private and personal pension contributions, and how they might be expected to differ according to each of these cohorts.

The age effects that might be expected from literature are generally borne out in the results. It may be reasonably expected that Early Millennials are much less likely to be making private pension contributions than GenXers and Late Baby Boomers for a number of reasons associated with life course and the savings life cycle, this is generally borne out in the results. For example, as discussed in Chapters 2 and 3, some key age effects that might lead to smaller proportions of Early Millennials making pension contributions include their relatively young age; the likelihood of still being in education; the likelihood of being in less secure employment (Section 3.2.2); the likelihood of not having achieved their peak earnings potential (ONS, 2010) and the competing demands they have financially related to housing, and the preference to have accessible savings (Foster, 2017). On the other hand, this younger cohort is also less likely to have care responsibilities, which is associated with a

pension penalty (Evandrou & Glaser, 2003, Section 3.3.3.2). The analysis shows a marked difference in the propensities to make pension contributions from an age perspective. In the case of Early Millennials, this youngest cohort is far less likely to be making private and personal pension contributions than their older counterparts. Whilst the findings suggest a rather dramatic change in pension contribution patterns over time, especially for men, from an age perspective, when trends are analysed at the cohort level, and controlling for age effects, more nuanced and distinct patterns emerge.

The marked difference in patterns of pension contributions depending on whether trends are being considered from an age and period perspective or from a cohort perspective demonstrate the presence of strong cohort effects. Whilst the presence of age effects are clear, the three key cohorts (the Late Baby Boomers, GenXers and Early Millennials) that were analysed showed some divergence in the trends of pension contributions, even after controlling for age. For example, there is divergence in the trends that are associated with relationship status, with younger married women more likely to make private pension contributions. There are a number of determinants which have had a sufficiently strong effect as to offset the effect of other underlying trends, such as the increasing trend of successive cohorts of women to stay in full-time education for longer (Bolton, 2012), which had a strong positive association that it offset the generally reducing propensity to make pension contributions that transpires across each level of educational attainment.

The findings have also shown that the trends emerging in the propensities to make private and personal pension contributions should not also be placed solely in the age and cohort context. As suggested by literature (Section 3.1.2) a gender difference exists, but importantly and what the analysis has demonstrated, is that this gender difference changes with age and cohort. In conclusion, the results from the analysis carried out in this thesis have provided a wide range of findings that demonstrate the complexities relating to the key demographic and socio-economic determinants associated with making private and personal pension contributions. The results suggest that to best anticipate and understand the trends relating to propensities to make pension contributions, it is essential that the cohort perspective is taken into account. The next section summarises some particularly notable findings and outlines some implications of these findings.

8.2 Notable findings and implications

Whilst there has been a wide range of findings arising from this study, the analyses have shown the following notable results:

- Overall, the propensities of both men and women from the Late Baby Boomer cohort to make pension contributions are higher than for those from Generation X and even more so than for Early Millennials. This is in line with expectations (Section 3.3.1; Banks & Rohwedder, 2003; NAPF, 2013).
- Whilst the propensity for private pension contributions increases with age and this is in line with expectations as set out in Section 8.1, there is a clear difference between men and women. For men, this propensity to make private pension contributions has fallen in the period from 1999-2000 to 2009-2010 whilst for women, the propensity to make private pension contributions has increased modestly.
- Further, controlling for age, there are differences in propensities to make private pension contributions depending on cohorts. This reinforces the view that the propensity to make private pension contributions is not simply a function of age and stage of lifecourse, but also the unique lifecourse experiences that each cohort are exposed to. The existence of these cohort and period effects means that predicting the proportion of men and women to make private pension contribution requires both an age ***and*** cohort analysis to be adopted, especially in the development of future pension policy and the budgeting of expected pension shortfall for future retiring cohorts.
- These differences exist both at the overall cohort level, but there are also within cohort differences in the propensities to make private pension contributions. This indicates that the association between key determinants and individuals to make contributions vary according to cohort. Although previous studies (DWP, 2005b) have demonstrated the existence of cohort differences in expected retirement outcomes between men and women, the implications of variations in how propensities to make private pension contributions are associated with key determinants between cohorts as well as differences existing within cohorts

suggests that expectations of pensions contributions should be modelled for each cohort differentially In targeting the groups most at risk of not making private pension contributions, a cohort approach might be the most precise at identifying and reaching out to incentivising those most in need.

- Younger cohorts, such as the Early Millennials, are more likely to make private pension contributions, controlling for age, than older cohorts, such as those from Generation X, Late Baby Boomers and those before them. This is increasingly likely to be the case with the introduction of auto-enrolment in 2012, with full enrolment now implemented across employers and full contributions due from October 2018. On the other hand, this is likely to be increased participation with lower level of savings. Older cohorts such as the Late Baby Boomers have been more likely to contribute towards private pension schemes, and those of historically more generous provisions, and more likely to continue to contribute towards these pension plans. This suggests that younger cohorts might benefit more from developing strategies to improve the levels of contributions being made rather than specifically increasing the proportion of younger cohorts making private pension contributions. Following the implementation of auto-enrolment, which has focused on delivering increased coverage of private pensions, this might be in the form of a phasing in of escalation of auto-enrolment contribution rates. Auto-enrolment was recognised as a good start, but one unlikely to deliver the level of income at retirement individuals may desire (Pensions Commission, 2005; Webb, 2016).
- The propensities to make personal pension contributions fell for both men and women over time, across working ages, a source for potential policy concern, given the increasing numbers of self-employed since the 2008 economic downturn (PPI, 2017c), and the potential impact this may have on these individuals' incomes in later life. Furthermore, this is a especially relevant finding in relation to the current debates arising following the 2017 review of modern working practices for the Department for Business, Energy and Industrial Strategy (Taylor Review, 2017), which has a strong focus on the self-employed.

8.3 Conclusion and limitations

In conclusion, results have shown there are clear differences between the trends in the proportions of men and women making private pension contributions when analysing

trends from an age compared with a cohort approach. There is clear divergence in patterns of private pension contributions between men and women, most notably the closing of the gender gap in the propensity to make pension contributions – but this is mainly due to a decrease in the proportions of men making contributions, although there was a modest increase in women making contributions over the period under investigation.

There are also striking differences in patterns of private pension contributions compared with personal pension contributions. There are clearly demarcated variations in the trends of the proportions making personal pension contributions across the different cohorts for men and women which do not correspond to the clear 'humped curve' pattern shown for private pension contributions.

Differences have been shown to exist, linked with macro and micro- level characteristics to varying degrees that have had unique net effects on each cohort. This suggests that future efforts to shape pension policy can be improved by focusing on cohort specific differences in order to promote private pension contributions and also to engage with those with the lowest propensity to make pension contributions, and indeed recent research sponsored by the DWP points to the existence of cohort of differences in pension outcomes (PPI, 2016). By doing so, this will provide a greater likelihood that the most at risk groups are adequately covered for each cohort as they age.

Contributions to existing literature have been made by disaggregating the differences in the propensities of men and women to make private and personal pension contributions within and across cohorts over time. Different cohorts will be variously affected by different historical regimes an different life course experiences, and quantifying of these cohort trends in pension contributions is useful for understanding and developing pension policy by providing the empirical context from different lenses.

This thesis adopted a quantitative approach, using an APC analysis, supplemented logistic regression to understand the strength of the associations of key demographic and socio-

economic determinants with the propensities of different cohorts of men and women to make private and personal pension contributions (Section 4.2).

There are some limitations in the methodological approach adopted. The descriptive statistics used in the APC approach are useful to provide an understanding of the general trends in the behaviour of the population. It enables comparison across cohorts of men and women, across different survey waves, to identify key variations in pension behaviour between these groups over time. These summary breakdowns do not provide individual lifecourse behaviours nor the reasons for the pension choices individuals have made. This is not possible because the data used was secondary data, supplied by the UK Data Service on an anonymised basis. Whilst it is possible to postulate the human behaviour behind the differences in pension contributions amongst different cohorts, the suggested inferences from the results are simply associative results and cannot be relied upon to identify the causality of these trends.

Qualitative research could provide useful insight into attitudes towards private pensions (Bryman, 2008); carrying future studies across different age groups would provide detailed insight as to why individuals from different birth cohorts may have differing expectations towards supplementary pension provision over and above what is provided by the state. Given the differences relating to gender and cohort that have been highlighted by the empirical analysis carried out in this thesis, these differences could guide the sampling frame for any future qualitative research. Understanding how attitudes vary between cohorts and according to different circumstances would enable early targeted and preventative action on those who may be heading towards a precarious financial provision in old age.

Logistic regression was used to provide further insight into trends (Field, 2009). There are number of advantages to using logistic regression particularly for large sample sizes as was available with the FRS datasets used, compared with discriminant analysis, for example. It is fairly robust, the independent variables do not have to be normally distributed or have equal variance across groups. There is no explicit assumption of linearity between

independent and dependent variables (although there is implicit assumption of linearity in terms of the logit function compared with the independent variables), and there is no homogeneity of variance assumed (Agresti, 2013). Independent variables do not need to be unbounded or interval variables. However, should further research be carried out using continuous outcomes, such as the level of pension contributions that individual might make, then logistic regression would be an unsuitable method to adopt, as it is appropriate for categorical, discrete outcomes only (Burns & Burns, 2009).

Finally, housing tenure as a proxy for savings wealth is a useful first indicator, but further supplementary studies using a richer source of data, such as that available from the Wealth and Assets Survey (WAS) in the future (once a longer history of data is available), comprising details of existing cash savings, and other assets, would give a more holistic perspective of how people's savings change over the years. Recent analysis carried out on the WAS indeed focuses on a broader breadth of savings and wealth of retirement savers, split by broader age groupings; a longer study period, incorporating socioeconomic determinants, would provide a deeper understanding of intra and inter cohort trends in pensions contributions in the context of wider wealth (PPI, 2017a). This is particularly relevant given the changing form of pensions, following the introduction of Pensions Freedom in April 2015, which provided a diverse range of options in terms of accessing retirement savings than were available previously (HMRC, 2015).

Appendix 1: Pension policy development in the UK

Table A1.1 A Recent History of Key Legislative Pension Events in the UK

Legislative event	Policy objective	Detail and impact
National Insurance Act 1959	Introduction of the state graduated retirement benefit scheme	National Insurance contributions and extra contributions to buy units of additional pension over and above basic pension
Income and Corporation Taxes Act 1970	Introduction of self-employed retirement annuity policies (also known as Section 226 plans)	Allowed self-employed individuals to purchase pensions and included lump sum death benefits and cash commutation
Social Security Act 1973	Introduction of preservation	Preservation available for occupational pension scheme members over age 26 with a minimum of 5 years' service
	Contributions made earnings related	National Insurance contributions made fully earnings-related
Social Security Pensions Act 1975	Sex equalisation for joiners to occupational pension schemes	Equal access for men and women to occupational pension schemes
	Introduction of State Earnings Related Pension Scheme (SERPS) with effect from 6 April 1978	Earnings related pension in addition to basic state pension, for employees paying full National Insurance Contributions
	Introduction of Home Responsibilities Protection	Reducing number of qualifying years required to qualify for full basic state pension for non-workers or low earners and providing care.
Social Security Act 1980	Removal of earnings link to Basic State Pensions (BSPs)	BSPs increased in line with prices from 1980
Health and Social Security Act 1984	Anti-franking, preservation of benefits in excess of guaranteed minimum pension	Pension accrued after 1 January 1985. Improved levels of pension accrual for employees
Social Security Act 1985	Right to transfer out from schemes. Revaluation of preserved benefits.	Improved revaluation of preserved benefits. Enhanced portability of accrued pension benefits.
Social Security Act 1986	Reduction of vesting period for deferred pension benefits to 2 years' service	Applies to pensions accrued after 1 January 1986. Benefited employees with short service periods (often women)
	Introduction of Personal Pension Plans (PPPs)	Replacing retirement annuity contracts from 1 July 1988

Legislative event	Policy objective	Detail and impact
	Reduction of maximum SERPS benefit	Pension accrued from 6 April 1988. Maximum SERPS pension available reduced from 25% to 20% of upper band earnings.
Income and Corporation Taxes Act 1988	Introduction of Earnings Cap	Applied limit to earnings which could be used in calculating pensionable earnings for members of approved pension schemes (limited earnings and contributions qualifying for tax relief)
Budget 1989	Introduction of Self Invested Personal Pensions (SIPPs)	Intended to allow individuals with personal pension schemes to manage their own investments
Joint Office Memorandum 101 (IR89)	Widening investment choice for PPPs	Specified rules and conditions for a much broader range of investments for personal pension schemes
Barber vs. Guardian Royal Exchange 1990	Sex equalisation of occupational pensions	With effect 17 May 1990 (partially addressing indirect sex discrimination due to part-timers)
Social Security Act 1990	Revaluation of preserved benefits extended	Leavers on or after 1 January 1991. Revaluation extended to cover whole pension, in excess of Guaranteed Minimum Pension (GMP), at 5% Limited Price Indexation (LPI).
Pensions Act 1995	Sex equalisation of State Pension Ages (SPA)	Women SPA to be raised from 60 to 65 (as for men)
	Protection of defined benefit pension scheme benefits	Introduction of the Minimum Funding Requirement to ensure schemes would be able to fund their promised benefits
Budget 1999	Introduction of Minimum Income Guarantee for pensioners	Minimum Income Guarantee targeted for pensioners from April 1999, superseding previous income support available
Welfare Reform and Pensions Act 1999	Pensions sharing on divorce	Option available to secure retirement income in the case of divorce
	Introduction of Stakeholder Pension Schemes	With effect 6 April 2001, increased flexibility and access to pension plans for employees
Child Support, Pensions and Social Security Act 2000	Replacement of SERPS	State Second Pension introduced, skewing benefit in favour of lower and moderate earners

Legislative event	Policy objective	Detail and impact
State Pension Credit Act 2002	Minimum Income Guarantee replaced by Pension Credit	Introduction of credit for savings in addition to a minimum level of income for pensioners
Finance Act 2004	Simplified taxation for pensions	With effect from A-day (6 April 2006), contribution limits, rules on tax free cash, abolition of normal retirement age, more pension choice
Pensions Act 2004	Regulatory system reform	Protection for members of insolvent pension schemes with the introduction of the Pension Protection Fund and Financial Assistance Scheme.
The Employment Equality (Age) Regulations 2006	Prohibition of discrimination (indirectly or directly) due to age	Default Retirement Age (DRA) of 65 introduced; employees cannot be retired by employers unless 'objectively justified'.
Pensions Act 2007	Reintroduction of earnings link for BSPs	Brought forward several years and triple lock added from 6 April 2011 by June 2010 Budget
	Improved coverage of entitlement to full BSPs	Carer credits for qualifying years, reduction of qualifying years to 30 for men and women
	Increases to SPA	Both men and women SPA to be raised to 68 by 2046
Pensions Act 2008	Auto-enrolment	To take effect October 2012. Introduced compulsory employer contributions for most employees
	Reduced revaluation on deferred pensions	From 5% LPI to 2.5% LPI for pensions accrued after 6 April 2009
The Employment Equality (Repeal of Retirement Age Provisions) Regulations 2011	Abolition of DRA	Enforced retirement only possible if objectively justified, at any age, from 30 September 2011.
Finance Act 2011	Further simplification of pensions tax regime	Reduction of annual allowance, reduction of lifetime allowance, widened options for defined contribution scheme members
Pensions Act 2011	Increases to SPAs brought forward	Bringing forward SPA increases – 300,000 women facing delay of 18 months
	Changes to auto-enrolment	Delayed participation by smaller employers

Legislative event	Policy objective	Detail and impact
Pensions Act 2014	Increases to SPAs brought forward	SPAs to rise from 66 to 67 between 2026 and 2028, with framework for future changes to SPA
	Provisions for single-tier state pension implementation	Single-tier pension to replace current basic State and additional State Pensions with flat-rate pension on or after 6 April 2016
	Automatic transfers of small pension pots	Framework to provide for system of automatic transfers of small pensions when individuals change jobs
	Abolition of short service refunds	Abolition of short service refunds for money purchase occupational pension scheme members who leave with more than 30 days' but less than 2 years' service.
Pension Freedom 2015	Flexibility for pension drawdown	Greater flexibility for individuals with defined contribution funds to fully access funds (subject to tax rules) from 55 (57 from 2028)

Source: HM Treasury (2017). The National Archives (webarchive.nationalarchives.gov.uk); Legislation.gov.uk (2015); Author's own research

Appendix 2: Savings and investment returns in the UK

Table A2.1 Historical average and real interest rates on savings accounts from 1985

Year	Rate of inflation (% per annum)	Interest rate (% per annum)	Real rate of return (% per annum)
2016	1.80%	1.23%	-0.6%
2015	1.00%	1.40%	0.4%
2014	2.40%	1.48%	-0.9%
2013	3.00%	1.77%	-1.2%
2012	3.20%	2.80%	-0.4%
2011	5.20%	2.75%	-2.3%
2010	4.60%	2.80%	-1.7%
2009	-0.50%	2.21%	2.7%
2008	4.00%	5.09%	1.0%
2007	4.30%	5.55%	1.2%
2006	3.20%	4.68%	1.4%
2005	2.80%	4.92%	2.1%
2004	3.00%	4.56%	1.5%
2003	2.90%	3.73%	0.8%
2002	1.70%	3.68%	1.9%
2001	1.80%	4.64%	2.8%
2000	3.00%	5.47%	2.4%
1999	1.50%	4.71%	3.2%
1998	3.40%	6.33%	2.8%
1997	3.10%	5.45%	2.3%
1996	2.40%	4.54%	2.1%
1995	3.50%	5.60%	2.0%
1994	2.40%	5.36%	2.9%
1993	1.60%	5.66%	4.0%
1992	3.70%	8.19%	4.3%
1991	5.90%	10.57%	4.4%
1990	9.50%	13.56%	3.7%
1989	7.80%	11.96%	3.9%
1988	4.90%	9.31%	4.2%
1987	4.20%	9.83%	5.4%
1986	3.40%	8.65%	5.1%
1985	6.10%	7.57%	1.4%

Source: ONS (2017), RPI All items: Percentage change over 12 months: Jan 1987 = 100; Council of Building Societies Association (various 1985-2002), Building Societies Association Yearbooks and quarterly published rates; Nationwide published rates 2002-2016; GE Capital (2014-2015); First Direct (2016).

Table A2.2 Historical UK pension fund returns

Year	Annual rates of return/inflation			Annualised 10-year average to date			Annualised real rate of return over 10 years
	Average pension fund	Wages	Prices	Average pension fund	Wages	Prices	Average pension fund
1963	11.5%	6.9%	1.8%				
1964	-3.2%	4.9%	4.8%				
1965	7.0%	7.0%	4.5%				
1966	-0.2%	4.3%	3.6%				
1967	18.8%	6.3%	2.5%				
1968	25.3%	7.8%	5.9%				
1969	-8.4%	9.1%	4.7%				
1970	0.5%	13.3%	7.9%				
1971	38.4%	8.8%	9.0%				
1972	9.3%	16.3%	7.7%	9.1%	8.4%	5.2%	3.7%
1973	-17.1%	12.8%	10.6%	5.9%	9.0%	6.1%	-0.2%
1974	-31.0%	28.9%	19.1%	2.4%	11.3%	7.5%	-4.7%
1975	63.8%	20.0%	24.9%	6.8%	12.5%	9.4%	-2.3%
1976	6.8%	12.7%	15.1%	7.6%	13.4%	10.5%	-2.7%
1977	38.9%	8.9%	12.1%	9.3%	13.7%	11.5%	-2.0%
1978	6.6%	13.6%	8.4%	7.5%	14.3%	11.8%	-3.8%
1979	8.6%	19.6%	17.2%	9.4%	15.4%	13.1%	-3.3%
1980	26.4%	19.2%	15.1%	11.9%	15.9%	13.8%	-1.7%
1981	11.1%	10.1%	12.1%	9.5%	16.1%	14.1%	-4.1%
1982	30.0%	7.9%	5.4%	11.4%	15.2%	13.9%	-2.2%
1983	22.3%	8.2%	5.3%	15.8%	14.7%	13.3%	2.2%
1984	21.9%	6.5%	4.6%	22.6%	12.6%	11.9%	9.6%
1985	15.2%	8.8%	5.7%	18.3%	11.5%	10.0%	7.6%
1986	22.7%	7.2%	3.7%	20.0%	10.9%	8.9%	10.2%
1987	6.7%	9.0%	3.7%	16.9%	10.9%	8.0%	8.2%
1988	15.4%	10.2%	6.8%	17.8%	10.6%	7.9%	9.2%
1989	28.0%	7.3%	7.7%	19.7%	9.4%	7.0%	12.0%
1990	-11.4%	10.3%	9.3%	15.6%	8.5%	6.4%	8.6%
1991	17.7%	6.1%	4.5%	16.2%	8.1%	5.7%	10.0%
1992	17.5%	4.9%	2.6%	15.1%	7.8%	5.4%	9.2%
1993	25.5%	2.8%	1.9%	15.4%	7.3%	5.0%	9.8%
1994	-3.0%	4.0%	2.9%	12.8%	7.0%	4.9%	7.5%
1995	19.6%	2.7%	3.2%	13.2%	6.4%	4.6%	8.2%
1996	10.4%	4.4%	2.5%	12.0%	6.1%	4.5%	7.2%
1997	16.8%	5.0%	3.6%	13.0%	5.7%	4.5%	8.2%
1998	14.9%	4.3%	2.8%	13.0%	5.2%	4.1%	8.5%
1999	20.4%	6.2%	1.8%	12.3%	5.1%	3.5%	8.5%
2000	-2.7%	5.2%	2.9%	13.3%	4.6%	2.9%	10.2%
2001	-8.8%	2.1%	0.7%	10.5%	4.2%	2.5%	7.8%
2002	-13.9%	3.2%	2.9%	7.1%	4.0%	2.5%	4.5%
2003	17.0%	3.1%	2.8%	6.3%	4.0%	2.6%	3.6%

Year	Annual rates of return/inflation			Annualised 10-year average to date			Annualised real rate of return over 10 years
	Average pension fund	Wages	Prices	Average pension fund	Wages	Prices	Average pension fund
2004	11.2%	4.2%	3.5%	7.8%	4.0%	2.7%	5.0%
2005	20.1%	4.3%	2.2%	7.9%	4.2%	2.6%	5.2%
2006	10.5%	3.9%	4.4%	7.9%	4.1%	2.8%	5.0%
2007	7.0%	3.9%	4.0%	6.9%	4.0%	2.8%	4.0%
2008	-17.2%	3.1%	0.9%	3.5%	3.9%	2.6%	0.8%
2009	15.1%	1.0%	2.4%	3.0%	3.4%	2.7%	0.3%
2010	12.7%	1.3%	4.8%	4.5%	3.0%	2.9%	1.6%
2011	3.6%	2.0%	4.8%	5.9%	3.0%	3.3%	2.5%

Source: Pension Fund Indicators 2012, UBS Global Asset Management (2012)

Appendix 3: Summaries of 2009-2010 data

Table A3.1 2009-2010 FRS data split by marital status and age group – men

Age band	Marital status						Total
	Married/ Civil Partnership	Cohabiting	Widowed	Separated	Divorced/ Civil Partnership dissolved	Single	
16-19	2	15	-	-	-	496	513
20-24	58	214	-	5	2	1,021	1,300
25-29	385	415	1	13	6	576	1,396
30-34	778	408	2	18	14	380	1,600
35-39	1,134	313	3	39	56	319	1,864
40-44	1,277	266	2	48	76	263	1,932
45-49	1,272	212	5	57	123	216	1,885
50-54	1,219	155	21	63	134	189	1,781
55-59	1,155	98	47	44	140	180	1,664
60-64	1,397	86	57	41	134	118	1,833
Total	8,677	2,182	138	328	685	3,758	15,768

Source: Family Resources Survey, 2009-2010

Table A3.2 2009-2010 FRS data split by marital status and age group – women

Age band	Marital status						Total
	Married/ Civil Partnership	Cohabiting	Widowed	Separated	Divorced/ Civil Partnership dissolved	Single	
16-19	4	41	-	2	1	496	544
20-24	138	355	-	15	2	1,068	1,578
25-29	588	476	-	50	16	656	1,786
30-34	957	349	3	64	61	405	1,839
35-39	1,207	258	10	96	133	361	2,065
40-44	1,334	233	11	104	212	296	2,190
45-49	1,304	180	37	116	254	233	2,124
50-54	1,188	141	50	96	213	138	1,826
55-59	1,204	82	105	47	228	98	1,764
Total	7,924	2,115	216	590	1,120	3,751	15,716

Source: Family Resources Survey, 2009-2010

Table A3.3 2009-2010 FRS data – number of men making private and personal pension contributions

Age band	Has made private pension contributions in last 12 months			Has made personal pension contributions in last 12 months		
	No	Yes	Total	No	Yes	Total
16-19	498	15	513	512	1	513
20-24	1,170	130	1,300	1,293	7	1,300
25-29	979	417	1,396	1,355	41	1,396
30-34	960	640	1,600	1,493	107	1,600
35-39	949	915	1,864	1,604	260	1,864
40-44	868	1,064	1,932	1,564	368	1,932
45-49	806	1,079	1,885	1,510	375	1,885
50-54	782	999	1,781	1,437	344	1,781
55-59	830	834	1,664	1,306	358	1,664
60-64	1,221	612	1,833	1,503	330	1,833
Total	9,063	6,705	15,768	13,577	2,191	15,768

Source: Family Resources Survey, 2009-2010

Table A3.4 2009-2010 FRS data – number of women making private and personal pension contributions

Age band	Has made private pension contributions in last 12 months			Has made personal pension contributions in last 12 months		
	No	Yes	Total	No	Yes	Total
16-19	529	15	544	542	2	544
20-24	1,400	178	1,578	1,568	10	1,578
25-29	1,234	552	1,786	1,749	37	1,786
30-34	1,136	703	1,839	1,759	80	1,839
35-39	1,204	861	2,065	1,904	161	2,065
40-44	1,171	1,019	2,190	1,988	202	2,190
45-49	1,071	1,053	2,124	1,914	210	2,124
50-54	1,008	818	1,826	1,651	175	1,826
55-59	1,066	698	1,764	1,571	193	1,764
Total	9,819	5,897	15,716	14,646	1,070	15,716

Source: Family Resources Survey, 2009-2010

Appendix 4: Review of other datasets

This appendix outlines other datasets that exist and which hold data related to the thesis subject. These were considered for the purposes of this research but were ultimately not used for the analyses carried out, and the outlines below also provide justification for their exclusion from the study.

A4.1 Wealth and Assets Survey (WAS)

This is a longitudinal survey, carried out by the ONS, which commenced in 2006, with a first wave of interviews carried out for 30,595 private households, at household and individual level, in Great Britain, selected using a multi-stage stratified random sample, over a two-year period to June 2008. These respondents, who were aged 16 and over (but excluding those in full-time education and aged between 16 and 18), were re-contacted for a second wave, Wave 2, which was carried out between July 2008 and June 2010. Wave 3 interviews were carried out between July 2010 and June 2012, although the data for this wave has not yet been released.

The WAS is the single most in-depth source of individual level financial information in the UK. Detailed breakdown on individual assets, savings and debts, income, including tax credits and benefits, house ownership and business assets have been collected. Furthermore, individual behaviour and attitudes relating to financial decision-making and financial settings along with socioeconomic information provide a comprehensive context to the financial position in which individuals present themselves.

However, the short life of this survey renders it difficult to perform any meaningful longitudinal analysis of how the interaction of individual socioeconomic characteristics such as educational attainment and marital status with respondent's financial decision making and attitudes towards savings have impacted on financial provision for retirement over time. However, this survey would provide a wealth of information if further research were to be carried out on a cross-sectional level, especially due to the attitudinal

information available. It may also be useful to utilise this survey in the future, when more Waves have taken place and further datasets are available.

Pension wealth variables – in particular the detailed calculations in wave 2 of WAS of pension wealth, are unique to this survey. However, given the research focuses on financial provision for older age rather than pension wealth per se, the value of including the WAS data for this information is limited.

A4.2 British Household Panel Survey (BHPS) and Understanding Society: the UK Household Longitudinal Study (UKHLS)

Carried out by the ESRC Centre for Longitudinal Studies (CLS) in conjunction with the Institute for Social and Economic Research (ISER), from 1991-2009, the BHPS was an annual survey of approximately 10,000 adult members (aged over 16) of a nationally representative sample of about 5,000 households (Taylor *et al*, 2010). The sample has a stratified clustered design, and individuals are re-contacted each year for repeat interviews. Individuals who leave original households and set up new households continue to be followed, and all adult members of these new households are also interviewed. Whilst covering a large range of social science and policy interest topics such as household composition, housing and residential status, education, health and employment behaviour, of particular relevance is the section covering income from employment, benefits and pensions.

After Wave 18 was completed in April 2009, the BHPS was subsumed into UKHLS, a longitudinal survey carried out by ISER in Britain with the purpose of understanding social and economic change at household and individual levels (UK Data Service, 2014a). Interviews are carried out with adults of working age (over 16 years) across approximately 40,000 households (Boreham *et al*, 2012). Wave 1 interviews were carried out between January 2009 and December 2010 (Boreham *et al*, 2012), with the first data edition from the first year of interviews released in December 2010 (UK Data Service, 2014b). BHPS sample members have identifiers within the UKHLSUKHLS datasets, allowing BHPS

users to match BHPS Wave 1-18 data to UKHLSUKHLS Wave 2 (and onwards) data. Although it combines both financial information as well as attitudinal information, the level of financial information available in this dataset is not as comprehensive as the data provided in the Family Resources Survey. However, given the combination of the information available in these datasets, the data would be a good source for information used in any complementary longitudinal analysis on individual decisions in making retirement savings.

A4.3 General Lifestyle Survey (GLS)

The GLS is an annual survey, which has been running since 1971, originally as the General Household Survey (GHS), before being relaunched in the form of a longitudinal survey design from 2005, for the 2007 wave. In 2008 it was renamed as the GLS and continued running until 2011, before the series closed in January 2012. There are several factors influencing the decision to not utilise it for this research:

- The changing form of the survey means that for longer term retrospective analysis, only a cross-sectional approach can be taken, as the survey design did not cater for longitudinal analysis prior to the 2007 Wave.
- It does not include the level of financial detail available in the FRS. In particular, details of pension scheme membership are not included.
- Whilst data from this survey would provide long run trends in patterns of financial provision, it is becoming increasingly outdated, as it is no longer being carried out.

A4.4 English Longitudinal Study of Ageing (ELSA)

The ELSA was set up with both research and policy as central objectives. The study has been conducted jointly by the National Centre for Social Research (NatCen), University College London (UCL) and the Institute for Fiscal Studies (IFS). The original wave, Wave 0, of respondents was constructed from the 1998, 1999 and 2001 datasets from the Health Survey for England (HSE), with a multi-stage stratified random sample. Households were

included in ELSA if they included at least one adult over the age of 50 who had agreed to participate on a longitudinal basis. Respondents are re-contacted every two years. There are currently six subsequently completed waves, which covered the periods 2002-03, 2004-05, 2006-07, 2008-09, 2010-11 and 2012-13. Wave 7 interviews were completed in May 2015, and data is expected to be released in January 2016. Each wave consisted of over 9,000 cases, with as many as 12,100 in Wave 1. Each wave is refreshed for participants aged between 50-55 using sample members drawn from the corresponding HSEs.

The study focuses on ageing and quality of life among older people. Of particular interest and relevance to this research is the part of the study that explores respondents' economic position as they plan for, enter and progress beyond retirement. As the data includes a detailed breakdown of savings, income and retirement provision for a large number of households (over 9,000 in each of the waves), this would have enabled substantive longitudinal analysis of trends affecting current and soon-to-be pensioners. However, as the focus of this research is on the financial provision made for retirement across cohorts of all working ages, the ELSA datasets do not cover sufficient age groups in the UK for the purposes of the second analysis. Furthermore, some questions were in relation to part events, including pension history and parental employment whilst respondent was aged 14.

For Wave 5, a specific development of interest in relation to this research is the additional work carried out in which selected respondents were asked to participate in tasks to investigate their attitudes towards money and risk in financial decision making.

A4.5 Occupational Pension Scheme Survey (OPSS)

Run by the ONS since 2006, the OPSS was originally carried out by the Government Actuary's Department (GAD). From their commencement in 1953, surveys were initially carried out every four to five years, although they have been performed annually since 2004 following a review in 2003.

The data collected in these surveys which cover UK occupational pension provision by organisations, include benefit's related to both private and public sector occupation pension benefits, but exclude individual and group personal pension plans, stakeholder pension schemes and state pensions. Key topics included in the questionnaires include pension scheme membership details, contributions levels, benefit forms and levels, further pension benefits provided by the scheme, changes to pension schemes over time and employer information.

Under the Statistics of Trade Act 1947, the completeness of the data collected by ONS since 2006 the OPSS is enhanced by the mandatory response. However, the level of detail collected varies according to the size of the scheme.

The lack of information provided by the OPSS at individual and group level means that it is difficult to put together a complete picture of the level of pension provision for all parts of the UK population, and in particular, those who have no access to or limited access to occupational pension schemes, such as the self-employed. However, existing analysis carried out on the survey by bodies such as the ONS, provide detailed trends on the nature and levels of occupation pension provision in the UK over time.

Appendix 5: Variable correlations

Table A5.1 Variable correlations for men aged 16-64 in 2009-2010 dataset

	Individual Adult Age Bands	Adult - Marital Status	Tenure	Economic activity	Age-band left education	Care for adults	Care for children under 5	Public sector	Weekly banded gross income
Individual Adult Age Bands	1	-.495**	-.013**	-.022**	-.048**	.065**	-.163**	.009**	.216**
Adult - Marital Status	-.495**	1	.007**	-.153**	-.028**	-.005**	-.252**	-.187**	-.352**
Tenure	-.013**	.007**	1	.007**	-.017**	-.001**	-.001**	.003**	.006**
Economic activity	-.022**	-.153**	.007**	1	.025**	-.057**	.075**	.357**	.554**
Age-band left education	-.048**	-.028**	-.017**	.025**	1	-.032**	.064**	.058**	.071**
Care for adults	.065**	-.005**	-.001**	-.057**	-.032**	1	-.044**	-.070**	-.087**
Care for children under 5	-.163**	-.252**	-.001**	.075**	.064**	-.044**	1	.070**	.099**
Public sector	.009**	-.187**	.003**	.357**	.058**	-.070**	.070**	1	.431**
Weekly banded gross income	.216**	-.352**	.006**	.554**	.071**	-.087**	.099**	.431**	1

Note; Weighted correlations. Unweighted sample size = 16,587
**. Pearson correlation is significant at the 0.01 level (2-tailed)
*. Pearson correlation is significant at the 0.05 level (2-tailed)

Source: Family Resources Survey 2009-2010

Table A5.2 Variable correlations for women aged 16-64 in 2009-2010 dataset

	Individual Adult Age Bands	Adult - Marital Status	Tenure	Economic activity	Age-band left education	Care for adults	Care for children under 5	Public sector	Weekly banded gross income
Individual Adult Age Bands	1	-.449**	-.004**	-.034**	-.011**	.077**	-.262**	.103**	.089**
Adult - Marital Status	-.449**	1	.015**	.006**	-.014**	-.010**	-.119**	-.131**	-.039**
Tenure	-.004**	.015**	1	.001**	0.000	-.001**	-.003**	-.009**	-.001*
Economic activity	-.034**	.006**	.001**	1	.010**	-.026**	-.142**	.243**	.489**
Age-band left education	-.011**	-.014**	0.000	.010**	1	-.030**	.009**	.018**	.031**
Care for adults	.077**	-.010**	-.001**	-.026**	-.030**	1	-.044**	-.088**	-.089**
Care for children under 5	-.262**	-.119**	-.003**	-.142**	.009**	-.044**	1	-.096**	-.057**
Public sector	.103**	-.131**	-.009**	.243**	.018**	-.088**	-.096**	1	.444**
Weekly banded gross income	.089**	-.039**	-.001*	.489**	.031**	-.089**	-.057**	.444**	1

Note; Weighted correlations. Unweighted sample size = 16,449
**. Pearson correlation is significant at the 0.01 level (2-tailed)
*. Pearson correlation is significant at the 0.05 level (2-tailed)

Source: Family Resources Survey 2009-2010

Appendix 6: Expanded Logistic Regression Models

Table A6.1a: Odds ratios of making private pension contributions for men aged 16-64 in the UK (2009-2010)

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Age			644,612.95	9	p<0.001	
16-19	-2.379	0.007	108,238.11	1	p<0.001	0.093
20-24	-1.719	0.004	218,373.48	1	p<0.001	0.179
25-29	-1.051	0.003	123,986.98	1	p<0.001	0.350
30-34	-0.793	0.003	73,214.31	1	p<0.001	0.453
35-39	-0.337	0.003	14,273.36	1	p<0.001	0.714
40-44	-0.066	0.003	598.02	1	p<0.001	0.936
45-49	0.129	0.003	2,262.21	1	p<0.001	1.138
50-54	0.179	0.003	4,225.91	1	p<0.001	1.196
55-59	0.309	0.003	12,315.82	1	p<0.001	1.363
60-64[1]						
Marital Status			18,182.69	5	p<0.001	
Married	0.179	0.002	9,101.56	1	p<0.001	1.196
Cohabiting	-0.021	0.002	98.89	1	p<0.001	0.979
Single[2]						
Widowed	0.218	0.007	842.11	1	p<0.001	1.243
Separated	-0.007	0.005	2.17	1	0.141	0.993
Divorced	0.049	0.003	196.06	1	p<0.001	1.050
Age completed full-time education			11,022.47	5	p<0.001	
16 or under	-0.149	0.002	5,693.45	1	p<0.001	0.862
17-18	-0.044	0.002	403.21	1	p<0.001	0.957
19-21	-0.051	0.002	469.49	1	p<0.001	0.950
22-25[3]						
26 and over	-0.286	0.006	2,435.32	1	p<0.001	0.751
Not given	-0.206	0.004	2,327.56	1	p<0.001	0.814
Housing tenure			10,489.18	4	p<0.001	
Owns outright[5]						
Buying with mortgage	0.065	0.001	1,958.44	1	p<0.001	1.067
Part owns, part rents	-0.402	0.009	1,922.31	1	p<0.001	0.669
Rents	0.126	0.001	7,558.28	1	p<0.001	1.134
Rent-free	0.156	0.005	854.21	1	p<0.001	1.169
Economic activity			684,928.63	10	p<0.001	
Full-time employee[4]						
Part-time employee	-1.227	0.003	158,717.61	1	p<0.001	0.293
Full-time self-employed	-0.858	0.002	207,656.04	1	p<0.001	0.424
Part-time self-employed	-1.571	0.005	92,865.36	1	p<0.001	0.208
Unemployed	-1.929	0.004	205,102.46	1	p<0.001	0.145
Retired	-2.219	0.005	178,951.34	1	p<0.001	0.109
Student	-2.436	0.011	51,776.64	1	p<0.001	0.088
Looking after family/home	-2.327	0.013	30,795.51	1	p<0.001	0.098
Permanently sick/disabled	-2.389	0.005	243,579.32	1	p<0.001	0.092
Temporarily sick/disabled	-2.437	0.013	35,839.22	1	p<0.001	0.087
Other inactive	-2.042	0.006	113,035.14	1	p<0.001	0.130
Public sector			444,402.15	2	p<0.001	
Not given	-1.355	0.003	187,368.23	1	p<0.001	0.258
Private sector	-1.156	0.002	424,357.47	1	p<0.001	0.315

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Public sector[6]						
Gross weekly income			959,357.56	7	p<0.001	
Less than £100	-1.105	0.003	138,914.08	1	p<0.001	0.331
£100 to < £150	-1.560	0.004	179,310.09	1	p<0.001	0.210
£150 to < £200	-1.724	0.004	213,755.22	1	p<0.001	0.178
£200 to < £250	-1.754	0.003	363,579.70	1	p<0.001	0.173
£250 to < £350	-1.492	0.002	605,823.02	1	p<0.001	0.225
£350 to < £450	-1.033	0.002	316,981.44	1	p<0.001	0.356
£450 to < £600	-0.476	0.002	75,235.07	1	p<0.001	0.621
£600 and over[67]						
Cares for children aged 0-4	0.104	0.002	3,160.46	1	p<0.001	1.110
Cares for adults	0.235	0.004	2,990.95	1	p<0.001	1.265
Constant	1.992	0.006	103,106.63	1	p<0.001	7.333

Notes: N=15,678

[1]The 60-64 age group has been held as the reference category for the age variable

[2]The 'single' category has been held as the reference category for the marital status variable.

[3]The '22-25' category has been held as the reference category for the age completed full-time education variable

[4]The 'full-time employee' category has been held as the reference category for the economic activity category

[5]The 'owns outright' category has been held for the reference category for the housing tenure variable

[6]The 'public sector' category has been held for the reference category for the public-sector variable

[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

Source: Family Resources Survey, 2009-2010

Table A6.1b Selected model for UK men aged 16-64 making private pension contributions in 2009-2010 – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Age			40,009.85	9	p<0.001	
20-24	-0.563	0.015	1,363.30	1	p<0.001	0.569
25-29	-0.537	0.011	2,375.42	1	p<0.001	0.585
30-34	0.066	0.011	38.76	1	p<0.001	1.068
35-39	0.273	0.011	652.65	1	p<0.001	1.314
40-44	0.510	0.011	2,258.91	1	p<0.001	1.666
45-49	0.901	0.011	6,415.25	1	p<0.001	2.462
50-54	0.489	0.011	1,855.03	1	p<0.001	1.630
55-59	0.912	0.012	5,884.45	1	p<0.001	2.490
Marital status			15,897.08	5	p<0.001	
Married	0.122	0.002	4,279.96	1	p<0.001	1.130
Cohabiting	-0.082	0.002	1,459.02	1	p<0.001	0.921
Widowed	0.241	0.008	1,005.81	1	p<0.001	1.272
Separated	-0.033	0.005	46.07	1	p<0.001	0.968
Divorced	-0.017	0.004	22.56	1	p<0.001	0.983
Age left education			8,406.13	5	p<0.001	
16 or under	0.050	0.008	34.53	1	p<0.001	1.051
17-18	0.097	0.009	105.18	1	p<0.001	1.102
19-21	0.450	0.010	1,888.51	1	p<0.001	1.569
26 and over	-0.671	0.024	790.84	1	p<0.001	0.511
Not given	2.143	0.033	4,116.11	1	p<0.001	8.522
Age by Age left education			83,138.82	45	p<0.001	
20-24 by 16 or under	-0.532	0.012	1,844.13	1	p<0.001	0.587
20-24 by 17-18	-0.843	0.014	3,596.22	1	p<0.001	0.430
20-24 by 19-21	-0.354	0.015	594.19	1	p<0.001	0.702
20-24 by 26 and over	1.102	0.045	588.52	1	p<0.001	3.009
20-24 by Not given	-2.536	0.036	4,905.17	1	p<0.001	0.079
25-29 by 16 or under	-0.020	0.010	3.95	1	0.047	0.980
25-29 by 17-18	-0.366	0.011	1,056.43	1	p<0.001	0.693
25-29 by 19-21	-0.296	0.012	608.83	1	p<0.001	0.744
25-29 by 26 and over	0.484	0.031	247.62	1	p<0.001	1.622
25-29 by Not given	-1.540	0.036	1,856.73	1	p<0.001	0.214
30-34 by 16 or under	-0.261	0.010	716.01	1	p<0.001	0.770
30-34 by 17-18	-0.176	0.011	256.84	1	p<0.001	0.839
30-34 by 19-21	-0.932	0.012	6,225.46	1	p<0.001	0.394
30-34 by 26 and over	0.721	0.028	673.01	1	p<0.001	2.057
30-34 by Not given	-2.340	0.039	3,621.85	1	p<0.001	0.096
35-39 by 16 or under	-0.147	0.010	224.16	1	p<0.001	0.864
35-39 by 17-18	-0.110	0.011	100.88	1	p<0.001	0.896
35-39 by 19-21	-0.566	0.012	2,196.95	1	p<0.001	0.568
35-39 by 26 and over	-0.364	0.028	172.29	1	p<0.001	0.695
35-39 by Not given	-2.080	0.037	3,216.44	1	p<0.001	0.125
40-44 by 16 or under	-0.121	0.010	149.31	1	p<0.001	0.886
40-44 by 17-18	0.083	0.011	57.13	1	p<0.001	1.087
40-44 by 19-21	-0.583	0.012	2,300.00	1	p<0.001	0.558
40-44 by 26 and over	1.358	0.029	2,121.38	1	p<0.001	3.887
40-44 by Not given	-2.397	0.037	4,200.43	1	p<0.001	0.091
45-49 by 16 or under	-0.407	0.010	1,575.57	1	p<0.001	0.665

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
45-49 by 17-18	-0.398	0.011	1,214.59	1	p<0.001	0.672
45-49 by 19-21	-0.793	0.013	4,016.29	1	p<0.001	0.452
45-49 by 26 and over	-0.204	0.030	46.73	1	p<0.001	0.816
45-49 by Not given	-1.856	0.036	2,721.65	1	p<0.001	0.156
50-54 by 16 or under	0.079	0.010	57.95	1	p<0.001	1.082
50-54 by 17-18	0.052	0.012	20.38	1	p<0.001	1.054
50-54 by 19-21	0.100	0.013	60.09	1	p<0.001	1.105
50-54 by 26 and over	0.279	0.030	84.38	1	p<0.001	1.322
50-54 by Not given	-0.801	0.035	525.67	1	p<0.001	0.449
55-59 by 16 or under	-0.254	0.011	545.48	1	p<0.001	0.776
55-59 by 17-18	0.080	0.012	43.96	1	p<0.001	1.084
55-59 by 19-21	-0.740	0.013	3,211.25	1	p<0.001	0.477
55-59 by 26 and over	1.580	0.035	2,072.99	1	p<0.001	4.856
55-59 by Not given	-2.318	0.037	3,998.81	1	p<0.001	0.098
Tenure			4,281.89	4	p<0.001	
Buying with mortgage	0.281	0.005	3,511.48	1	p<0.001	1.324
Rents	0.025	0.005	29.23	1	p<0.001	1.026
Rent-free	0.266	0.018	207.85	1	p<0.001	1.305
Age by Tenure			67,588.87	36	p<0.001	
16-19 by Buying with mortgage	0.116	0.020	32.10	1	p<0.001	1.123
16-19 by Rents	0.809	0.020	1,649.58	1	p<0.001	2.246
20-24 by Buying with mortgage	-1.220	0.009	19,632.96	1	p<0.001	0.295
20-24 by Rents	-0.061	0.008	58.18	1	p<0.001	0.940
20-24 by Rent-free	1.396	0.030	2,122.28	1	p<0.001	4.039
25-29 by Buying with mortgage	-0.115	0.006	312.63	1	p<0.001	0.892
25-29 by Rents	0.018	0.006	8.29	1	0.004	1.019
25-29 by Rent-free	-2.715	0.047	3,389.34	1	p<0.001	0.066
30-34 by Buying with mortgage	-0.310	0.006	2,297.86	1	p<0.001	0.733
30-34 by Rents	0.016	0.006	6.54	1	0.011	1.017
30-34 by Rent-free	0.557	0.026	472.45	1	p<0.001	1.745
35-39 by Buying with mortgage	-0.101	0.006	251.45	1	p<0.001	0.904
35-39 by Rents	0.452	0.006	5,115.10	1	p<0.001	1.572
35-39 by Rent-free	-1.066	0.026	1,737.87	1	p<0.001	0.344
40-44 by Buying with mortgage	-0.218	0.006	1,232.83	1	p<0.001	0.804
40-44 by Rents	0.017	0.006	7.54	1	0.006	1.017
40-44 by Rent-free	-0.750	0.022	1,157.56	1	p<0.001	0.472
45-49 by Buying with mortgage	-0.229	0.006	1,326.11	1	p<0.001	0.795
45-49 by Rents	0.224	0.006	1,288.39	1	p<0.001	1.251
45-49 by Rent-free	0.680	0.026	698.94	1	p<0.001	1.973
50-54 by Buying with mortgage	-0.220	0.006	1,162.34	1	p<0.001	0.802
50-54 by Rent-free	-0.254	0.024	110.05	1	p<0.001	0.775
55-59 by Buying with mortgage	-0.161	0.007	564.27	1	p<0.001	0.851
55-59 by Rents	0.121	0.007	327.56	1	p<0.001	1.129
55-59 by Rent-free	0.616	0.024	679.76	1	p<0.001	1.851

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Economic activity			46,989.59	10	p<0.001	
Part-time employee	-1.341	0.012	11,616.38	1	p<0.001	0.262
Full-time self-employed	-0.755	0.008	8,013.98	1	p<0.001	0.470
Part-time self-employed	-2.798	0.020	19,118.58	1	p<0.001	0.061
Retired	-2.606	0.018	21,235.60	1	p<0.001	0.074
Economic activity by Age			71,129.04	86	p<0.001	
Part-time employee by 20-24	0.220	0.016	188.05	1	p<0.001	1.246
Part-time employee by 25-29	0.764	0.015	2,500.82	1	p<0.001	2.146
Part-time employee by 30-34	0.624	0.014	1,967.38	1	p<0.001	1.866
Part-time employee by 35-39	0.601	0.013	2,072.12	1	p<0.001	1.824
Part-time employee by 40-44	0.808	0.011	5,149.54	1	p<0.001	2.244
Part-time employee by 45-49	0.315	0.012	706.55	1	p<0.001	1.370
Part-time employee by 50-54	0.215	0.012	329.97	1	p<0.001	1.240
Part-time employee by 55-59	0.154	0.011	205.11	1	p<0.001	1.167
Full-time self-employed by 25-29	-0.164	0.010	276.09	1	p<0.001	0.849
Full-time self-employed by 30-34	-0.947	0.009	10,237.31	1	p<0.001	0.388
Full-time self-employed by 35-39	-0.343	0.008	1,835.48	1	p<0.001	0.709
Full-time self-employed by 40-44	-0.432	0.008	3,311.69	1	p<0.001	0.649
Full-time self-employed by 45-49	-0.648	0.008	7,335.94	1	p<0.001	0.523
Full-time self-employed by 50-54	-0.353	0.008	2,081.35	1	p<0.001	0.703
Full-time self-employed by 55-59	-0.124	0.008	243.03	1	p<0.001	0.884
Part-time self-employed by 30-34	0.308	0.026	139.02	1	p<0.001	1.361
Part-time self-employed by 35-39	1.225	0.020	3,742.93	1	p<0.001	3.404
Part-time self-employed by 40-44	0.526	0.019	729.09	1	p<0.001	1.692
Part-time self-employed by 45-49	0.252	0.019	171.93	1	p<0.001	1.287
Part-time self-employed by 50-54	0.317	0.020	240.37	1	p<0.001	1.373
Part-time self-employed by 55-59	0.129	0.016	65.35	1	p<0.001	1.138
Unemployed by 20-24	0.419	0.035	146.20	1	p<0.001	1.521
Unemployed by 25-29	-3.425	0.053	4,249.22	1	p<0.001	0.033
Unemployed by 30-34	0.257	0.021	153.45	1	p<0.001	1.293
Unemployed by 35-39	-1.887	0.024	6,006.94	1	p<0.001	0.151
Unemployed by 40-44	-0.318	0.017	351.03	1	p<0.001	0.727
Unemployed by 45-49	-0.435	0.017	676.73	1	p<0.001	0.647
Unemployed by 50-54	-0.909	0.018	2,574.50	1	p<0.001	0.403
Unemployed by 55-59	-0.175	0.017	107.07	1	p<0.001	0.839
Retired by 50-54	-1.223	0.030	1,654.61	1	p<0.001	0.294
Retired by 55-59	-0.469	0.014	1,174.31	1	p<0.001	0.626
Student by 30-34	1.435	0.072	395.90	1	p<0.001	4.199
Student by 35-39	2.816	0.077	1,339.09	1	p<0.001	**

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Student by 45-49	1.618	0.085	365.58	1	p<0.001	5.045
Student by 50-54	2.914	0.101	838.07	1	p<0.001	**
Permanently sick/disabled by 35-39	-0.068	0.022	9.46	1	0.002	0.934
Permanently sick/disabled by 40-44	0.056	0.018	9.62	1	0.002	1.057
Permanently sick/disabled by 45-49	0.335	0.014	599.03	1	p<0.001	1.398
Permanently sick/disabled by 50-54	0.109	0.014	60.09	1	p<0.001	1.115
Permanently sick/disabled by 55-59	-0.102	0.014	55.05	1	p<0.001	0.903
Temporarily sick/disabled by 55-59	1.070	0.042	638.42	1	p<0.001	2.915
Other inactive by 20-24	1.686	0.041	1,700.03	1	p<0.001	5.398
Other inactive by 30-34	-0.883	0.039	503.82	1	p<0.001	0.413
Other inactive by 35-39	-1.174	0.030	1,512.77	1	p<0.001	0.309
Other inactive by 40-44	-0.903	0.024	1,414.06	1	p<0.001	0.405
Other inactive by 45-49	-2.568	0.032	6,249.24	1	p<0.001	0.077
Other inactive by 50-54	-0.368	0.021	303.72	1	p<0.001	0.692
Other inactive by 55-59	-1.128	0.022	2,667.22	1	p<0.001	0.324
Economic activity by Age left education			75,324.21	49	p<0.001	
Part-time employee by 16 or under	-0.353	0.010	1,306.65	1	p<0.001	0.703
Part-time employee by 17-18	-0.243	0.011	473.47	1	p<0.001	0.784
Part-time employee by 19-21	-0.445	0.012	1,301.32	1	p<0.001	0.641
Part-time employee by 26 and over	-0.126	0.030	17.00	1	p<0.001	0.882
Part-time employee by Not given	-2.756	0.032	7,606.49	1	p<0.001	0.064
Full-time self-employed by 16 or under	-0.146	0.006	587.26	1	p<0.001	0.865
Full-time self-employed by 17-18	0.086	0.007	172.70	1	p<0.001	1.090
Full-time self-employed by 19-21	-0.171	0.008	501.09	1	p<0.001	0.843
Full-time self-employed by 26 and over	-1.589	0.024	4,242.36	1	p<0.001	0.204
Full-time self-employed by Not given	-2.405	0.018	17,042.08	1	p<0.001	0.090
Part-time self-employed by 16 or under	0.796	0.017	2,146.17	1	p<0.001	2.217
Part-time self-employed by 17-18	0.260	0.020	163.14	1	p<0.001	1.296
Part-time self-employed by 19-21	-0.365	0.024	224.81	1	p<0.001	0.694
Part-time self-employed by 26 and over	3.874	0.040	9,283.36	1	p<0.001	**
Unemployed by 17-18	-0.387	0.017	497.75	1	p<0.001	0.679
Unemployed by 19-21	0.992	0.017	3,313.05	1	p<0.001	2.695
Unemployed by 26 and over	-0.136	0.040	11.52	1	p<0.001	0.873
Retired by 16 or under	-0.121	0.018	45.50	1	p<0.001	0.886
Retired by 17-18	-0.305	0.020	234.48	1	p<0.001	0.737

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Retired by 19-21	-0.489	0.021	525.35	1	p<0.001	0.613
Retired by 26 and over	0.872	0.049	320.17	1	p<0.001	2.391
Student by 16 or under	-4.743	0.065	5,400.25	1	p<0.001	0.009
Student by 17-18	-3.908	0.061	4,095.70	1	p<0.001	0.020
Student by 19-21	-2.520	0.056	2,026.67	1	p<0.001	0.080
Looking after family/home by 16 or under	-2.295	0.050	2,092.55	1	p<0.001	0.101
Looking after family/home by 26 and over	-0.134	0.062	4.63	1	0.031	0.874
Permanently sick/disabled by 16 or under	0.904	0.024	1,469.05	1	p<0.001	2.470
Permanently sick/disabled by 17-18	0.937	0.025	1,464.07	1	p<0.001	2.554
Permanently sick/disabled by 19-21	0.999	0.026	1,438.60	1	p<0.001	2.715
Other inactive by 16 or under	-1.144	0.019	3,509.30	1	p<0.001	0.319
Other inactive by 17-18	-0.845	0.022	1,524.92	1	p<0.001	0.430
Other inactive by 19-21	-1.102	0.024	2,048.01	1	p<0.001	0.332
Other inactive by Not given	0.094	0.039	5.77	1	0.016	1.098
Public sector indicator			427,725.81	2	p<0.001	
Sector not given	-1.347	0.003	162,556.97	1	p<0.001	0.260
Private sector	-1.185	0.002	414,273.31	1	p<0.001	0.306
Banded income			56,701.96	7	p<0.001	
Less than £100	-1.178	0.011	11,312.30	1	p<0.001	0.308
£100 to < £150	-1.331	0.013	10,942.90	1	p<0.001	0.264
£150 to < £200	-1.985	0.013	25,164.65	1	p<0.001	0.137
£200 to < £250	-1.338	0.010	18,221.94	1	p<0.001	0.262
£250 to < £350	-1.272	0.007	31,487.53	1	p<0.001	0.280
£350 to < £450	-0.714	0.007	9,870.35	1	p<0.001	0.490
£450 to < £600	-0.409	0.007	3,658.34	1	p<0.001	0.664
Income by Age			90,900.30	62	p<0.001	
Less than £100 by 20-24	-3.296	0.035	8,623.15	1	p<0.001	0.037
Less than £100 by 25-29	-0.645	0.017	1,409.94	1	p<0.001	0.525
Less than £100 by 30-34	-1.375	0.017	6,213.74	1	p<0.001	0.253
Less than £100 by 35-39	-0.830	0.013	3,951.64	1	p<0.001	0.436
Less than £100 by 40-44	-0.427	0.013	1,138.45	1	p<0.001	0.653
Less than £100 by 45-49	-0.261	0.013	433.25	1	p<0.001	0.771
Less than £100 by 50-54	-0.219	0.012	317.77	1	p<0.001	0.803
Less than £100 by 55-59	-0.250	0.012	436.21	1	p<0.001	0.779
£100 to < £150 by 16-19	-0.964	0.037	668.00	1	p<0.001	0.381
£100 to < £150 by 20-24	-1.585	0.033	2,358.25	1	p<0.001	0.205
£100 to < £150 by 30-34	-1.282	0.021	3,628.63	1	p<0.001	0.277
£100 to < £150 by 35-39	-1.372	0.018	5,606.92	1	p<0.001	0.254
£100 to < £150 by 40-44	-0.827	0.015	3,089.04	1	p<0.001	0.437
£100 to < £150 by 45-49	-0.182	0.014	162.77	1	p<0.001	0.834
£100 to < £150 by 50-54	-0.257	0.015	291.69	1	p<0.001	0.774
£100 to < £150 by 55-59	-0.160	0.015	119.22	1	p<0.001	0.852
£150 to < £200 by 16-19	-0.125	0.032	14.90	1	p<0.001	0.882
£150 to < £200 by 20-24	-1.781	0.033	2,869.85	1	p<0.001	0.168
£150 to < £200 by 30-34	-0.763	0.019	1,582.02	1	p<0.001	0.466
£150 to < £200 by 35-39	-1.187	0.016	5,435.65	1	p<0.001	0.305
£150 to < £200 by 40-44	-1.344	0.015	7,666.87	1	p<0.001	0.261

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£150 to < £200 by 45-49	-0.780	0.015	2,717.64	1	p<0.001	0.458
£150 to < £200 by 50-54	-0.214	0.015	201.63	1	p<0.001	0.807
£150 to < £200 by 55-59	-0.637	0.015	1,819.89	1	p<0.001	0.529
£200 to < £250 by 16-19	-1.456	0.034	1,869.41	1	p<0.001	0.233
£200 to < £250 by 20-24	-0.938	0.017	3,070.08	1	p<0.001	0.391
£200 to < £250 by 25-29	-1.274	0.014	8,370.54	1	p<0.001	0.280
£200 to < £250 by 30-34	-1.582	0.015	11,674.06	1	p<0.001	0.206
£200 to < £250 by 35-39	-1.706	0.014	15,848.37	1	p<0.001	0.182
£200 to < £250 by 40-44	-1.120	0.012	8,211.16	1	p<0.001	0.326
£200 to < £250 by 45-49	-0.645	0.012	2,996.03	1	p<0.001	0.525
£200 to < £250 by 50-54	-1.020	0.013	6,196.46	1	p<0.001	0.361
£200 to < £250 by 55-59	-1.077	0.013	7,204.84	1	p<0.001	0.341
£250 to < £350 by 16-19	-0.792	0.028	795.97	1	p<0.001	0.453
£250 to < £350 by 20-24	0.151	0.013	136.46	1	p<0.001	1.163
£250 to < £350 by 25-29	-0.435	0.009	2,280.31	1	p<0.001	0.647
£250 to < £350 by 30-34	-0.476	0.009	2,698.18	1	p<0.001	0.621
£250 to < £350 by 35-39	-0.802	0.009	8,125.26	1	p<0.001	0.448
£250 to < £350 by 40-44	-0.640	0.009	5,237.19	1	p<0.001	0.527
£250 to < £350 by 45-49	-0.335	0.009	1,434.65	1	p<0.001	0.715
£250 to < £350 by 50-54	-0.330	0.009	1,343.50	1	p<0.001	0.719
£250 to < £350 by 55-59	-0.185	0.009	409.82	1	p<0.001	0.831
£350 to < £450 by 16-19	-0.411	0.038	117.12	1	p<0.001	0.663
£350 to < £450 by 20-24	-0.284	0.013	461.40	1	p<0.001	0.753
£350 to < £450 by 25-29	-0.431	0.009	2,355.61	1	p<0.001	0.650
£350 to < £450 by 30-34	-0.320	0.009	1,339.26	1	p<0.001	0.726
£350 to < £450 by 35-39	-0.514	0.009	3,436.76	1	p<0.001	0.598
£350 to < £450 by 40-44	-0.334	0.009	1,520.11	1	p<0.001	0.716
£350 to < £450 by 45-49	-0.304	0.009	1,191.86	1	p<0.001	0.738
£350 to < £450 by 50-54	-0.375	0.009	1,805.44	1	p<0.001	0.687
£350 to < £450 by 55-59	-0.834	0.009	7,751.84	1	p<0.001	0.434
£450 to < £600 by 20-24	0.588	0.014	1,827.71	1	p<0.001	1.801
£450 to < £600 by 25-29	0.189	0.008	508.08	1	p<0.001	1.208
£450 to < £600 by 30-34	-0.245	0.008	901.57	1	p<0.001	0.783
£450 to < £600 by 35-39	-0.354	0.008	1,894.74	1	p<0.001	0.702
£450 to < £600 by 40-44	-0.156	0.008	372.71	1	p<0.001	0.856
£450 to < £600 by 45-49	-0.162	0.008	390.22	1	p<0.001	0.850
£450 to < £600 by 50-54	-0.071	0.009	69.78	1	p<0.001	0.931
£450 to < £600 by 55-59	-0.332	0.009	1,419.65	1	p<0.001	0.718
Economic activity by Banded income			148,284.25	68	p<0.001	
Part-time employee by Less than £100	0.367	0.015	615.68	1	p<0.001	1.443
Part-time employee by £100 to < £150	-0.633	0.017	1,407.87	1	p<0.001	0.531
Part-time employee by £150 to <by£200	0.598	0.018	1,084.49	1	p<0.001	1.818
Part-time employee by £200 to < £250	0.860	0.013	4,432.55	1	p<0.001	2.363
Part-time employee by £250 to < £350	0.667	0.011	3,684.64	1	p<0.001	1.948
Part-time employee by £350 to < £450	0.475	0.012	1,665.33	1	p<0.001	1.608

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Part-time employee by £450 to < £600	0.200	0.012	291.54	1	p<0.001	1.221
Full-time self-employed by Less than £100	0.824	0.009	8,076.21	1	p<0.001	2.280
Full-time self-employed by £100 to < £150	0.712	0.011	4,400.40	1	p<0.001	2.039
Full-time self-employed by £150 to < £200	2.170	0.011	36,899.89	1	p<0.001	8.755
Full-time self-employed by £200 to < £250	1.677	0.008	45,485.21	1	p<0.001	5.348
Full-time self-employed by £250 to < £350	0.643	0.006	10,084.94	1	p<0.001	1.901
Full-time self-employed by £350 to < £450	0.272	0.006	1,916.66	1	p<0.001	1.313
Full-time self-employed by £450 to < £600	0.272	0.006	2,307.18	1	p<0.001	1.312
Part-time self-employed by Less than £100	1.449	0.018	6,594.85	1	p<0.001	4.257
Part-time self-employed by £100 to < £150	0.239	0.028	74.62	1	p<0.001	1.270
Part-time self-employed by £150 to < £200	2.099	0.021	9,712.56	1	p<0.001	8.161
Part-time self-employed by £200 to < £250	1.594	0.022	5,175.74	1	p<0.001	4.923
Part-time self-employed by £250 to < £350	0.287	0.023	150.60	1	p<0.001	1.333
Part-time self-employed by £350 to < £450	-0.160	0.022	54.97	1	p<0.001	0.852
Part-time self-employed by £450 to < £600	0.631	0.019	1,111.92	1	p<0.001	1.880
Retired by Less than £100	2.349	0.017	18,721.46	1	p<0.001	**
Retired by £100 to < £150	1.480	0.022	4,650.79	1	p<0.001	4.393
Retired by £150 to < £200	1.590	0.024	4,561.94	1	p<0.001	4.904
Retired by £200 to < £250	1.381	0.021	4,530.80	1	p<0.001	3.980
Retired by £250 to < £350	0.764	0.017	1,937.19	1	p<0.001	2.147
Retired by £350 to < £450	-0.460	0.024	368.44	1	p<0.001	0.631
Retired by £450 to < £600	-1.489	0.037	1,661.98	1	p<0.001	0.226
Student by £100 to < £150	2.239	0.080	784.38	1	p<0.001	9.382
Student by £150 to < £200	2.515	0.087	836.64	1	p<0.001	**
Constant	1.848	0.009	38,087.23	1	p<0.001	6.349

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\hat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.2a: Odds ratios of making private pension contributions for women aged 16-59 in the UK (2009-2010)

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Age			447,109.40	8	p<0.001	
16-19	-2.557	0.008	95,307.59	1	p<0.001	0.078
20-24	-1.749	0.003	258,675.13	1	p<0.001	0.174
25-29	-1.021	0.003	120,502.39	1	p<0.001	0.360
30-34	-0.672	0.003	52,144.22	1	p<0.001	0.510
35-39	-0.441	0.003	24,978.20	1	p<0.001	0.643
40-44	-0.196	0.003	5,425.24	1	p<0.001	0.822
45-49	-0.037	0.003	198.00	1	p<0.001	0.963
50-54	-0.119	0.003	1,902.59	1	p<0.001	0.888
55-59[1]						
Legal marital status			140,339.45	5	p<0.001	
Married	0.413	0.002	40,774.43	1	p<0.001	1.511
Cohabiting	0.188	0.002	6,937.07	1	p<0.001	1.206
Single[2]						
Widowed	-0.067	0.006	111.37	1	0.671	0.935
Separated	-0.654	0.004	24,123.02	1	p<0.001	0.520
Divorced	-0.214	0.003	4,710.98	1	p<0.001	0.807
Age completed full-time education			19,330.34	5	p<0.001	
16 or under	-0.03	0.002	186.55	1	p<0.001	0.971
17-18	0.01	0.002	16.23	1	p<0.001	1.010
19-21	0.158	0.003	3,410.85	1	p<0.001	1.172
22-25[3]						
26 and over	0.607	0.006	9,939.65	1	p<0.001	1.836
Not given	0.05	0.004	151.74	1	p<0.001	1.052
Housing tenure			5,998.81	4	p<0.001	
Owns outright[5]						
Buying with mortgage	0.093	0.002	3,460.34	1	p<0.001	1.098
Part owns, part rents	-0.403	0.01	1,510.02	1	p<0.001	0.668
Rents	0.065	0.002	1,706.80	1	p<0.001	1.067
Rent-free	-0.064	0.006	121.52	1	p<0.001	0.938
Economic activity			493,153.72	10	p<0.001	
Full-time employee[4]						
Part-time employee	-0.204	0.002	15,341.58	1	p<0.001	0.816
Full-time self-employed	-1.333	0.004	115,034.04	1	p<0.001	0.264
Part-time self-employed	-1.305	0.004	89,929.30	1	p<0.001	0.271
Unemployed	-1.919	0.007	86,190.68	1	p<0.001	0.147
Retired	-1.718	0.008	43,629.86	1	p<0.001	0.179
Student	-2.407	0.011	44,491.75	1	p<0.001	0.090
Looking after family/home	-2.251	0.005	200,598.96	1	p<0.001	0.105
Permanently sick/disabled	-2.78	0.006	189,821.17	1	p<0.001	0.062
Temporarily sick/disabled	-1.559	0.012	17,488.59	1	p<0.001	0.210
Other inactive	-2.012	0.007	92,881.52	1	p<0.001	0.134
Public sector			353,497.01	2	p<0.001	
Not given	-0.901	0.003	74,678.83	1	p<0.001	0.406
Private sector	-0.78	0.001	330,558.97	1	p<0.001	0.458
Public sector[6]						

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Gross weekly income			1,025,386.69	7	p<0.001	
Less than £100	-2.337	0.003	497,548.94	1	p<0.001	0.097
£100 to < £150	-2.387	0.003	505,737.42	1	p<0.001	0.092
£150 to < £200	-2.031	0.003	457,287.63	1	p<0.001	0.131
£200 to < £250	-1.917	0.003	480,695.62	1	p<0.001	0.147
£250 to < £350	-1.551	0.002	444,788.29	1	p<0.001	0.212
£350 to < £450	-1.191	0.002	244,149.60	1	p<0.001	0.304
£450 to < £600	-0.471	0.003	34,246.46	1	p<0.001	0.624
£600 and over[7]						
Cares for children aged 0-4	-0.19	0.002	8,998.06	1	p<0.001	0.827
Cares for adults	0.431	0.005	8,462.20	1	p<0.001	1.539
Constant	1.881	0.006	84,463.55	1	6.560	1.692

Notes: N=15,716

[1]The 60-64 age group has been held as the reference category for the age variable

[2]The 'single' category has been held as the reference category for the marital status variable.

[3]The '22-25' category has been held as the reference category for the age completed full-time education variable

[4]The 'full-time employee' category has been held as the reference category for the economic activity category

[5]The 'owns outright' category has been held for the reference category for the housing tenure variable

[6]The 'public sector' category has been held for the reference category for the public-sector variable

[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

Source: Family Resources Survey, 2009-2010

Table A6.2b Selected model for UK women aged 16-59 making private pension contributions in 2009-2010 – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Age			82,247.09	8	p<0.001	
20-24	-2.549	0.016	26,379.25	1	p<0.001	0.078
25-29	-1.954	0.011	29,873.53	1	p<0.001	0.142
30-34	-0.892	0.011	6,300.37	1	p<0.001	0.410
35-39	-0.664	0.011	3,686.75	1	p<0.001	0.515
40-44	0.090	0.012	54.59	1	p<0.001	1.094
45-49	0.237	0.012	386.26	1	p<0.001	1.268
50-54	-0.441	0.012	1,378.61	1	p<0.001	0.644
Marital status			39,045.35	5	p<0.001	
Married	0.108	0.003	1,809.94	1	p<0.001	1.114
Cohabiting	0.079	0.003	848.26	1	p<0.001	1.082
Widowed	-0.533	0.009	3,293.64	1	p<0.001	0.587
Separated	-0.819	0.006	20,356.83	1	p<0.001	0.441
Divorced	-0.218	0.004	2,782.69	1	p<0.001	0.804
Age left education			12,719.03	5	p<0.001	
16 or under	-0.394	0.006	3,728.04	1	p<0.001	0.674
26 and over	0.414	0.019	472.18	1	p<0.001	1.512
Not given	0.372	0.013	826.88	1	p<0.001	1.450
Age by Age left education			54,142.48	40	p<0.001	
16-19 by 16 or under	1.572	0.042	1,375.19	1	p<0.001	4.817
16-19 by 17-18	1.435	0.042	1,153.24	1	p<0.001	4.198
16-19 by 19-21	1.836	0.046	1,601.22	1	p<0.001	6.274
20-24 by 16 or under	0.371	0.011	1,189.93	1	p<0.001	1.449
20-24 by 17-18	0.138	0.012	132.94	1	p<0.001	1.148
20-24 by 19-21	-0.147	0.014	115.45	1	p<0.001	0.863
20-24 by 26 and over	1.190	0.028	1,849.79	1	p<0.001	3.286
20-24 by Not given	-0.365	0.019	379.32	1	p<0.001	0.694
25-29 by 16 or under	0.746	0.009	7,388.94	1	p<0.001	2.108
25-29 by 17-18	0.255	0.010	635.40	1	p<0.001	1.290
25-29 by 19-21	0.313	0.011	837.86	1	p<0.001	1.368
25-29 by 26 and over	0.977	0.024	1,617.99	1	p<0.001	2.655
25-29 by Not given	-0.069	0.019	12.70	1	p<0.001	0.933
30-34 by 16 or under	0.581	0.009	4,347.76	1	p<0.001	1.788
30-34 by 17-18	-0.074	0.010	53.63	1	p<0.001	0.928
30-34 by 19-21	0.316	0.011	804.99	1	p<0.001	1.372
30-34 by 26 and over	-0.414	0.023	320.89	1	p<0.001	0.661
30-34 by Not given	0.330	0.026	167.28	1	p<0.001	1.391
35-39 by 16 or under	0.091	0.009	114.42	1	p<0.001	1.095
35-39 by 17-18	-0.052	0.010	27.23	1	p<0.001	0.949
35-39 by Not given	-0.750	0.019	1,549.23	1	p<0.001	0.472
40-44 by 16 or under	0.245	0.009	691.58	1	p<0.001	1.278
40-44 by 17-18	-0.275	0.011	667.37	1	p<0.001	0.759
40-44 by 19-21	-0.066	0.012	32.31	1	p<0.001	0.936
40-44 by 26 and over	-0.456	0.027	293.56	1	p<0.001	0.634
40-44 by Not given	-0.283	0.017	281.74	1	p<0.001	0.753
45-49 by 16 or under	0.069	0.009	56.68	1	p<0.001	1.072
45-49 by 17-18	-0.384	0.010	1,347.83	1	p<0.001	0.681
45-49 by 19-21	-0.029	0.012	6.43	1	0.011	0.971
45-49 by 26 and over	1.905	0.036	2,730.17	1	p<0.001	6.717

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
45-49 by Not given	-0.477	0.016	868.64	1	p<0.001	0.621
50-54 by 16 or under	0.714	0.009	6,000.17	1	p<0.001	2.042
50-54 by 17-18	0.418	0.011	1,558.98	1	p<0.001	1.519
50-54 by 19-21	0.322	0.012	770.31	1	p<0.001	1.380
50-54 by 26 and over	0.751	0.028	709.60	1	p<0.001	2.119
50-54 by Not given	-0.603	0.017	1,299.87	1	p<0.001	0.547
Economic activity			75,761.69	10	p<0.001	
Part-time employee	-1.859	0.010	37,071.52	1	p<0.001	0.156
Full-time self-employed	-2.261	0.016	20,022.17	1	p<0.001	0.104
Part-time self-employed	-2.500	0.026	9,327.47	1	p<0.001	0.082
Looking after family/home	-5.605	0.042	17,742.44	1	p<0.001	0.004
Permanently sick/disabled	-3.925	0.034	13,034.53	1	p<0.001	0.020
Economic activity by Age			75,776.86	78	p<0.001	
Part-time employee by 16-19	-0.205	0.027	59.05	1	p<0.001	0.814
Part-time employee by 20-24	0.422	0.010	1,886.16	1	p<0.001	1.526
Part-time employee by 25-29	0.300	0.008	1,483.66	1	p<0.001	1.350
Part-time employee by 30-34	0.087	0.007	142.52	1	p<0.001	1.091
Part-time employee by 35-39	0.703	0.007	10,229.19	1	p<0.001	2.020
Part-time employee by 40-44	0.717	0.007	10,995.65	1	p<0.001	2.049
Part-time employee by 45-49	0.316	0.007	2,120.07	1	p<0.001	1.372
Part-time employee by 50-54	0.627	0.007	7,304.38	1	p<0.001	1.873
Full-time self-employed by 25-29	0.057	0.019	9.34	1	0.002	1.059
Full-time self-employed by 30-34	-0.226	0.019	137.38	1	p<0.001	0.798
Full-time self-employed by 35-39	0.423	0.015	772.02	1	p<0.001	1.527
Full-time self-employed by 40-44	1.080	0.015	5,161.07	1	p<0.001	2.944
Full-time self-employed by 45-49	0.145	0.014	101.88	1	p<0.001	1.156
Full-time self-employed by 50-54	1.665	0.015	12,781.55	1	p<0.001	5.287
Part-time self-employed by 25-29	-1.345	0.036	1,408.07	1	p<0.001	0.261
Part-time self-employed by 30-34	-0.786	0.021	1,460.28	1	p<0.001	0.456
Part-time self-employed by 35-39	0.139	0.016	78.30	1	p<0.001	1.150
Part-time self-employed by 40-44	-0.264	0.016	268.70	1	p<0.001	0.768
Part-time self-employed by 45-49	-0.305	0.016	367.21	1	p<0.001	0.737
Part-time self-employed by 50-54	-0.074	0.016	22.39	1	p<0.001	0.928
Unemployed by 30-34	-2.099	0.034	3,899.61	1	p<0.001	0.123
Unemployed by 35-39	-0.470	0.022	441.77	1	p<0.001	0.625
Unemployed by 40-44	0.152	0.022	47.63	1	p<0.001	1.164
Unemployed by 45-49	-0.834	0.024	1,186.66	1	p<0.001	0.434
Unemployed by 50-54	0.107	0.023	22.16	1	p<0.001	1.113
Retired by 50-54	1.158	0.020	3,415.56	1	p<0.001	3.184

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Looking after family/home by 25-29	-0.400	0.026	245.91	1	p<0.001	0.670
Looking after family/home by 30-34	-0.431	0.021	418.79	1	p<0.001	0.650
Looking after family/home by 35-39	0.865	0.019	1,981.83	1	p<0.001	2.375
Looking after family/home by 40-44	1.021	0.020	2,582.77	1	p<0.001	2.775
Looking after family/home by 45-49	0.908	0.021	1,908.48	1	p<0.001	2.478
Looking after family/home by 50-54	0.327	0.024	187.64	1	p<0.001	1.387
Permanently sick/disabled by 25-29	0.156	0.031	24.73	1	p<0.001	1.168
Permanently sick/disabled by 30-34	1.473	0.021	5,098.46	1	p<0.001	4.360
Permanently sick/disabled by 35-39	1.028	0.020	2,523.22	1	p<0.001	2.794
Permanently sick/disabled by 45-49	0.705	0.019	1,401.89	1	p<0.001	2.023
Permanently sick/disabled by 50-54	0.419	0.020	426.54	1	p<0.001	1.520
Temporarily sick/disabled by 25-29	1.303	0.044	863.00	1	p<0.001	3.681
Temporarily sick/disabled by 45-49	1.014	0.043	562.23	1	p<0.001	2.757
Temporarily sick/disabled by 50-54	1.494	0.048	963.87	1	p<0.001	4.453
Other inactive by 25-29	0.061	0.027	4.99	1	0.026	1.063
Other inactive by 30-34	-0.496	0.028	324.54	1	p<0.001	0.609
Other inactive by 35-39	-0.190	0.027	49.96	1	p<0.001	0.827
Other inactive by 40-44	0.478	0.023	443.03	1	p<0.001	1.613
Other inactive by 45-49	0.169	0.021	64.64	1	p<0.001	1.184
Other inactive by 50-54	0.477	0.021	532.94	1	p<0.001	1.611
Economic activity by Marital status			102,028.06	50	p<0.001	
Part-time employee by Married	1.179	0.005	49,330.04	1	p<0.001	3.252
Part-time employee by Cohabiting	0.460	0.006	5,524.79	1	p<0.001	1.584
Part-time employee by Widowed	1.415	0.015	8,662.04	1	p<0.001	4.116
Part-time employee by Separated	0.949	0.010	9,295.78	1	p<0.001	2.583
Part-time employee by Divorced	0.297	0.008	1,453.46	1	p<0.001	1.345
Full-time self-employed by Married	-0.209	0.012	305.18	1	p<0.001	0.811
Full-time self-employed by Cohabiting	0.522	0.015	1,217.14	1	p<0.001	1.685
Full-time self-employed by Widowed	0.537	0.029	337.26	1	p<0.001	1.711
Full-time self-employed by Divorced	-0.374	0.018	431.51	1	p<0.001	0.688

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Part-time self-employed by Married	0.599	0.021	802.59	1	p<0.001	1.820
Part-time self-employed by Cohabiting	-0.659	0.031	446.04	1	p<0.001	0.518
Part-time self-employed by Widowed	1.451	0.035	1,727.49	1	p<0.001	4.267
Part-time self-employed by Separated	-0.185	0.033	31.67	1	p<0.001	0.831
Unemployed by Married	0.155	0.017	81.82	1	p<0.001	1.167
Unemployed by Cohabiting	-1.243	0.031	1,623.92	1	p<0.001	0.288
Unemployed by Divorced	-1.247	0.026	2,233.98	1	p<0.001	0.287
Student by Married	0.695	0.038	326.85	1	p<0.001	2.004
Student by Cohabiting	0.951	0.039	582.20	1	p<0.001	2.589
Student by Separated	1.777	0.054	1,082.48	1	p<0.001	5.913
Looking after family/home by Married	1.959	0.036	3,042.78	1	p<0.001	7.093
Looking after family/home by Cohabiting	1.761	0.037	2,239.03	1	p<0.001	5.817
Looking after family/home by Widowed	3.238	0.045	5,077.65	1	p<0.001	**
Looking after family/home by Separated	2.495	0.043	3,415.72	1	p<0.001	**
Looking after family/home by Divorced	1.446	0.047	945.58	1	p<0.001	4.247
Permanently sick/disabled by Married	0.374	0.019	386.50	1	p<0.001	1.454
Permanently sick/disabled by Cohabiting	0.913	0.022	1,757.46	1	p<0.001	2.493
Permanently sick/disabled by Widowed	0.722	0.038	366.31	1	p<0.001	2.059
Permanently sick/disabled by Divorced	0.666	0.023	825.12	1	p<0.001	1.947
Temporarily sick/disabled by Married	-2.072	0.036	3,232.20	1	p<0.001	0.126
Other inactive by Married	0.885	0.030	898.29	1	p<0.001	2.424
Other inactive by Cohabiting	0.662	0.035	362.87	1	p<0.001	1.939
Other inactive by Separated	1.025	0.054	356.73	1	p<0.001	2.787
Other inactive by Divorced	1.494	0.036	1,682.26	1	p<0.001	4.457
Public sector indicator			320,527.99	2	p<0.001	
Sector not given	-0.875	0.003	66,573.66	1	p<0.001	0.417
Private sector	-0.764	0.001	300,201.30	1	p<0.001	0.466
Banded income			64,439.25	7	p<0.001	
Less than £100	-2.059	0.013	24,754.65	1	p<0.001	0.128
£100 to < £150	-1.565	0.012	16,723.01	1	p<0.001	0.209
£150 to < £200	-2.048	0.011	34,274.59	1	p<0.001	0.129
£200 to < £250	-1.743	0.009	35,828.76	1	p<0.001	0.175
£250 to < £350	-1.775	0.008	44,198.62	1	p<0.001	0.169
£350 to < £450	-1.342	0.009	21,640.75	1	p<0.001	0.261
£450 to < £600	-0.817	0.010	7,094.44	1	p<0.001	0.442
Income by Age			117,958.80	56	p<0.001	
Less than £100 by 20-24	-0.160	0.027	35.21	1	p<0.001	0.852
Less than £100 by 25-29	0.746	0.016	2,310.60	1	p<0.001	2.108

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Less than £100 by 30-34	0.767	0.014	2,975.95	1	p<0.001	2.154
Less than £100 by 35-39	0.432	0.013	1,074.76	1	p<0.001	1.540
Less than £100 by 40-44	-1.185	0.014	7,138.96	1	p<0.001	0.306
Less than £100 by 45-49	-0.648	0.014	2,178.62	1	p<0.001	0.523
Less than £100 by 50-54	-1.055	0.014	5,835.95	1	p<0.001	0.348
£100 to < £150 by 20-24	-0.276	0.021	176.68	1	p<0.001	0.759
£100 to < £150 by 25-29	-0.361	0.016	492.07	1	p<0.001	0.697
£100 to < £150 by 30-34	-0.602	0.015	1,714.07	1	p<0.001	0.547
£100 to < £150 by 35-39	-0.196	0.013	228.00	1	p<0.001	0.822
£100 to < £150 by 40-44	-1.551	0.013	13,794.46	1	p<0.001	0.212
£100 to < £150 by 45-49	-1.215	0.013	8,111.11	1	p<0.001	0.297
£100 to < £150 by 50-54	-1.069	0.013	6,375.08	1	p<0.001	0.343
£150 to < £200 by 20-24	-0.161	0.020	62.03	1	p<0.001	0.852
£150 to < £200 by 25-29	0.354	0.014	608.56	1	p<0.001	1.424
£150 to < £200 by 30-34	-0.039	0.013	8.71	1	0.003	0.962
£150 to < £200 by 35-39	-0.508	0.013	1,645.14	1	p<0.001	0.602
£150 to < £200 by 40-44	-0.793	0.013	3,974.58	1	p<0.001	0.452
£150 to < £200 by 45-49	-0.548	0.013	1,913.12	1	p<0.001	0.578
£150 to < £200 by 50-54	-0.697	0.013	2,969.57	1	p<0.001	0.498
£200 to < £250 by 20-24	-0.349	0.017	428.57	1	p<0.001	0.706
£200 to < £250 by 25-29	-0.036	0.012	8.48	1	0.004	0.965
£200 to < £250 by 30-34	-0.227	0.012	352.34	1	p<0.001	0.797
£200 to < £250 by 35-39	-0.448	0.012	1,483.18	1	p<0.001	0.639
£200 to < £250 by 40-44	-1.163	0.012	10,063.04	1	p<0.001	0.312
£200 to < £250 by 45-49	-0.520	0.012	2,040.19	1	p<0.001	0.595
£200 to < £250 by 50-54	-1.246	0.012	10,512.80	1	p<0.001	0.288
£250 to < £350 by 20-24	0.826	0.015	2,991.25	1	p<0.001	2.285
£250 to < £350 by 25-29	0.420	0.010	1,615.62	1	p<0.001	1.522
£250 to < £350 by 30-34	0.044	0.010	17.65	1	p<0.001	1.045
£250 to < £350 by 35-39	0.071	0.010	47.97	1	p<0.001	1.074
£250 to < £350 by 40-44	-0.513	0.011	2,382.16	1	p<0.001	0.599
£250 to < £350 by 45-49	-0.177	0.010	289.23	1	p<0.001	0.837
£250 to < £350 by 50-54	-0.222	0.011	410.27	1	p<0.001	0.801
£350 to < £450 by 20-24	1.003	0.016	4,034.63	1	p<0.001	2.727
£350 to < £450 by 25-29	0.599	0.011	2,989.21	1	p<0.001	1.821
£350 to < £450 by 30-34	-0.158	0.011	204.69	1	p<0.001	0.854
£350 to < £450 by 35-39	0.083	0.011	59.69	1	p<0.001	1.087
£350 to < £450 by 40-44	-0.514	0.011	2,113.96	1	p<0.001	0.598
£350 to < £450 by 45-49	-0.419	0.011	1,369.78	1	p<0.001	0.658
£350 to < £450 by 50-54	-0.179	0.012	235.77	1	p<0.001	0.836
£450 to < £600 by 20-24	0.928	0.017	2,989.29	1	p<0.001	2.529
£450 to < £600 by 25-29	0.937	0.012	6,580.28	1	p<0.001	2.552
£450 to < £600 by 30-34	0.172	0.011	225.81	1	p<0.001	1.188
£450 to < £600 by 35-39	0.081	0.011	50.12	1	p<0.001	1.084
£450 to < £600 by 40-44	-0.167	0.012	194.80	1	p<0.001	0.846
£450 to < £600 by 45-49	0.280	0.012	514.27	1	p<0.001	1.323
£450 to < £600 by 50-54	-0.084	0.013	43.33	1	p<0.001	0.920
Economic activity by Banded income			134,689.79	69	p<0.001	
Part-time employee by Less than £100	-0.479	0.012	1,720.36	1	p<0.001	0.620
Part-time employee by £100 to < £150	-0.163	0.010	246.97	1	p<0.001	0.850

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Part-time employee by £150 to < £200	0.518	0.009	3,385.10	1	p<0.001	1.678
Part-time employee by £200 to < £250	0.860	0.008	11,228.75	1	p<0.001	2.364
Part-time employee by £250 to < £350	0.664	0.007	7,846.66	1	p<0.001	1.942
Part-time employee by £350 to < £450	0.589	0.008	5,721.21	1	p<0.001	1.803
Part-time employee by £450 to < £600	0.512	0.009	3,513.73	1	p<0.001	1.669
Full-time self-employed by Less than £100	0.886	0.016	3,214.75	1	p<0.001	2.426
Full-time self-employed by £100 to < £150	0.472	0.020	541.83	1	p<0.001	1.604
Full-time self-employed by £150 to < £200	1.342	0.017	6,307.99	1	p<0.001	3.828
Full-time self-employed by £200 to < £250	0.590	0.016	1,354.00	1	p<0.001	1.803
Full-time self-employed by £250 to < £350	1.532	0.013	13,656.23	1	p<0.001	4.628
Full-time self-employed by £350 to < £450	0.749	0.015	2,508.62	1	p<0.001	2.115
Full-time self-employed by £450 to < £600	-0.478	0.014	1,131.64	1	p<0.001	0.620
Part-time self-employed by Less than £100	0.386	0.019	428.25	1	p<0.001	1.471
Part-time self-employed by £100 to < £150	1.215	0.017	5,118.93	1	p<0.001	3.370
Part-time self-employed by £150 to < £200	1.980	0.017	13,045.55	1	p<0.001	7.245
Part-time self-employed by £200 to < £250	0.970	0.021	2,175.78	1	p<0.001	2.638
Part-time self-employed by £250 to < £350	1.214	0.017	5,028.60	1	p<0.001	3.366
Part-time self-employed by £350 to < £450	1.581	0.018	7,901.31	1	p<0.001	4.859
Part-time self-employed by £450 to < £600	1.836	0.023	6,426.62	1	p<0.001	6.273
Retired by Less than £100	2.052	0.040	2,664.28	1	p<0.001	7.783
Retired by £150 to < £200	1.890	0.048	1,543.74	1	p<0.001	6.622
Retired by £200 to < £250	2.796	0.045	3,911.97	1	p<0.001	**
Retired by £350 to < £450	1.889	0.069	759.77	1	p<0.001	6.615
Looking after family/home by Less than £100	0.983	0.021	2,198.84	1	p<0.001	2.672
Looking after family/home by £100 to < £150	1.357	0.023	3,373.08	1	p<0.001	3.884
Looking after family/home by £150 to < £200	2.261	0.022	10,472.83	1	p<0.001	9.588
Looking after family/home by £200 to < £250	0.745	0.031	564.57	1	p<0.001	2.107
Looking after family/home by £250 to < £350	0.380	0.028	184.48	1	p<0.001	1.463

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Looking after family/home by £450 to < £600	0.458	0.029	254.91	1	p<0.001	1.581
Permanently sick/disabled by Less than £100	0.906	0.030	893.76	1	p<0.001	2.474
Permanently sick/disabled by £100 to < £150	-0.775	0.036	453.53	1	p<0.001	0.461
Permanently sick/disabled by £150 to < £200	0.082	0.033	6.16	1	0.013	1.086
Permanently sick/disabled by £200 to < £250	0.174	0.033	26.93	1	p<0.001	1.190
Permanently sick/disabled by £350 to < £450	-1.199	0.043	786.35	1	p<0.001	0.301
Permanently sick/disabled by £450 to < £600	0.160	0.035	21.15	1	p<0.001	1.173
Constant	2.709	0.009	82,750.78	1	p<0.001	**

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.3a: Odds ratios of making personal pension contributions for men aged 16-64 in the UK (2009-2010)

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Age			458,566.18	9	p<0.001	
16-19	-5.79	0.043	17,958.58	1	p<0.001	0.003
20-24	-3.566	0.009	142,401.19	1	p<0.001	0.028
25-29	-2.191	0.005	198,913.75	1	p<0.001	0.112
30-34	-1.365	0.004	126,884.31	1	p<0.001	0.255
35-39	-0.637	0.003	39,897.65	1	p<0.001	0.529
40-44	-0.263	0.003	8,208.16	1	p<0.001	0.769
45-49	-0.203	0.003	5,080.34	1	p<0.001	0.816
50-54	-0.18	0.003	3,897.97	1	p<0.001	0.835
55-59	0.022	0.003	60.03	1	p<0.001	1.022
60-64[1]						
Legal marital status			14,831.60	5	p<0.001	
Married	0.094	0.002	1,430.14	1	p<0.001	1.098
Cohabiting	-0.126	0.003	1,704.81	1	p<0.001	0.881
Single[2]						
Widowed	-0.131	0.008	257.92	1	p<0.001	0.877
Separated	0.133	0.005	635.01	1	p<0.001	1.142
Divorced	-0.201	0.004	2,261.45	1	p<0.001	0.818
Age completed full-time education			14,224.66	5	p<0.001	
16 or under	-0.193	0.002	6,347.77	1	p<0.001	0.825
17-18	-0.025	0.003	86.67	1	p<0.001	0.976
19-21	-0.011	0.003	13.15	1	p<0.001	0.989
22-25[3]						
26 and over	-0.105	0.007	224.04	1	p<0.001	0.9
Not given	-0.047	0.005	77.79	1	p<0.001	0.954
Housing tenure			3,144.93	4	p<0.001	
Owns outright[5]						
Buying with mortgage	-0.014	0.002	58.33	1	p<0.001	0.986
Part owns, part rents	-0.465	0.014	1,053.63	1	p<0.001	0.628
Rents	0.027	0.002	231.25	1	p<0.001	1.027
Rent-free	0.228	0.006	1,526.14	1	p<0.001	1.256
Economic activity			395,740.08	10	p<0.001	
Full-time employee[4]						
Part-time employee	-0.337	0.004	6,105.63	1	p<0.001	0.714
Full-time self-employed	1.031	0.002	268,017.37	1	p<0.001	2.802
Part-time self-employed	0.365	0.005	5,077.96	1	p<0.001	1.441
Unemployed	-0.427	0.005	8,297.70	1	p<0.001	0.652
Retired	-0.359	0.006	4,208.68	1	p<0.001	0.698
Student	-0.21	0.012	308.44	1	p<0.001	0.811
Looking after family/home	-0.579	0.013	1,852.02	1	p<0.001	0.56
Permanently sick/disabled	-0.955	0.006	29,846.39	1	p<0.001	0.385
Temporarily sick/disabled	-1.046	0.014	5,632.34	1	p<0.001	0.351
Other inactive	-0.464	0.007	5,084.81	1	p<0.001	0.629
Public sector			87,970.34	2	p<0.001	
Not given	0.206	0.004	2,615.83	1	p<0.001	1.229
Private sector	0.644	0.002	76,508.95	1	p<0.001	1.905
Public sector[6]						
Gross weekly income			57,698.21	7	p<0.001	

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Less than £100	0.082	0.003	622.74	1	p<0.001	1.086
£100 to < £150	-0.243	0.004	3,501.04	1	p<0.001	0.784
£150 to < £200	-0.449	0.004	11,237.74	1	p<0.001	0.639
£200 to < £250	-0.388	0.004	11,779.35	1	p<0.001	0.678
£250 to < £350	-0.395	0.003	24,186.11	1	p<0.001	0.674
£350 to < £450	-0.344	0.002	19,804.33	1	p<0.001	0.709
£450 to < £600	-0.054	0.002	654.61	1	p<0.001	0.948
£600 and over[7]						
Cares for children aged 0-4	0.136	0.003	2,920.68	1	p<0.001	1.146
Cares for adults	0.233	0.005	2,140.98	1	p<0.001	1.263
Constant	-1.947	0.007	69,912.49	1	p<0.001	0.143

Notes: N=15,678

[1]The 60-64 age group has been held as the reference category for the age variable

[2]The 'single' category has been held as the reference category for the marital status variable.

[3]The '22-25' category has been held as the reference category for the age completed full-time education variable

[4]The 'full-time employee' category has been held as the reference category for the economic activity category

[5]The 'owns outright' category has been held for the reference category for the housing tenure variable

[6]The 'public sector' category has been held for the reference category for the public-sector variable

[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

Source: Family Resources Survey, 2009-2010

Table A6.3b Selected model for UK men aged 16-64 making personal pension contributions in 2009-2010 – significant predictors only

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Age			40,974.00	9	p<0.001	
25-29	-2.540	0.018	19,200.91	1	p<0.001	0.079
30-34	-1.349	0.012	11,997.49	1	p<0.001	0.259
35-39	-0.483	0.011	1,929.75	1	p<0.001	0.617
40-44	-0.262	0.011	573.67	1	p<0.001	0.769
45-49	0.040	0.011	13.42	1	p<0.001	1.041
50-54	-0.225	0.012	381.64	1	p<0.001	0.799
55-59	-0.373	0.012	993.26	1	p<0.001	0.689
Marital status			21,821.74	5	p<0.001	
Married	0.021	0.008	6.61	1	0.0101	1.021
Cohabiting	-0.224	0.010	512.78	1	p<0.001	0.799
Widowed	-0.983	0.033	875.65	1	p<0.001	0.374
Separated	1.811	0.017	11,969.43	1	p<0.001	6.119
Divorced	-1.117	0.018	3,925.35	1	p<0.001	0.327
Age left education			3,191.94	5	p<0.001	
16 or under	-0.467	0.013	1,266.16	1	p<0.001	0.627
17-18	-0.361	0.015	615.27	1	p<0.001	0.697
19-21	-0.269	0.016	285.72	1	p<0.001	0.764
26 and over	-3.322	0.071	2,199.07	1	p<0.001	0.036
Age by Age left education			54,422.35	45	p<0.001	
25-29 by 16 or under	0.530	0.018	864.27	1	p<0.001	1.699
25-29 by 17-18	-0.554	0.021	675.85	1	p<0.001	0.574
25-29 by 19-21	0.506	0.020	663.77	1	p<0.001	1.658
30-34 by 16 or under	0.317	0.013	604.74	1	p<0.001	1.373
30-34 by 17-18	0.364	0.014	668.11	1	p<0.001	1.439
30-34 by 19-21	-0.233	0.015	233.09	1	p<0.001	0.792
30-34 by 26 and over	3.267	0.062	2,797.04	1	p<0.001	**
35-39 by 16 or under	0.105	0.011	86.24	1	p<0.001	1.110
35-39 by 17-18	0.071	0.012	32.84	1	p<0.001	1.074
35-39 by 19-21	-0.260	0.014	367.64	1	p<0.001	0.771
35-39 by 26 and over	2.665	0.061	1,915.80	1	p<0.001	**
40-44 by 16 or under	0.280	0.011	642.04	1	p<0.001	1.323
40-44 by 17-18	0.362	0.012	890.62	1	p<0.001	1.436
40-44 by 19-21	0.061	0.013	21.22	1	p<0.001	1.063
40-44 by 26 and over	2.322	0.062	1,404.74	1	p<0.001	**
45-49 by 17-18	-0.154	0.012	159.36	1	p<0.001	0.857
45-49 by 19-21	-0.628	0.013	2,215.19	1	p<0.001	0.533
45-49 by 26 and over	1.563	0.063	618.45	1	p<0.001	4.775
50-54 by 16 or under	0.211	0.012	333.04	1	p<0.001	1.235
50-54 by 17-18	0.092	0.013	51.86	1	p<0.001	1.096
50-54 by 19-21	0.047	0.014	11.68	1	p<0.001	1.048
50-54 by 26 and over	2.050	0.063	1,055.41	1	p<0.001	7.767
55-59 by 16 or under	0.546	0.012	2,091.93	1	p<0.001	1.726
55-59 by 17-18	0.857	0.013	4,331.63	1	p<0.001	2.357
55-59 by 19-21	0.200	0.014	204.96	1	p<0.001	1.222
55-59 by 26 and over	3.754	0.063	3,508.81	1	p<0.001	42.682
Marital status by Age left education			38,728.93	24	p<0.001	

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Married by 16 or under	-0.069	0.009	64.04	1	p<0.001	0.934
Married by 17-18	-0.058	0.010	36.62	1	p<0.001	0.944
Married by 19-21	0.322	0.011	903.20	1	p<0.001	1.380
Married by 26 and over	0.983	0.041	586.45	1	p<0.001	2.672
Married by Not given	1.111	0.030	1,362.28	1	p<0.001	3.039
Cohabiting by 16 or under	-0.032	0.011	8.92	1	0.003	0.969
Cohabiting by 17-18	0.112	0.012	91.96	1	p<0.001	1.118
Cohabiting by 19-21	0.435	0.013	1,123.27	1	p<0.001	1.544
Cohabiting by 26 and over	1.860	0.043	1,836.44	1	p<0.001	6.424
Cohabiting by Not given	1.181	0.031	1,427.55	1	p<0.001	3.259
Widowed by 16 or under	1.129	0.034	1,094.18	1	p<0.001	3.093
Widowed by 17-18	-0.131	0.039	11.23	1	p<0.001	0.878
Widowed by 19-21	0.658	0.049	183.83	1	p<0.001	1.932
Separated by 16 or under	-1.914	0.019	10,660.62	1	p<0.001	0.148
Separated by 17-18	-1.997	0.023	7,636.27	1	p<0.001	0.136
Separated by 19-21	-3.285	0.030	11,674.02	1	p<0.001	0.037
Separated by Not given	-0.638	0.040	251.39	1	p<0.001	0.528
Divorced by 16 or under	0.744	0.018	1,699.96	1	p<0.001	2.104
Divorced by 17-18	0.880	0.020	1,965.74	1	p<0.001	2.411
Divorced by 19-21	0.478	0.023	427.21	1	p<0.001	1.613
Divorced by 26 and over	4.648	0.079	3,492.62	1	p<0.001	**
Divorced by Not given	3.074	0.041	5,706.99	1	p<0.001	**
Economic activity			25,936.65	10	p<0.001	
Part-time employee	-0.418	0.023	332.68	1	p<0.001	0.659
Full-time self-employed	1.730	0.011	23,365.83	1	p<0.001	5.640
Part-time self-employed	-0.332	0.029	131.60	1	p<0.001	0.717
Retired	-0.100	0.025	16.72	1	p<0.001	0.904
Economic activity by Age			53,714.43	86	p<0.001	
Part-time employee by 35-39	0.589	0.018	1,070.62	1	p<0.001	1.803
Part-time employee by 40-44	0.522	0.015	1,258.11	1	p<0.001	1.686
Part-time employee by 45-49	0.134	0.016	70.81	1	p<0.001	1.144
Part-time employee by 50-54	0.429	0.015	773.32	1	p<0.001	1.535
Part-time employee by 55-59	0.264	0.014	358.94	1	p<0.001	1.302
Full-time self-employed by 25-29	0.846	0.013	4,445.01	1	p<0.001	2.330
Full-time self-employed by 30-34	0.038	0.010	13.52	1	p<0.001	1.039
Full-time self-employed by 35-39	0.145	0.009	276.93	1	p<0.001	1.156
Full-time self-employed by 40-44	-0.175	0.008	485.12	1	p<0.001	0.839
Full-time self-employed by 45-49	-0.109	0.008	187.15	1	p<0.001	0.897
Full-time self-employed by 50-54	0.306	0.008	1,402.79	1	p<0.001	1.358
Full-time self-employed by 55-59	0.504	0.008	3,682.91	1	p<0.001	1.655
Part-time self-employed by 30-34	1.992	0.029	4,716.00	1	p<0.001	7.328
Part-time self-employed by 35-39	1.624	0.023	5,016.54	1	p<0.001	5.074
Part-time self-employed by 40-44	0.290	0.024	150.34	1	p<0.001	1.337

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Part-time self-employed by 45-49	0.924	0.020	2,078.79	1	p<0.001	2.518
Part-time self-employed by 50-54	0.836	0.021	1,530.98	1	p<0.001	2.307
Part-time self-employed by 55-59	1.100	0.017	4,226.77	1	p<0.001	3.004
Unemployed by 20-24	1.470	0.174	71.36	1	p<0.001	4.350
Unemployed by 25-29	-2.778	0.055	2,592.16	1	p<0.001	0.062
Unemployed by 30-34	1.293	0.025	2,650.92	1	p<0.001	3.644
Unemployed by 35-39	-1.308	0.026	2,568.30	1	p<0.001	0.270
Unemployed by 40-44	-0.042	0.018	5.32	1	0.021	0.959
Unemployed by 45-49	0.177	0.018	98.11	1	p<0.001	1.193
Unemployed by 50-54	-0.645	0.019	1,132.53	1	p<0.001	0.525
Unemployed by 55-59	0.376	0.018	445.48	1	p<0.001	1.456
Retired by 50-54	-0.916	0.032	818.71	1	p<0.001	0.400
Retired by 55-59	0.236	0.014	284.35	1	p<0.001	1.266
Permanently sick/disabled by 35-39	0.701	0.023	893.83	1	p<0.001	2.015
Permanently sick/disabled by 40-44	0.555	0.019	818.27	1	p<0.001	1.742
Permanently sick/disabled by 45-49	0.573	0.016	1,347.30	1	p<0.001	1.773
Permanently sick/disabled by 50-54	0.297	0.016	349.45	1	p<0.001	1.346
Permanently sick/disabled by 55-59	0.560	0.014	1,493.44	1	p<0.001	1.751
Temporarily sick/disabled by 50-54	0.718	0.049	214.06	1	p<0.001	2.050
Temporarily sick/disabled by 55-59	1.140	0.048	573.03	1	p<0.001	3.127
Other inactive by 35-39	-0.821	0.033	607.86	1	p<0.001	0.440
Other inactive by 40-44	-1.001	0.026	1,472.40	1	p<0.001	0.367
Other inactive by 45-49	-2.233	0.034	4,190.22	1	p<0.001	0.107
Other inactive by 50-54	-0.169	0.023	55.51	1	p<0.001	0.844
Other inactive by 55-59	-0.484	0.024	406.33	1	p<0.001	0.616
Economic activity by Marital status			42,624.56	47	p<0.001	
Part-time employee by Married	-0.169	0.015	130.29	1	p<0.001	0.844
Part-time employee by Cohabiting	0.278	0.019	209.95	1	p<0.001	1.320
Part-time employee by Widowed	1.450	0.045	1,022.59	1	p<0.001	4.265
Part-time employee by Separated	1.237	0.024	2,767.93	1	p<0.001	3.444
Part-time employee by Divorced	-0.215	0.024	77.67	1	p<0.001	0.807
Full-time self-employed by Married	-0.135	0.007	404.70	1	p<0.001	0.874
Full-time self-employed by Cohabiting	-0.604	0.008	5,292.57	1	p<0.001	0.547

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Full-time self-employed by Widowed	1.682	0.029	3,292.88	1	p<0.001	5.376
Full-time self-employed by Separated	0.324	0.016	416.15	1	p<0.001	1.382
Full-time self-employed by Divorced	-0.263	0.012	473.54	1	p<0.001	0.769
Part-time self-employed by Married	-0.108	0.019	32.37	1	p<0.001	0.898
Part-time self-employed by Cohabiting	0.227	0.024	86.23	1	p<0.001	1.255
Part-time self-employed by Widowed	0.129	0.062	4.39	1	0.036	1.138
Part-time self-employed by Divorced	-0.222	0.031	51.51	1	p<0.001	0.801
Unemployed by Married	-0.055	0.011	25.47	1	p<0.001	0.947
Unemployed by Cohabiting	-1.047	0.018	3,518.31	1	p<0.001	0.351
Unemployed by Divorced	-0.300	0.021	201.67	1	p<0.001	0.741
Retired by Married	0.119	0.017	49.30	1	p<0.001	1.127
Retired by Cohabiting	-1.473	0.048	925.04	1	p<0.001	0.229
Retired by Widowed	-0.749	0.040	351.79	1	p<0.001	0.473
Retired by Divorced	1.582	0.022	5,028.00	1	p<0.001	4.865
Permanently sick/disabled by Married	0.927	0.013	4,819.48	1	p<0.001	2.526
Permanently sick/disabled by Cohabiting	1.087	0.018	3,454.72	1	p<0.001	2.965
Permanently sick/disabled by Widowed	0.759	0.031	592.21	1	p<0.001	2.137
Permanently sick/disabled by Separated	-0.169	0.034	25.00	1	p<0.001	0.844
Permanently sick/disabled by Divorced	0.811	0.018	2,066.16	1	p<0.001	2.250
Temporarily sick/disabled by Married	-0.435	0.050	75.25	1	p<0.001	0.647
Other inactive by Married	-0.324	0.018	325.64	1	p<0.001	0.723
Other inactive by Cohabiting	0.289	0.022	169.53	1	p<0.001	1.335
Other inactive by Separated	0.456	0.042	119.09	1	p<0.001	1.577
Economic activity by Age left education			50,245.50	49	p<0.001	
Part-time employee by 16 or under	0.440	0.016	762.69	1	p<0.001	1.552
Part-time employee by 17-18	0.136	0.018	58.69	1	p<0.001	1.145
Part-time employee by 19-21	0.220	0.019	131.58	1	p<0.001	1.247
Full-time self-employed by 16 or under	-0.254	0.007	1,387.30	1	p<0.001	0.776
Full-time self-employed by 17-18	-0.138	0.007	348.66	1	p<0.001	0.871
Full-time self-employed by 19-21	-0.291	0.008	1,183.56	1	p<0.001	0.747
Full-time self-employed by 26 and over	-1.087	0.030	1,308.61	1	p<0.001	0.337
Full-time self-employed by Not given	-2.977	0.023	16,687.25	1	p<0.001	0.051
Part-time self-employed by 16 or under	0.876	0.019	2,190.66	1	p<0.001	2.402

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Part-time self-employed by 17-18	0.066	0.022	9.09	1	0.003	1.069
Part-time self-employed by 19-21	-0.659	0.028	557.36	1	p<0.001	0.517
Part-time self-employed by 26 and over	3.791	0.059	4,127.01	1	p<0.001	**
Unemployed by 17-18	-0.930	0.022	1,823.04	1	p<0.001	0.394
Unemployed by 19-21	0.551	0.022	603.77	1	p<0.001	1.736
Unemployed by 26 and over	3.459	0.129	715.26	1	p<0.001	**
Retired by 16 or under	-0.040	0.019	4.42	1	0.036	0.961
Retired by 17-18	-0.627	0.021	851.71	1	p<0.001	0.534
Retired by 19-21	-0.398	0.022	323.07	1	p<0.001	0.671
Retired by 26 and over	1.839	0.087	449.12	1	p<0.001	6.292
Looking after family/home by 16 or under	-3.118	0.076	1,700.86	1	p<0.001	0.044
Permanently sick/disabled by 16 or under	0.419	0.026	266.62	1	p<0.001	1.521
Permanently sick/disabled by 17-18	0.157	0.027	34.47	1	p<0.001	1.171
Permanently sick/disabled by 19-21	0.863	0.029	897.96	1	p<0.001	2.369
Other inactive by 16 or under	-1.526	0.024	3,996.52	1	p<0.001	0.217
Other inactive by 17-18	-1.775	0.026	4,671.04	1	p<0.001	0.169
Other inactive by 19-21	-1.149	0.029	1,539.67	1	p<0.001	0.317
Public sector indicator			89,933.25	2	p<0.001	
Sector not given	0.173	0.004	1,581.52	1	p<0.001	1.189
Private sector	0.667	0.002	77,609.52	1	p<0.001	1.948
Banded income			10,475.27	7	p<0.001	
£100 to < £150	0.376	0.022	299.87	1	p<0.001	1.456
£150 to < £200	-0.072	0.024	9.43	1	0.002	0.930
£200 to < £250	0.653	0.016	1,767.35	1	p<0.001	1.921
£250 to < £350	-0.773	0.013	3,718.51	1	p<0.001	0.462
£350 to < £450	-0.659	0.012	2,845.66	1	p<0.001	0.517
£450 to < £600	0.102	0.010	107.98	1	p<0.001	1.107
Income by Age			80,752.64	62	p<0.001	
Less than £100 by 20-24	-2.598	0.179	211.24	1	p<0.001	0.074
Less than £100 by 25-29	0.227	0.023	101.09	1	p<0.001	1.255
Less than £100 by 30-34	-1.820	0.023	6,125.49	1	p<0.001	0.162
Less than £100 by 35-39	-0.823	0.015	3,016.20	1	p<0.001	0.439
Less than £100 by 40-44	-0.390	0.014	818.47	1	p<0.001	0.677
Less than £100 by 45-49	-0.454	0.014	1,101.97	1	p<0.001	0.635
Less than £100 by 50-54	-0.165	0.013	157.28	1	p<0.001	0.848
Less than £100 by 55-59	-0.469	0.012	1,408.41	1	p<0.001	0.626
£100 to < £150 by 25-29	0.582	0.023	639.02	1	p<0.001	1.789
£100 to < £150 by 30-34	-1.093	0.025	1,884.33	1	p<0.001	0.335
£100 to < £150 by 35-39	-1.310	0.023	3,314.25	1	p<0.001	0.270
£100 to < £150 by 40-44	-0.299	0.016	354.75	1	p<0.001	0.741
£100 to < £150 by 45-49	0.462	0.015	908.00	1	p<0.001	1.587
£100 to < £150 by 50-54	0.082	0.017	24.20	1	p<0.001	1.086
£100 to < £150 by 55-59	-0.068	0.016	18.89	1	p<0.001	0.934
£150 to < £200 by 30-34	-1.439	0.025	3,199.58	1	p<0.001	0.237
£150 to < £200 by 35-39	-1.322	0.018	5,615.21	1	p<0.001	0.266

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£150 to < £200 by 40-44	-1.868	0.018	11,300.18	1	p<0.001	0.154
£150 to < £200 by 45-49	-0.785	0.016	2,305.10	1	p<0.001	0.456
£150 to < £200 by 50-54	-0.252	0.016	242.09	1	p<0.001	0.778
£150 to < £200 by 55-59	-0.565	0.016	1,315.73	1	p<0.001	0.568
£200 to < £250 by 25-29	-0.911	0.024	1,482.78	1	p<0.001	0.402
£200 to < £250 by 30-34	-1.735	0.022	6,478.54	1	p<0.001	0.176
£200 to < £250 by 35-39	-1.281	0.016	6,586.05	1	p<0.001	0.278
£200 to < £250 by 40-44	-1.042	0.014	5,448.46	1	p<0.001	0.353
£200 to < £250 by 45-49	-0.525	0.013	1,547.75	1	p<0.001	0.592
£200 to < £250 by 50-54	-0.757	0.015	2,542.86	1	p<0.001	0.469
£200 to < £250 by 55-59	-0.847	0.014	3,692.09	1	p<0.001	0.429
£250 to < £350 by 20-24	-0.171	0.046	13.73	1	p<0.001	0.843
£250 to < £350 by 25-29	-1.191	0.023	2,758.07	1	p<0.001	0.304
£250 to < £350 by 30-34	-0.356	0.014	650.25	1	p<0.001	0.700
£250 to < £350 by 35-39	-0.375	0.011	1,084.42	1	p<0.001	0.687
£250 to < £350 by 45-49	0.311	0.010	903.48	1	p<0.001	1.365
£250 to < £350 by 50-54	0.136	0.011	162.25	1	p<0.001	1.145
£250 to < £350 by 55-59	0.102	0.010	95.43	1	p<0.001	1.107
£350 to < £450 by 20-24	-0.726	0.050	214.00	1	p<0.001	0.484
£350 to < £450 by 25-29	-0.217	0.016	185.96	1	p<0.001	0.805
£350 to < £450 by 30-34	-0.521	0.012	1,807.94	1	p<0.001	0.594
£350 to < £450 by 35-39	-0.060	0.010	34.94	1	p<0.001	0.942
£350 to < £450 by 40-44	-0.589	0.010	3,612.74	1	p<0.001	0.555
£350 to < £450 by 45-49	-0.145	0.010	222.33	1	p<0.001	0.865
£350 to < £450 by 50-54	-0.699	0.010	4,774.77	1	p<0.001	0.497
£350 to < £450 by 55-59	-1.110	0.011	9,927.36	1	p<0.001	0.330
£450 to < £600 by 25-29	0.371	0.014	715.49	1	p<0.001	1.450
£450 to < £600 by 35-39	-0.269	0.010	799.10	1	p<0.001	0.764
£450 to < £600 by 40-44	-0.090	0.009	105.04	1	p<0.001	0.914
£450 to < £600 by 45-49	-0.264	0.009	863.51	1	p<0.001	0.768
£450 to < £600 by 50-54	0.165	0.009	326.86	1	p<0.001	1.180
£450 to < £600 by 55-59	-0.325	0.009	1,211.99	1	p<0.001	0.722
Income by Age left education			60,092.90	35	p<0.001	
Less than £100 by 16 or under	0.049	0.013	13.95	1	p<0.001	1.051
Less than £100 by 17-18	0.781	0.014	2,902.00	1	p<0.001	2.183
Less than £100 by 19-21	-0.167	0.016	114.10	1	p<0.001	0.846
Less than £100 by 26 and over	-3.568	0.128	774.83	1	p<0.001	0.028
£100 to < £150 by 16 or under	0.624	0.018	1,153.12	1	p<0.001	1.866
£100 to < £150 by 17-18	0.265	0.020	170.29	1	p<0.001	1.304
£100 to < £150 by 19-21	1.106	0.021	2,804.90	1	p<0.001	3.023
£150 to < £200 by 16 or under	0.770	0.020	1,436.91	1	p<0.001	2.161
£150 to < £200 by 17-18	1.139	0.022	2,717.88	1	p<0.001	3.125
£150 to < £200 by 19-21	0.218	0.025	76.27	1	p<0.001	1.243
£150 to < £200 by 26 and over	-1.356	0.062	475.54	1	p<0.001	0.258
£200 to < £250 by 16 or under	-0.527	0.012	1,819.52	1	p<0.001	0.591
£200 to < £250 by 17-18	-0.073	0.014	28.74	1	p<0.001	0.930
£200 to < £250 by 19-21	-0.256	0.015	274.57	1	p<0.001	0.774
£200 to < £250 by Not given	-1.104	0.033	1,119.39	1	p<0.001	0.332
£250 to < £350 by 16 or under	0.515	0.010	2,519.71	1	p<0.001	1.673
£250 to < £350 by 17-18	0.857	0.011	6,061.31	1	p<0.001	2.357
£250 to < £350 by 19-21	0.705	0.012	3,284.84	1	p<0.001	2.025
£250 to < £350 by 26 and over	0.720	0.031	556.42	1	p<0.001	2.054

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£250 to < £350 by Not given	0.960	0.018	2,809.04	1	p<0.001	2.612
£350 to < £450 by 16 or under	1.101	0.010	11,753.58	1	p<0.001	3.008
£350 to < £450 by 17-18	1.033	0.011	9,029.07	1	p<0.001	2.810
£350 to < £450 by 19-21	0.645	0.012	3,018.03	1	p<0.001	1.906
£350 to < £450 by Not given	-1.258	0.031	1,685.71	1	p<0.001	0.284
£450 to < £600 by 17-18	0.026	0.008	11.53	1	p<0.001	1.027
£450 to < £600 by 19-21	0.095	0.009	116.10	1	p<0.001	1.099
£450 to < £600 by 26 and over	-0.152	0.023	44.11	1	p<0.001	0.859
£450 to < £600 by Not given	-1.746	0.021	7,253.08	1	p<0.001	0.174
Economic activity by Banded income			87,232.41	68	p<0.001	
Part-time employee by Less than £100	0.395	0.018	474.11	1	p<0.001	1.484
Part-time employee by £100 to < £150	-2.648	0.027	9,309.12	1	p<0.001	0.071
Part-time employee by £150 to < £200	-1.004	0.023	1,858.51	1	p<0.001	0.367
Part-time employee by £200 to < £250	0.039	0.017	4.96	1	0.026	1.039
Part-time employee by £250 to < £350	-0.508	0.015	1,097.06	1	p<0.001	0.602
Part-time employee by £350 to < £450	-0.420	0.016	682.32	1	p<0.001	0.657
Part-time employee by £450 to < £600	-0.335	0.016	456.47	1	p<0.001	0.716
Full-time self-employed by Less than £100	-0.355	0.011	957.07	1	p<0.001	0.701
Full-time self-employed by £100 to < £150	-1.735	0.012	22,631.40	1	p<0.001	0.176
Full-time self-employed by £150 to < £200	-0.235	0.013	334.54	1	p<0.001	0.790
Full-time self-employed by £200 to < £250	-0.090	0.009	92.05	1	p<0.001	0.914
Full-time self-employed by £250 to < £350	-0.794	0.007	13,569.75	1	p<0.001	0.452
Full-time self-employed by £350 to < £450	-0.556	0.007	6,987.24	1	p<0.001	0.574
Full-time self-employed by £450 to < £600	-0.146	0.006	614.69	1	p<0.001	0.865
Part-time self-employed by Less than £100	0.129	0.020	42.99	1	p<0.001	1.137
Part-time self-employed by £100 to < £150	-2.129	0.029	5,508.20	1	p<0.001	0.119
Part-time self-employed by £150 to < £200	-0.628	0.023	769.17	1	p<0.001	0.534
Part-time self-employed by £200 to < £250	-0.314	0.023	185.02	1	p<0.001	0.730
Part-time self-employed by £250 to < £350	-1.290	0.025	2,616.42	1	p<0.001	0.275
Part-time self-employed by £350 to < £450	-1.987	0.028	4,973.04	1	p<0.001	0.137
Part-time self-employed by £450 to < £600	0.129	0.020	41.84	1	p<0.001	1.138

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Retired by Less than £100	1.034	0.019	3,058.46	1	p<0.001	2.812
Retired by £100 to < £150	-0.796	0.022	1,257.85	1	p<0.001	0.451
Retired by £150 to < £200	-1.256	0.025	2,593.05	1	p<0.001	0.285
Retired by £200 to < £250	-0.432	0.021	404.16	1	p<0.001	0.649
Retired by £250 to < £350	-0.623	0.018	1,148.57	1	p<0.001	0.536
Retired by £350 to < £450	-1.480	0.025	3,639.23	1	p<0.001	0.228
Retired by £450 to < £600	-2.206	0.037	3,606.88	1	p<0.001	0.110
Constant	-1.530	0.013	14,192.37	1	p<0.001	0.216

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.4a: Odds ratios of making personal pension contributions for women aged 16-59 in the UK (2009-2010)

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Age			233,469.50	8	p<0.001	
16-19	-3.175	0.019	29,324.15	1	p<0.001	0.042
20-24	-3.195	0.01	94,031.84	1	p<0.001	0.041
25-29	-1.943	0.006	116,107.34	1	p<0.001	0.143
30-34	-1.258	0.005	75,034.43	1	p<0.001	0.284
35-39	-0.633	0.004	27,267.53	1	p<0.001	0.531
40-44	-0.408	0.003	13,760.05	1	p<0.001	0.665
45-49	-0.282	0.003	6,909.89	1	p<0.001	0.754
50-54	-0.21	0.003	3,689.81	1	p<0.001	0.811
55-59[1]						
Legal marital status			24,643.41	5	p<0.001	
Married	0.208	0.004	3,539.74	1	p<0.001	1.232
Cohabiting	0.057	0.004	177.55	1	p<0.001	1.058
Single[2]						
Widowed	0.072	0.008	75.22	1	p<0.001	1.075
Separated	-0.567	0.008	5,518.46	1	p<0.001	0.567
Divorced	-0.26	0.005	2,614.35	1	p<0.001	0.771
Age completed full-time education			19,091.92	5	p<0.001	
16 or under	-0.308	0.003	9,761.84	1	p<0.001	0.735
17-18	-0.347	0.004	9,387.50	1	p<0.001	0.707
19-21	-0.153	0.004	1,523.39	1	p<0.001	0.859
22-25[3]						
26 and over	0.324	0.008	1,796.13	1	p<0.001	1.383
Not given	-0.257	0.006	1,794.20	1	p<0.001	0.773
Housing tenure			5,457.97	4	p<0.001	
Owns outright[5]						
Buying with mortgage	0.067	0.002	756.71	1	p<0.001	1.069
Part owns, part rents	-0.722	0.022	1,063.78	1	p<0.001	0.486
Rents	0.004	0.002	2.79	1	0.095	1.004
Rent-free	-0.64	0.011	3,102.12	1	p<0.001	0.527
Economic activity			116,301.19	10	p<0.001	
Full-time employee[4]						
Part-time employee	0.071	0.003	648.30	1	p<0.001	1.073
Full-time self-employed	1.066	0.004	63,738.83	1	p<0.001	2.903
Part-time self-employed	1.01	0.005	47,063.42	1	p<0.001	2.746
Unemployed	0.271	0.007	1,332.86	1	p<0.001	1.312
Retired	0.458	0.009	2,587.68	1	p<0.001	1.58
Student	0.026	0.015	3.19	1	0.074	1.027
Looking after family/home	0.111	0.007	286.20	1	p<0.001	1.118
Permanently sick/disabled	-0.403	0.008	2,843.71	1	p<0.001	0.668
Temporarily sick/disabled	0.46	0.014	1,153.03	1	p<0.001	1.584
Other inactive	0.076	0.008	88.55	1	p<0.001	1.079
Public sector			96,415.47	2	p<0.001	
Not given	-0.067	0.005	178.55	1	p<0.001	0.935
Private sector	0.665	0.002	84,364.98	1	p<0.001	1.945
Public sector[6]						
Gross weekly income			63,964.14	7	p<0.001	
Less than £100	-0.879	0.004	39,631.09	1	p<0.001	0.415
£100 to < £150	-0.68	0.005	22,195.13	1	p<0.001	0.507
£150 to < £200	-0.636	0.004	21,295.17	1	p<0.001	0.529
£200 to < £250	-0.709	0.004	28,204.99	1	p<0.001	0.492

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
£250 to < £350	-0.612	0.003	32,550.76	1	p<0.001	0.542
£350 to < £450	-0.592	0.004	26,232.46	1	p<0.001	0.553
£450 to < £600	-0.269	0.003	5,916.95	1	p<0.001	0.764
£600 and over[7]						
Cares for children aged 0-4	-0.187	0.003	3,147.22	1	p<0.001	0.829
Cares for adults	1.139	0.01	14,030.45	1	p<0.001	3.125
Constant	-2.645	0.012	51,274.49	1	p<0.001	0.071

Notes: N=15,678

[1]The 60-64 age group has been held as the reference category for the age variable

[2]The 'single' category has been held as the reference category for the marital status variable.

[3]The '22-25' category has been held as the reference category for the age completed full-time education variable

[4]The 'full-time employee' category has been held as the reference category for the economic activity category

[5]The 'owns outright' category has been held for the reference category for the housing tenure variable

[6]The 'public sector' category has been held for the reference category for the public-sector variable

[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

Source: Family Resources Survey, 2009-2010

Table A6.4b Selected model for UK women aged 16-59 making personal pension contributions in 2009-2010 – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Age			20,761.82	8	p<0.001	
25-29	-3.206	0.027	13,664.70	1	p<0.001	0.041
30-34	-1.823	0.021	7,457.94	1	p<0.001	0.162
35-39	-1.146	0.019	3,633.83	1	p<0.001	0.318
40-44	-0.672	0.019	1,251.91	1	p<0.001	0.511
45-49	-0.415	0.018	506.71	1	p<0.001	0.661
50-54	-1.432	0.021	4,462.56	1	p<0.001	0.239
Marital status			4,551.41	5	p<0.001	
Married	-0.790	0.013	3,629.34	1	p<0.001	0.454
Cohabiting	-0.467	0.017	724.59	1	p<0.001	0.627
Widowed	-1.086	0.030	1,286.30	1	p<0.001	0.338
Separated	-1.421	0.042	1,117.99	1	p<0.001	0.242
Divorced	-0.808	0.017	2,197.97	1	p<0.001	0.446
Age by Marital status			38,892.30	37	p<0.001	
20-24 by Married	-1.425	0.048	881.09	1	p<0.001	0.241
20-24 by Cohabiting	-1.670	0.034	2,442.57	1	p<0.001	0.188
25-29 by Married	1.437	0.019	5,728.53	1	p<0.001	4.209
25-29 by Cohabiting	1.309	0.022	3,655.83	1	p<0.001	3.702
30-34 by Married	0.648	0.016	1,731.67	1	p<0.001	1.912
30-34 by Cohabiting	0.602	0.019	1,000.68	1	p<0.001	1.825
30-34 by Separated	1.158	0.049	559.71	1	p<0.001	3.185
30-34 by Divorced	-0.258	0.046	31.64	1	p<0.001	0.772
35-39 by Married	0.686	0.015	2,182.19	1	p<0.001	1.987
35-39 by Cohabiting	-0.234	0.020	140.95	1	p<0.001	0.791
35-39 by Separated	1.439	0.044	1,086.16	1	p<0.001	4.216
35-39 by Divorced	1.048	0.022	2,286.83	1	p<0.001	2.852
40-44 by Married	0.531	0.014	1,435.41	1	p<0.001	1.700
40-44 by Cohabiting	-0.080	0.019	18.31	1	p<0.001	0.923
40-44 by Widowed	-0.736	0.071	108.86	1	p<0.001	0.479
40-44 by Separated	0.726	0.044	277.09	1	p<0.001	2.066
40-44 by Divorced	0.724	0.020	1,337.84	1	p<0.001	2.063
45-49 by Married	0.380	0.014	737.23	1	p<0.001	1.462
45-49 by Cohabiting	0.164	0.019	78.07	1	p<0.001	1.178
45-49 by Widowed	1.433	0.031	2,198.75	1	p<0.001	4.192
45-49 by Separated	0.365	0.043	71.09	1	p<0.001	1.441
45-49 by Divorced	0.546	0.019	828.03	1	p<0.001	1.726
50-54 by Married	1.026	0.018	3,298.08	1	p<0.001	2.789
50-54 by Cohabiting	1.165	0.022	2,837.15	1	p<0.001	3.205
50-54 by Widowed	-0.933	0.033	803.09	1	p<0.001	0.393
50-54 by Separated	1.572	0.045	1,223.83	1	p<0.001	4.815
50-54 by Divorced	1.831	0.022	7,240.78	1	p<0.001	6.240
Age left education			7,094.33	5	p<0.001	
16 or under	-0.440	0.010	1,863.95	1	p<0.001	0.644
17-18	-0.415	0.012	1,166.82	1	p<0.001	0.660
19-21	-0.498	0.013	1,472.36	1	p<0.001	0.608
26 and over	1.197	0.025	2,255.83	1	p<0.001	3.311
Not given	-0.991	0.028	1,212.64	1	p<0.001	0.371
Age by Age left education			32,228.35	40	p<0.001	

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
20-24 by 16 or under	1.133	0.046	617.50	1	p<0.001	3.104
20-24 by 17-18	1.492	0.047	1,009.72	1	p<0.001	4.445
20-24 by 26 and over	1.332	0.061	474.95	1	p<0.001	3.790
25-29 by 16 or under	0.513	0.018	846.44	1	p<0.001	1.670
25-29 by 17-18	-0.342	0.022	247.90	1	p<0.001	0.710
25-29 by 19-21	-1.218	0.032	1,458.80	1	p<0.001	0.296
25-29 by Not given	2.431	0.046	2,829.03	1	p<0.001	**
30-34 by 16 or under	0.245	0.014	311.02	1	p<0.001	1.278
30-34 by 17-18	-0.594	0.017	1,229.76	1	p<0.001	0.552
30-34 by 26 and over	-0.248	0.028	80.13	1	p<0.001	0.780
30-34 by Not given	3.313	0.042	6,275.03	1	p<0.001	**
35-39 by 16 or under	-0.356	0.011	987.43	1	p<0.001	0.701
35-39 by 17-18	-0.599	0.013	1,975.03	1	p<0.001	0.549
35-39 by 19-21	-0.069	0.015	22.36	1	p<0.001	0.933
35-39 by 26 and over	-1.823	0.035	2,684.40	1	p<0.001	0.162
40-44 by 17-18	-0.410	0.014	876.14	1	p<0.001	0.664
40-44 by 19-21	-0.057	0.015	13.98	1	p<0.001	0.945
40-44 by 26 and over	-1.123	0.030	1,448.30	1	p<0.001	0.325
40-44 by Not given	0.922	0.031	858.55	1	p<0.001	2.515
45-49 by 16 or under	-0.171	0.012	214.88	1	p<0.001	0.843
45-49 by 17-18	-0.178	0.013	179.66	1	p<0.001	0.837
45-49 by 19-21	0.222	0.014	238.67	1	p<0.001	1.249
45-49 by 26 and over	-1.201	0.037	1,064.03	1	p<0.001	0.301
45-49 by Not given	1.463	0.030	2,417.64	1	p<0.001	4.321
50-54 by 16 or under	-0.146	0.012	153.33	1	p<0.001	0.864
50-54 by 17-18	-0.544	0.014	1,541.07	1	p<0.001	0.580
50-54 by 26 and over	-2.106	0.043	2,417.13	1	p<0.001	0.122
50-54 by Not given	1.172	0.031	1,444.95	1	p<0.001	3.228
Tenure			4,600.65	4	p<0.001	
Buying with mortgage	0.568	0.009	4,452.11	1	p<0.001	1.765
Rents	0.379	0.008	2,024.39	1	p<0.001	1.460
Age by Tenure			23,085.70	32	p<0.001	
20-24 by Buying with mortgage	-0.233	0.023	103.40	1	p<0.001	0.792
20-24 by Rents	-1.716	0.039	1,982.80	1	p<0.001	0.180
25-29 by Buying with mortgage	-0.343	0.014	637.75	1	p<0.001	0.709
25-29 by Rents	-1.021	0.015	4,387.24	1	p<0.001	0.360
30-34 by Buying with mortgage	-0.033	0.011	8.53	1	0.003	0.968
30-34 by Rents	-0.197	0.011	297.39	1	p<0.001	0.821
35-39 by Buying with mortgage	-0.337	0.010	1,169.52	1	p<0.001	0.714
35-39 by Rents	0.291	0.009	962.29	1	p<0.001	1.338
35-39 by Rent-free	0.371	0.046	65.74	1	p<0.001	1.449
40-44 by Buying with mortgage	-0.080	0.009	77.78	1	p<0.001	0.923
40-44 by Rents	-0.177	0.009	382.64	1	p<0.001	0.838
40-44 by Rent-free	-0.397	0.054	53.30	1	p<0.001	0.672
45-49 by Buying with mortgage	-0.382	0.009	1,820.45	1	p<0.001	0.682
45-49 by Rents	-0.450	0.009	2,561.63	1	p<0.001	0.638
45-49 by Rent-free	0.880	0.045	376.28	1	p<0.001	2.410
50-54 by Rents	-0.125	0.009	175.81	1	p<0.001	0.882
50-54 by Rent-free	1.668	0.046	1,331.93	1	p<0.001	5.299
Economic activity			5,383.10	10	p<0.001	
Part-time employee	0.298	0.017	308.17	1	p<0.001	1.347
Full-time self-employed	1.396	0.022	3,882.26	1	p<0.001	4.040

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Part-time self-employed	1.448	0.033	1,871.56	1	p<0.001	4.257
Looking after family/home	-0.100	0.048	4.35	1	0.037	0.905
Permanently sick/disabled	0.469	0.044	112.92	1	p<0.001	1.599
Economic activity by Age			65,407.27	78	p<0.001	
Part-time employee by 20-24	-0.258	0.034	55.84	1	p<0.001	0.773
Part-time employee by 25-29	-0.965	0.019	2,498.94	1	p<0.001	0.381
Part-time employee by 30-34	-0.630	0.014	2,143.81	1	p<0.001	0.533
Part-time employee by 35-39	-0.481	0.011	2,061.31	1	p<0.001	0.618
Part-time employee by 40-44	-0.145	0.010	221.08	1	p<0.001	0.865
Part-time employee by 45-49	-0.290	0.010	884.97	1	p<0.001	0.748
Part-time employee by 50-54	-0.027	0.011	6.63	1	0.010	0.973
Full-time self-employed by 25-29	0.385	0.027	208.50	1	p<0.001	1.469
Full-time self-employed by 30-34	-0.353	0.026	192.01	1	p<0.001	0.702
Full-time self-employed by 35-39	-0.234	0.019	157.08	1	p<0.001	0.791
Full-time self-employed by 40-44	1.068	0.017	4,128.69	1	p<0.001	2.908
Full-time self-employed by 45-49	0.089	0.016	29.81	1	p<0.001	1.093
Full-time self-employed by 50-54	1.819	0.017	11,824.60	1	p<0.001	6.167
Part-time self-employed by 25-29	0.205	0.039	27.42	1	p<0.001	1.228
Part-time self-employed by 30-34	-1.415	0.028	2,561.56	1	p<0.001	0.243
Part-time self-employed by 35-39	-0.039	0.018	4.42	1	0.036	0.962
Part-time self-employed by 40-44	-0.222	0.018	149.70	1	p<0.001	0.801
Part-time self-employed by 45-49	-0.251	0.019	169.66	1	p<0.001	0.778
Part-time self-employed by 50-54	0.120	0.019	41.70	1	p<0.001	1.128
Unemployed by 30-34	-1.962	0.037	2,743.11	1	p<0.001	0.141
Unemployed by 35-39	-1.526	0.026	3,327.44	1	p<0.001	0.217
Unemployed by 40-44	-0.346	0.026	178.86	1	p<0.001	0.707
Unemployed by 45-49	-1.131	0.028	1,602.02	1	p<0.001	0.323
Unemployed by 50-54	0.363	0.027	183.49	1	p<0.001	1.438
Retired by 50-54	0.963	0.025	1,474.24	1	p<0.001	2.618
Looking after family/home by 25-29	-0.576	0.035	264.31	1	p<0.001	0.562
Looking after family/home by 30-34	-0.967	0.026	1,356.79	1	p<0.001	0.380
Looking after family/home by 35-39	-0.464	0.022	437.40	1	p<0.001	0.629
Looking after family/home by 40-44	0.265	0.022	139.68	1	p<0.001	1.303
Looking after family/home by 45-49	0.242	0.024	102.95	1	p<0.001	1.274
Looking after family/home by 50-54	0.326	0.026	152.55	1	p<0.001	1.385
Permanently sick/disabled by 25-29	0.443	0.036	151.36	1	p<0.001	1.557
Permanently sick/disabled by 30-34	1.821	0.023	6,244.22	1	p<0.001	6.177
Permanently sick/disabled by 35-39	0.181	0.022	64.75	1	p<0.001	1.198
Permanently sick/disabled by 40-44	-0.620	0.027	524.79	1	p<0.001	0.538
Permanently sick/disabled by 45-49	0.416	0.020	415.60	1	p<0.001	1.517

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Permanently sick/disabled by 50-54	-0.526	0.025	437.94	1	p<0.001	0.591
Temporarily sick/disabled by 25-29	3.682	0.078	2,225.27	1	p<0.001	**
Temporarily sick/disabled by 45-49	1.782	0.086	425.29	1	p<0.001	5.940
Other inactive by 30-34	-0.248	0.034	53.65	1	p<0.001	0.780
Other inactive by 35-39	-0.921	0.032	818.08	1	p<0.001	0.398
Other inactive by 40-44	-0.775	0.030	647.76	1	p<0.001	0.461
Other inactive by 50-54	0.333	0.027	152.78	1	p<0.001	1.395
Economic activity by Marital status			30,241.50	50	p<0.001	
Part-time employee by Married	0.496	0.012	1,702.32	1	p<0.001	1.642
Part-time employee by Cohabiting	0.787	0.015	2,925.42	1	p<0.001	2.197
Part-time employee by Separated	1.488	0.022	4,591.33	1	p<0.001	4.429
Part-time employee by Divorced	0.357	0.017	456.58	1	p<0.001	1.429
Full-time self-employed by Married	-0.454	0.014	983.20	1	p<0.001	0.635
Full-time self-employed by Cohabiting	-0.109	0.019	31.25	1	p<0.001	0.897
Full-time self-employed by Widowed	1.098	0.044	626.24	1	p<0.001	2.998
Full-time self-employed by Divorced	-0.660	0.022	886.71	1	p<0.001	0.517
Part-time self-employed by Married	0.724	0.025	817.18	1	p<0.001	2.063
Part-time self-employed by Cohabiting	-0.650	0.035	338.37	1	p<0.001	0.522
Part-time self-employed by Widowed	1.122	0.049	525.42	1	p<0.001	3.071
Unemployed by Cohabiting	-1.567	0.040	1,567.18	1	p<0.001	0.209
Unemployed by Divorced	-0.181	0.037	23.90	1	p<0.001	0.834
Student by Married	0.629	0.064	98.06	1	p<0.001	1.876
Student by Separated	0.489	0.083	34.39	1	p<0.001	1.631
Looking after family/home by Married	1.301	0.038	1,197.23	1	p<0.001	3.672
Looking after family/home by Cohabiting	1.148	0.041	766.22	1	p<0.001	3.153
Looking after family/home by Widowed	0.292	0.055	28.03	1	p<0.001	1.339
Looking after family/home by Separated	3.062	0.048	4,004.46	1	p<0.001	**
Permanently sick/disabled by Cohabiting	0.198	0.027	54.00	1	p<0.001	1.219
Permanently sick/disabled by Widowed	-1.919	0.052	1,375.41	1	p<0.001	0.147
Permanently sick/disabled by Divorced	1.246	0.027	2,093.36	1	p<0.001	3.476
Temporarily sick/disabled by Married	-1.241	0.052	565.84	1	p<0.001	0.289
Other inactive by Married	0.534	0.045	138.21	1	p<0.001	1.705
Other inactive by Cohabiting	0.691	0.051	180.35	1	p<0.001	1.997
Other inactive by Divorced	2.404	0.055	1,877.69	1	p<0.001	**

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Economic activity by Age left education			43,768.01	49	p<0.001	
Part-time employee by 16 or under	0.323	0.009	1,240.60	1	p<0.001	1.381
Part-time employee by 17-18	0.469	0.011	1,996.19	1	p<0.001	1.599
Part-time employee by 19-21	0.362	0.012	972.20	1	p<0.001	1.436
Part-time employee by 26 and over	0.702	0.026	754.62	1	p<0.001	2.018
Part-time employee by Not given	1.046	0.018	3,406.15	1	p<0.001	2.847
Full-time self-employed by 16 or under	-0.241	0.014	296.11	1	p<0.001	0.786
Full-time self-employed by 17-18	0.138	0.016	76.00	1	p<0.001	1.148
Full-time self-employed by 19-21	0.103	0.018	32.41	1	p<0.001	1.108
Full-time self-employed by Not given	0.152	0.033	21.24	1	p<0.001	1.164
Part-time self-employed by 16 or under	-0.808	0.016	2,407.49	1	p<0.001	0.446
Part-time self-employed by 17-18	0.131	0.019	48.42	1	p<0.001	1.140
Part-time self-employed by 19-21	-1.722	0.023	5,572.35	1	p<0.001	0.179
Part-time self-employed by Not given	-1.714	0.051	1,128.88	1	p<0.001	0.180
Unemployed by 16 or under	1.846	0.046	1,621.23	1	p<0.001	6.337
Unemployed by 17-18	1.763	0.048	1,338.66	1	p<0.001	5.827
Unemployed by 19-21	1.448	0.049	863.49	1	p<0.001	4.254
Unemployed by Not given	5.189	0.071	5,316.29	1	p<0.001	**
Retired by 16 or under	0.797	0.030	721.98	1	p<0.001	2.219
Retired by 17-18	-0.816	0.045	326.50	1	p<0.001	0.442
Retired by 19-21	-0.090	0.041	4.80	1	0.028	0.914
Looking after family/home by 16 or under	-0.619	0.018	1,179.86	1	p<0.001	0.538
Looking after family/home by 17-18	0.368	0.020	355.25	1	p<0.001	1.445
Looking after family/home by 19-21	-0.535	0.024	499.06	1	p<0.001	0.586
Looking after family/home by 26 and over	-3.175	0.065	2,377.33	1	p<0.001	0.042
Permanently sick/disabled by 16 or under	0.858	0.026	1,116.94	1	p<0.001	2.359
Permanently sick/disabled by 17-18	0.495	0.030	265.53	1	p<0.001	1.640
Permanently sick/disabled by 19-21	1.012	0.029	1,188.12	1	p<0.001	2.752
Permanently sick/disabled by 26 and over	0.637	0.054	137.75	1	p<0.001	1.890
Other inactive by 16 or under	-1.606	0.024	4,359.01	1	p<0.001	0.201
Other inactive by 19-21	-0.524	0.028	341.18	1	p<0.001	0.592
Other inactive by 26 and over	-4.298	0.070	3,814.22	1	p<0.001	0.014
Economic activity by Tenure			29,996.71	38	p<0.001	
Part-time employee by Buying with mortgage	-0.553	0.007	6,297.83	1	p<0.001	0.575
Part-time employee by Rents	-0.642	0.007	8,168.85	1	p<0.001	0.526
Part-time employee by Rent-free	-0.401	0.041	96.49	1	p<0.001	0.670
Full-time self-employed by Buying with mortgage	0.036	0.012	8.81	1	0.003	1.037
Full-time self-employed by Rents	-0.030	0.012	6.53	1	0.011	0.970

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Part-time self-employed by Buying with mortgage	-0.047	0.013	13.40	1	p<0.001	0.954
Part-time self-employed by Rents	-0.698	0.013	2,692.49	1	p<0.001	0.498
Part-time self-employed by Rent-free	-2.465	0.062	1,593.56	1	p<0.001	0.085
Unemployed by Buying with mortgage	-0.865	0.021	1,718.46	1	p<0.001	0.421
Unemployed by Rents	-0.765	0.020	1,505.82	1	p<0.001	0.465
Retired by Buying with mortgage	-0.146	0.030	24.03	1	p<0.001	0.864
Retired by Rents	1.210	0.024	2,528.80	1	p<0.001	3.355
Student by Buying with mortgage	3.451	0.083	1,749.43	1	p<0.001	**
Student by Rents	1.681	0.070	583.83	1	p<0.001	5.370
Looking after family/home by Buying with mortgage	-0.340	0.014	569.52	1	p<0.001	0.712
Looking after family/home by Rents	-0.079	0.014	32.77	1	p<0.001	0.924
Looking after family/home by Rent-free	-0.354	0.063	31.73	1	p<0.001	0.702
Permanently sick/disabled by Buying with mortgage	-1.224	0.017	5,147.54	1	p<0.001	0.294
Permanently sick/disabled by Rents	-0.854	0.016	2,850.78	1	p<0.001	0.426
Temporarily sick/disabled by Buying with mortgage	-0.625	0.070	80.34	1	p<0.001	0.535
Temporarily sick/disabled by Rents	-1.129	0.098	133.26	1	p<0.001	0.323
Other inactive by Buying with mortgage	-0.271	0.022	153.84	1	p<0.001	0.762
Other inactive by Rents	0.377	0.021	317.79	1	p<0.001	1.458
Public sector indicator			94,295.09	2	p<0.001	
Sector not given	-0.031	0.005	31.94	1	p<0.001	0.970
Private sector	0.706	0.002	85,426.37	1	p<0.001	2.025
Banded income			12,149.28	7	p<0.001	
Less than £100	-2.253	0.037	3,793.23	1	p<0.001	0.105
£100 to < £150	-0.824	0.030	735.33	1	p<0.001	0.438
£150 to < £200	-2.797	0.035	6,341.24	1	p<0.001	0.061
£200 to < £250	-0.339	0.025	190.94	1	p<0.001	0.712
£250 to < £350	-1.090	0.018	3,683.40	1	p<0.001	0.336
£350 to < £450	-1.410	0.020	5,041.45	1	p<0.001	0.244
£450 to < £600	-0.784	0.018	1,797.15	1	p<0.001	0.457
Income by Age			67,572.23	56	p<0.001	
Less than £100 by 25-29	1.153	0.031	1,372.06	1	p<0.001	3.167
Less than £100 by 30-34	1.312	0.021	3,853.48	1	p<0.001	3.715
Less than £100 by 35-39	1.883	0.017	12,252.11	1	p<0.001	6.572
Less than £100 by 40-44	0.199	0.017	132.51	1	p<0.001	1.220
Less than £100 by 45-49	0.369	0.018	437.85	1	p<0.001	1.446
Less than £100 by 50-54	-0.302	0.018	272.36	1	p<0.001	0.739
£100 to < £150 by 30-34	0.527	0.021	610.75	1	p<0.001	1.694
£100 to < £150 by 35-39	1.059	0.016	4,219.69	1	p<0.001	2.882
£100 to < £150 by 40-44	-0.622	0.017	1,407.55	1	p<0.001	0.537
£100 to < £150 by 50-54	-0.232	0.017	186.62	1	p<0.001	0.793
£150 to < £200 by 25-29	0.849	0.032	710.65	1	p<0.001	2.337
£150 to < £200 by 30-34	0.361	0.023	239.02	1	p<0.001	1.435

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£150 to < £200 by 35-39	0.702	0.018	1,516.34	1	p<0.001	2.017
£150 to < £200 by 40-44	0.507	0.016	973.42	1	p<0.001	1.661
£150 to < £200 by 45-49	0.251	0.017	222.62	1	p<0.001	1.285
£150 to < £200 by 50-54	0.514	0.017	926.35	1	p<0.001	1.672
£200 to < £250 by 25-29	1.094	0.023	2,174.01	1	p<0.001	2.985
£200 to < £250 by 30-34	-0.322	0.023	202.70	1	p<0.001	0.724
£200 to < £250 by 35-39	0.738	0.016	2,110.98	1	p<0.001	2.093
£200 to < £250 by 40-44	-0.279	0.015	341.52	1	p<0.001	0.756
£200 to < £250 by 45-49	0.148	0.014	106.81	1	p<0.001	1.160
£200 to < £250 by 50-54	-0.096	0.016	35.65	1	p<0.001	0.908
£250 to < £350 by 25-29	0.081	0.022	12.91	1	p<0.001	1.084
£250 to < £350 by 30-34	0.512	0.015	1,159.09	1	p<0.001	1.668
£250 to < £350 by 35-39	0.573	0.014	1,795.78	1	p<0.001	1.774
£250 to < £350 by 40-44	0.383	0.012	1,027.22	1	p<0.001	1.467
£250 to < £350 by 45-49	-0.032	0.012	6.79	1	0.009	0.969
£250 to < £350 by 50-54	0.620	0.013	2,333.30	1	p<0.001	1.858
£350 to < £450 by 25-29	0.938	0.021	1,979.00	1	p<0.001	2.555
£350 to < £450 by 30-34	-0.045	0.018	6.18	1	0.013	0.956
£350 to < £450 by 35-39	0.432	0.015	879.89	1	p<0.001	1.541
£350 to < £450 by 40-44	-0.146	0.014	112.11	1	p<0.001	0.864
£350 to < £450 by 45-49	0.207	0.014	223.13	1	p<0.001	1.230
£350 to < £450 by 50-54	0.654	0.014	2,076.11	1	p<0.001	1.923
£450 to < £600 by 25-29	0.645	0.020	995.98	1	p<0.001	1.906
£450 to < £600 by 30-34	0.131	0.015	76.61	1	p<0.001	1.140
£450 to < £600 by 35-39	-0.279	0.015	352.93	1	p<0.001	0.756
£450 to < £600 by 40-44	-0.331	0.013	634.53	1	p<0.001	0.718
£450 to < £600 by 45-49	0.671	0.012	2,896.32	1	p<0.001	1.956
£450 to < £600 by 50-54	0.032	0.014	5.10	1	0.024	1.033
Banded income by Marital status			42,595.52	35	p<0.001	
Less than £100 by Married	0.736	0.025	836.97	1	p<0.001	2.088
Less than £100 by Cohabiting	0.737	0.029	644.40	1	p<0.001	2.089
Less than £100 by Divorced	0.122	0.039	9.84	1	0.002	1.130
£100 to < £150 by Married	0.475	0.023	419.57	1	p<0.001	1.608
£100 to < £150 by Cohabiting	-0.290	0.030	95.41	1	p<0.001	0.748
£100 to < £150 by Divorced	-1.541	0.042	1,332.75	1	p<0.001	0.214
£150 to < £200 by Married	1.504	0.028	2,920.20	1	p<0.001	4.498
£150 to < £200 by Cohabiting	1.250	0.030	1,684.92	1	p<0.001	3.491
£150 to < £200 by Widowed	5.565	0.047	13,783.68	1	p<0.001	**
£150 to < £200 by Separated	0.341	0.048	50.62	1	p<0.001	1.407
£150 to < £200 by Divorced	-1.160	0.044	693.08	1	p<0.001	0.313
£200 to < £250 by Married	0.924	0.019	2,368.41	1	p<0.001	2.520
£200 to < £250 by Cohabiting	0.983	0.022	2,079.25	1	p<0.001	2.672
£200 to < £250 by Widowed	2.429	0.041	3,479.64	1	p<0.001	**
£200 to < £250 by Separated	0.143	0.041	12.48	1	p<0.001	1.154
£200 to < £250 by Divorced	-1.216	0.033	1,398.39	1	p<0.001	0.296
£250 to < £350 by Married	0.637	0.012	2,696.01	1	p<0.001	1.892
£250 to < £350 by Cohabiting	0.538	0.015	1,320.99	1	p<0.001	1.712
£250 to < £350 by Widowed	1.010	0.033	924.46	1	p<0.001	2.745
£250 to < £350 by Separated	-0.891	0.030	897.02	1	p<0.001	0.410
£250 to < £350 by Divorced	-0.350	0.018	389.58	1	p<0.001	0.705
£350 to < £450 by Married	0.068	0.011	35.32	1	p<0.001	1.070

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£350 to < £450 by Cohabiting	-0.445	0.015	827.26	1	p<0.001	0.641
£350 to < £450 by Widowed	-1.017	0.050	415.56	1	p<0.001	0.362
£350 to < £450 by Separated	-0.502	0.025	391.54	1	p<0.001	0.605
£350 to < £450 by Divorced	-0.771	0.017	2,072.31	1	p<0.001	0.463
£450 to < £600 by Married	0.391	0.012	1,107.49	1	p<0.001	1.479
£450 to < £600 by Cohabiting	0.043	0.015	8.56	1	0.003	1.044
£450 to < £600 by Widowed	-1.578	0.057	774.69	1	p<0.001	0.206
£450 to < £600 by Separated	0.176	0.024	51.98	1	p<0.001	1.192
£450 to < £600 by Divorced	-0.091	0.016	30.86	1	p<0.001	0.913
Income by Age left education			36,802.27	35	p<0.001	
Less than £100 by 16 or under	0.595	0.016	1,415.04	1	p<0.001	1.813
Less than £100 by 17-18	0.510	0.018	803.17	1	p<0.001	1.666
Less than £100 by 19-21	0.806	0.021	1,511.61	1	p<0.001	2.239
Less than £100 by 26 and over	4.437	0.058	5,874.19	1	p<0.001	**
£100 to < £150 by 16 or under	-0.113	0.015	53.84	1	p<0.001	0.893
£100 to < £150 by 17-18	-0.671	0.019	1,202.54	1	p<0.001	0.511
£100 to < £150 by 19-21	0.383	0.019	390.64	1	p<0.001	1.466
£100 to < £150 by 26 and over	0.244	0.055	19.42	1	p<0.001	1.276
£100 to < £150 by Not given	-0.998	0.033	942.59	1	p<0.001	0.369
£150 to < £200 by 16 or under	-0.174	0.016	124.53	1	p<0.001	0.840
£150 to < £200 by 17-18	0.358	0.017	429.77	1	p<0.001	1.430
£150 to < £200 by 19-21	0.071	0.019	13.40	1	p<0.001	1.073
£150 to < £200 by 26 and over	-0.126	0.039	10.49	1	0.001	0.882
£150 to < £200 by Not given	-2.148	0.043	2,487.65	1	p<0.001	0.117
£200 to < £250 by 16 or under	-0.597	0.013	2,112.46	1	p<0.001	0.551
£200 to < £250 by 17-18	-0.087	0.015	33.08	1	p<0.001	0.917
£200 to < £250 by 19-21	-0.988	0.019	2,599.64	1	p<0.001	0.372
£200 to < £250 by 26 and over	0.903	0.060	226.21	1	p<0.001	2.468
£200 to < £250 by Not given	-0.878	0.026	1,167.26	1	p<0.001	0.416
£250 to < £350 by 16 or under	0.167	0.011	233.26	1	p<0.001	1.181
£250 to < £350 by 17-18	0.219	0.013	290.76	1	p<0.001	1.245
£250 to < £350 by 19-21	0.277	0.014	392.36	1	p<0.001	1.320
£250 to < £350 by Not given	-0.916	0.023	1,567.27	1	p<0.001	0.400
£350 to < £450 by 16 or under	0.745	0.014	3,027.53	1	p<0.001	2.106
£350 to < £450 by 17-18	0.961	0.015	4,002.30	1	p<0.001	2.614
£350 to < £450 by 19-21	0.812	0.016	2,495.71	1	p<0.001	2.252
£350 to < £450 by 26 and over	-1.257	0.040	995.82	1	p<0.001	0.285
£350 to < £450 by Not given	-0.313	0.026	149.74	1	p<0.001	0.731
£450 to < £600 by 16 or under	0.338	0.012	859.37	1	p<0.001	1.402
£450 to < £600 by 17-18	0.318	0.013	564.42	1	p<0.001	1.375
£450 to < £600 by 19-21	0.530	0.014	1,396.44	1	p<0.001	1.699
£450 to < £600 by 26 and over	0.297	0.026	126.83	1	p<0.001	1.346
£450 to < £600 by Not given	-0.233	0.022	115.87	1	p<0.001	0.792
Banded income by Tenure			25,010.40	28	p<0.001	
Less than £100 by Buying with mortgage	-0.119	0.012	92.38	1	p<0.001	0.888
Less than £100 by Rents	-0.164	0.012	178.72	1	p<0.001	0.848
£100 to < £150 by Buying with mortgage	0.321	0.012	698.89	1	p<0.001	1.379
£100 to < £150 by Rents	0.492	0.012	1,657.07	1	p<0.001	1.635
£150 to < £200 by Buying with mortgage	0.564	0.012	2,180.25	1	p<0.001	1.758

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
£150 to < £200 by Rents	1.029	0.012	7,243.94	1	p<0.001	2.797
£200 to < £250 by Buying with mortgage	-0.710	0.011	4,264.28	1	p<0.001	0.492
£200 to < £250 by Rents	-0.635	0.011	3,357.20	1	p<0.001	0.530
£250 to < £350 by Buying with mortgage	-0.359	0.009	1,764.28	1	p<0.001	0.698
£250 to < £350 by Rents	-0.261	0.009	913.25	1	p<0.001	0.770
£350 to < £450 by Buying with mortgage	-0.089	0.009	89.34	1	p<0.001	0.914
£350 to < £450 by Rents	0.174	0.010	321.31	1	p<0.001	1.190
£450 to < £600 by Buying with mortgage	-0.154	0.009	279.52	1	p<0.001	0.857
Economic activity by Banded income			67,017.23	69	p<0.001	
Part-time employee by Less than £100	-0.872	0.021	1,794.65	1	p<0.001	0.418
Part-time employee by £100 to < £150	-0.569	0.016	1,278.18	1	p<0.001	0.566
Part-time employee by £150 to < £200	-0.560	0.013	1,790.70	1	p<0.001	0.571
Part-time employee by £200 to < £250	-0.844	0.011	6,008.14	1	p<0.001	0.430
Part-time employee by £250 to < £350	-0.663	0.009	5,062.98	1	p<0.001	0.516
Part-time employee by £350 to < £450	0.116	0.010	133.35	1	p<0.001	1.122
Part-time employee by £450 to < £600	-0.510	0.011	2,279.93	1	p<0.001	0.601
Full-time self-employed by Less than £100	-0.432	0.023	348.55	1	p<0.001	0.649
Full-time self-employed by £100 to < £150	-1.164	0.025	2,218.56	1	p<0.001	0.312
Full-time self-employed by £150 to < £200	-0.450	0.022	401.42	1	p<0.001	0.637
Full-time self-employed by £200 to < £250	-1.583	0.021	5,487.29	1	p<0.001	0.205
Full-time self-employed by £250 to < £350	0.244	0.015	258.77	1	p<0.001	1.276
Full-time self-employed by £350 to < £450	-0.271	0.018	224.54	1	p<0.001	0.762
Full-time self-employed by £450 to < £600	-0.877	0.016	3,115.63	1	p<0.001	0.416
Part-time self-employed by Less than £100	-0.839	0.025	1,105.33	1	p<0.001	0.432
Part-time self-employed by £100 to < £150	-0.106	0.022	23.91	1	p<0.001	0.899
Part-time self-employed by £150 to < £200	0.606	0.021	816.94	1	p<0.001	1.833
Part-time self-employed by £200 to < £250	-0.939	0.025	1,445.70	1	p<0.001	0.391
Part-time self-employed by £250 to < £350	0.096	0.019	24.77	1	p<0.001	1.101

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Part-time self-employed by £350 to < £450	0.746	0.021	1,304.45	1	p<0.001	2.108
Part-time self-employed by £450 to < £600	2.496	0.027	8,725.95	1	p<0.001	**
Retired by Less than £100	0.867	0.046	360.82	1	p<0.001	2.381
Retired by £150 to < £200	-0.687	0.052	173.98	1	p<0.001	0.503
Retired by £200 to < £250	0.754	0.048	248.71	1	p<0.001	2.126
Looking after family/home by Less than £100	-0.738	0.027	729.66	1	p<0.001	0.478
Looking after family/home by £100 to < £150	-0.101	0.027	13.64	1	p<0.001	0.904
Looking after family/home by £150 to < £200	0.219	0.027	68.02	1	p<0.001	1.245
Looking after family/home by £200 to < £250	-1.131	0.033	1,144.71	1	p<0.001	0.323
Looking after family/home by £250 to < £350	-0.759	0.029	673.26	1	p<0.001	0.468
Looking after family/home by £450 to < £600	-1.939	0.046	1,752.33	1	p<0.001	0.144
Permanently sick/disabled by Less than £100	-0.597	0.036	278.48	1	p<0.001	0.550
Permanently sick/disabled by £100 to < £150	-2.620	0.040	4,335.60	1	p<0.001	0.073
Permanently sick/disabled by £150 to < £200	-1.286	0.037	1,186.36	1	p<0.001	0.276
Permanently sick/disabled by £200 to < £250	-1.270	0.036	1,258.05	1	p<0.001	0.281
Permanently sick/disabled by £250 to < £350	-1.607	0.033	2,338.58	1	p<0.001	0.200
Permanently sick/disabled by £350 to < £450	-2.069	0.045	2,157.75	1	p<0.001	0.126
Permanently sick/disabled by £450 to < £600	-0.605	0.037	259.99	1	p<0.001	0.546
Constant	-1.081	0.017	4,133.14	1	p<0.001	0.339

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable
** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.5 Model selection process: UK men making private pension contributions in 2009-2010 (1981-1985 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	2,502,248				
+ Marital status	2,442,872	59,376	5	0.040	0.000
+ Age left education	2,432,719	10,153	10	0.047	*
+ Age left education by Marital status	2,405,994	26,725	25	0.065	0.000
+ Tenure	2,391,565	14,429	29	0.074	*
+ Tenure by Age left education	2,371,835	19,730	44	0.087	0.000
+ Economic activity	2,043,960	327,875	53	0.284	0.000
+ Public sector	1,945,786	98,174	55	0.337	0.000
+ Gross weekly income (Income)	1,769,053	176,733	62	0.426	0.000
+ Income by Age left education	1,705,769	63,284	96	0.456	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.6 Model selection process: UK men making private pension contributions in 2009-2010 (1971-1975 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	2,941,494				
+ Marital status	2,894,843	46,651	5	0.029	0.000
+ Age left education	2,881,554	13,289	10	0.037	*
+ Age left education by Marital status	2,854,085	27,469	31	0.054	0.000
+ Tenure	2,834,468	19,617	35	0.066	0.000
+ Tenure by Marital status	2,799,105	35,363	48	0.087	0.000
+ Economic activity	2,336,219	462,886	58	0.331	0.000
+ Economic activity by Marital status	2,283,550	52,669	89	0.355	0.000
+ Public sector	2,229,102	54,448	91	0.380	0.000
+ Gross weekly income (Income)	2,007,196	221,906	98	0.475	0.000
+ Income by Marital status	1,953,444	53,752	126	0.496	0.000
+ Income by Economic activity	1,857,077	96,367	170	0.533	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.7 Model selection process: UK men making private pension contributions in 2009-2010 (1961-1965 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	2,974,313				
+ Marital status	2,936,106	38,207	5	0.023	0.000
+ Age left education	2,923,067	13,039	10	0.031	*
+ Age left education by Martial status	2,888,737	34,330	30	0.052	0.000
+ Economic activity	2,391,512	497,225	40	0.316	0.000
+ Economic activity by Age left education	2,334,300	57,212	79	0.342	0.000
+ Public sector	2,281,079	53,221	81	0.367	0.000
+ Gross weekly income (Income)	2,164,840	116,239	88	0.417	0.000
+ Income by Marital status	2,110,965	53,875	119	0.440	0.000
+ Income by Economic activity	2,040,871	70,094	162	0.469	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.8 Model selection process: UK women making private pension contributions in 2009-2010 (1981-1985 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	2,643,258				
+ Marital status	2,621,084	22,174	4	0.015	0.000
+ Age left education	2,616,469	4,615	9	0.018	*
+ Age left education by Marital status	2,576,084	40,385	26	0.044	0.000
+ Economic activity	2,052,300	523,784	36	0.343	0.000
+ Economic activity by Age left education	2,001,630	50,670	26	0.368	0.000
+ Public sector	1,891,537	110,093	76	0.420	0.000
+ Gross weekly income (Income)	1,767,616	123,921	83	0.476	0.000
+ Income by Tenure	1,717,873	49,743	106	0.498	0.000
+ Income by Economic activity	1,664,982	52,891	160	0.520	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.9 Model selection process: UK women making private pension contributions in 2009-2010 (1971-1975 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	2,973,539				
+ Marital status	2,937,304	36,235	5	0.022	0.000
+ Age left education	2,917,132	20,172	10	0.034	*
+ Age left education by Marital status	2,880,470	36,662	31	0.056	0.000
+ Tenure	2,874,957	5,513	35	0.059	*
+ Tenure by Age left education	2,843,425	31,532	52	0.078	0.000
+ Economic activity	2,285,339	558,086	62	0.364	0.000
+ Economic activity by Marital status	2,216,448	68,891	102	0.394	0.000
+ Economic activity by Age left education	2,162,479	53,969	139	0.417	0.000
+ Public sector	2,106,900	55,579	141	0.441	0.000
+ Gross weekly income (Income)	1,947,101	159,799	148	0.504	0.000
+ Income by Marital status	1,885,653	61,448	178	0.528	0.000
+ Income by Age left education	1,831,137	54,516	211	0.548	0.000
+ Income by Economic activity	1,743,443	87,694	268	0.579	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.10 Model selection process: UK women making private pension contributions in 2009-2010 (1961-1965 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	3,096,778				
+ Marital status	3,065,367	31,411	5	0.019	0.000
+ Age left education	3,049,824	15,543	10	0.028	*
+ Age left education by Martial status	3,024,878	24,946	34	0.042	0.000
+ Economic activity	2,346,599	678,279	44	0.380	0.000
+ Economic activity by Marital status	2,297,169	49,430	87	0.401	0.000
+ Economic activity by Age left education	2,247,724	49,445	128	0.422	0.000
+ Public sector	2,157,769	89,955	130	0.458	0.000
+ Gross weekly income (Income)	1,943,663	214,106	137	0.538	0.000
+ Income by Economic Activity	1,846,999	96,664	190	0.571	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.11 Fitted model for UK men making private pension contributions in 2009-2010 (1981-1985 cohort)- significant predictors only

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Marital status			4,969.52	5	p<0.001	
Married	-0.131	0.013	99.98	1	p<0.001	0.877
Cohabiting	0.630	0.013	2,342.69	1	p<0.001	1.878
Age left education			5,103.17	5	p<0.001	
16 or under	0.314	0.017	349.14	1	p<0.001	1.369
17-18	-0.291	0.018	247.33	1	p<0.001	0.748
19-21	0.835	0.019	1,890.05	1	p<0.001	2.305
Marital status by Age left education			12,143.13	15	p<0.001	
Married by 16 or under	0.065	0.015	19.14	1	p<0.001	1.068
Married by 17-18	0.757	0.017	2,083.54	1	p<0.001	2.131
Married by 19-21	0.597	0.017	1,208.30	1	p<0.001	1.817
Cohabiting by 16 or under	-0.327	0.015	495.86	1	p<0.001	0.721
Cohabiting by 17-18	-0.150	0.016	83.04	1	p<0.001	0.861
Cohabiting by 19-21	-0.822	0.017	2,431.38	1	p<0.001	0.440
Tenure			81.03	4	p<0.001	
Buying with mortgage	0.045	0.013	12.29	1	p<0.001	1.046
Rents	-0.066	0.011	32.98	1	p<0.001	0.936
Age left education by Tenure			4,060.00	15	p<0.001	
16 or under by Buying with mortgage	0.260	0.015	315.97	1	p<0.001	1.297
16 or under by Rents	0.092	0.014	46.49	1	p<0.001	1.097
17-18 by Buying with mortgage	-0.437	0.016	714.25	1	p<0.001	0.646
17-18 by Rents	-0.053	0.015	12.64	1	p<0.001	0.948
19-21 by Buying with mortgage	0.109	0.017	41.82	1	p<0.001	1.115
19-21 by Rents	-0.169	0.015	119.94	1	p<0.001	0.844
Economic activity			11,432.71	9	p<0.001	
Part-time employee	-0.589	0.015	1,572.89	1	p<0.001	0.555
Full-time self-employed	-0.369	0.009	1,880.02	1	p<0.001	0.692
Unemployed	-4.726	0.051	8,733.87	1	p<0.001	0.009
Public sector			78,805.04	2	p<0.001	
Sector not given	-1.166	0.011	11,768.92	1	p<0.001	0.312
Private sector	-1.438	0.005	78,771.84	1	p<0.001	0.237
Income			13,401.66	7	p<0.001	
Less than £100	-1.918	0.046	1,756.46	1	p<0.001	0.147
£200 to < £250	-0.087	0.020	19.56	1	p<0.001	0.917
£250 to < £350	-0.716	0.014	2,623.70	1	p<0.001	0.489
£350 to < £450	-1.564	0.016	10,049.47	1	p<0.001	0.209
£450 to < £600	-0.091	0.013	46.69	1	p<0.001	0.913
Income by Age left education			38,208.93	34	p<0.001	
Less than £100	0.662	0.048	187.23	1	p<0.001	1.939
Less than £100 by 17-18	-0.221	0.062	12.80	1	p<0.001	0.801
£200 to < £250by 16 or under	-4.484	0.047	9,153.47	1	p<0.001	0.011
£200 to < £250by 17-18	-1.196	0.029	1,746.60	1	p<0.001	0.302
£200 to < £250by 19-21	-3.456	0.033	11,066.40	1	p<0.001	0.032
£250 to < £350 by 16 or under	-0.906	0.016	3,035.95	1	p<0.001	0.404
£250 to < £350 by 17-18	-0.923	0.020	2,187.36	1	p<0.001	0.397

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£250 to < £350 by 19-21	-1.573	0.020	6,250.51	1	p<0.001	0.207
£350 to < £450 by 16 or under	0.708	0.018	1,601.56	1	p<0.001	2.029
£350 to < £450 by 17-18	0.782	0.019	1,628.50	1	p<0.001	2.185
£450 to < £600 by 16 or under	-0.300	0.016	371.82	1	p<0.001	0.741
£450 to < £600 by 17-18	0.455	0.017	696.64	1	p<0.001	1.576
£450 to < £600 by 19-21	-0.330	0.018	349.73	1	p<0.001	0.719
Constant	1.098	0.015	5,124.94	1	p<0.001	2.997

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.12 Fitted model for UK men making private pension contributions in 2009-2010 (1971-1975 cohort)- significant predictors only

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Marital status			3,906.30	5	p<0.001	
Married	-1.212	0.021	3,400.43	1	p<0.001	0.298
Cohabiting	-0.704	0.024	828.94	1	p<0.001	0.495
Age left education			4,170.16	5	p<0.001	
16 or under	-0.482	0.017	834.08	1	p<0.001	0.618
17-18	-0.369	0.019	381.36	1	p<0.001	0.692
19-21	-1.368	0.022	3,787.74	1	p<0.001	0.255
Marital status by Age left education			12,985.01	21	p<0.001	
Married by 16 or under	0.134	0.018	55.19	1	p<0.001	1.144
Married by 17-18	0.145	0.020	50.76	1	p<0.001	1.156
Married by 19-21	1.121	0.024	2,241.82	1	p<0.001	3.069
Cohabiting by 17-18	0.120	0.024	25.77	1	p<0.001	1.127
Cohabiting by 19-21	1.178	0.027	1,869.03	1	p<0.001	3.249
Divorced by 16 or under	3.694	0.053	4,881.06	1	p<0.001	**
Tenure			1,685.68	4	p<0.001	
Buying with mortgage	-0.167	0.013	162.31	1	p<0.001	0.846
Rents	-0.498	0.013	1,468.75	1	p<0.001	0.608
Marital status by Tenure			13,910.33	13	p<0.001	
Married by Buying with mortgage	0.558	0.014	1,546.92	1	p<0.001	1.747
Married by Rents	1.199	0.014	7,158.54	1	p<0.001	3.316
Cohabiting by Buying with mortgage	-0.402	0.017	574.37	1	p<0.001	0.669
Cohabiting by Rents	0.379	0.017	527.05	1	p<0.001	1.461
Separated by Buying with mortgage	0.126	0.058	4.71	1	0.030	1.135
Economic activity			8,409.30	10	p<0.001	
Full-time self-employed	-1.740	0.019	8,409.30	1	p<0.001	0.176
Economic activity by Marital status			3,276.37	31	p<0.001	
Part-time employee by Married	1.355	0.053	648.45	1	p<0.001	3.876
Part-time employee by Cohabiting	2.716	0.074	1,364.99	1	p<0.001	**
Full-time self-employed by Cohabiting	-0.642	0.022	854.00	1	p<0.001	0.526
Public sector			40,652.12	2	p<0.001	
Sector not given	-1.079	0.011	8,944.97	1	p<0.001	0.340
Private sector	-1.103	0.005	40,497.85	1	p<0.001	0.332
Income			56,381.22	7	p<0.001	
Less than £100	-2.772	0.022	15,617.77	1	p<0.001	0.063
£100 to < £150	-2.807	0.036	6,189.62	1	p<0.001	0.060
£200 to < £250	-3.854	0.027	20,767.74	1	p<0.001	0.021
£250 to < £350	-2.710	0.015	32,419.15	1	p<0.001	0.067
£350 to < £450	-1.571	0.015	11,104.97	1	p<0.001	0.208
£450 to < £600	-0.541	0.016	1,210.90	1	p<0.001	0.582
Income by Marital status			8,935.56	28	p<0.001	
Less than £100 by Married	0.306	0.026	137.74	1	p<0.001	1.358

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Less than £100 by Cohabiting	0.480	0.034	202.62	1	p<0.001	1.616
£200 to < £250by Married	0.429	0.028	236.51	1	p<0.001	1.536
£200 to < £250by Cohabiting	-0.350	0.038	85.12	1	p<0.001	0.705
£250 to < £350 by Married	0.890	0.017	2,808.78	1	p<0.001	2.436
£250 to < £350 by Cohabiting	0.646	0.020	1,057.71	1	p<0.001	1.907
£250 to < £350 by Divorced	0.271	0.058	22.07	1	p<0.001	1.311
£350 to < £450 by Married	0.484	0.016	877.96	1	p<0.001	1.622
£350 to < £450 by Cohabiting	-0.242	0.019	160.19	1	p<0.001	0.785
£450 to < £600 by Married	-0.309	0.017	345.02	1	p<0.001	0.734
£450 to < £600 by Cohabiting	-0.341	0.019	313.17	1	p<0.001	0.711
Economic activity by Income			40,301.41	44	p<0.001	
Full-time self-employed by Less than £100	2.490	0.024	10,489.88	1	p<0.001	**
Full-time self-employed by £150 to < £200	2.368	0.031	6,015.93	1	p<0.001	**
Full-time self-employed by £200 to < £250	3.606	0.024	22,191.01	1	p<0.001	**
Full-time self-employed by £250 to < £350	0.515	0.020	678.89	1	p<0.001	1.673
Full-time self-employed by £350 to < £450	2.278	0.018	15,789.02	1	p<0.001	9.752
Full-time self-employed by £450 to < £600	0.479	0.018	690.57	1	p<0.001	1.614
Constant	3.384	0.020	27,976.68	1	p<0.001	**

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.13 Fitted model for UK men making private pension contributions in 2009-2010 (1961-1965 cohort) – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Marital status			9,766.03	5	p<0.001	
Married	1.294	0.022	3,442.86	1	p<0.001	3.648
Cohabiting	-0.127	0.027	21.64	1	p<0.001	0.881
Widowed	-1.475	0.041	1,285.81	1	p<0.001	0.229
Divorced	2.032	0.045	2,004.07	1	p<0.001	7.628
Age left education			1,739.53	5	p<0.001	
16 or under	0.235	0.020	142.42	1	p<0.001	1.265
19-21	0.424	0.024	305.53	1	p<0.001	1.528
26 and over	-0.842	0.038	488.08	1	p<0.001	0.431
Not given	0.741	0.042	304.49	1	p<0.001	2.098
Marital status by Age left education			14,305.24	20	p<0.001	
Married by 16 or under	-1.169	0.021	3,061.85	1	p<0.001	0.311
Married by 17-18	-1.128	0.024	2,279.89	1	p<0.001	0.324
Married by 19-21	-1.306	0.026	2,562.09	1	p<0.001	0.271
Married by 26 and over	0.909	0.060	232.27	1	p<0.001	2.482
Married by Not given	-1.571	0.044	1,283.98	1	p<0.001	0.208
Cohabiting by 16 or under	-0.746	0.026	797.02	1	p<0.001	0.474
Cohabiting by 17-18	0.108	0.029	13.56	1	p<0.001	1.114
Cohabiting by 19-21	-1.184	0.032	1,339.23	1	p<0.001	0.306
Separated by 16 or under	-1.496	0.048	989.38	1	p<0.001	0.224
Separated by 19-21	-1.371	0.054	633.60	1	p<0.001	0.254
Divorced by 16 or under	-0.689	0.036	372.51	1	p<0.001	0.502
Divorced by 17-18	-0.379	0.043	76.08	1	p<0.001	0.684
Divorced by 19-21	0.953	0.055	298.34	1	p<0.001	2.595
Divorced by Not given	-4.042	0.080	2,552.91	1	p<0.001	0.018
Economic activity			22,108.38	10	p<0.001	
Part-time employee	-3.075	0.038	6,450.37	1	p<0.001	0.046
Full-time self-employed	-2.260	0.017	18,152.86	1	p<0.001	0.104
Economic activity by Age left education			18,672.21	39	p<0.001	
Part-time employee by 16 or under	-0.163	0.030	29.54	1	p<0.001	0.850
Part-time employee by 17-18	2.423	0.033	5,361.66	1	p<0.001	**
Part-time employee by 19-21	1.620	0.039	1,692.37	1	p<0.001	5.053
Full-time self-employed by 16 or under	0.697	0.016	1,796.48	1	p<0.001	2.009
Full-time self-employed by 17-18	0.880	0.018	2,380.67	1	p<0.001	2.412
Full-time self-employed by 19-21	0.356	0.020	313.80	1	p<0.001	1.427
Full-time self-employed by Not given	-0.679	0.036	346.18	1	p<0.001	0.507
Other inactive by 17-18	-0.880	0.066	177.18	1	p<0.001	0.415
Public sector			30,574.92	2	p<0.001	
Sector not given	-1.600	0.011	20,033.59	1	p<0.001	0.202
Private sector	-0.906	0.006	24,191.62	1	p<0.001	0.404
Income			15,677.14	7	p<0.001	
Less than £100	-1.331	0.029	2,161.18	1	p<0.001	0.264
£100 to < £150	0.463	0.043	116.19	1	p<0.001	1.589
£150 to < £200	-3.898	0.045	7,462.80	1	p<0.001	0.020
£200 to < £250	-0.708	0.023	925.03	1	p<0.001	0.493

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£250 to < £350	-1.483	0.017	7,261.46	1	p<0.001	0.227
£350 to < £450	-0.863	0.019	1,991.30	1	p<0.001	0.422
£450 to < £600	-0.289	0.019	239.73	1	p<0.001	0.749
Income by Marital status			29,497.61	31	p<0.001	
Less than £100 by Married	0.276	0.026	112.91	1	p<0.001	1.318
Less than £100 by Cohabiting	0.876	0.030	828.73	1	p<0.001	2.401
Less than £100 by Divorced	-1.200	0.052	526.61	1	p<0.001	0.301
£100 to < £150 by Married	-1.197	0.039	923.49	1	p<0.001	0.302
£100 to < £150 by Divorced	-1.649	0.053	959.15	1	p<0.001	0.192
£150 to < £200 by Married	0.287	0.041	48.30	1	p<0.001	1.332
£150 to < £200 by Cohabiting	3.246	0.049	4,449.24	1	p<0.001	**
£200 to < £250by Married	-1.468	0.024	3,825.98	1	p<0.001	0.230
£200 to < £250by Cohabiting	-0.424	0.030	200.61	1	p<0.001	0.655
£200 to < £250by Divorced	0.667	0.050	180.94	1	p<0.001	1.947
£250 to < £350 by Married	-0.204	0.019	120.93	1	p<0.001	0.816
£250 to < £350 by Cohabiting	0.172	0.023	56.16	1	p<0.001	1.187
£250 to < £350 by Divorced	-1.686	0.038	1,944.96	1	p<0.001	0.185
£350 to < £450 by Married	-0.189	0.020	86.74	1	p<0.001	0.827
£350 to < £450 by Cohabiting	-0.079	0.024	10.94	1	p<0.001	0.924
£350 to < £450 by Divorced	-1.885	0.037	2,616.94	1	p<0.001	0.152
£450 to < £600 by Married	-0.427	0.019	482.01	1	p<0.001	0.652
£450 to < £600 by Cohabiting	0.550	0.023	557.67	1	p<0.001	1.733
£450 to < £600 by Divorced	-2.370	0.036	4,233.09	1	p<0.001	0.093
Economic activity by Income			38,474.15	43	p<0.001	
Part-time employee by Less than £100	1.148	0.050	530.89	1	p<0.001	3.151
Part-time employee by £100 to < £150	-0.422	0.047	81.37	1	p<0.001	0.656
Part-time employee by £200 to < £250	1.571	0.043	1,312.84	1	p<0.001	4.811
Part-time employee by £250 to < £350	2.546	0.038	4,520.33	1	p<0.001	**
Part-time employee by £350 to < £450	2.444	0.041	3,573.34	1	p<0.001	**
Part-time employee by £450 to < £600	0.228	0.054	17.48	1	p<0.001	1.256
Full-time self-employed by Less than £100	0.808	0.025	1,043.81	1	p<0.001	2.242
Full-time self-employed by £150 to < £200	4.091	0.033	15,273.96	1	p<0.001	**
Full-time self-employed by £200 to < £250	0.711	0.020	1,255.81	1	p<0.001	2.036
Full-time self-employed by £250 to < £350	0.663	0.016	1,708.70	1	p<0.001	1.941
Full-time self-employed by £350 to < £450	0.238	0.016	217.32	1	p<0.001	1.269
Full-time self-employed by £450 to < £600	0.867	0.014	3,749.11	1	p<0.001	2.380
Part-time self-employed by Less than £100	-2.395	0.071	1,130.14	1	p<0.001	0.091
Part-time self-employed by £150 to < £200	2.250	0.067	1,118.18	1	p<0.001	9.490
Unemployed by Less than £100	-0.445	0.047	88.06	1	p<0.001	0.641
Unemployed by £200 to < £250	2.477	0.053	2,198.31	1	p<0.001	**

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Constant	2.122	0.021	10,132.05	1	p<0.001	8.346

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$
Source: Family Resources Survey 2009-2010

Table A6.14 Fitted model for UK women making private pension contributions in 2009-2010 (1981-1985 cohort) – significant predictors only

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Marital status			15,193.67	4	p<0.001	
Married	-0.662	0.016	1,781.25	1	p<0.001	0.516
Cohabiting	0.780	0.016	2,300.15	1	p<0.001	2.181
Widowed	3.589	0.052	4,749.65	1	p<0.001	**
Age left education			9,467.05	5	p<0.001	
16 or under	-0.140	0.014	104.39	1	p<0.001	0.869
17-18	-0.800	0.016	2,613.40	1	p<0.001	0.449
26 and over	0.507	0.029	315.00	1	p<0.001	1.661
Not given	0.907	0.023	1,621.19	1	p<0.001	2.478
Marital status by Age left education			29,711.12	17	p<0.001	
Married by 16 or under	1.178	0.017	4,743.69	1	p<0.001	3.249
Married by 17-18	2.006	0.020	10,531.50	1	p<0.001	7.431
Married by 19-21	0.581	0.020	874.80	1	p<0.001	1.789
Married by 26 and over	2.297	0.045	2,627.52	1	p<0.001	9.947
Cohabiting by 16 or under	-0.244	0.018	191.63	1	p<0.001	0.784
Cohabiting by 17-18	0.060	0.020	9.09	1	0.003	1.062
Cohabiting by 19-21	-0.640	0.020	1,026.66	1	p<0.001	0.527
Cohabiting by Not given	-1.628	0.058	787.40	1	p<0.001	0.196
Widowed by 16 or under	-3.907	0.057	4,739.36	1	p<0.001	0.020
Widowed by 17-18	-4.123	0.067	3,831.42	1	p<0.001	0.016
Widowed by 19-21	-3.497	0.063	3,127.23	1	p<0.001	0.030
Economic activity			6,083.17	10	p<0.001	
Part-time employee	-3.790	0.049	6,083.16	1	p<0.001	0.023
Economic activity by Age left education			8,147.28	38	p<0.001	
Part-time employee by 16 or under	2.444	0.034	5,123.54	1	p<0.001	**
Part-time employee by 17-18	2.818	0.036	6,290.76	1	p<0.001	**
Part-time employee by 19-21	2.913	0.037	6,352.99	1	p<0.001	**
Part-time employee by 26 and over	3.250	0.056	3,333.23	1	p<0.001	**
Public sector			79,921.19	2	p<0.001	
Sector not given	-1.321	0.011	13,238.13	1	p<0.001	0.267
Private sector	-1.103	0.004	75,147.92	1	p<0.001	0.332
Income			80,474.37	7	p<0.001	
Less than £100	-1.776	0.025	4,971.56	1	p<0.001	0.169
£100 to < £150	-0.979	0.021	2,206.21	1	p<0.001	0.376
£150 to < £200	-1.174	0.021	3,194.37	1	p<0.001	0.309
£200 to < £250	-2.215	0.015	22,239.50	1	p<0.001	0.109
£250 to < £350	-1.789	0.009	39,832.86	1	p<0.001	0.167
£350 to < £450	-0.137	0.009	231.55	1	p<0.001	0.872
£450 to < £600	0.509	0.009	3,039.95	1	p<0.001	1.664
Income by Tenure			27,689.15	23	p<0.001	
Less than £100 by Buying with mortgage	1.775	0.029	3,731.98	1	p<0.001	5.901
Less than £100 by Rents	1.215	0.033	1,364.97	1	p<0.001	3.370
£100 to < £150 by Rents	-1.826	0.039	2,202.81	1	p<0.001	0.161

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£150 to < £200 by Buying with mortgage	-0.666	0.023	843.43	1	p<0.001	0.514
£150 to < £200 by Rents	-0.170	0.022	61.79	1	p<0.001	0.844
£200 to < £250by Buying with mortgage	0.976	0.018	3,094.35	1	p<0.001	2.655
£200 to < £250by Rents	0.843	0.016	2,611.32	1	p<0.001	2.323
£250 to < £350 by Buying with mortgage	0.823	0.010	6,908.92	1	p<0.001	2.278
£250 to < £350 by Rents	0.495	0.009	2,799.52	1	p<0.001	1.641
£350 to < £450 by Buying with mortgage	-0.647	0.010	4,560.17	1	p<0.001	0.524
£350 to < £450 by Rents	-0.643	0.010	4,157.85	1	p<0.001	0.525
£350 to < £450 by Rent-free	0.775	0.035	484.51	1	p<0.001	2.170
£450 to < £600 by Buying with mortgage	-0.260	0.011	607.49	1	p<0.001	0.771
£450 to < £600 by Rents	-0.576	0.010	3,168.82	1	p<0.001	0.562
Economic activity by Income			18,418.12	54	p<0.001	
Part-time employee by Less than £100	-1.428	0.050	808.31	1	p<0.001	0.240
Part-time employee by £100 to < £150	0.136	0.047	8.26	1	0.004	1.146
Part-time employee by £150 to < £200	0.797	0.041	371.28	1	p<0.001	2.219
Part-time employee by £200 to < £250	1.614	0.039	1,697.04	1	p<0.001	5.023
Part-time employee by £250 to < £350	1.385	0.038	1,345.39	1	p<0.001	3.994
Part-time employee by £350 to < £450	0.675	0.038	308.75	1	p<0.001	1.964
Part-time employee by £450 to < £600	0.776	0.040	369.66	1	p<0.001	2.173
Full-time self-employed by £350 to < £450	-2.680	0.054	2,493.35	1	p<0.001	0.069
Constant	1.085	0.014	6,254.68	1	p<0.001	2.960

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.15 Fitted model for UK women making private pension contributions in 2009-2010 (1971-1975 cohort) – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Marital status			8,933.69	5	p<0.001	
Married	-1.849	0.026	5,002.01	1	p<0.001	0.157
Cohabiting	-1.104	0.033	1,128.65	1	p<0.001	0.332
Separated	-2.754	0.052	2,830.10	1	p<0.001	0.064
Divorced	-3.243	0.038	7,317.53	1	p<0.001	0.039
Age left education			1,981.81	5	p<0.001	
16 or under	-0.589	0.026	509.01	1	p<0.001	0.555
17-18	0.164	0.030	29.16	1	p<0.001	1.178
19-21	-0.897	0.033	727.86	1	p<0.001	0.408
Marital status by Age left education			18,869.40	21	p<0.001	
Married by 16 or under	1.483	0.022	4,446.02	1	p<0.001	4.405
Married by 17-18	1.106	0.026	1,815.29	1	p<0.001	3.023
Married by 19-21	1.741	0.028	3,919.43	1	p<0.001	5.705
Cohabiting by 16 or under	0.225	0.029	59.50	1	p<0.001	1.252
Cohabiting by 17-18	0.389	0.033	140.50	1	p<0.001	1.476
Divorced by 16 or under	1.943	0.035	3,156.31	1	p<0.001	6.980
Divorced by 17-18	2.525	0.041	3,784.92	1	p<0.001	**
Divorced by 19-21	1.017	0.070	209.12	1	p<0.001	2.766
Tenure			18,303.92	4	p<0.001	
Buying with mortgage	1.523	0.014	11,246.31	1	p<0.001	4.585
Rents	2.029	0.016	15,545.46	1	p<0.001	7.606
Age left education by Tenure			30,530.05	17	p<0.001	
16 or under by Buying with mortgage	-1.641	0.016	10,892.22	1	p<0.001	0.194
16 or under by Rents	-1.944	0.018	12,291.60	1	p<0.001	0.143
16 or under by Rent-free	1.539	0.067	528.83	1	p<0.001	4.659
17-18 by Buying with mortgage	-1.999	0.017	13,261.86	1	p<0.001	0.135
17-18 by Rents	-2.763	0.019	20,354.31	1	p<0.001	0.063
17-18 by Rent-free	0.278	0.071	15.40	1	p<0.001	1.321
19-21 by Buying with mortgage	-1.460	0.022	4,401.23	1	p<0.001	0.232
19-21 by Rents	-2.526	0.024	11,406.46	1	p<0.001	0.080
19-21 by Rent-free	-2.444	0.086	805.67	1	p<0.001	0.087
26 and over by Rents	-1.229	0.064	371.82	1	p<0.001	0.292
Economic activity			1,577.44	10	p<0.001	
Part-time employee	-0.666	0.030	490.35	1	p<0.001	0.514
Full-time self-employed	-1.802	0.051	1,225.51	1	p<0.001	0.165
Economic activity by Marital status			33,911.87	40	p<0.001	
Part-time employee by Married	2.315	0.018	17,129.73	1	p<0.001	**
Part-time employee by Cohabiting	1.137	0.021	2,896.41	1	p<0.001	3.117
Part-time employee by Separated	2.644	0.050	2,824.01	1	p<0.001	**
Part-time employee by Divorced	1.005	0.025	1,598.58	1	p<0.001	2.733
Full-time self-employed by Married	-1.301	0.038	1,190.43	1	p<0.001	0.272
Full-time self-employed by Cohabiting	0.524	0.054	94.08	1	p<0.001	1.688
Unemployed by Married	-2.605	0.071	1,354.32	1	p<0.001	0.074
Permanently sick/disabled by Married	0.597	0.070	71.84	1	p<0.001	1.817
Economic activity by Age left education			22,131.65	37	p<0.001	
Part-time employee by 16 or under	-1.026	0.018	3,286.13	1	p<0.001	0.359
Part-time employee by 17-18	-1.492	0.020	5,570.44	1	p<0.001	0.225
Part-time employee by 19-21	-0.323	0.025	173.76	1	p<0.001	0.724

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Full-time self-employed by 16 or under	-0.625	0.038	265.90	1	p<0.001	0.535
Full-time self-employed by 17-18	-0.674	0.051	173.75	1	p<0.001	0.509
Full-time self-employed by 19-21	0.252	0.045	30.99	1	p<0.001	1.287
Part-time self-employed by 16 or under	0.098	0.039	6.31	1	0.012	1.103
Part-time self-employed by 17-18	2.867	0.067	1,821.16	1	p<0.001	**
Part-time self-employed by 19-21	-1.796	0.055	1,074.56	1	p<0.001	0.166
Unemployed by 16 or under	-3.413	0.095	1,303.75	1	p<0.001	0.033
Unemployed by 17-18	0.511	0.082	38.71	1	p<0.001	1.666
Unemployed by 19-21	4.951	0.094	2,778.03	1	p<0.001	**
Looking after family/home by 16 or under	-1.140	0.038	888.17	1	p<0.001	0.320
Looking after family/home by 17-18	-0.514	0.041	157.84	1	p<0.001	0.598
Looking after family/home by 19-21	-0.951	0.056	290.04	1	p<0.001	0.386
Public sector			45,823.09	2	p<0.001	
Sector not given	-0.693	0.010	4,920.42	1	p<0.001	0.500
Private sector	-0.902	0.004	45,415.60	1	p<0.001	0.406
Income			15,034.13	7	p<0.001	
Less than £100	-4.365	0.072	3,683.19	1	p<0.001	0.013
£100 to < £150	-3.954	0.069	3,305.51	1	p<0.001	0.019
£150 to < £200	-1.964	0.043	2,071.80	1	p<0.001	0.140
£250 to < £350	-2.413	0.030	6,630.89	1	p<0.001	0.090
£350 to < £450	-3.151	0.028	13,064.69	1	p<0.001	0.043
£450 to < £600	-1.686	0.029	3,310.40	1	p<0.001	0.185
Income by Marital status			33,236.75	30	p<0.001	
Less than £100 by Married	0.644	0.065	98.06	1	p<0.001	1.903
Less than £100 by Cohabiting	3.110	0.069	2,024.85	1	p<0.001	**
£100 to < £150 by Married	0.608	0.060	101.44	1	p<0.001	1.837
£100 to < £150 by Cohabiting	1.231	0.065	364.41	1	p<0.001	3.426
£150 to < £200 by Married	-2.143	0.037	3,407.03	1	p<0.001	0.117
£150 to < £200 by Cohabiting	-2.340	0.042	3,037.16	1	p<0.001	0.096
£250 to < £350 by Married	0.411	0.022	336.56	1	p<0.001	1.508
£250 to < £350 by Cohabiting	0.989	0.026	1,500.26	1	p<0.001	2.688
£250 to < £350 by Divorced	2.066	0.033	4,002.27	1	p<0.001	7.896
£350 to < £450 by Married	1.091	0.021	2,616.80	1	p<0.001	2.976
£350 to < £450 by Cohabiting	1.635	0.025	4,371.72	1	p<0.001	5.129
£350 to < £450 by Divorced	0.552	0.031	317.78	1	p<0.001	1.737
£450 to < £600 by Married	0.605	0.022	762.72	1	p<0.001	1.831
£450 to < £600 by Cohabiting	0.272	0.026	107.21	1	p<0.001	1.313
£450 to < £600 by Divorced	0.453	0.031	215.37	1	p<0.001	1.573
Income by Age left education			34,902.05	33	p<0.001	
Less than £100	0.858	0.035	608.90	1	p<0.001	2.359
Less than £100 by 17-18	1.635	0.039	1,741.81	1	p<0.001	5.131
Less than £100 by 19-21	0.806	0.048	285.06	1	p<0.001	2.238
£100 to < £150 by 16 or under	1.836	0.036	2,591.95	1	p<0.001	6.274
£100 to < £150 by 17-18	1.781	0.041	1,905.13	1	p<0.001	5.939
£150 to < £200 by 16 or under	1.610	0.030	2,969.61	1	p<0.001	5.005
£150 to < £200 by 17-18	3.206	0.034	9,132.20	1	p<0.001	**
£150 to < £200 by 19-21	1.801	0.037	2,409.37	1	p<0.001	6.055
£200 to < £250by 17-18	0.651	0.034	359.36	1	p<0.001	1.918
£200 to < £250by 19-21	-1.336	0.047	808.88	1	p<0.001	0.263
£250 to < £350 by 16 or under	-0.219	0.024	82.05	1	p<0.001	0.803
£250 to < £350 by 17-18	0.110	0.027	16.30	1	p<0.001	1.116

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
£250 to < £350 by 19-21	0.588	0.030	391.86	1	p<0.001	1.800
£350 to < £450 by 16 or under	1.087	0.022	2,501.68	1	p<0.001	2.964
£350 to < £450 by 17-18	0.591	0.024	586.43	1	p<0.001	1.805
£350 to < £450 by 19-21	1.762	0.028	3,947.64	1	p<0.001	5.822
£450 to < £600 by 16 or under	0.743	0.024	976.52	1	p<0.001	2.102
£450 to < £600 by 19-21	2.712	0.033	6,758.17	1	p<0.001	**
Economic activity by Income			38,294.64	57	p<0.001	
Part-time employee by Less than £100	-0.596	0.034	309.12	1	p<0.001	0.551
Part-time employee by £100 to < £150	-1.069	0.031	1,201.28	1	p<0.001	0.343
Part-time employee by £150 to < £200	-0.507	0.029	312.73	1	p<0.001	0.602
Part-time employee by £200 to < £250	0.880	0.026	1,151.10	1	p<0.001	2.411
Part-time employee by £250 to < £350	0.688	0.023	906.20	1	p<0.001	1.991
Part-time employee by £350 to < £450	0.222	0.024	87.93	1	p<0.001	1.249
Part-time employee by £450 to < £600	-0.462	0.025	352.78	1	p<0.001	0.630
Full-time self-employed by Less than £100	0.931	0.063	215.44	1	p<0.001	2.537
Full-time self-employed by £150 to < £200	2.373	0.056	1,811.02	1	p<0.001	**
Full-time self-employed by £250 to < £350	3.134	0.044	5,076.76	1	p<0.001	**
Full-time self-employed by £350 to < £450	2.656	0.049	2,981.48	1	p<0.001	**
Full-time self-employed by £450 to < £600	-1.848	0.064	825.30	1	p<0.001	0.158
Part-time self-employed by Less than £100	1.805	0.054	1,103.75	1	p<0.001	6.082
Part-time self-employed by £100 to < £150	2.154	0.050	1,838.15	1	p<0.001	8.621
Part-time self-employed by £150 to < £200	2.981	0.059	2,590.39	1	p<0.001	**
Part-time self-employed by £250 to < £350	1.813	0.047	1,499.32	1	p<0.001	6.129
Part-time self-employed by £350 to < £450	2.458	0.061	1,631.91	1	p<0.001	**
Part-time self-employed by £450 to < £600	1.599	0.055	839.66	1	p<0.001	4.948
Constant	3.022	0.028	11,329.21	1	p<0.001	**

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\hat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.16 Fitted model for UK women making private pension contributions in 2009-2010 (1961-1965 cohort) – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Marital status			4,824.86	5	p<0.001	
Married	0.686	0.023	886.56	1	p<0.001	1.986
Cohabiting	1.639	0.035	2,228.46	1	p<0.001	5.148
Separated	-1.506	0.048	985.29	1	p<0.001	0.222
Divorced	0.344	0.029	136.21	1	p<0.001	1.411
Age left education			849.53	5	p<0.001	
16 or under	0.337	0.023	215.63	1	p<0.001	1.400
17-18	-0.146	0.026	30.80	1	p<0.001	0.864
Marital status by Age left education			15,665.83	24	p<0.001	
Married by 16 or under	-0.501	0.024	421.04	1	p<0.001	0.606
Married by 17-18	0.074	0.028	6.99	1	0.008	1.077
Married by 19-21	0.455	0.032	205.46	1	p<0.001	1.576
Married by Not given	0.533	0.034	239.98	1	p<0.001	1.703
Cohabiting by 16 or under	-1.666	0.036	2,172.68	1	p<0.001	0.189
Cohabiting by 17-18	-1.118	0.040	765.25	1	p<0.001	0.327
Cohabiting by 19-21	-0.186	0.044	17.51	1	p<0.001	0.831
Cohabiting by Not given	-1.024	0.055	350.35	1	p<0.001	0.359
Separated by 16 or under	0.199	0.050	16.06	1	p<0.001	1.220
Separated by 17-18	1.601	0.056	803.51	1	p<0.001	4.957
Separated by 19-21	1.195	0.056	455.38	1	p<0.001	3.303
Separated by Not given	1.034	0.059	304.48	1	p<0.001	2.813
Divorced by 16 or under	-0.355	0.031	132.06	1	p<0.001	0.701
Divorced by 17-18	-0.385	0.035	122.81	1	p<0.001	0.680
Divorced by 19-21	-0.692	0.040	299.52	1	p<0.001	0.500
Divorced by Not given	-1.076	0.044	589.81	1	p<0.001	0.341
Economic activity			5,632.01	10	p<0.001	
Part-time employee	-0.483	0.027	316.41	1	p<0.001	0.617
Full-time self-employed	-3.179	0.043	5,592.13	1	p<0.001	0.042
Economic activity by Marital status			16,278.41	43	p<0.001	
Part-time employee by Married	0.443	0.019	558.82	1	p<0.001	1.557
Part-time employee by Cohabiting	-0.644	0.023	802.68	1	p<0.001	0.525
Part-time employee by Separated	0.900	0.028	1,053.57	1	p<0.001	2.459
Part-time employee by Divorced	-0.082	0.022	14.03	1	p<0.001	0.922
Full-time self-employed by Married	1.848	0.035	2,749.57	1	p<0.001	6.349
Full-time self-employed by Divorced	4.401	0.065	4,583.56	1	p<0.001	**
Economic activity by Age left education			20,488.95	41	p<0.001	
Part-time employee by 16 or under	0.038	0.015	6.54	1	0.011	1.039
Part-time employee by 17-18	0.136	0.016	71.46	1	p<0.001	1.145
Part-time employee by 19-21	-0.364	0.019	371.18	1	p<0.001	0.695
Part-time employee by Not given	-0.188	0.024	61.20	1	p<0.001	0.829
Full-time self-employed by 17-18	-2.526	0.043	3,426.55	1	p<0.001	0.080
Full-time self-employed by 19-21	-3.948	0.069	3,307.76	1	p<0.001	0.019
Full-time self-employed by Not given	0.389	0.056	48.12	1	p<0.001	1.475
Looking after family/home by 16 or under	-2.366	0.045	2,777.52	1	p<0.001	0.094
Looking after family/home by 19-21	-0.793	0.037	466.36	1	p<0.001	0.452
Other inactive by 16 or under	-1.454	0.039	1,371.26	1	p<0.001	0.234

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Other inactive by 19-21	-0.415	0.048	75.26	1	p<0.001	0.660
Public sector			54,821.67	2	p<0.001	
Sector not given	-0.881	0.011	6,331.59	1	p<0.001	0.414
Private sector	-0.899	0.004	53,566.56	1	p<0.001	0.407
Income			108,271.96	7	p<0.001	
Less than £100	-3.328	0.038	7,622.22	1	p<0.001	0.036
£100 to < £150	-3.649	0.023	25,413.93	1	p<0.001	0.026
£150 to < £200	-2.934	0.015	40,461.86	1	p<0.001	0.053
£200 to < £250	-2.310	0.011	48,257.21	1	p<0.001	0.099
£250 to < £350	-1.802	0.008	46,611.24	1	p<0.001	0.165
£350 to < £450	-1.738	0.009	40,157.82	1	p<0.001	0.176
£450 to < £600	-0.446	0.010	2,040.44	1	p<0.001	0.640
Economic activity by Income			26,608.95	53	p<0.001	
Part-time employee by £100 to < £150	0.741	0.030	626.75	1	p<0.001	2.098
Part-time employee by £150 to < £200	0.685	0.023	886.11	1	p<0.001	1.984
Part-time employee by £200 to < £250	0.437	0.021	441.09	1	p<0.001	1.547
Part-time employee by £250 to < £350	-0.248	0.019	166.20	1	p<0.001	0.780
Part-time employee by £350 to < £450	0.227	0.021	119.47	1	p<0.001	1.255
Part-time employee by £450 to < £600	-0.498	0.023	481.64	1	p<0.001	0.608
Full-time self-employed by £100 to < £150	-0.777	0.079	96.79	1	p<0.001	0.460
Full-time self-employed by £200 to < £250	1.409	0.036	1,558.74	1	p<0.001	4.090
Full-time self-employed by £250 to < £350	2.773	0.033	6,889.05	1	p<0.001	**
Full-time self-employed by £450 to < £600	-2.689	0.053	2,579.36	1	p<0.001	0.068
Part-time self-employed by Less than £100	-0.638	0.057	126.78	1	p<0.001	0.528
Part-time self-employed by £150 to < £200	-0.917	0.056	272.88	1	p<0.001	0.400
Part-time self-employed by £200 to < £250	-0.354	0.058	37.49	1	p<0.001	0.702
Part-time self-employed by £250 to < £350	1.328	0.065	414.98	1	p<0.001	3.773
Constant	2.267	0.022	10,297.94	1	p<0.001	9.646

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.17 Model selection process: UK men making personal pension contributions in 2009-2010 (1981-1985 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	547,284				
+ Marital status	544,112	3,172	5	0.007	*
+ Age left education	535,804	8,308	10	0.024	0.000
+ Age left education by Marital status	522,627	13,177	25	0.051	0.000
+ Tenure	520,101	2,526	29	0.056	*
+ Tenure by Marital status	512,193	7,908	39	0.072	0.000
+ Tenure by Age left education	491,112	21,081	53	0.115	0.000
+ Economic activity	430,869	60,243	62	0.236	0.000
+ Economic activity by Age left education	413,054	17,815	95	0.270	0.000
+ Public sector	405,737	7,317	97	0.285	*
+ Public sector by Marital status	397,328	8,409	103	0.307	0.000
+ Gross weekly income (Income)	383,110	14,218	110	0.328	0.000
+ Income by Marital status	365,488	17,622	130	0.362	0.000
+ Income by Age left education	316,662	48,826	163	0.454	0.000
+ Income by Tenure	299,750	16,912	185	0.485	0.000
+ Income by Economic activity	279,894	19,856	223	0.522	0.000
+ CareChild	279,797	97	224	0.522	*
+ CareChild by Age left education	262,914	16,883	229	0.553	0.000
+ CareChild by Tenure	251,060	11,854	232	0.574	0.000
+ CareChild by Income	226,948	24,112	239	0.617	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.18 Model selection process: UK men making personal pension contributions in 2009-2010 (1971-1975 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	1,701,349				
+ Marital status	1,690,912	10,437	5	0.009	*
+ Age left education	1,683,240	7,672	10	0.015	*
+ Age left education by Marital status	1,658,855	24,385	31	0.036	0.000
+ Tenure	1,651,715	7,140	35	0.042	*
+ Tenure by Marital status	1,623,243	28,472	48	0.066	0.000
+ Economic activity	1,545,457	77,786	58	0.128	0.000
+ Economic activity by Marital status	1,482,343	63,114	89	0.178	0.000
+ Economic activity by Age left Education	1,449,561	32,782	121	0.203	0.000
+ Public sector	1,434,684	14,877	123	0.214	*
+ Public sector by Marital status	1,420,945	13,739	131	0.224	0.000
+ Public by Age left education	1,391,979	28,966	140	0.246	0.000
+ Gross weekly income (Income)	1,373,797	18,182	147	0.259	*
+ Income by Age left education	1,323,077	50,720	177	0.296	0.000
+ Income by Economic activity	1,281,649	41,428	217	0.325	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.19 Model selection process: UK men making personal pension contributions in 2009-2010 (1961-1965 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	2,169,198				
+ Marital status	2,160,256	8,942	5	0.007	*
+ Age left education	2,151,245	9,011	10	0.013	*
+ Age left education by Martial status	2,121,922	29,323	30	0.034	0.000
+ Economic activity	2,030,743	91,179	40	0.098	0.000
+ Economic activity by Marital status	1,992,971	37,772	71	0.123	0.000
+ Public sector	1,957,220	35,751	73	0.147	0.000
+ Public sector by Age left education	1,923,806	33,414	83	0.169	0.000
+ Gross weekly income (Income)	1,917,503	6,303	90	0.173	*
+Income by Age left education	1,850,591	66,912	120	0.216	0.000
+ Income by Marital status	1,798,465	52,126	154	0.249	0.000
+Income by Tenure	1,764,735	33,730	179	0.269	0.000
+ Income by Economic Activity	1,700,955	63,780	223	0.307	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.20 Model selection process: UK women making personal pension contributions in 2009-2010 (1981-1985 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	437,062				
+ Marital status	428,252	8,810	4	0.022	*
+ Age left education	417,991	10,261	9	0.048	0.000
+ Age left education by Marital status	399,909	18,082	26	0.093	0.000
+ Tenure	393,973	5,936	30	0.108	*
+ Tenure by Marital status	389,489	4,484	42	0.119	0.000
+ Tenure by Age left education	377,022	12,467	56	0.150	0.000
+ Economic activity	353,425	23,597	66	0.208	0.000
+ Economic activity by Marital status	340,881	12,544	95	0.238	0.000
+ Economic activity by Age left education	309,845	31,036	132	0.313	0.000
+ Public sector	299,828	10,017	134	0.337	0.000
+ Public sector by Age left Education	288,796	11,032	144	0.363	0.000
+ Public sector by Tenure	271,306	17,490	150	0.404	0.000
+ Public sector by Economic activity	255,782	15,524	167	0.440	0.000
+ Gross weekly income (Income)	242,747	13,035	174	0.470	0.000
+ Income by Marital status	227,390	15,357	196	0.506	0.000
+ Income by Age left education	208,086	19,304	230	0.550	0.000
+ Income by Tenure	190,844	17,242	250	0.589	0.000
+ Income by Economic activity	180,720	10,124	303	0.612	0.000
+ Income by Public sector	165,916	14,804	317	0.645	0.000
+ CareChild	157,779	8,137	318	0.663	*
+ Carechild by Economic activity	155,330	2,449	326	0.668	0.000
+ CareChild by Income	144,997	10,333	333	0.691	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.21 Model selection process: UK women making personal pension contributions in 2009-2010 (1971-1975 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	1,222,510				
+ Marital status	1,201,382	21,128	5	0.022	0.000
+ Age left education	1,185,066	16,316	10	0.040	0.000
+ Age left education by Marital status	1,175,029	10,037	31	0.050	0.000
+ Tenure	1,167,565	7,464	35	0.058	0.000
+ Tenure by Age left education	1,151,013	16,552	52	0.075	0.000
+ Economic activity	1,121,720	29,293	62	0.105	0.000
+ Economic activity by Marital status	1,074,640	47,080	102	0.153	0.000
+ Economic activity by Age left education	1,031,619	43,021	139	0.195	0.000
+ Economic activity by Tenure	993,802	37,817	165	0.232	0.000
+ Public sector	975,564	18,238	167	0.249	0.000
+ Public sector by Marital status	967,763	7,801	176	0.257	0.000
+ Gross weekly income (Income)	959,525	8,238	183	0.265	0.000
+ Income by Marital status	913,909	45,616	213	0.307	0.000
+ Income by Age left education	883,457	30,452	246	0.336	0.000
+ Income by Tenure	856,411	27,046	268	0.360	0.000
+ Income by Economic activity	803,467	52,944	322	0.407	0.000
+ Income by Public sector	781,196	22,271	336	0.427	0.000
+ CareChild	774,353	6,843	337	0.433	0.000
+ CareChild by Income	753,550	20,803	345	0.451	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.22 Model selection process: UK women making personal pension contributions in 2009-2010 (1961-1965 cohort)

Model	-2 log likelihood (-2LL)	Likelihood ratio test statistic	Degrees of freedom	Nagelkerke R^2	Probability of change (-2ll)
Constant	1,446,845				
+ Marital status	1,438,364	8,481	5	0.008	*
+ Age left education	1,428,031	10,333	10	0.018	*
+ Age left education by Marital status	1,397,434	30,597	34	0.046	0.000
+ Tenure	1,392,717	4,717	38	0.050	*
+ Tenure by Marital status	1,373,533	19,184	53	0.067	0.000
+ Economic activity	1,344,564	28,969	63	0.094	0.000
+ Economic activity by Marital status	1,283,380	61,184	106	0.148	0.000
+ Economic activity by Age left education	1,247,943	35,437	147	0.179	0.000
+ Economic activity by Tenure	1,224,290	23,653	173	0.199	0.000
+ Public sector	1,216,674	7,616	175	0.210	*
+ Public sector by Marital status	1,197,867	18,807	185	0.221	0.000
+ Gross weekly income (Income)	1,161,232	36,635	192	0.252	0.000
+ Income by Marital status	1,123,468	37,764	227	0.283	0.000
+ Income by Age left education	1,091,223	32,245	259	0.309	0.000
+ Income by Economic activity	1,009,273	81,950	312	0.373	0.000

Note: * main effect included due to significant contribution of interaction

Source: Family Resources Survey, 2009-2010

Table A6.23 Fitted model for men making personal pension contributions in 2009-2010 (1981-1985 cohort) – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Marital status by Age left education			8,263.11	15	p<0.001	
Marital status by Tenure			2,403.98	10	p<0.001	
Married by Buying with mortgage	-1.733	0.066	695.10	1	p<0.001	0.177
Married by Rents	1.048	0.058	330.36	1	p<0.001	2.852
Cohabiting by Buying with mortgage	-1.880	0.062	917.60	1	p<0.001	0.153
Age left education by Tenure			589.45	14	p<0.001	
Economic activity by Age left education			2,243.77	33	p<0.001	
Public sector			1,102.20	2	p<0.001	
Private sector	0.996	0.030	1,102.17	1	p<0.001	2.708
Marital status by Public sector			2,495.73	6	p<0.001	
Cohabiting by Private sector	-1.988	0.040	2,495.68	1	p<0.001	0.137
£450 to < £600	0.197	0.096	4.21	1	0.040	1.218
Income by Marital status			8,528.95	20	p<0.001	
£350 to < £450 by Married	2.670	0.061	1,912.49	1	p<0.001	**
£450 to < £600 by Married	-1.715	0.060	808.00	1	p<0.001	0.180
£450 to < £600 by Cohabiting	-0.903	0.066	186.71	1	p<0.001	0.406
Income by Age left education			3,342.79	33	p<0.001	
£450 to < £600 by 16 or under	-0.344	0.068	25.71	1	p<0.001	0.709
£450 to < £600 by 19-21	1.837	0.068	738.75	1	p<0.001	6.279
Income by Tenure			3,497.37	22	p<0.001	
£250 to < £350 by Buying with mortgage	-0.719	0.052	191.03	1	p<0.001	0.487
£350 to < £450 by Buying with mortgage	-1.396	0.062	510.84	1	p<0.001	0.248
£350 to < £450 by Rents	-0.165	0.064	6.70	1	0.010	0.848
£450 to < £600 by Rents	2.239	0.057	1,550.69	1	p<0.001	9.386
Economic activity by Income			1,548.01	38	p<0.001	
Full-time self-employed by £450 to < £600	2.078	0.053	1,547.78	1	p<0.001	7.992
Care for children under 5 by Tenure			38.68	3	p<0.001	
Care for children under 5 by Buying with mortgage	-0.394	0.063	38.44	1	p<0.001	0.675
Care for children under 5 by Income			55.30	7	p<0.001	
Care for children under 5 by £450 to < £600	-0.443	0.060	54.33	1	p<0.001	0.642

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\hat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.24 Fitted model for men making personal pension contributions in 2009-2010 (1971-1975 cohort) – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Marital status			520.24	5	p<0.001	
Age left education			6,863.71	5	p<0.001	
16 or under	3.244	0.044	5,351.26	1	p<0.001	**
17-18	2.818	0.047	3,527.37	1	p<0.001	**
19-21	1.534	0.052	865.41	1	p<0.001	4.638
Marital status by Age left education			11,626.08	21	p<0.001	
Married by 16 or under	-1.082	0.028	1,447.88	1	p<0.001	0.339
Married by 17-18	-1.396	0.030	2,147.65	1	p<0.001	0.248
Married by 19-21	0.173	0.037	21.67	1	p<0.001	1.189
Cohabiting by 16 or under	-2.048	0.031	4,315.14	1	p<0.001	0.129
Cohabiting by 17-18	-2.175	0.033	4,320.42	1	p<0.001	0.114
Cohabiting by 19-21	-1.680	0.043	1,526.48	1	p<0.001	0.186
Divorced by 19-21	3.404	0.087	1,542.22	1	p<0.001	**
Tenure			2,962.18	4	p<0.001	
Buying with mortgage	0.372	0.016	554.27	1	p<0.001	1.451
Rents	-0.467	0.017	736.86	1	p<0.001	0.627
Marital status by Tenure			6,452.99	13	p<0.001	
Married by Buying with mortgage	-0.295	0.017	288.93	1	p<0.001	0.745
Married by Rents	0.782	0.018	1,791.13	1	p<0.001	2.185
Cohabiting by Buying with mortgage	-0.276	0.022	157.39	1	p<0.001	0.759
Cohabiting by Rents	1.020	0.022	2,121.20	1	p<0.001	2.774
Divorced by Rents	2.518	0.050	2,535.60	1	p<0.001	**
Economic activity			6,970.64	10	p<0.001	
Full-time self-employed	2.058	0.025	6,970.64	1	p<0.001	7.831
Economic activity by Marital status			5,972.01	31	p<0.001	
Full-time self-employed by Married	-0.486	0.018	724.42	1	p<0.001	0.615
Full-time self-employed by Cohabiting	-0.966	0.023	1,823.94	1	p<0.001	0.380
Full-time self-employed by Divorced	2.730	0.052	2,767.00	1	p<0.001	**
Economic activity by Age left education			4,785.76	32	p<0.001	
Full-time self-employed by 16 or under	-1.082	0.020	2,955.67	1	p<0.001	0.339
Full-time self-employed by 17-18	-0.972	0.020	2,299.58	1	p<0.001	0.378
Full-time self-employed by 19-21	-0.870	0.029	896.32	1	p<0.001	0.419
Marital status by Public sector			2,080.01	8	p<0.001	
Public sector by Age left education			10,085.38	9	p<0.001	
Private sector by 16 or under	-2.945	0.033	7,744.80	1	p<0.001	0.053
Private sector by 17-18	-1.711	0.036	2,218.20	1	p<0.001	0.181
Private sector by 19-21	-2.357	0.036	4,174.86	1	p<0.001	0.095
Income			10,297.52	7	p<0.001	

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Less than £100	-3.956	0.072	3,012.90	1	p<0.001	0.019
£150 to < £200	0.328	0.069	22.32	1	p<0.001	1.388
£200 to < £250	-0.827	0.031	696.51	1	p<0.001	0.437
£250 to < £350	-2.056	0.028	5,236.20	1	p<0.001	0.128
£350 to < £450	-1.693	0.026	4,285.90	1	p<0.001	0.184
£450 to < £600	-0.311	0.017	351.26	1	p<0.001	0.733
Income by Age left education			20,497.56	30	p<0.001	
Less than £100	2.346	0.047	2,443.42	1	p<0.001	**
Less than £100 by 19-21	1.265	0.059	457.13	1	p<0.001	3.544
£150 to < £200 by 16 or under	-0.565	0.071	64.13	1	p<0.001	0.568
£150 to < £200 by 17-18	-1.437	0.077	348.03	1	p<0.001	0.238
£150 to < £200 by 19-21	-0.730	0.077	90.87	1	p<0.001	0.482
£200 to < £250by 16 or under	-1.989	0.045	1,994.91	1	p<0.001	0.137
£200 to < £250by 17-18	-0.375	0.038	99.39	1	p<0.001	0.687
£250 to < £350 by 16 or under	1.619	0.030	2,937.05	1	p<0.001	5.050
£250 to < £350 by 17-18	1.476	0.031	2,203.98	1	p<0.001	4.375
£250 to < £350 by 19-21	2.515	0.033	5,761.63	1	p<0.001	**
£350 to < £450 by 16 or under	2.235	0.027	6,722.21	1	p<0.001	9.348
£350 to < £450 by 17-18	1.237	0.029	1,765.43	1	p<0.001	3.444
£350 to < £450 by 19-21	2.145	0.032	4,525.33	1	p<0.001	8.540
£450 to < £600 by 16 or under	0.473	0.019	635.16	1	p<0.001	1.605
£450 to < £600 by 17-18	0.183	0.020	81.46	1	p<0.001	1.201
£450 to < £600 by 19-21	0.353	0.025	195.66	1	p<0.001	1.424
Economic activity by Income			11,407.68	40	p<0.001	
Full-time self-employed by Less than £100	2.617	0.062	1,793.91	1	p<0.001	**
Full-time self-employed by £150 to < £200	0.283	0.036	60.53	1	p<0.001	1.327
Full-time self-employed by £200 to < £250	1.900	0.034	3,172.08	1	p<0.001	6.683
Full-time self-employed by £250 to < £350	-0.318	0.022	205.67	1	p<0.001	0.727
Full-time self-employed by £350 to < £450	1.086	0.020	2,939.49	1	p<0.001	2.962
Full-time self-employed by £450 to < £600	-0.335	0.020	276.43	1	p<0.001	0.715

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.25 Fitted model for men making personal pension contributions in 2009-2010 (1961-1965 cohort) – significant predictors only

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Marital status			3,896.07	5	p<0.001	
Married	-0.205	0.022	86.87	1	p<0.001	0.815
Cohabiting	-1.113	0.030	1,416.90	1	p<0.001	0.329
Widowed	0.930	0.041	507.26	1	p<0.001	2.535
Divorced	-2.260	0.052	1,893.03	1	p<0.001	0.104
Age left education			3,185.36	5	p<0.001	
16 or under	0.942	0.034	780.42	1	p<0.001	2.566
17-18	0.236	0.038	39.05	1	p<0.001	1.266
19-21	1.795	0.039	2,142.08	1	p<0.001	6.017
Marital status by Age left education			12,712.29	20	p<0.001	
Married by 16 or under	-0.098	0.023	18.02	1	p<0.001	0.907
Married by 17-18	0.808	0.027	868.53	1	p<0.001	2.244
Married by Not given	1.705	0.053	1,046.90	1	p<0.001	5.502
Cohabiting by 17-18	1.996	0.034	3,387.73	1	p<0.001	7.360
Cohabiting by 19-21	-0.402	0.039	106.28	1	p<0.001	0.669
Divorced by 16 or under	1.556	0.049	1,024.05	1	p<0.001	4.738
Divorced by 17-18	3.390	0.054	3,976.00	1	p<0.001	**
Divorced by 19-21	2.337	0.063	1,397.10	1	p<0.001	**
Economic activity			5,926.38	10	p<0.001	
Full-time self-employed	1.110	0.022	2,447.91	1	p<0.001	3.036
Part-time self-employed	3.709	0.060	3,883.94	1	p<0.001	**
Economic activity by Marital status			10,723.87	31	p<0.001	
Part-time employee by Married	-1.892	0.040	2,257.45	1	p<0.001	0.151
Part-time employee by Cohabiting	1.462	0.054	725.26	1	p<0.001	4.316
Part-time employee by Divorced	1.262	0.064	388.50	1	p<0.001	3.532
Full-time self-employed by Cohabiting	0.553	0.027	432.12	1	p<0.001	1.739
Full-time self-employed by Divorced	-0.741	0.035	441.91	1	p<0.001	0.477
Unemployed by Married	-0.193	0.048	16.12	1	p<0.001	0.825
Permanently sick/disabled by Married	2.521	0.044	3,237.70	1	p<0.001	**
Permanently sick/disabled by Divorced	1.489	0.066	503.21	1	p<0.001	4.434
Public sector			15,443.17	2	p<0.001	
Sector not given	0.142	0.050	8.03	1	0.005	1.152
Private sector	2.776	0.025	12,519.81	1	p<0.001	**
Public sector by Age left education			10,836.20	10	p<0.001	
Sector not given by 16 or under	-0.259	0.052	24.53	1	p<0.001	0.772
Sector not given by 17-18	-0.177	0.055	10.48	1	0.001	0.837
Sector not given by 19-21	-1.135	0.069	271.17	1	p<0.001	0.322
Private sector by 16 or under	-1.726	0.027	4,126.93	1	p<0.001	0.178
Private sector by 17-18	-2.034	0.028	5,278.75	1	p<0.001	0.131
Private sector by 19-21	-2.785	0.029	9,140.74	1	p<0.001	0.062
Income			2,588.84	7	p<0.001	
Less than £100	-1.089	0.059	340.63	1	p<0.001	0.336
£200 to < £250	-0.716	0.040	318.91	1	p<0.001	0.489
£250 to < £350	-0.072	0.030	5.66	1	0.017	0.931

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
£350 to < £450	-1.496	0.032	2,146.59	1	p<0.001	0.224
Income by Marital status			23,179.08	30	p<0.001	
Less than £100 by Married	1.029	0.039	695.12	1	p<0.001	2.798
Less than £100 by Cohabiting	2.118	0.048	1,959.27	1	p<0.001	8.318
£100 to < £150 by Married	-3.224	0.067	2,350.07	1	p<0.001	0.040
£100 to < £150 by Divorced	-1.588	0.079	402.34	1	p<0.001	0.204
£150 to < £200 by Married	-2.118	0.053	1,581.27	1	p<0.001	0.120
£200 to < £250by Married	-0.946	0.029	1,085.80	1	p<0.001	0.388
£200 to < £250by Cohabiting	0.304	0.038	65.18	1	p<0.001	1.356
£200 to < £250by Divorced	3.146	0.047	4,491.75	1	p<0.001	**
£250 to < £350 by Married	-0.777	0.020	1,565.89	1	p<0.001	0.460
£250 to < £350 by Cohabiting	-0.803	0.028	831.09	1	p<0.001	0.448
£250 to < £350 by Divorced	-1.467	0.044	1,133.43	1	p<0.001	0.231
£350 to < £450 by Married	1.149	0.027	1,827.89	1	p<0.001	3.154
£350 to < £450 by Cohabiting	1.323	0.033	1,584.99	1	p<0.001	3.756
£350 to < £450 by Divorced	1.277	0.037	1,170.32	1	p<0.001	3.587
£450 to < £600 by Married	0.083	0.021	15.97	1	p<0.001	1.086
£450 to < £600 by Cohabiting	0.447	0.027	279.69	1	p<0.001	1.563
£450 to < £600 by Divorced	0.310	0.033	90.39	1	p<0.001	1.363
Income by Age left education			18,834.35	34	p<0.001	
Less than £100	0.493	0.035	200.55	1	p<0.001	1.637
Less than £100 by 17-18	1.444	0.035	1,687.76	1	p<0.001	4.237
Less than £100 by 19-21	-0.901	0.047	367.82	1	p<0.001	0.406
£200 to < £250by 16 or under	0.390	0.032	148.77	1	p<0.001	1.477
£200 to < £250by 17-18	0.536	0.040	178.17	1	p<0.001	1.710
£200 to < £250by 19-21	0.317	0.040	61.78	1	p<0.001	1.373
£250 to < £350 by 16 or under	0.558	0.025	512.63	1	p<0.001	1.747
£250 to < £350 by 17-18	0.793	0.027	895.10	1	p<0.001	2.210
£250 to < £350 by 19-21	2.187	0.031	4,984.10	1	p<0.001	8.909
£250 to < £350 by Not given	1.354	0.045	916.35	1	p<0.001	3.872
£350 to < £450 by 16 or under	-0.273	0.024	129.14	1	p<0.001	0.761
£350 to < £450 by 17-18	0.052	0.025	4.24	1	0.039	1.054
£350 to < £450 by 19-21	-0.458	0.029	248.43	1	p<0.001	0.632
£350 to < £450 by Not given	-0.649	0.061	114.71	1	p<0.001	0.523
£450 to < £600 by 16 or under	-0.505	0.020	628.65	1	p<0.001	0.603
£450 to < £600 by 17-18	-0.895	0.022	1,652.73	1	p<0.001	0.409
£450 to < £600 by 19-21	-0.146	0.024	36.57	1	p<0.001	0.864
Income by Tenure			17,633.80	25	p<0.001	
Less than £100 by Buying with mortgage	-0.296	0.021	196.43	1	p<0.001	0.744
Less than £100 by Rents	0.461	0.020	505.59	1	p<0.001	1.585
£100 to < £150 by Buying with mortgage	0.203	0.036	31.80	1	p<0.001	1.225
£100 to < £150 by Rents	-1.469	0.031	2,179.38	1	p<0.001	0.230
£200 to < £250by Buying with mortgage	0.838	0.025	1,168.85	1	p<0.001	2.312
£200 to < £250by Rents	1.105	0.024	2,181.49	1	p<0.001	3.019
£250 to < £350 by Buying with mortgage	-0.164	0.015	126.84	1	p<0.001	0.849
£250 to < £350 by Rents	0.460	0.013	1,164.34	1	p<0.001	1.583
£350 to < £450 by Buying with mortgage	0.962	0.016	3,843.41	1	p<0.001	2.618

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
£350 to < £450 by Part owns, part rents	1.008	0.039	662.75	1	p<0.001	2.740
£350 to < £450 by Rents	0.907	0.015	3,800.02	1	p<0.001	2.476
£350 to < £450 by Rent-free	4.063	0.057	5,014.19	1	p<0.001	**
£450 to < £600 by Buying with mortgage	0.372	0.011	1,048.75	1	p<0.001	1.450
£450 to < £600 by Rents	0.146	0.011	166.83	1	p<0.001	1.157
£450 to < £600 by Rent-free	0.137	0.052	6.95	1	0.008	1.147
Economic activity by Income			28,083.35	44	p<0.001	
Full-time self-employed by Less than £100	-0.962	0.032	897.91	1	p<0.001	0.382
Full-time self-employed by £100 to < £150	-2.981	0.036	6,756.33	1	p<0.001	0.051
Full-time self-employed by £200 to < £250	-1.049	0.024	1,946.92	1	p<0.001	0.350
Full-time self-employed by £250 to < £350	-1.068	0.017	3,744.04	1	p<0.001	0.344
Full-time self-employed by £350 to < £450	-0.849	0.017	2,369.47	1	p<0.001	0.428
Full-time self-employed by £450 to < £600	0.625	0.015	1,686.81	1	p<0.001	1.869
Part-time self-employed by Less than £100	-3.408	0.063	2,945.55	1	p<0.001	0.033
Part-time self-employed by £150 to < £200	-1.920	0.079	584.49	1	p<0.001	0.147
Part-time self-employed by £200 to < £250	-2.924	0.076	1,465.35	1	p<0.001	0.054
Constant	-2.947	0.032	8,678.01	1	p<0.001	0.052

Notes: [1]The 60-64 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\hat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.26 Fitted model for women making personal pension contributions in 2009-2010 (1981-1985 cohort) – significant predictors only

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Cohabiting by 16 or under	0.372	0.081	21.00	1	p<0.001	1.450
Marital status by Tenure			744.08	12	p<0.001	
Married by Buying with mortgage	-0.643	0.059	118.06	1	p<0.001	0.526
Cohabiting by Buying with mortgage	-1.474	0.056	696.22	1	p<0.001	0.229
Age left education by Tenure			4,924.07	14	p<0.001	
16 or under by Buying with mortgage	4.470	0.064	4,923.96	1	p<0.001	**
Public sector by Tenure			3,421.45	6	p<0.001	
Private sector by Buying with mortgage	3.383	0.058	3,421.38	1	p<0.001	**
Income by Marital status			1,091.38	22	p<0.001	
Income by Age left education			216.45	34	p<0.001	
Income by Tenure			2,127.67	20	p<0.001	
Income by Public sector			761.62	14	p<0.001	
Care for children under 5 by Income			2,110.45	7	p<0.001	

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.27 Fitted model for women making personal pension contributions in 2009-2010 (1971-1975 cohort) – significant predictors only

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Marital status			2,749.92	5	p<0.001	
Married	1.513	0.059	657.42	1	p<0.001	4.540
Cohabiting	3.116	0.069	2,020.55	1	p<0.001	**
Separated	0.501	0.092	29.89	1	p<0.001	1.651
Divorced	1.697	0.081	439.75	1	p<0.001	5.459
Age left education			206.47	5	p<0.001	
16 or under	0.790	0.060	175.22	1	p<0.001	2.204
17-18	0.413	0.067	38.45	1	p<0.001	1.512
Marital status by Age left education			8,689.77	21	p<0.001	
Married by 17-18	-0.340	0.061	31.02	1	p<0.001	0.712
Cohabiting by 16 or under	-2.189	0.065	1,127.91	1	p<0.001	0.112
Cohabiting by 17-18	-1.174	0.071	270.02	1	p<0.001	0.309
Separated by 16 or under	0.609	0.106	33.23	1	p<0.001	1.838
Separated by 17-18	-0.861	0.136	40.28	1	p<0.001	0.423
Divorced by 16 or under	-3.506	0.085	1,714.95	1	p<0.001	0.030
Divorced by 17-18	-0.507	0.080	40.39	1	p<0.001	0.603
Tenure			5,768.54	4	p<0.001	
Buying with mortgage	0.499	0.028	310.92	1	p<0.001	1.647
Rents	1.801	0.026	4,893.06	1	p<0.001	6.056
Age left education by Tenure			13,380.17	17	p<0.001	
16 or under by Buying with mortgage	-0.117	0.029	16.21	1	p<0.001	0.890
16 or under by Rents	-1.685	0.027	4,015.46	1	p<0.001	0.185
17-18 by Buying with mortgage	-1.159	0.033	1,260.93	1	p<0.001	0.314
17-18 by Rents	-2.854	0.032	7,932.26	1	p<0.001	0.058
19-21 by Buying with mortgage	-2.154	0.038	3,192.56	1	p<0.001	0.116
19-21 by Rents	-2.480	0.033	5,498.57	1	p<0.001	0.084
Economic activity			7,982.18	10	p<0.001	
Part-time employee	-3.161	0.087	1,331.52	1	p<0.001	0.042
Full-time self-employed	6.550	0.087	5,730.93	1	p<0.001	**
Economic activity by Marital status			5,223.36	40	p<0.001	
Part-time employee by Married	2.586	0.069	1,416.44	1	p<0.001	**
Part-time employee by Cohabiting	3.945	0.081	2,396.54	1	p<0.001	**
Part-time employee by Divorced	3.756	0.084	2,006.49	1	p<0.001	**
Full-time self-employed by Married	-1.687	0.075	508.23	1	p<0.001	0.185
Full-time self-employed by Cohabiting	1.570	0.100	245.64	1	p<0.001	4.808
Economic activity by Age left education			11,003.15	37	p<0.001	
Part-time employee by 16 or under	-0.695	0.033	451.07	1	p<0.001	0.499
Part-time employee by 17-18	-1.182	0.039	914.59	1	p<0.001	0.307
Part-time employee by 19-21	-0.863	0.040	459.10	1	p<0.001	0.422
Full-time self-employed by 16 or under	-1.591	0.067	557.61	1	p<0.001	0.204
Full-time self-employed by 17-18	-2.353	0.109	469.46	1	p<0.001	0.095
Part-time self-employed by 16 or under	-1.302	0.047	751.94	1	p<0.001	0.272
Part-time self-employed by 17-18	1.501	0.088	291.32	1	p<0.001	4.487

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Part-time self-employed by 19-21	-4.273	0.078	2,992.86	1	p<0.001	0.014
Unemployed by 17-18	-1.794	0.117	234.08	1	p<0.001	0.166
Looking after family/home by 16 or under	-3.756	0.081	2,174.63	1	p<0.001	0.023
Looking after family/home by 17-18	-1.672	0.092	333.64	1	p<0.001	0.188
Looking after family/home by 19-21	-6.457	0.099	4,255.90	1	p<0.001	0.002
Economic activity by Tenure			12,007.35	26	p<0.001	
Part-time employee by Buying with mortgage	-1.172	0.028	1,770.51	1	p<0.001	0.310
Part-time employee by Rents	-1.395	0.025	3,149.68	1	p<0.001	0.248
Full-time self-employed by Buying with mortgage	-1.100	0.058	361.13	1	p<0.001	0.333
Full-time self-employed by Rents	-3.415	0.050	4,732.18	1	p<0.001	0.033
Part-time self-employed by Buying with mortgage	-3.071	0.050	3,757.51	1	p<0.001	0.046
Part-time self-employed by Rents	-1.549	0.055	801.98	1	p<0.001	0.213
Looking after family/home by Rents	-2.068	0.045	2,121.14	1	p<0.001	0.126
Permanently sick/disabled by Rents	0.691	0.082	71.23	1	p<0.001	1.995
Public sector			863.32	2	p<0.001	
Private sector	1.083	0.037	863.31	1	p<0.001	2.952
Marital status by Public sector			4,188.17	9	p<0.001	
Married by Private sector	-0.139	0.036	15.16	1	p<0.001	0.870
Cohabiting by Private sector	-0.861	0.047	341.92	1	p<0.001	0.423
Separated by Private sector	3.431	0.082	1,765.03	1	p<0.001	**
Divorced by Private sector	1.805	0.062	835.34	1	p<0.001	6.078
Income			4,061.91	7	p<0.001	
£150 to < £200	0.804	0.100	64.54	1	p<0.001	2.234
£250 to < £350	0.492	0.060	67.06	1	p<0.001	1.636
£350 to < £450	-4.789	0.096	2,495.48	1	p<0.001	0.008
£450 to < £600	1.330	0.063	451.72	1	p<0.001	3.780
Income by Marital status			14,350.35	30	p<0.001	
£150 to < £200 by Married	-5.525	0.079	4,908.28	1	p<0.001	0.004
£150 to < £200 by Cohabiting	-7.990	0.097	6,793.53	1	p<0.001	0.000
£250 to < £350 by Married	-1.457	0.047	966.07	1	p<0.001	0.233
£250 to < £350 by Cohabiting	-2.604	0.062	1,737.21	1	p<0.001	0.074
£250 to < £350 by Divorced	-0.384	0.076	25.83	1	p<0.001	0.681
£350 to < £450 by Married	-0.957	0.047	421.97	1	p<0.001	0.384
£450 to < £600 by Married	-2.537	0.046	2,984.45	1	p<0.001	0.079
£450 to < £600 by Divorced	-2.879	0.071	1,667.47	1	p<0.001	0.056
Income by Age left education			26,197.21	33	p<0.001	
Less than £100	3.621	0.081	2,010.93	1	p<0.001	**
Less than £100 by 17-18	3.926	0.096	1,684.53	1	p<0.001	**
Less than £100 by 19-21	5.403	0.094	3,329.62	1	p<0.001	**
£100 to < £150 by 16 or under	1.503	0.050	892.02	1	p<0.001	4.494
£100 to < £150 by 17-18	0.985	0.067	215.17	1	p<0.001	2.679
£150 to < £200 by 16 or under	0.107	0.046	5.35	1	0.021	1.113
£150 to < £200 by 17-18	4.150	0.058	5,192.48	1	p<0.001	**
£200 to < £250by 16 or under	-3.779	0.052	5,240.60	1	p<0.001	0.023
£200 to < £250by 17-18	-2.033	0.061	1,112.82	1	p<0.001	0.131
£250 to < £350 by 16 or under	0.458	0.037	151.08	1	p<0.001	1.581
£250 to < £350 by 17-18	1.178	0.048	604.82	1	p<0.001	3.249
£250 to < £350 by 19-21	1.097	0.044	612.32	1	p<0.001	2.996
£350 to < £450 by 16 or under	2.811	0.076	1,374.73	1	p<0.001	**

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
£350 to < £450 by 17-18	4.885	0.082	3,581.24	1	p<0.001	**
£350 to < £450 by 19-21	4.396	0.079	3,064.17	1	p<0.001	**
£450 to < £600 by 16 or under	-1.724	0.045	1,456.13	1	p<0.001	0.178
£450 to < £600 by 17-18	0.845	0.047	326.70	1	p<0.001	2.329
£450 to < £600 by 19-21	-0.509	0.052	96.02	1	p<0.001	0.601
Income by Tenure			20,001.67	22	p<0.001	
Less than £100 by Buying with mortgage	0.385	0.048	64.17	1	p<0.001	1.469
Less than £100 by Rents	2.446	0.046	2,856.16	1	p<0.001	**
£100 to < £150 by Buying with mortgage	1.200	0.040	891.43	1	p<0.001	3.319
£100 to < £150 by Rents	2.165	0.039	3,018.46	1	p<0.001	8.713
£150 to < £200 by Buying with mortgage	2.547	0.051	2,539.73	1	p<0.001	**
£150 to < £200 by Rents	2.862	0.050	3,223.79	1	p<0.001	**
£200 to < £250by Buying with mortgage	-3.727	0.056	4,441.24	1	p<0.001	0.024
£200 to < £250by Rents	-0.683	0.038	328.70	1	p<0.001	0.505
£250 to < £350 by Rents	0.993	0.030	1,067.90	1	p<0.001	2.699
£350 to < £450 by Buying with mortgage	2.376	0.041	3,299.62	1	p<0.001	**
£350 to < £450 by Rents	3.145	0.042	5,700.99	1	p<0.001	**
£450 to < £600 by Buying with mortgage	-0.505	0.033	232.79	1	p<0.001	0.604
£450 to < £600 by Rents	-0.444	0.035	160.22	1	p<0.001	0.642
Economic activity by Income			23,144.69	54	p<0.001	
Part-time employee by Less than £100	1.457	0.064	510.96	1	p<0.001	4.293
Part-time employee by £100 to < £150	2.441	0.061	1,621.08	1	p<0.001	**
Part-time employee by £150 to < £200	1.975	0.058	1,146.10	1	p<0.001	7.209
Part-time employee by £200 to < £250	0.772	0.059	171.84	1	p<0.001	2.165
Part-time employee by £250 to < £350	2.728	0.050	2,938.11	1	p<0.001	**
Part-time employee by £350 to < £450	3.192	0.056	3,266.78	1	p<0.001	**
Part-time employee by £450 to < £600	1.224	0.061	403.29	1	p<0.001	3.401
Part-time self-employed by Less than £100	-3.209	0.086	1,394.95	1	p<0.001	0.040
Part-time self-employed by £100 to < £150	-2.596	0.068	1,441.61	1	p<0.001	0.075
Part-time self-employed by £150 to < £200	0.840	0.096	76.24	1	p<0.001	2.316
Part-time self-employed by £250 to < £350	-0.913	0.070	169.24	1	p<0.001	0.401
Part-time self-employed by £350 to < £450	1.999	0.084	561.81	1	p<0.001	7.379
Part-time self-employed by £450 to < £600	5.630	0.075	5,660.26	1	p<0.001	**
Income by Public sector			13,173.32	14	p<0.001	

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Less than £100 by Private sector	-1.375	0.030	2,086.27	1	p<0.001	0.253
£100 to < £150 by Private sector	-0.275	0.030	83.49	1	p<0.001	0.760
£150 to < £200 by Private sector	1.783	0.053	1,124.39	1	p<0.001	5.950
£200 to < £250by Private sector	-1.589	0.034	2,128.07	1	p<0.001	0.204
£250 to < £350 by Private sector	-0.728	0.023	1,007.65	1	p<0.001	0.483
£350 to < £450 by Private sector	-0.175	0.025	49.34	1	p<0.001	0.839
£450 to < £600 by Private sector	1.570	0.038	1,721.60	1	p<0.001	4.807
Care for children under 5	-0.287	0.011	740.63	1	p<0.001	0.751
Care for children under 5 by Economic activity			10,756.38	8	p<0.001	
Care for children under 5 by Part-time employee	-0.782	0.017	2,097.46	1	p<0.001	0.457
Care for children under 5 by Part-time self-employed	2.006	0.036	3,029.03	1	p<0.001	7.433
Care for children under 5 by Looking after family/home	-2.171	0.033	4,327.09	1	p<0.001	0.114
Care for children under 5 by Permanently sick/disabled	1.801	0.072	630.43	1	p<0.001	6.055
Constant	-4.692	0.064	5,452.27	1	p<0.001	0.009

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\widehat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

Table A6.28 Fitted model for women making personal pension contributions in 2009-2010 (1961-1965 cohort) – significant predictors only

Variable	Log odds ($\widehat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\widehat{\beta}}$
Marital status			1,483.29	5	p<0.001	
Married	-0.103	0.048	4.65	1	0.031	0.902
Cohabiting	-2.263	0.072	983.40	1	p<0.001	0.104
Age left education			4,503.34	5	p<0.001	
16 or under	0.988	0.044	503.29	1	p<0.001	2.687
17-18	-1.075	0.055	376.29	1	p<0.001	0.341
19-21	1.644	0.050	1,082.72	1	p<0.001	5.176
Not given	1.763	0.058	911.26	1	p<0.001	5.827
Marital status by Age left education			11,505.20	24	p<0.001	
Married by 16 or under	-1.474	0.043	1,159.74	1	p<0.001	0.229
Married by 17-18	0.837	0.054	236.65	1	p<0.001	2.308
Married by 19-21	-2.108	0.050	1,774.12	1	p<0.001	0.121
Married by Not given	-1.301	0.059	487.67	1	p<0.001	0.272
Cohabiting by 17-18	1.778	0.079	500.87	1	p<0.001	5.918
Cohabiting by 19-21	0.717	0.073	95.50	1	p<0.001	2.048
Cohabiting by Not given	0.904	0.087	108.87	1	p<0.001	2.469
Divorced by 16 or under	-0.505	0.065	59.57	1	p<0.001	0.604
Divorced by 17-18	2.432	0.073	1,109.40	1	p<0.001	**
Divorced by Not given	-0.851	0.083	106.03	1	p<0.001	0.427
Tenure			2,845.55	4	p<0.001	
Buying with mortgage	-0.518	0.023	496.78	1	p<0.001	0.596
Rents	-1.203	0.023	2,840.37	1	p<0.001	0.300
Marital status by Tenure			5,343.28	15	p<0.001	
Married by Buying with mortgage	0.919	0.025	1,368.68	1	p<0.001	2.506
Married by Rents	1.226	0.024	2,548.84	1	p<0.001	3.408
Cohabiting by Buying with mortgage	1.183	0.033	1,253.90	1	p<0.001	3.263
Cohabiting by Rents	1.816	0.032	3,248.49	1	p<0.001	6.147
Divorced by Buying with mortgage	0.751	0.035	466.52	1	p<0.001	2.118
Economic activity			661.86	10	p<0.001	
Part-time employee	-0.329	0.040	67.48	1	p<0.001	0.720
Full-time self-employed	1.504	0.064	558.42	1	p<0.001	4.501
Economic activity by Marital status			5,651.39	43	p<0.001	
Part-time employee by Married	0.424	0.031	184.14	1	p<0.001	1.527
Part-time employee by Cohabiting	2.059	0.038	2,915.60	1	p<0.001	7.838
Part-time employee by Divorced	0.868	0.045	380.26	1	p<0.001	2.382
Full-time self-employed by Married	-0.327	0.041	63.35	1	p<0.001	0.721
Economic activity by Age left education			8,992.79	41	p<0.001	
Part-time employee by 16 or under	1.255	0.026	2,395.85	1	p<0.001	3.507
Part-time employee by 17-18	1.259	0.027	2,163.48	1	p<0.001	3.523
Part-time employee by 19-21	1.584	0.030	2,796.66	1	p<0.001	4.876
Part-time employee by Not given	2.526	0.037	4,623.17	1	p<0.001	**
Full-time self-employed by 16 or under	-0.905	0.041	495.11	1	p<0.001	0.405
Full-time self-employed by 17-18	-2.978	0.061	2,392.46	1	p<0.001	0.051
Full-time self-employed by 19-21	-3.752	0.089	1,773.31	1	p<0.001	0.023
Part-time self-employed by 16 or under	-0.341	0.068	25.45	1	p<0.001	0.711
Economic activity by Tenure			9,758.21	26	p<0.001	

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
Part-time employee by Buying with mortgage	-1.217	0.016	5,669.46	1	p<0.001	0.296
Part-time employee by Rents	-0.343	0.016	472.70	1	p<0.001	0.709
Full-time self-employed by Buying with mortgage	1.864	0.061	935.76	1	p<0.001	6.451
Full-time self-employed by Rents	0.453	0.039	137.86	1	p<0.001	1.574
Part-time self-employed by Buying with mortgage	-0.620	0.046	181.15	1	p<0.001	0.538
Part-time self-employed by Rents	-0.993	0.062	252.85	1	p<0.001	0.370
Unemployed by Buying with mortgage	-1.616	0.065	619.67	1	p<0.001	0.199
Unemployed by Rents	0.200	0.064	9.88	1	0.002	1.222
Looking after family/home by Buying with mortgage	-1.828	0.056	1,075.19	1	p<0.001	0.161
Looking after family/home by Rents	-0.312	0.039	65.11	1	p<0.001	0.732
Other inactive by Buying with mortgage	-1.900	0.053	1,273.67	1	p<0.001	0.150
Other inactive by Rents	-0.648	0.046	196.80	1	p<0.001	0.523
Public sector			281.14	2	p<0.001	
Private sector	0.323	0.019	281.14	1	p<0.001	1.382
Marital status by Public sector			3,622.41	10	p<0.001	
Married by Private sector	0.636	0.021	952.77	1	p<0.001	1.890
Cohabiting by Private sector	0.395	0.027	212.79	1	p<0.001	1.485
Divorced by Private sector	-0.685	0.030	524.50	1	p<0.001	0.504
Income			4,238.58	7	p<0.001	
£100 to < £150	4.751	0.091	2,749.07	1	p<0.001	**
£200 to < £250	0.585	0.054	118.10	1	p<0.001	1.795
£250 to < £350	-1.329	0.048	764.26	1	p<0.001	0.265
£350 to < £450	0.443	0.045	96.03	1	p<0.001	1.557
£450 to < £600	0.572	0.039	218.97	1	p<0.001	1.772
Income by Marital status			5,282.44	35	p<0.001	
£100 to < £150 by Married	-2.990	0.083	1,288.63	1	p<0.001	0.050
£200 to < £250by Married	0.324	0.046	50.08	1	p<0.001	1.383
£250 to < £350 by Married	1.072	0.039	741.11	1	p<0.001	2.921
£250 to < £350 by Cohabiting	1.554	0.045	1,170.11	1	p<0.001	4.730
£350 to < £450 by Married	-0.892	0.028	1,018.30	1	p<0.001	0.410
£350 to < £450 by Cohabiting	-0.807	0.043	358.70	1	p<0.001	0.446
£450 to < £600 by Married	-0.138	0.030	20.91	1	p<0.001	0.871
£450 to < £600 by Cohabiting	-0.143	0.039	13.11	1	p<0.001	0.867
£450 to < £600 by Divorced	-0.088	0.036	5.99	1	0.014	0.916
Income by Age left education			17,128.41	32	p<0.001	
Less than £100	-1.120	0.058	369.46	1	p<0.001	0.326
£100 to < £150 by 16 or under	-2.012	0.039	2,609.69	1	p<0.001	0.134
£100 to < £150 by 17-18	-2.596	0.051	2,578.28	1	p<0.001	0.075
£150 to < £200 by 16 or under	-1.525	0.040	1,429.81	1	p<0.001	0.218
£150 to < £200 by 17-18	-1.669	0.043	1,507.89	1	p<0.001	0.188
£150 to < £200 by 19-21	-0.463	0.049	87.68	1	p<0.001	0.629
£200 to < £250by 16 or under	-1.622	0.040	1,613.64	1	p<0.001	0.197
£200 to < £250by 17-18	-0.267	0.041	42.64	1	p<0.001	0.765
£200 to < £250by 19-21	-1.139	0.045	654.24	1	p<0.001	0.320
£250 to < £350 by 16 or under	-0.220	0.032	46.97	1	p<0.001	0.802
£250 to < £350 by 17-18	-0.406	0.035	133.54	1	p<0.001	0.666
£250 to < £350 by 19-21	-0.391	0.039	98.15	1	p<0.001	0.677
£250 to < £350 by Not given	-1.443	0.046	986.61	1	p<0.001	0.236

Variable	Log odds ($\hat{\beta}$)	Standard Error	Wald statistic	Degrees of freedom (df)	Significance	$e^{\hat{\beta}}$
£350 to < £450 by 16 or under	0.090	0.040	5.02	1	0.025	1.094
£350 to < £450 by 17-18	0.353	0.043	68.87	1	p<0.001	1.424
£350 to < £450 by 19-21	-1.831	0.061	908.36	1	p<0.001	0.160
£350 to < £450 by Not given	-1.374	0.061	511.72	1	p<0.001	0.253
£450 to < £600 by 16 or under	-0.443	0.031	203.07	1	p<0.001	0.642
£450 to < £600 by 17-18	0.305	0.033	87.21	1	p<0.001	1.356
£450 to < £600 by 19-21	0.491	0.036	186.55	1	p<0.001	1.634
£450 to < £600 by Not given	0.401	0.041	97.09	1	p<0.001	1.493
Economic activity by Income			17,045.99	53	p<0.001	
Part-time employee by £100 to < £150	-1.030	0.034	907.05	1	p<0.001	0.357
Part-time employee by £150 to < £200	-0.950	0.029	1,081.38	1	p<0.001	0.387
Part-time employee by £200 to < £250	-1.544	0.026	3,641.92	1	p<0.001	0.213
Part-time employee by £250 to < £350	-1.888	0.024	6,345.06	1	p<0.001	0.151
Part-time employee by £350 to < £450	-0.324	0.025	172.70	1	p<0.001	0.723
Part-time employee by £450 to < £600	-1.076	0.024	2,084.40	1	p<0.001	0.341
Full-time self-employed by £100 to < £150	-0.302	0.075	16.24	1	p<0.001	0.740
Full-time self-employed by £200 to < £250	-2.447	0.059	1,742.41	1	p<0.001	0.087
Full-time self-employed by £250 to < £350	1.943	0.038	2,581.21	1	p<0.001	6.979
Part-time self-employed by £150 to < £200	-0.502	0.060	69.41	1	p<0.001	0.605
Constant	-2.116	0.048	1,979.50	1	p<0.001	0.120

Notes: [1]The 55-59 age group has been held as the reference category for the age variable
[2]The 'single' category has been held as the reference category for the marital status variable.
[3]The '22-25' category has been held as the reference category for the age completed full-time education variable
[4]The 'owns outright' category has been held for the reference category for the housing tenure variable
[5]The 'full-time employee' category has been held as the reference category for the economic activity category
[6]The 'public sector' category has been held for the reference category for the public-sector variable
[7]The '£600 and over' category has been held for the reference category for the gross weekly income variable

** $e^{\hat{\beta}} > 10$

Source: Family Resources Survey 2009-2010

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