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The wealth and saving of UK families on the eve of the crisis

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The wealth and saving of UK families on the eve of the crisis

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Preface

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Executive summary

This report looks at the level of wealth and the rate of saving of households in the UK on the eve of the global economic crisis. Our approach is to use microdata sources to look at the extent to which wealth holdings and saving rates vary across individuals. We use the British Household Panel Survey (BHPS) to study household wealth, and we use both the BHPS and the Expenditure and Food Survey (EFS) to study household saving.

We emphasise that the vast majority of household wealth is held in an illiquid form. Almost half of all families had less than £1,000 in liquid financial wealth in 2005. To put this in context, the median level of wealth held in the form of housing equity was £60,000 in that year, while the Pensions Commission (2004) calculated the value of a fully accrued basic state pension at over £80,000 in 2004. The illiquidity of household wealth will, to some extent, have limited the capacity of some families to respond to unanticipated shocks to income, such as those that might have been seen since the beginning of the global economic crisis.

Levels of wealth in 2005 varied substantially across the population. We summarise a few of the most interesting points below:

- The wealth distribution is highly skewed to the right: that is, a large proportion of wealth is held by a relatively small proportion of the population. While the median level of wealth in 2005 was approximately £1,000, the 75th percentile was at approximately £16,000 and the 90th percentile was just under £60,000.
- Wealth holdings tended to rise with age, except for the very oldest age groups. Those families where the head was over the age of 75 had lower wealth, on average, than families where the head was slightly younger. Median financial (non-housing) wealth was close to zero for families where the head was aged less than 45.
- Wealth holdings tended to rise with income. Median financial wealth was close to zero in each of the five income deciles with the lowest incomes, but rose to £16,400 for those in the richest income decile.
- Liquid financial wealth was substantially more concentrated among those with the highest incomes than was wealth held in the form of housing equity.
- The positive relationship between wealth and income and the (mostly) positive relationship between wealth and age discussed above remain true after conditioning on other family characteristics.
- Those who paid into a pension in 2005 tended to have higher non-pension wealth than those who didn't pay into a pension.
- Those who owned their property outright had more non-housing wealth than those who were paying off a mortgage and those that did not own property. We find that this is true conditional on age, income, levels of education, family composition and other family characteristics.

Using data from the BHPS, we construct two measures of the saving rate. The first is calculated as the change in the value of financial wealth between 2000 and 2005, divided by income in 2000. The second is calculated as the change in the value of the sum of financial and housing wealth between the two waves, again divided by income in 2000. Both these measures of saving include both active saving (that part of income that families do not to spend) and passive saving (capital gains accruing to families that they do not realise and spend). Using the EFS data, we calculate saving as income less expenditure, divided by income. This last measure will clearly not include any passive saving done by households.

As was the case with levels of wealth, the saving rate varies substantially across the population. For example:

- We find a clear tendency for saving rates to rise with income. This is true in both data sets, and remains true after we condition on a variety of household characteristics.
- The clearest finding we find with regard to the relationship between saving rates and age is that those aged between 55 and 64 in 2000 had the highest (non-housing) saving rates in the subsequent five years. This is true after conditioning on other family characteristics.
- For those families who own property, changes in the value of their home (passive saving) between 2000 and 2005 tended to dwarf any other saving (passive or active) that they did. For example, the median (annualised) saving rate, including changes in the value of housing equity for those who owned property outright in both 2000 and 2005, was over 90%. The counterpoint to this fact is that as house prices have, on average, fallen in the past three years (a period not yet covered by the data available), many families with property are likely to have experienced saving rates that have been negative.
- We find suggestive evidence that, for some families at least, pension saving and non-pension saving are substitutes. Conditional on other family characteristics, those who switched from paying into a pension to not paying into a pension between 2000 and 2005 saved a significantly greater share of their income than those who switched from not paying into a pension to paying into a pension.
- Those households who were paying off a mortgage in 2000 and owned their property outright in 2005 had (non-housing) saving rates that were larger than those of families with other tenure types. One explanation for this could be that, having paid off their mortgage, they saved some or all of the income they had previously dedicated to repayments.
- We find some evidence that couples saved (excluding housing) more than single-adult families between 2000 and 2005. This is true conditional on other family characteristics, and on whether the comparison is made between couples with children and lone parents or between couples with no children and single adults with no children. We also find that couples with children saved more than couples with no children.

It is worth noting that many of the associations we find between family characteristics and saving mirror those that we find between family characteristics and wealth levels. This is not surprising, as wealth represents the stock of accumulated passive and active saving.

The results that we present describe the financial position of households in the UK in the period before the beginning of the global economic downturn. They will provide useful context for studying how both the stock of wealth and the saving rate are evolving as UK households feel the effects of, and respond to, the economic downturn. Data that will allow analysis of this type will come from the Wealth and Asset Survey, a new source that is the first publicly available survey specifically designed to collect information on the wealth holdings and saving behaviour of households in the UK.

1. Introduction

The adequacy of levels of household wealth is an issue that has been given much attention lately as a result of the turmoil that has been experienced in the global economy. Falling asset values, leading to falls in levels of household wealth, have important implications for the ability of households to maintain an adequate level of consumption in response to changes in their income.

While the issue has been brought into sharper focus recently, given the state of the economy, concerns that households save enough to maintain an adequate level of consumption when their income falls are not new. Banks & Tanner (1999) document the fact that there has been a gradual shift in responsibility for welfare provision from the government to the individual. They note a number of policy initiatives that preceded their research designed to encourage household saving.¹ This flow of policy initiatives has continued. Recent examples include a series of expansions in the annual limits on saving into tax-advantaged Individual Savings Accounts (ISAs), the introduction of stakeholder pensions (2001), the Child Trust Fund (2003), and a plan for employers to enrol most of their employees automatically into private pension schemes from 2012.²

All of these policies are driven, at least in part, by a concern that households have enough wealth to maintain levels of consumption at an adequate level whenever income is low. Incomes can be low for reasons that are anticipated, such as retirement, or unanticipated, such as unemployment. If wealth is considered to be too low for some types of household, then more saving is needed. If, on the other hand, wealth is more than sufficient, then the household can comfortably save less, or even 'dissave' some of their existing wealth. The question of wealth and saving adequacy is currently a fertile one in economics.³ However, before even attempting to answer such a question for the UK, three other questions must be answered. They are:

1. How much wealth do UK households hold?
2. How much are UK households saving?
3. Do levels of saving and wealth vary substantially across different types of household in the UK?

Previous papers that have examined these questions include Banks & Blundell (1994), who looked at rates of household saving between 1969 and 1990, Banks & Tanner (1999), who looked at levels of wealth in the late 1990s, and Banks et al. (2002), who used detailed data to summarise the distribution of household

¹ In particular, they note the introduction of Personal Equity Plans in 1987, Personal Private Pensions in 1987/88, Tax-Exempt Special Savings Accounts in 1991, and Individual Savings Accounts (ISAs) in 1999.

² See Emmerson & Wakefield (2009) for a discussion of this last issue.

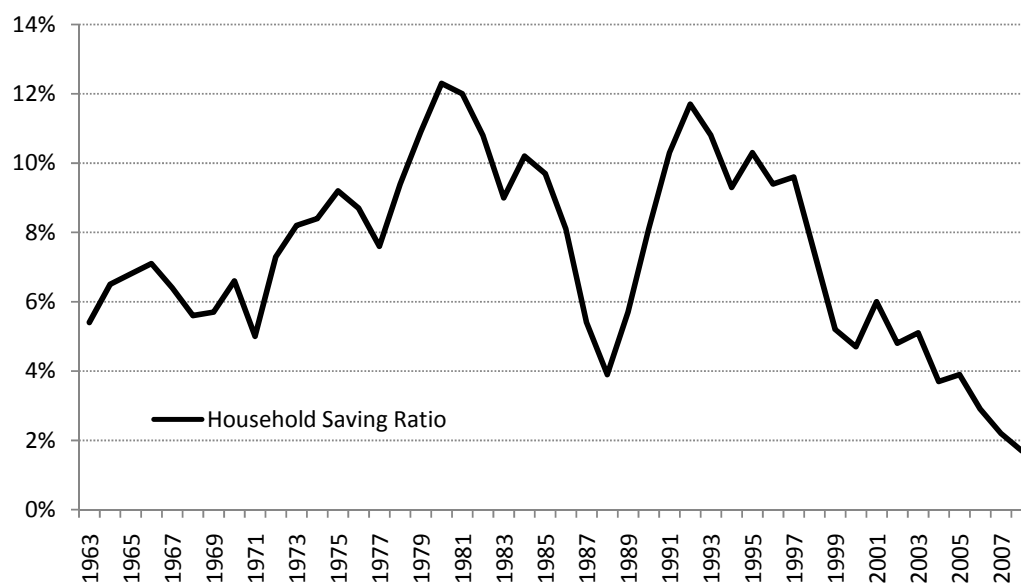
³ See Khoman & Weale (2006, 2008) for examples that focus on the UK. These papers define adequacy in terms of each birth cohort saving enough to 'pay' for itself over its life-cycle. For an example which assesses adequacy at the household level using data from the USA, see Scholz et al. (2006).

wealth in 2000. More recently, Banks et al. (2005) investigated the distribution of wealth among the over 50s in 2002/03.

In this paper we use some of the most up-to-date publicly available data to answer these three questions. The currently available data cover the period just before the beginning of the global recession. Our work provides a snapshot of saving behaviour and wealth holdings in the UK at the cusp of this turbulent period. It will provide useful context for studying how stocks of wealth and the saving rates of UK households are evolving as they feel the effects of the economic downturn.

Our approach, which focuses on estimating how wealth and saving vary across the population, can be contrasted with one that focuses on aggregate wealth and saving – that is, the total level of wealth held, or the total quantity of saving done by all households in the economy. The National Accounts contain estimates of the aggregate wealth held by all households in the UK.⁴ These aggregate figures do not give us an indication of how wealth is distributed across the population: that is, they do not allow us to identify which types of household have the most wealth and which have the least. Similarly, much of the attention given to saving focuses on the Household Saving Ratio, which is estimated and published on a quarterly basis by the Office for National Statistics (see, e.g., Office for National Statistics (2009a)). Figure 1.1 illustrates the evolution of the household saving ratio since 1963. Loosely speaking, this ratio gives the proportion of total household disposable income that is not used to fund consumption and is therefore saved.

Figure 1.1. Household saving ratio 1963–2008



Source: Office for National Statistics

⁴ See Chapter 10 of the United Kingdom National Accounts (Office for National Statistics 2009b).

While it is a useful indicator of the total saving being carried out by households, the household saving ratio does not tell us anything about the distribution of saving across the population. In addition, as it is a measure of *total* household saving, those who do the most saving (or borrowing) will influence the ratio to the greatest extent. These households are likely to be those who have the highest incomes. The household saving ratio tells us little, therefore, about the saving behaviour of those on average or lower-than-average income.

There is a large literature in economics that considers the forces that drive saving. Banks & Tanner (1999, pp. 2–3) provide a short summary of the factors that have been suggested as influencing the decision to save. Many of these reasons are rooted in the supposition that households plan their consumption at each time (and therefore their saving) in order to ensure that they maximise their utility over the whole of their lifetime. The broad theory (of which there are many variants) regarding how individuals do this is known as the life-cycle model of consumption and saving (see Browning & Crossley (2001) for an overview of this theory). While nothing in this present report provides any test of these theories, many of our results are in keeping with the predictions that are generated by life-cycle models of consumption and saving.⁵

This report proceeds as follows. Chapter 2 outlines how we define and measure wealth in this study. Chapter 3 uses data from the British Household Panel Survey (BHPS) to summarise the distribution of wealth among families in Britain. Chapter 3 discusses the definition and measurement of the saving rate. Chapters 4 and 5 use the BHPS and the Expenditure and Food Survey (EFS) respectively to summarise the distribution of saving rates among households in the UK. Chapter 6 concludes. A series of appendices provide additional technical details regarding the data that we use and the methods that we employ to estimate household wealth and saving.

⁵ An important issue, though one we do not cover here, concerns the taxation of the return to saving. See Wakefield (2009) for a description of how the UK tax system treats the return to saving.

2. Wealth: definition, measurement and data sources

In this chapter we describe how household wealth can be defined, and we introduce the data source, the British Household Panel Survey (BHPS), which we use to estimate its distribution.

2.1 Definition

A broad measure of the net wealth of a household will be equal to the value of all their assets (liquid and illiquid), less the value of their debts. Liquid assets will include the value of any cash they hold, as well as the value of any assets that can be easily converted into cash. Illiquid assets could include the value of their home, as well the value of accumulated pension rights. These assets are less easily converted into cash. An even broader measure of wealth could include the value of a household's human capital (the value of the future stream of income that they will be able to earn in the labour market) and any future inheritances that they will receive.

In many cases, however, a slightly narrower definition of wealth will be used. The measure of household wealth constructed in any study will depend crucially on two factors. The first of these is the question under investigation. For example, if the study wishes to investigate a household's ability to maintain an adequate level of consumption in the aftermath of a sudden negative shock to income, the focus should be on liquid wealth. If, on the other hand, the study wishes to assess the state of a household's level of preparedness for retirement, then a broader measure should be constructed, one that would include pension wealth.

The second factor that will guide (or rather, constrain) the choice of the measure of wealth being defined is the data available. For many years there has been little publicly available data that allow the investigation of the distribution of wealth in the UK.⁶ The one useful data source that existed, the wealth module of the BHPS, is the one that we use below to estimate the distribution of household wealth in 2000 and 2005. This data allows the construction of an estimate of the distribution of wealth in the years before the global economic downturn.

The BHPS data do not allow us to comprehensively estimate the value of pension assets held by households, so our results in Chapter 3 focus on non-pension wealth. The English Longitudinal Study of Ageing (ELSA) collects detailed data on pension wealth (as well as non-pension wealth). However, the sample is representative only for those over the age of 50, and so cannot be used to

⁶ While data on the value of estates have been used to estimate the aggregate stock of wealth held, it does not allow investigation of how the distribution of wealth varies with household characteristics. For a discussion of the limitations of this data, see Banks & Tanner (1999, pp. 11–12).

investigate the distribution of wealth across the whole population. Banks & Tetlow (2009) use data from ELSA to describe the distribution of wealth (including pension wealth) among those covered by that survey.

A second component of wealth that cannot be included in our estimates of household wealth is the value of (non-housing) durables owned by the household. These would form part of a comprehensive estimate of wealth, as an individual's ownership of durables entitles him/her to a future stream of consumption using that durable. Alternatively, the household could sell the durable, converting the wealth into cash.

However, the data *do* allow us to construct an estimate of a household's liquid financial wealth (the value of savings and investments less outstanding non-mortgage debt) as well as the value of housing equity held by households. The first of these components (liquid financial wealth) is useful as it allows us to assess the extent to which households are able to respond quickly to an unanticipated shock to earnings such as might have been seen as the UK entered a recessionary period. The second component (the value of housing equity) is particularly important as, for many households, the vast majority of their wealth is held in the form of housing equity.⁷

The estimation of a more comprehensive measure of wealth will be possible using data from a new survey: the Wealth and Asset Survey (WAS), the first wave of which was released in early 2010. This survey will be a panel survey (with respondents interviewed every two years), and will be the first publicly available household survey dedicated to the measurement of wealth in the UK. It will become a valuable source of data for those interested in studying levels of saving and wealth.

Before describing in more depth the data that we use in Chapter 3, it is worth emphasising the difference between household wealth and national wealth.

Household wealth and national wealth

The National Accounts divide the domestic economy into four sectors: households, non-financial corporations, financial corporations, and the government. It shows the wealth owned by each of these sectors separately; national wealth is the sum of wealth owned by each of the sectors. However, household wealth should not be viewed as completely separate from wealth owned by other sectors. Wealth held by the government is held for the benefit of households, and borrowing by government generates a liability that has to be met by householders or their descendants. Similarly, wealth held by corporations is held for the benefit of the households who own those corporations.

⁷ In 2005, 52% of the net worth of the household sector was held in the form of residential property (see Office for National Statistics (2009b), Table 10.10).

The analysis we present here explicitly concerns household wealth. However, we include the value of investments held by households. Many of these investments are in, fact, a claim on corporate wealth. We are therefore including some corporate wealth (as it would be defined in the National Accounts) as household wealth.

On the other hand, wealth held by the government on behalf of households is unlikely to enter our figures. However, the question of whether households are adequately prepared for the future cannot be answered without knowledge of the assets and liabilities that their government holds on their behalf. Indeed, it is likely that many changes in the level of household saving could be driven by changes in government saving. Government wealth and saving will not be treated directly here, though they act as important background information (see Chote et al. (2010) for a survey of the state of the public debt in late 2009 and projections for the future).

2.2 Data: the British Household Panel Survey

The results on wealth that we will discuss in Chapter 3 are generated using data from the BHPS. The BHPS is a longitudinal (or panel) survey. This means that it follows the same individuals over time. Data were first collected in 1991. The BHPS collects a wide range of data, including socio-economic information, demographic characteristics, health, and labour market behaviour. The first wave interviewed approximately 5,500 households, containing approximately 10,300 individuals in Great Britain. Subsequent waves added households from Northern Ireland and additional respondents from Scotland and Wales.

Table 2.1. Components of asset classes in the BHPS wealth module

Savings	Investments	Debt
Savings or deposit accounts	National Savings Certificates	Hire purchase agreements
National Savings Bank accounts	Premium Bonds	Personal loans
Cash ISAs (or TESSAs)	Unit trusts/Investment trusts	Credit and store cards
	Stocks and shares ISAs (or PEPs)	Catalogue or mail order purchase agreements
	Shares	DWP Social Fund loan
	National Savings Bonds (capital, income or deposit)	Any loan from a private individual
	Other investments (gilts, government or company securities)	Overdrafts
		Student loan
		‘Anything else’

In addition to the core set of questions asked in each wave, there are a set of five additional question modules, one of which is included in the questionnaire in each year. One of those modules contains a detailed set of questions regarding wealth and assets. This was included in 1995, 2000 and 2005. The set of questions asked in 2005 was almost identical to that asked in 2000, allowing us to accurately compare how a household's holding of wealth changed between those two years.

The wealth module of the BHPS asks individuals about their wealth using three sets of questions. These three sets of questions collect data on cash saving, investments, and debts held by respondents. The items that respondents are prompted to include under the three categories are listed in Table 2.1.

An important omission from the asset classes counted above is cash (that is, money stored in the home, and the balance of current accounts). Using the WAS, Daffin (2009) reports that 4.7% of households have savings of more than £250 in cash in the home. Therefore, omitting this form of asset holding is unlikely to crucially affect our estimation of the overall distribution of wealth. However, if there are particular types of household who typically hold a large proportion of their wealth in this form (or in their current account), our data will substantially under-record their wealth. The inclusion of cash holdings in the questionnaire of the WAS will allow a fuller analysis of this issue in future research.

Some respondents either do not respond to the question or provide only bounds on their level of wealth rather than a precise figure. For these households we impute their level of wealth. Our method of imputation is the same as that used by Banks et al. (2002), who analysed the distribution of wealth in 2000 using the wealth module of the BHPS. Appendix A details the importance of this imputation, and explains the procedure that we use.

Additionally, in each wave, respondents who own property are asked for an estimate of the precise value of their properties, and the value of any mortgages outstanding on these. We calculate the respondent's housing equity as their estimate of the value of the house less any outstanding mortgage debt.⁸ Where respondents are unable or unwilling to estimate the value of their property, an imputation procedure is used. The imputed values are published with the BHPS data. (See Taylor (2009), Section V.3, for further details about imputation in the BHPS data).

⁸ There are some concerns that the questions do not accurately capture the housing equity owned by those with endowment mortgages. This means that our estimates of housing wealth might be underestimated for those who hold these mortgages. See Appendix A for a discussion of this.

3. Wealth: evidence from the British Household Panel Survey

In this chapter we present results using data from the BHPS. As detailed in Chapter 2, every five years the BHPS contains a series of detailed questions on the wealth that respondents hold. Until the publication of the first wave of the WAS, these data represented the most comprehensive publicly available data on wealth in the UK. The set of questions asked in the 2000 and 2005 wealth modules were almost identical. This allows us to track changes in wealth between the two years. These changes provide a broad measure of saving, which will include both active accumulation of wealth and passive accumulation (capital gains).

The results presented in this chapter use both the 2000 and the 2005 wave of the BHPS as cross-sectional surveys.⁹ All results here are at the family level.¹⁰ In selecting the sample to use, we use all families fully responding in the wave in question.¹¹ Northern Irish families are not included in the analysis. Appendix A details the reasons for the level of analysis, and the exclusion of Northern Irish families from the sample.

This chapter proceeds as follows. Section 3.1 summarises the distribution of wealth (both including and not including housing wealth) across the population as a whole, and for families defined by a particular characteristic (age, income, etc.). Section 3.2 uses regression techniques to isolate the association of one particular family characteristic with wealth, holding other observed characteristics constant.

3.1 Distribution of wealth

The distribution of wealth in 2000 and 2005

Table 3.1 summarises the distribution of wealth in 2000 and 2005. It shows percentiles¹² 10, 25, 50 (median), 75 and 90, as well as the mean. The first column summarises the distribution of net financial wealth. The second column summarises the distribution of housing wealth, and the third summarises the

⁹ Chapter 5 will use the longitudinal dimension by looking at the changing situation of the same family between the two survey periods.

¹⁰ A family (benefit unit) is defined as a single adult or couple along with their dependent children. Non-dependent children living in the same household as their parents are considered to be in a different family.

¹¹ A fully responding family is one for which we have data on family income and the region in which the family lives. The sample sizes are 5,725 families in 2000 and 5,129 in 2005.

¹² The n^{th} percentile is the percentile below which $n\%$ of the population lie. For example, if the 25th percentile of the wealth distribution is £200 (the number used is illustrative, and purely for example), this means that 25% of the population have wealth levels of less than £200, and therefore than 75% of the population have wealth levels greater than £200. The 50th percentile is also known as the median.

distribution of financial plus housing wealth (simply labelled ‘wealth’). We use the term ‘wealth’ here to avoid repeatedly using the more cumbersome term ‘financial plus housing wealth’. However, this should not be interpreted as ‘total wealth’. As described in Chapter 2, we do not have data on pension wealth, nor do we have data on assets other than housing, or those financial instruments listed in Table 2.1. This fact should be borne in mind in interpreting all results. All figures are expressed in real (December 2007) pounds.

Table 3.1 displays the following points that are worth noting.

- Median financial wealth for families in Britain was just over £1,000 in 2005. That is, half of families had less than this figure in liquid holdings, and half had more. Many families therefore had a very low level of liquid assets that they could fall back on in case of an unanticipated fall in their incomes. This has important implications for the ability of households to weather unanticipated shocks to their income, such as those that may have been seen in recent years.¹³

Table 3.1. Distribution of wealth in 2000 and 2005

		Financial wealth	Housing wealth	Wealth
2005	10 th pct	-7,637	0	-2,073
	25 th pct	-328	0	0
	Median	1,091	60,070	65,808
	75 th pct	16,383	172,565	197,147
	90 th pct	58,849	294,889	369,866
	Mean	21,617	115,139	137,001
	Sample size	5,129	4,972	4,972
2000	10 th pct	-5,408	0	-1,720
	25 th pct	-335	0	0
	Median	737	12,283	18,793
	75 th pct	11,055	81,730	97,699
	90 th pct	41,762	172,063	220,978
	Mean	14,980	60,255	75,286
	Sample size	5,725	5,523	5,523

Source: Authors’ calculations using data from the BHPS.

¹³ See Hellebrandt & Pezzini (2009) for a discussion of how the financial position of UK households has been affected by the recent recession.

- The mean in 2005 was substantially higher, at over £21,500. Mean and median wealth differ so greatly because the distribution of wealth is highly skewed to the right, with a relatively small proportion of families holding a large share of total household wealth.
- The 10th percentile of the wealth distribution in 2005 was just under –£7,500. This means that 10% of households had net wealth of less than minus £7,500, or equivalently, 10% of families had net debts of greater than £7,500.
- Mean family housing wealth was over five times mean financial wealth, while median family housing wealth was approximately 60 times median financial wealth. For many families, all their wealth was held in housing equity.
- Between 2000 and 2005, mean and median housing wealth increased dramatically. The mean increased from £60,000 to £115,000 and the median increased from £12,000 to £60,000. The increases in financial wealth were more modest, with the mean increasing from £15,000 to £21,500 and the median increasing from approximately £700 to £1,000. The fact that changes in housing wealth were of a much larger magnitude than changes in financial wealth is unsurprising, given that this was a period of large increases in the value of houses. In addition, housing tends to be a leveraged investment¹⁴ for households whereas savings/investments tend not to be, so the effect of a change in the value of the underlying asset will have a greater effect on the value of the household's holding.
- While in the upper half of the distribution there were increases in net financial wealth between the two years, at the bottom there was a fall. The 10th percentile of financial wealth fell in value from approximately –£5,500 to –£7,500.

The distribution of liquid financial wealth

One of the main motivations for saving is to have access to a buffer that can be drawn on in case of a sudden fall in income (this is known in the economics literature as the 'precautionary motive for saving'). This is particularly important for individuals who are credit-constrained: that is, those who would find it difficult or impossible to get a loan if they needed one.

In attempting to evaluate the adequacy of a household's buffer stock of wealth, it may be instructive to look not only at their net liquid assets (that is, gross assets minus debt), as we do in Table 3.1, but also at their gross assets themselves. Faced with a sudden need for cash, households may be able to draw on these assets immediately; even those assets that don't represent *net* wealth. This might be particularly important for families who are unlikely to have easy access to credit markets.

¹⁴ That is, a substantial proportion of the funds used to purchase the house tend to be borrowed. The effect of this can be seen through an example. If a house is purchased for £200k via a deposit of £20k and a mortgage of £180k and then the house increases in price by 10% to £220k the person's net housing wealth has increased by 100% from £20k to £40k. Conversely if house prices fall by 10%, net housing wealth falls to zero.

Table 3.2. Distribution of the components of net financial wealth in 2000 and 2005

		Components of financial wealth				Net financial wealth
		Savings	Investments	Gross financial wealth	Debt ¹⁵	
2005	10 th pct	0	0	0	-10,911	-7,637
	25 th pct	0	0	5	-3,277	-328
	Median	1,346	0	3,055	0	1,091
	75 th pct	9,830	3,277	18,548	0	16,383
	90 th pct	29,489	24,028	60,070	0	58,849
	Mean	13,122	12,324	25,446	-3,829	21,617
	Sample size	5,129	5,129	5,129	5,129	5,129
2000	10 th pct	0	0	0	-8,291	-5,408
	25 th pct	1	0	32	-2,458	-335
	Median	1,105	0	2,334	0	737
	75 th pct	7,353	2,457	12,406	0	11,055
	90 th pct	22,109	18,435	43,018	0	41,762
	Mean	8,345	9,196	17,541	-2,561	14,980
	Sample size	5,725	5,725	5,725	5,725	5,725

Source: Authors' calculations using data from the BHPS.

Table 3.2 shows the distribution of the components of financial wealth in 2000 and 2005 (see Table 2.1, which lists what is included in each of those three asset classes). The first two columns of Table 3.2 summarise the distribution of the savings and investments. The distribution of their sum (gross financial wealth) is given in the third column. Subtracting gross non-mortgage debt (fourth column) from this gives net financial wealth (fifth column).¹⁶

It is clear from the respective medians in Table 3.2 that the prevalence of savings is greater than that of investments. In fact, 72% of respondents in 2005 reported some positive savings, while 41% had some investment balances. However, the fact that the means are of a similar magnitude indicates that average investment

¹⁵ Strictly speaking, this table summarises the distribution of the negative of debt. For example, below the 10th are all those families in the 10% of the population with the most debt.

¹⁶ The mean of financial wealth is equal to the sum of the means of its three components (savings, investments, and the negative of debt). This is not true for the median of financial wealth, as the median is not a linear statistic.

balances (among those with investments) were higher than average saving balances (among those with savings).

Turning to the 'total' measures, at the median, gross financial wealth was three times net financial wealth (approximately £3,000 compared with £1,000 in 2005); the differences in the mean and the upper percentiles were less dramatic.

The approach above has involved attempting to summarise the entire distribution of wealth, and detail how some features of the distribution (the median, mean, selected percentiles etc.) changed between 2000 and 2005. An alternative approach is to define thresholds of interest, and investigate the proportion of families that had levels of wealth above or below those thresholds. We can define these thresholds in absolute terms (for example, we might be interested in the proportion of families that had assets with a value of less than £500), or we can define them as a proportion of salary (we might be interested in the proportion of families with assets with a value greater than three months' salary). We take both approaches below.

Table 3.3 divides the financial wealth distribution into (admittedly somewhat arbitrary) bands, and shows the proportion falling into each of the bands in 2000 and 2005. The proportions are shown for both net financial wealth and gross financial wealth. The table shows that a quarter of the families in our sample in 2000 and over 30% in 2005 had more than £10,000 in net financial wealth. At the other end of the distribution the proportion of families with more than £5,000 of net debt also increased, from approximately 10% to nearly 14%. The changes in the magnitudes in the other bands were more modest. A similar point was made above, where we noted that the value of wealth at percentiles in the middle of the income distribution (the 25th, 50th and 75th) didn't change much, while more substantial changes were seen at the top and the bottom of the wealth distribution.

Table 3.3. Proportion of families, by level of financial wealth

Financial wealth	Net financial wealth		Gross financial wealth	
	2000	2005	2000	2005
<-5,000	10.4%	13.7%		
≥ -5,000, <-1,000	10.1%	8.4%		
≥ -1,000, <0	7.8%	5.3%		
≥ 0, <500	19.4%	19.6%	36.5%	35.9%
≥ 500, <1,000	4.0%	2.3%	6.0%	4.1%
≥ 1,000, <2,500	7.0%	5.7%	10.3%	8.5%
≥ 2,500, <5,000	6.9%	5.4%	8.9%	7.1%
≥ 5,000, <10,000	8.6%	8.1%	10.2%	10.1%
≥ 10,000	25.9%	31.5%	28.2%	34.2%
Total	100.0%	100.0%	100.0%	100.0%
<500	47.7%	47.0%	36.5%	35.9%

Source: Authors' calculations using data from the BHPS.

We emphasise at various points in this report that one of the main reasons why saving (and therefore accumulating wealth) might be important is to allow a family to smooth their consumption across time periods. An important statistic, therefore, is the proportion of families with low, no or negative net wealth. Of course, if a family has no wealth, but has access to credit markets, then this smoothing can be done without having a stock of wealth. However, if they are credit-constrained, then this will not be an option. To make clear the proportion of families that we are considering, the final row of Table 3.3 shows the proportion of families with less than £500 of net financial wealth. For each column, this is calculated as the sum of the proportions in each of the first four rows. There was little change in this measure between the two years for which we have data, with approximately 47% of families having less than £500 in net financial wealth and approximately 36% having less than £500 in gross financial wealth in both years.

We can consider these families ‘at risk’ of having no *private* safety net in case of a sudden fall in income (or a sudden increase in spending needs, such as a deterioration in health). It is important to note that we say ‘at risk’ of having no private safety net, as the running-down of accumulated wealth is not the only mechanism by which families can respond to a temporary income or needs shock. There are a number of other avenues that may be open to them, such as borrowing, relying on family, or extra work done by another family member. In addition, there is the social safety net. Therefore a lack of accumulated wealth is simply one factor, albeit an important one, that will determine the extent to which a family can smooth its consumption over time.

Table 3.4 also divides the financial wealth distribution into a number of bands. This time, however, wealth is present as a proportion of annual family income. Once again, we use both net financial wealth and gross financial wealth as the basis for analysis. The table takes a similar form as the previous one, with the

Table 3.4. Proportion of families, by ratio of financial wealth to income

Financial wealth as a proportion of annual income	Net Financial Wealth		Gross Financial Wealth	
	2000	2005	2000	2005
< -100%	2.9%	3.7%		
≥ -100%, < -50%	2.8%	3.9%		
≥ -50%, < -25%	5.1%	4.9%		
≥ -25%, < 0%	17.5%	15.0%		
≥ 0%, < 25%	35.5%	33.6%	60.2%	57.1%
≥ 25%, < 50%	9.2%	8.1%	10.4%	9.7%
≥ 50%, < 100%	8.4%	8.9%	9.7%	9.8%
≥ 100%	18.7%	22.0%	19.8%	23.4%
Total	100.0%	100.0%	100.0%	100.0%
< 25%	63.8%	61.1%	60.2%	57.1%

Source: Authors' calculations using data from the BHPS.

final row this time showing the proportion of families whose net financial wealth amounts to less than three months' income. There was a slight fall in this measure (from nearly 64% to just over 61% in terms of net financial wealth) over the five years following 2000.

Recall that the results we present here are at the family level rather than at the household level. The main difference between using these two measures is that non-dependent children still living with their parents will enter our data as their own family, whereas in a household-level analysis they will not enter the data independently. The effect of this is that median family wealth will be less than median household wealth, as these non-dependent children tend to have little or no wealth of their own. If we performed the analysis at the household level, the median (mean) financial wealth in 2000 would have been £2,284 (£19,113), and that in 2005 would have been £3,495 (£27,477). We conduct our analysis at the family level for many reasons (discussed in Appendix A), including the supposition that when non-dependent children leave a household, they take little or no wealth with them. From a life-cycle perspective, therefore, when we observe someone in the data at age 20, it is more reasonable to consider them as someone with little or no wealth, rather than as someone temporarily part of a unit that has (perhaps) a substantial amount of wealth. The sensitivity of the median, however, to whether the analysis is at the family or the household level underlies the importance of looking at the distribution of wealth for sub-groups of the population defined by a particular characteristic (or characteristics), rather than focusing solely on the population as a whole. We now look at how the distribution of wealth varies with family characteristics. We first show how it varies according to one characteristic at a time (age, income, etc.), before using regression techniques to isolate the correlation of one family characteristic with wealth, holding all other family characteristics constant.

The distribution of wealth 2005, by age

Here we summarise how the distribution of wealth varies across the age distribution. In interpreting the results in this section it is important to note that this analysis conflates the effects of age and cohort. This means that, when comparing a difference in wealth levels between an older and a younger family, it is not possible to identify whether this difference is due to the individuals concerned being older (an age effect) or to their having lived through different times (a cohort effect). Appendix C explains further what we mean by this, and the implications for the interpretation of our results.

To summarise the distribution of financial wealth according to age, we split families into groups according to the age of the head of the family.¹⁷ The first group contains all those with a head aged less than 25, the second contains those with a head aged between 25 and 29, the third contains those with a head aged

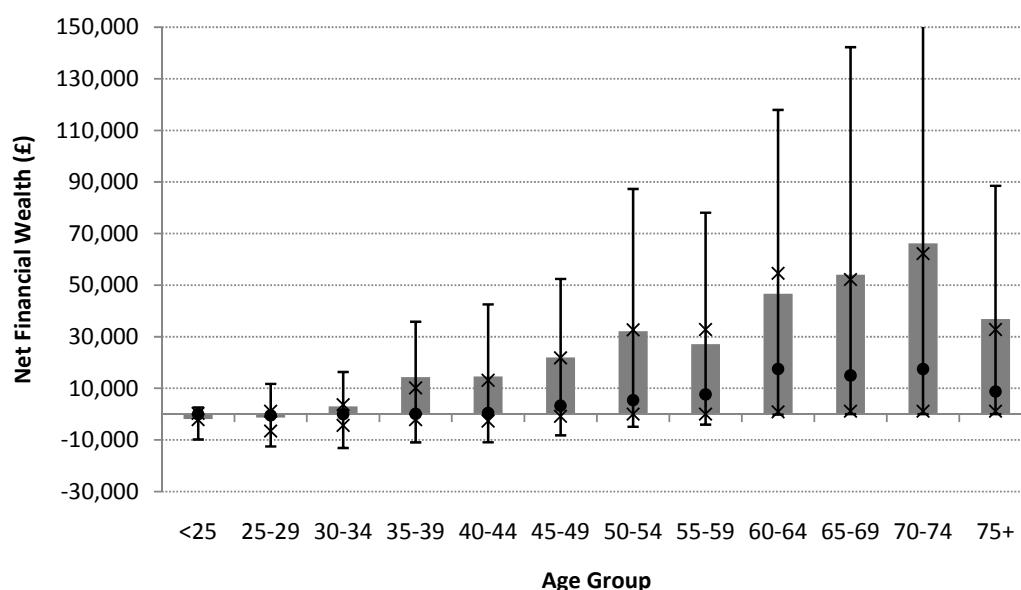
¹⁷ The head of the family is defined as being the male in an opposite-sex couple and the eldest in a same-sex couple.

between 30 and 34, and so on. The last group contains those families where the head is 75 or over. In each figure the height of the column gives the mean, the circle gives the median, the extremities of the bar give the 10th and 90th percentiles and the crosses give the 25th and 75th percentiles. In order to avoid distorting the scale to too great a degree, we truncate the vertical axis at £150,000.¹⁸

Figure 3.1 shows that, unsurprisingly, those in younger age groups had very little liquid wealth. Median financial wealth was less than £500 for each of the age groups with a head less than the age of 45. The median then rises relatively quickly for older households. Two other points are worth making. First, there was quite a large difference in wealth between those aged 55–59 and those aged 60–64, with medians of £7,500 and £17,500 respectively. Second, the median (as well as the mean and other percentiles) was lower for those aged 75 and over than those aged 70–74.

An interesting question is whether households approaching the end of their life decumulate their wealth. Most economic models of consumption across the life-cycle would predict that they do. The evidence in Figure 3.1 provides suggestive evidence that they do, at least from the age of 75.¹⁹ However, it is important to re-

Figure 3.1. Financial wealth in 2005, by age group



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

¹⁸ As a result of this, the figure cannot show the 90th percentile for those aged between 70 and 74. The value at this point is approximately £190,000.

¹⁹ However, as noted above and further discussed in Appendix C, we cannot identify such an effect separately from a cohort effect.

emphasise that our measure of wealth does not include pension wealth. If families are decumulating assets, it is likely that some of the decumulation is among their pension assets. Milligan (2005) shows, using Canadian cross-sectional data on wealth, that evidence of decumulation is stronger once annuitised pension assets are included in the measure of wealth. It is quite possible, therefore, that decumulation of a comprehensive measure of wealth is stronger, and starts earlier, than as suggested by Figure 3.1.

Before looking at a definition of wealth that includes both liquid financial wealth and housing equity, it is interesting to summarise how rates of home ownership vary across the age distribution. This is done in Table 3.5, which shows, for each age group, the proportion of families who own their own property (whether or not it is mortgaged) and the proportion who own their property outright. The pattern is unsurprising: those in the youngest age groups were substantially less likely to own their place of residence. The rate of home ownership rises from 4% for those under the age of 25 to 84% for those aged between 55 and 59. There is a slight fall for older families. However, as before, it is not possible to identify conclusively whether this is an age or a cohort effect. If, however, we are confident that relatively few families go from owner-occupancy to renting (that is, there is no age effect at older ages), then the fall among the oldest age group must be a cohort effect.

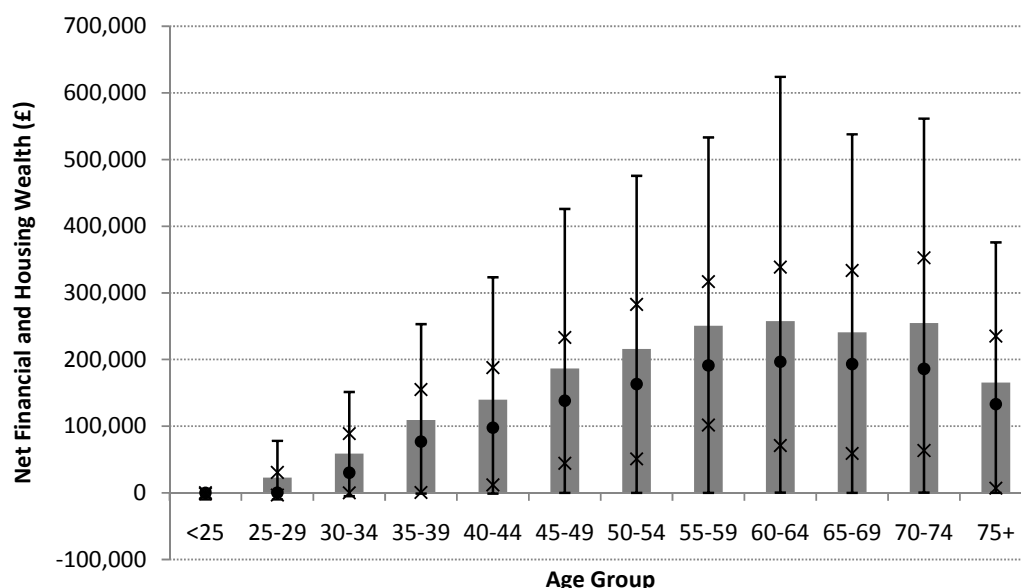
Table 3.5. Home ownership, by age²⁰

Age group	Homeowners (%)	Owners outright (%)
<25	4	0
25–29	37	1
30–34	57	2
35–39	67	4
40–44	76	6
45–49	78	14
50–54	78	26
55–59	84	39
60–64	77	58
65–69	74	64
70–74	75	69
75+	63	60
Total	53	24

Source: Authors' calculations using data from the BHPS.

²⁰ Note that these show home ownership rates for families, not for households. Therefore non-dependent children living with their parents are not considered owner-occupiers, even if their parents are. If we looked at owner-occupancy by household, we would expect ownership rates to be higher.

Figure 3.2. Financial and housing wealth in 2005, by age



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHP5.

Figure 3.2 summarises the distribution of housing and financial wealth (which we describe as 'wealth') for each age group. Levels of wealth on this broader measure were substantially higher than levels of financial wealth across the distribution. This was particularly true at younger ages. Median wealth for those aged between 30 and 34 was approximately £30,000, while median financial wealth for the same group was zero, reflecting the fact that the vast majority of wealth for most younger families was held in the form of housing equity. The falls seen in house prices over the past three years mean that the distributions shown below would probably look quite different if drawn using data for 2010. For many families, particularly younger ones who will still have a large amount of outstanding mortgage debt, the fall in house prices may have led to wealth turning negative, as most had very little financial wealth to offset the effect of the falling value of their property.²¹

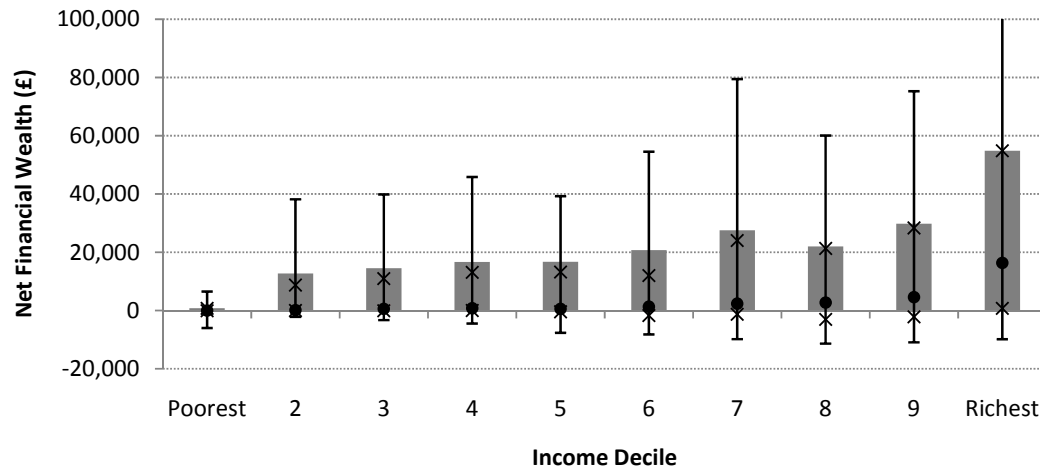
Distribution of wealth in 2005, by current income

Figure 3.3 shows the distribution of financial wealth by equivalised income decile in 2005.²² Income decile 1 represents the poorest 10% of households in any

²¹ See Hellebrandt et al. (2009) for a discussion of the incidence of negative equity in 2009.

²² Equivalised income is income adjusted for household composition. We do this in recognition of the fact that a household with a large number of people requires more income to meet a certain living standard than a household with a single individual. We calculate the number of equivalent adults in the household, and using this, we obtain income per equivalent adult, or 'equivalised income'. Households are placed in income deciles using this measure. The equivalence scale used is the modified OECD equivalence scale. For more on equivalisation and the scale used, see pp. 82–83 of Brewer et al. (2008).

Figure 3.3. Financial wealth in 2005, by income decile



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

particular year, income decile 2 represents the next poorest 10%, and so on. In order to avoid distorting the scale to too great a degree we truncate the vertical axis at £75,000.²³ Broadly speaking, financial wealth rises with income. At the median, there was little variation between the bottom five income deciles. The median in these groups varied between £0 and £800. The median then rose through the five upper income deciles, at an increasing rate (from £1,300 to £2,400, £2,700, £4,500 and £16,400.) The increase in wealth at the median between the 9th and 10th income deciles was particularly large. This was also the case for the increase in the 75th percentile between these two groups.

However, the pattern was different at other percentiles. The 10th wealth percentile, negative for all income quintiles, was lowest for those income deciles in the *upper* half of the income distribution (i.e. net debts were highest in these income quintiles). It must be remembered that these net debts, though higher in absolute terms for those at the 10th wealth percentile of the richer deciles, were substantially smaller as a proportion of the family's income, and so would be less likely to act as a burden.

Table 3.6 shows the rates of home ownership according to equivalised income decile. The proportion of families owning their home rises steadily with income. However, the proportion owning their home outright was substantially higher in deciles 2, 3 and 4 than in any of the other deciles. This is largely due to the presence of many pensioners in these income deciles. These pensioners have relatively low current income, but many have paid off a mortgage earlier in their life.

²³ As a result of this, the figure cannot show the 90th percentile for those in the 10th income decile. The value at this point is approximately £150,000.

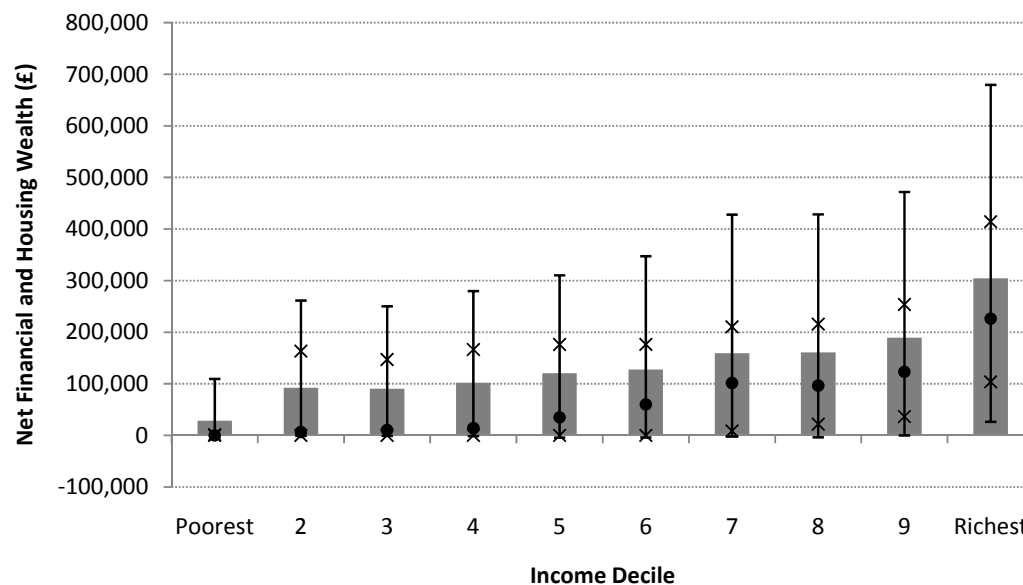
Table 3.6. Home ownership, by income

Income decile	Homeowners (%)	Owners outright (%)
1 (Poorest)	15	7
2	45	34
3	44	32
4	48	31
5	51	26
6	58	27
7	72	25
8	77	20
9	83	19
10 (Richest)	90	20
Total	53	24

Source: Authors' calculations using data from the BHPS.

Figure 3.4 summarises the wealth distribution for each income decile after we include housing wealth. The shape is broadly similar to that which we saw when we looked only at financial wealth. However, the difference in median wealth between successive income deciles at the top of the income distribution is less marked than it was when we looked only at financial wealth. It is also interesting

Figure 3.4. Financial and housing wealth, 2005, by income decile



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

to note that the 75th percentile of financial wealth does not vary as greatly between deciles 2 and 9. These observations point to the fact that housing wealth in 2005 was less concentrated among those with the highest current income than was liquid financial wealth.

Distribution of wealth in 2005, by pension type

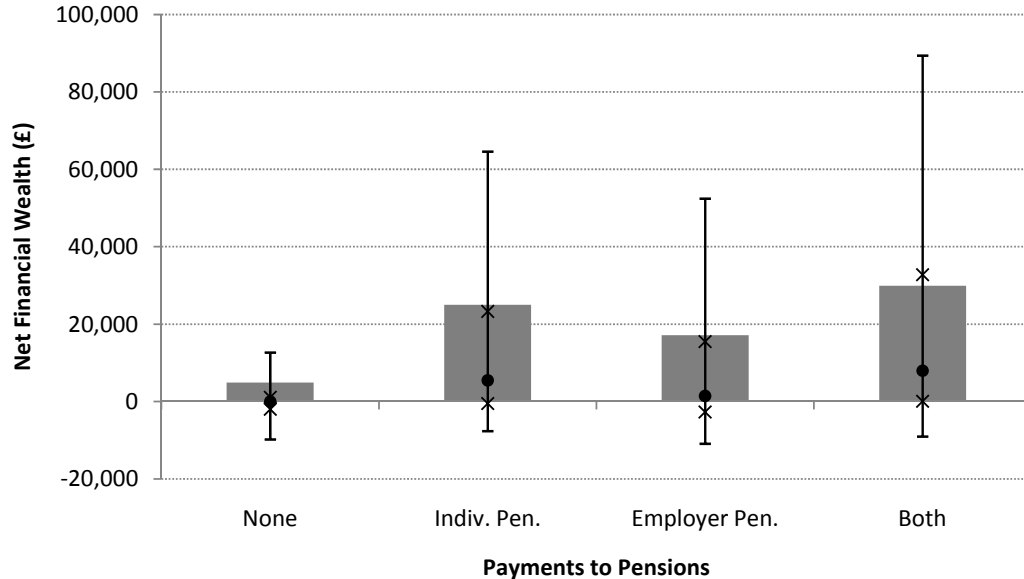
We noted previously that the BHPS data do not contain the level of pension wealth held by respondents.²⁴ However, in each year, we do know whether the respondent paid into a pension scheme, or whether an employer paid into a pension scheme on their behalf. Figures 3.5 and 3.6 summarise how the distribution of wealth varies separately for families where (from left to right):

- no family member saved into a pension scheme in the preceding year
- some family member(s) paid into an individually purchased pension
- some family member(s) paid into an employer-provided pension
- some family member(s) paid into both an individually purchased pension and an employer-provided pension.

We exclude from this analysis those who have retired.

Figure 3.5 illustrates the fact that those who paid into a pension fund tended to have more (non-pension) financial wealth than those who did not. Median

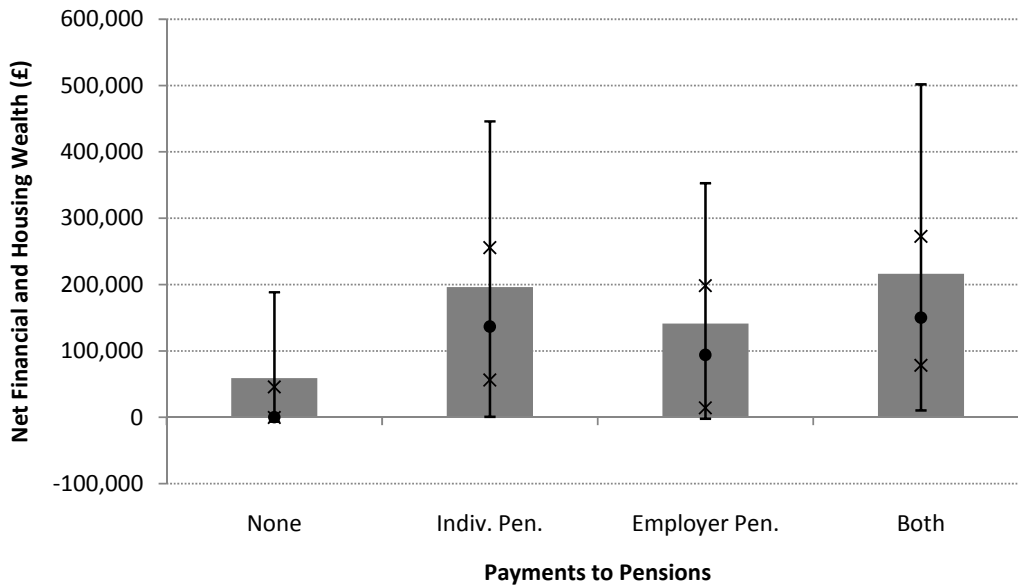
Figure 3.5. Financial wealth, 2005, by pension status



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

²⁴ Disney et al. (2007) estimate the level of pension wealth held by respondents to the BHPS in 2001.

Figure 3.6. Financial and housing wealth, 2005, by pension status



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHP5.

financial wealth for those who did not pay into a pension was zero in 2005, and the 75th percentile was just over £1,000. Therefore approximately 75% of those who did not pay into a pension in 2005 had less than £1,000 worth of liquid wealth.

Figure 3.6 shows the distribution of the sum of financial and housing wealth. The pattern is very similar to that shown for financial wealth alone. Those who did not make payments into pension funds in 2005 had significantly less wealth, on average, than those who did. This reflects both the fact that the former group tended to have more financial wealth (see Figure 3.5) and the fact that they were more likely to own their place of residence.²⁵ Again it is worth noting that these data are from a period when owning one's own property was highly correlated with having wealth. For many homeowners, particularly younger homeowners, recent falls in property values will have reduced the extent to which this is true.

Recall that we do not observe the stock of pension wealth; we observe only whether individuals made additional contributions to their stock in any one year. However, as it is the case that those families who contribute to a pension in year t are more likely to contribute to a pension in year $t + 1$ than those families who

²⁵ 45% of families who made no pension contribution owned their own property, 82% of those who made a contribution to an individual pension did, 76% of those who made a contribution to an employer-provided pension did, and 88% of those who made a contribution to both an individual and an employer-provided pension did.

did not contribute to a pension in year t ,²⁶ it is likely that those we observe making pension contributions have indeed got more pension wealth than those who we don't observe making contributions. Taking this into account, Figures 3.5 and 3.6 imply that those who had more pension wealth also tended to have more non-pension wealth. Banks et al. (2005) find, using ELSA data, that this is true among those over the age of 50.

This analysis raises the question of whether non-pension wealth and pension wealth act as substitutes or as complements. Attanasio & Rohwedder (2003), using data on UK households, show that individuals view pension saving and non-pension saving as close substitutes.²⁷ A casual reading of the evidence in the above figure would seem to suggest that pension and non-pension wealth are complements. Those who had more pension wealth tended, on average, to have more non-pension wealth than those who had less pension wealth. However, an increased ability (and propensity) to hold both non-financial wealth and financial wealth could be driven by some other family characteristic, either observed or unobserved. Therefore a proper analysis of whether pension and non-pension wealth²⁸ should take these other family characteristics into account, to the extent that it is possible. We do this in Sections 3.2 and 5.2 and find some evidence that, at the family level, saving inside and outside pensions are substitutes.

Distribution of wealth in 2005, by housing tenure

We now look at how the distribution of wealth varies with housing tenure. We divide families into four groups: those who own their property outright, those who own their property but are still paying a mortgage, those who rent their property from a local authority, and those who rent privately. We exclude from this analysis those who live with a relative (including non-dependent children who are living with their parents).

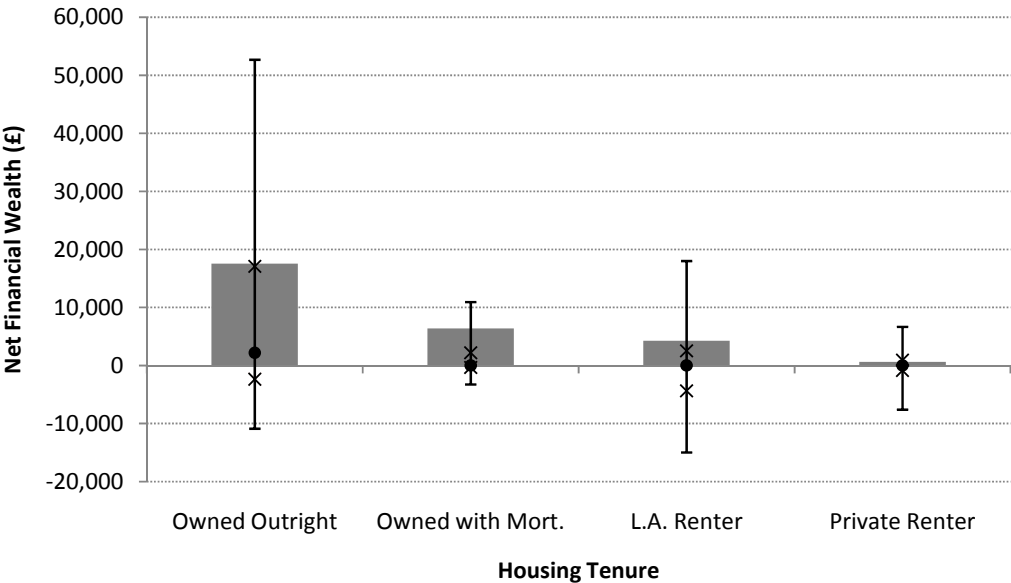
Those who owned their property outright had, on average, by far the most financial wealth. Those who were buying their property through a mortgage tended to have significantly less wealth than owners outright, but significantly more than those who did not own their property. Interestingly, those in local authority accommodation tended to have more financial wealth (at the mean, and upper percentiles) than private renters, though a substantial proportion of this could be explained by the fact that those in local authority accommodation tended to be older, on average, than those in private rented accommodation. We return to this point below. At the other end of the wealth distribution, those in local authority accommodation were more likely to have large debts than those in the other tenure groups.

²⁶ Taking only those families that were in the labour force in both waves, only 25% of those who did not make a pension contribution in 2000 made one in 2005. On the other hand, approximately 85% of those who made a contribution in 2000 also made one in 2005.

²⁷ Attanasio & Brugiavini (2003) find a similar result among Italian households.

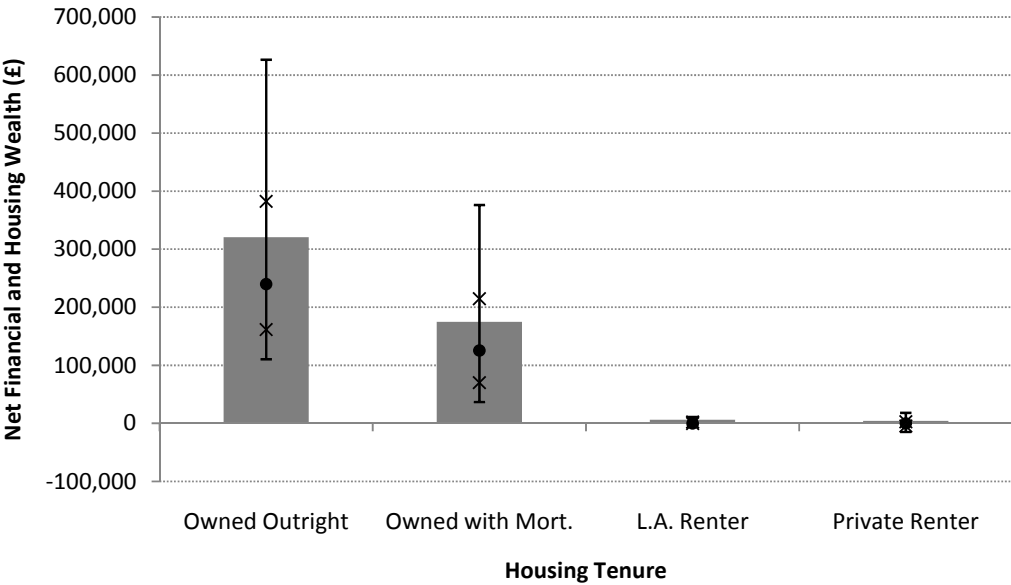
²⁸ Or pension saving and non-pension saving.

Figure 3.7. Financial wealth, 2005, by housing tenure



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

Figure 3.8. Financial and housing wealth, 2005, by housing tenure



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

The distribution of (financial plus housing) wealth is shown in Figure 3.8. Unsurprisingly, the differences between the three groups are much greater than when we looked at financial wealth alone. However, it is quite likely that this pattern might have changed somewhat between 2005 and now. The vast majority of mortgagors in 2005 were in positive equity: that is, the value of their home exceeded the value of their mortgage debt.²⁹ This is as would be expected, given that the years before 2005 were characterised by steady growth in property prices. In the past three years (which our data don't cover), many mortgagors have fallen into negative equity, which is when the value of the outstanding mortgage exceeds the value of the home. Hellebrandt et al. (2009) estimate that between 7% and 11% of UK mortgagors were in negative equity by the spring of 2009. When microdata covering the present period become available, they are likely to show that many in the tail of the distribution have negative wealth.

It must be remembered that these three groups do not necessarily represent three distinct types of family, but may represent the same type of family at different stages of their life-cycle. In other words, we are conflating an age effect with a tenure effect. The average age is highest for those who own their property outright, second highest for local authority renters, third highest for mortgagors, and lowest for those who rent privately. We previously showed that, broadly speaking, levels of wealth tend to rise with age. It could be that the figures above simply restate this 'age effect' by defining groups that loosely accord to some age bands. Conversely, it could be that there is a 'tenure effect', and that the fact that wealth rises with age simply reflects this. Of course, it could be that there is both an age effect and a tenure effect. This caveat to the interpretation of this figure is relevant to all figures that include a breakdown of the distribution of wealth by one variable at a time (as we have done throughout this section). We can go some way towards isolating the correlation of one characteristic with wealth, holding other observed characteristics constant using regression techniques. We do this in Section 3.2.

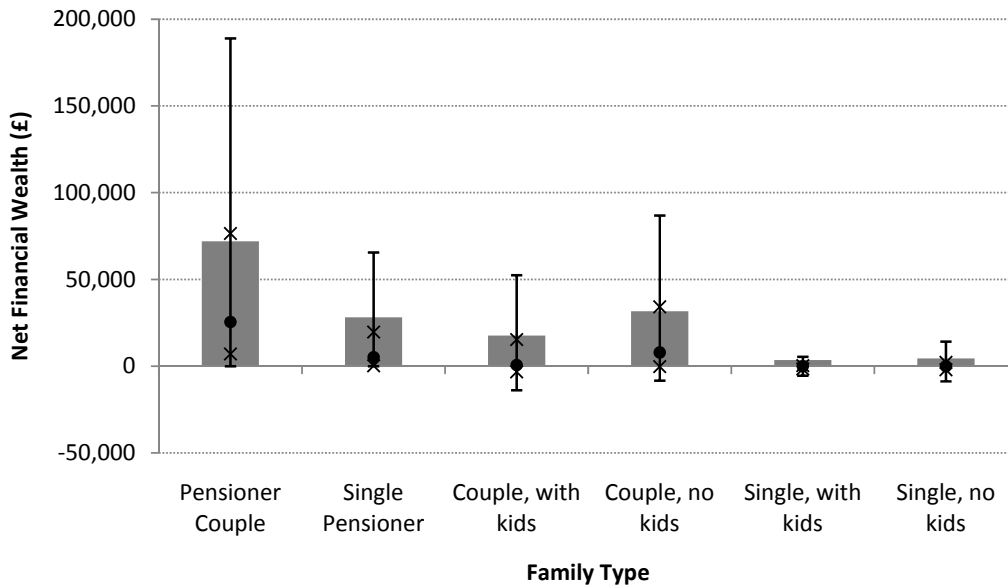
Distribution of financial wealth in 2005, by family type

We now look at the association between family composition and wealth. We divide families into five groups, as follows:

- pensioner couple
- single pensioner
- couple (non-pensioner), with children
- couple (non-pensioner), with no children
- single (non-pensioner), with children
- single (non-pensioner), with no children.

²⁹ The 10th percentile of the distribution of total wealth for mortgagors in 2005 lay at approximately £35,000.

Figure 3.9. Financial wealth, 2005, by family type



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

Individuals are categorised as pensioners if they are over the state pension age (65 for men, 60 for women). Couples are categorised as a pensioner couple if the head of the family is over their state pension age.

Figure 3.9 summarises the distribution of financial wealth in 2005 for each of these family types. There are three points that can immediately be made. First, pensioners tended to have more wealth than non-pensioners. This is not surprising, in light of the distribution of wealth according to age that was summarised earlier in this chapter. Second, conditional on the presence, or otherwise, of children, couples had more liquid wealth than single-adult families. Finally, conditional on the number of adults in the family, the presence of children was associated with less wealth.

Before broadening the definition of wealth to include housing wealth, we show in Table 3.7 the level of home ownership by family type. Pensioners, unsurprisingly, were substantially more likely to own their own home (either with a mortgage or outright) than non-pensioners. The presence of children was associated with higher rates of home ownership (with a mortgage) for single-adult families. This was not the case, however, for couples, where the rates of home ownership were slightly lower for couples with children than for those without. The proportion of families with children owning their own home outright was low. This would be expected, given that those adults with dependent children are likely to be younger than those without, and therefore unlikely to have paid off a mortgage.

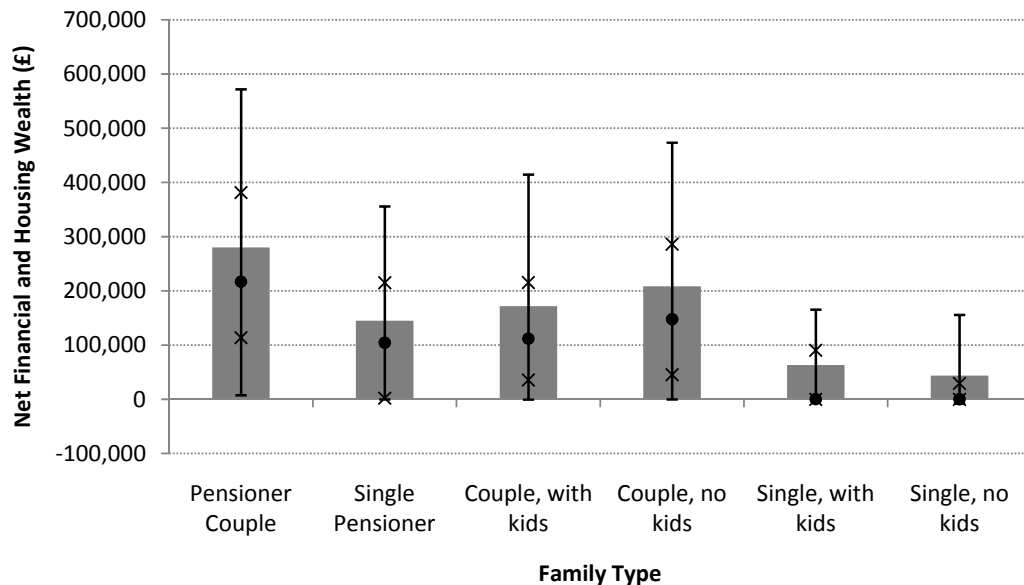
Table 3.7. Home ownership, by family type

Family type	Homeowners (%)	Owners outright (%)
Pensioner couple	83	75
Single pensioner	57	53
Couple, with children	80	9
Couple, with no children	83	28
Single, with children	41	5
Single, with no children	26	8

Source: Authors' calculations using data from the BHPS.

Figure 3.10 summarises the distribution of the sum of housing and financial wealth in 2005 for each family type. The first two points we made above with regard to financial wealth remain true using this broader measure of wealth. That is, pensioners tended to have more wealth than non-pensioners, and two-adult families had more wealth than single-adult households. However, the third point we made (that the presence of children is associated with less wealth) was not true for single-adult families. Lone parents tended to have slightly more housing wealth than single adults with no children. However, for couples, the presence of children was indeed associated with less housing wealth.

Figure 3.10. Financial and housing wealth, 2005, by family type



Notes: The height of the column represents the mean in a particular group. The black circle represents the median, the two crosses represent the 25th and 75th percentiles, and the extremities of the bars represent the 10th and 90th percentiles. Source: Authors' calculations using data from the BHPS.

3.2 Wealth: multivariate analysis

This chapter has, so far, summarised the distribution of wealth for the population of Britain in 2005, and looked at the distribution of wealth for distinct groups within the population. We have defined these groups by one family characteristic at a time. For example, we looked at how the levels of wealth differed between younger households and older households, between households with higher incomes and households with lower incomes, and between households with different housing tenure types. This type of analysis cannot be used to answer questions of the following type: ‘Taking all households with a similar income, do those who are older have more wealth, on average, than those who are younger?’ Multivariate regression, on the other hand, can isolate the correlation of one characteristic with a variable of interest (in this case, the level of wealth). Table 3.8 presents the results of a median regression³⁰ of our wealth variables on a number of family characteristics.

In isolating the correlation of one factor with wealth, we are not making any claim to have uncovered a causal link. For example, we find below that those who owned their property (whether they owned it outright or not) tended to have higher financial wealth than those who rented. One should not conclude that, if the government wanted to encourage more financial wealth accumulation, it should encourage more people to buy property. It is possible (indeed, likely), that some other characteristic of an individual (potentially unobserved) leads to both greater accumulation of financial wealth and a greater propensity to buy property. The analysis here aims to uncover which characteristics of a household, holding other *observed* characteristics constant, are correlated with greater household wealth.

In the regressions that follow we include the following variables (all variables enter as dummy variables):

- Age. We include dummies for a household with a head under the age of 25, then dummies spanning five-year age bands (25–29, 30–34 etc.). The final dummy covers those aged 75 and over. Age of family here is the age of the head of the family. The omitted group is age 40–44.³¹
- Income. We include dummies for equivalised income decile. The omitted group is income group 5.
- Family type. We divide families into five groups: single males, single females, lone parents, couples with children, and couples with no children. The omitted group contains couples with no children.

³⁰ A coefficient on an explanatory variable in a median regression can be interpreted as the median association of that variable with the dependent variable, holding all the other included variables constant.

³¹ All coefficients should be interpreted as relative to the relevant omitted group/reference group. For example, in a regression of financial wealth divided by 1,000 on family characteristics, the coefficient on the dummy indicating the head of the family is aged less than 25 is 1.0. The omitted category is made up of those families where the head of the family is aged between 40 and 44. This should be interpreted as that being less than age 25 is associated with £1,000 more wealth than being between 40 and 44, holding other included characteristics constant.

- Housing tenure. Families are divided into three groups: those who own their property outright, those who are paying a mortgage, and those who don't own property. The omitted group is mortgagors.
- Pension status. Families are divided into those who did not pay into a pension in the preceding year, those who paid into an individually purchased pension, those who paid into an employer-provided pension, and those who paid into types of pension. The omitted group contains those who did not pay into a pension in the preceding year.
- Education. Families are divided into three groups according to the age at which they left full-time education. The three groups comprise respectively those who left education at or before the age of 16, those who left between 17 and 19 inclusive, and those who left after age 19. The first group (containing those with the least education) is the omitted group.
- Imputation. We include, but do not report, dummies indicating whether household wealth contains imputed components.

Table 3.8 summarises the results of four median regressions. The four regressions are:

1. a median regression of financial wealth (divided by 1,000) on the variables listed above
2. a median regression of financial wealth divided by income on the same variables
3. a median regression of the sum of financial and housing wealth (divided by 1,000) on each of the variables listed above, with the exception of housing tenure variables
4. a median regression of the ratio of the sum of financial and housing wealth to income on the variables listed above, again with the exception of housing tenure.

The main results from the multivariate analysis summarised in Table 3.8 are as follows.

Age

- After age 25, financial wealth, broadly speaking, increases with age until approximately retirement age.
- Being in the 60–64 year old group is associated with a large and significant positive association with wealth levels, relative to being in a slightly younger group or a slightly older group.
- Individuals in the oldest families (those aged 75+) had less financial wealth than those slightly younger (those aged 70–74).
- There is no clear association between age and the ratio of financial wealth to income until around age 60. Those in households where the head is aged over the age of 60 have ratios of wealth to income that were, at the median, higher than those in all age groups where the head is less than 60. Those families who, in 2005, had the highest ratio of wealth to income were those in the 70–74 year old category.

- When the definition of wealth is broadened to include housing wealth, the pattern is more straightforward. Wealth increases steadily with age until age 75. Those in the very oldest households (aged 75+) have lower levels of wealth than those in the 70–74 age group. The median for the latter groups is almost £50,000 higher than the median for the former group.
- There is a positive association between the median ratio of wealth to income and age across the entire age distribution (with the exception of the very oldest families, who have a slightly lower median ratio than those who are a little younger). This differs from the association between the ratio of financial wealth to income and age, which is flat for those under the age of 60.

Income

- Those families with the lowest incomes have more financial wealth and housing wealth than those with slightly higher incomes. With this exception, both financial wealth and housing wealth increase steadily with income. The rate of increase is substantially larger at the top of the income distribution than it is towards the middle.
- The relationship between the ratio of financial wealth and income to income itself is approximately U-shaped. Conditional on other observed factors, those with the lowest incomes and highest incomes have the largest financial wealth to current income ratio. There is no substantial and significant association between these two variables in the middle of the income distribution.
- The association between income and the ratio of wealth (including housing wealth) to income is, loosely speaking, downward sloping. Those at the top of the (current) income distribution have less wealth, relative to their income, than those in the middle.

Table 3.8. Multivariate analysis of family level wealth in 2005

	Financial wealth/1,000 (1)	Financial wealth /Income (2)	Wealth /1,000 (3)	Wealth /income (4)
Age (ref grp: 40–44)				
<25	–0.5	–0.04**	–24.9**	–1.84**
25–29	–2.5**	–0.07**	–49.6**	–1.81**
30–34	–1.1**	–0.03*	–35.3**	–1.45**
35–39	0.3	0.00	–21.5**	–0.76**
45–49	0.4	0.04*	37.7**	1.06**
50–54	2.4**	0.07**	69.0**	1.91**
55–59	1.4**	0.03	109.9**	4.06**
60–64	7.6**	0.34**	128.9**	5.61**
65–69	4.5**	0.30**	132.8**	8.13**
70–74	8.1**	0.56**	147.8**	9.59**
75+	3.9**	0.37**	101.9**	8.44**

	Financial wealth/1,000 (1)	Financial wealth /Income (2)	Wealth /1,000 (3)	Wealth /income (4)
Income (ref grp: decile 5)				
1 (Poorest)	0.4	0.08**	0.6	0.39**
2	-0.7	0.05**	-5.1	0.37**
3	-0.1	0.04**	-13.1**	-0.07
4	0.4	0.04**	-9.8**	-0.29**
6	0.3	-0.01	8.1*	0.08
7	1.6**	0.02	15.6**	0.08
8	0.9*	0.00	19.9**	-0.05
9	2.5**	0.01	40.1**	-0.21**
10 (Richest)	12.5**	0.08**	115.7**	-0.12*
Family type (ref grp: Couple, no kids)				
Single male	-3.0**	-0.06**	-28.6**	-0.15**
Single female	-3.3**	-0.07**	-30.0**	-0.13**
Lone parent	-0.6	-0.02	-8.8*	-0.14*
Couple, kids	-1.4**	-0.05**	27.2**	0.42**
Housing tenure (ref grp: Mortgagor)				
Owned outright	14.1**	0.71**		
LA renter	-0.3	-0.06**		
Private renter	-0.6*	-0.07**		
Living with relative	3.0**	0.05**		
Other	1.9**	0.06**		
Pension payments (ref grp: no pension)				
Individual pension	-1.7**	-0.02	26.5**	1.05**
Employer pension	2.6**	0.08**	-3.6	0.07
Both	-1.0**	-0.01	15.3**	0.19**
Education (ref grp: ≤ 16)				
Educ, 17–19	0.6**	0.03**	11.1**	0.26**
Educ, ≥ 20	1.7**	0.05**	23.1**	0.57**
Constant	0.1	-0.01	43.6**	1.58**
Sample size	5,129	5,129	4,972	4,972

Notes: * indicates significant at the 5% level, ** indicates significant at the 1% level.

Source: Authors' calculations using data from the BHPS.

Family type

- Couples without children have higher levels of financial wealth than couples with children. On the other hand, they have lower levels of wealth, more broadly defined, than couples with children.
- Perhaps surprisingly, lone parents have more wealth, conditional on other observed factors, than single males or females. This is true whether or not wealth is defined as financial wealth or as the sum of financial and housing wealth.
- Couples with children have substantially higher levels of wealth than lone parents. They do not, however, have higher levels of financial wealth.

Housing tenure

- Those who own their own home outright have significantly more financial wealth, at the median, than those who are either paying off a mortgage or are renting. Relative to mortgagors, owners outright have, at the median, £14,000 more financial wealth.
- There is no significant difference between the financial wealth levels of those in private rented accommodation and those in local authority accommodation.

Pension payments

- There is a negative relationship between having paid into an individual pension and the level of financial wealth. We argued above that having paid into a private pension fund is likely to be positively correlated with the stock of pension wealth held by the individual. This, combined with the results from this regression, provides tentative evidence that individuals view financial wealth and private pension wealth as substitutes. This result is in keeping with those in Attanasio & Rohwedder (2003). We discuss this issue further in Chapter 5.
- On the other hand, having made a contribution to an employer-provided pension scheme is positively correlated with financial wealth.
- The pattern is somewhat different when wealth is defined in the broader sense. In this case there is a positive association between paying into a private pension and wealth, and no relationship between paying into an employer-provided pension and wealth.

Education

- The relationship between wealth and levels of education is straightforward. Whether wealth is defined in the broader or the narrower sense, more education is associated with higher levels of wealth.

3.3 Conclusion

This chapter has aimed to summarise the distribution of both financial and housing wealth. We first described the overall distribution, and then the distribution for particular types of household. We found, broadly speaking, that typical holdings of financial wealth were, in 2000 and in 2005, far less than holdings of housing wealth. This has implications for what has happened since 2005. Given the falls in housing wealth that have occurred, and the fact that housing tends to be a leveraged purchase, levels of wealth held by some homeowners are likely to be substantially lower than in 2005. Of course, those who do not own property, but plan to at some stage, will, on average, have been made better off by the fall in the value of property. Thus falls in the value of housing change the distribution of wealth, but do not necessarily (as we discussed in Chapter 2) change the aggregate level of wealth.

Having looked at levels of wealth, we now turn to saving – that is, changes in the level of wealth at the household level. Before summarising how saving varies across the population, we briefly describe how we define saving, and how we measure it.

4. Saving: definition, measurement and data sources

The task of defining saving is not a straightforward one. Ultimately, this chapter will conclude that the most appropriate definition of saving will be that which can accurately answer the issue under investigation. It is useful therefore, before discussing the definition and measurement of saving, to describe the two principal reasons why saving is important. These reasons are closely related, but their study requires different measures of saving to be defined. These two reasons are as follows.

- For individual households, saving allows consumption to be smoothed across periods when income is low. Income can be low either for reasons that are anticipated (e.g. retirement) or for reasons that are unanticipated (e.g. unemployment).
- For the economy as a whole, saving allows investment in productive capital and infrastructure. This allows the economy to produce goods and services more efficiently in the future. This will benefit today's households and their descendants.

Of course, the two reasons for saving are very closely linked. A productive economy (such as that which has invested a lot in infrastructure) that has a redistributive tax and benefit system will facilitate the consumption of all households, including those that have not saved. However, while the two motives for saving are related, there are some activities that could usefully be considered saving from an individual's point of view but would not be considered saving from a national point of view. To see this, consider the effect of an increase in house prices. When property prices increase, those who own property become wealthier. If they do not spend this additional wealth, they have saved it, and could therefore be considered to be better prepared for a fall in income. However, this new saving has not created any new productive resources, and no new aggregate saving has been done. However, there have been changes to the distribution of wealth: those who own property have done some passive saving and have more wealth, while those who do not own property, but would like to in the future, will find it harder to do so.

Our approach in this report is to look at saving at the household and family level. We want to identify which types of household are saving more than others. This can help identify which households are more adequately prepared for retirement. We are less concerned about saving at the level of the entire economy. We direct the reader to Weale (2009) for a summary of this issue with a focus on the UK, and to Berry & Williams (2009) for a perspective on how the aggregative household (and national) saving rate has evolved since the period of financial turbulence began in 2007.

There are three issues that we consider in the rest of this chapter:

- Definition: How to define saving?
- Measurement: How to measure saving?
- Summarising: How to summarise household-level saving rates into an average for a particular group?

4.1 How to define saving?

There is no single ‘correct’ definition of saving. The definition of saving used is that which is most appropriate to the issue under investigation. We do not define a single measure of saving for use in the rest of this report. The measure of saving used will generally be determined by the issue under investigation and the data available. This section discusses the treatment of government and corporate saving, durable spending, capital gains, and pension income in the definition of saving that we use.³² Many of the issues here are similar to those we discussed in Chapter 2 in our discussion of the definition of wealth. This shouldn’t be surprising, as the saving rate between two periods can be thought of as the difference in wealth between those two periods. Hence, for example, our discussion of whether government and corporate saving is included in our measure of the saving rate mirrors the discussion of whether government and corporate *wealth* is included in our measure of household *wealth*.

Government and corporate saving

In Chapter 2 we discussed the distinction between household wealth and national wealth, noting that not all corporate wealth and no government wealth will be included in our figures for household wealth. A comprehensive definition of saving is that it is the change in the value of wealth. Therefore a similar point must be made here. Saving done by corporations may be recorded in our measure of household saving (if the saving triggers a capital gain in a security held by the household). Saving (or borrowing) done by the government will not, on the other hand, appear in our estimates of household saving.

Durable spending

Colloquially, it is unlikely that many individuals would characterise the purchase of a durable as saving. However, there are good reasons to consider it as such: the purchase of a durable entitles the owner to a flow of consumption services in the future, in much the same way that having cash in the bank does. Durable spending is not considered as saving in the UK National Accounts, and thus is not counted as saving in the household saving ratio. Where possible, in this paper we present results including and excluding spending on consumer durables as saving.

³² This section is not intended as a comprehensive discussion of the items that may or may not be counted in a measure of household savings. We discuss those items that are most relevant to the interpretation of the results that we present below. See Weale (2009) for a more complete discussion.

Of course, the most valuable durable good that most households own is a house or apartment. As noted in Chapter 2, housing equity makes up the largest part of wealth for many households. The treatment of the accumulation of housing assets therefore requires special attention, and we describe our approach to this later in this section.

Capital gains

A capital gain earned by an individual adds to their wealth. It allows consumption in retirement to be funded, and builds up a buffer against any unexpected income shock. Conversely, a capital loss reduces a household's wealth, and limits their ability to smooth consumption across periods in which income is low. From the perspective of the individual household, therefore, there are good reasons to include capital gains as saving.

However, from a national perspective, capital gains should not necessarily be considered as saving. If the capital gain arises as a result of some addition to productive capacity (i.e. investment in new physical capital or a technological breakthrough), then that gain does represent new national saving. On the other hand, if the gain arises out of some reason unrelated to productive capacity (e.g. unfounded speculation or changes in preferences), then the capital gain should not be considered to represent new aggregate saving. See Weale (2009) for a detailed discussion of this issue.

Capital gains are not considered as saving in the National Accounts, and therefore any gains (or losses) are not counted as saving in the household saving ratio. However, as our present study is aimed at analysing the saving behaviour and wealth of households, where possible, we include capital gains as a measure of saving.

It is useful here to introduce the concepts of active and passive saving. Active saving is current income that households do not spend and therefore save. Passive saving involves the accrual of capital gains that a household does not realise and spend. In reacting passively to changes in the value of their assets (i.e. by not selling and consuming the proceeds), the household has added to the value of their assets, and therefore has saved. We use these terms below in describing the particular saving rate being measured.

Housing

In Chapter 5, which uses BHPS wealth data, we present results that use two measures of saving: the first does not include changes in the value of housing equity, and the second does. In Chapter 6, which uses EFS data, mortgage capital payments are counted as saving, but mortgage interest payments are not. We adopt this approach because interest payments do not affect the value of wealth (in the form of housing equity owned by the households) whereas capital repayments do increase the value of wealth.

Pension income

Households save throughout their working lives for their retirement. One way of doing this is by making payments into pension funds. If we count these payments of working households as saving, we should count pension income as dissaving.³³ Conversely, if we do not count payments into pension funds by households as saving, it is clear that we should not count pension income as dissaving.

As was the case with durables, there may be a tension between the colloquial conception of saving and our characterisation of pension income as dissaving. Pension payments can 'look like' income to the recipient, and therefore when a pension payment is not spent it might 'look like' saving. However, households save for retirement in a number of ways: through pensions, through property, and in non-pension saving or investment vehicles. If we count non-pension retirement saving as part of our measure of household saving, then there seems little reason to treat pension payments any differently.

The treatment of pension saving in the household saving ratio published by the ONS depends on whether the pension scheme is funded (such as a private or public sector pension fund that aims to maintain a balance sufficient to meet future liabilities) or whether it is unfunded (such as the state pension and certain central government pension schemes). Payments into funded pension schemes are counted as household saving. Therefore the spending of payments to pensioners from funded pension schemes is counted as dissaving. For unfunded schemes the converse is true. Payments into pension schemes (such as National Insurance payments) are not counted as saving. Therefore payments from these pension schemes (such as state pension payments) are counted as income, and therefore spending them does not count as dissaving³⁴ (for further details on this see Rahman (2007)).

In many cases our treatment of pensions will be driven by the data available. However, throughout this report we are consistent (from a life-cycle perspective) in our treatment of pensions. That is, if we include payments into pension funds as saving, we treat payments out of pension funds as dissaving, and vice versa.

4.2 How to measure saving?

This section discusses how, having selected a definition of saving, it can be measured in practice at the household level – that is, how different types of survey data can be used to derive a saving rate for a particular household. The next section illustrates a number of ways in which these household-level

³³ Otherwise, the same income would be counted twice over the life-cycle – first when it is earned (and saved), and second when it is drawn down from a pension fund.

³⁴ The reason for this distinction should be clear: when a scheme is unfunded, the accumulation of pension claims in the future entails no new national saving. On the other hand, the accumulation of pension claims from a funded scheme does involve actual saving.

measures can be used to derive a summary overall measure for different household types.

We use two principal methods to calculate a household-level saving rate. The first uses a longitudinal survey (the BHPS). The second uses a cross-sectional survey (the EFS). Our results on saving rates using the BHPS data are at a family level, whereas those using the EFS data are done on the household level. The reasons for this are explained in Appendix A.

Longitudinal data: British Household Panel Survey

The BHPS, first introduced in Chapter 2, asked respondents about their wealth holdings in 2000 and 2005. We can calculate a family's saving over these five years by calculating the real difference in their wealth between the two years. Clearly, a saving rate is this measure of saving divided by their income. Thus saving, and the saving rate between periods t and $t - 1$, can be characterised as³⁵

$$\begin{aligned} \text{Saving}_{t,t-1} &= \text{Assets}_t - \text{Assets}_{t-1} \\ \text{Saving Rate}_{t,t-1} &= \frac{\text{Assets}_t - \text{Assets}_{t-1}}{\text{Income}_{t-1}} \end{aligned}$$

This measure of saving will include both active saving (payments into savings/investment accounts) and passive saving (capital gains). The definition of assets in the above equations will determine the definition of the saving rate that results. For example, if pension saving is to be included, then the assets should include the value of any accumulated pension entitlement.

Cross-sectional data: Expenditure and Food Survey (EFS)

The EFS (known as the Family Expenditure Survey until 2001)³⁶ is an annual household survey. Respondents are asked to complete an expenditure diary in which they record all their spending over a two-week period. In addition, respondents complete a questionnaire that collects demographic and income information. The questionnaire also contains questions about infrequently purchased items. While these items (cars, consumer durables etc.) may account for a large share of a household's total expenditure, they are unlikely to be purchased during the two-week period in which the household fills out the survey. Together, the diary and the questionnaire allow us to measure the typical expenditure of the respondents.

The EFS samples approximately 7,000 households in each year. In this report we use data from the period 1974 to 2007.

³⁵ Before differencing the value of assets in two waves, they should be expressed in real terms. Only real increases (i.e. increases above the rate of inflation) in the value of assets should be counted as saving.

³⁶ In spite of this name change we refer to the survey as the Expenditure and Food Survey (EFS) even when discussing data previous to 2001. The EFS will be known as the Living Costs and Food Survey from the release of the 2008 data.

The EFS contains data on household income and household expenditure. We can calculate saving simply as income minus expenditure, and the saving rate as saving divided by income. Thus, in period t saving and the saving rate are defined as follows:

$$Saving_t = Income_t - Expenditure_t$$

$$Saving\ Rate_t = \frac{Income_t - Expenditure_t}{Income_t}$$

We can define measures of income and expenditure to derive a saving rate according to our required definition. For example, if we wish to include durable spending as saving, we do not include spending on durables in our measure of expenditure. Thus any income spent on durables will be classed as saving. On the other hand, if we do not want to include durable spending as saving, we include it in our measure of expenditure, and it will not be counted as saving.

The limitation of this approach is that we cannot include as saving the value of any capital gain generated. That is, when looking at income minus consumption, we capture only a household's active saving, not any passive saving. Of course, if we had cross-sectional data that enquired directly as to how much households had saved (whether it was in an active sense or in a passive sense), we could use those data to compute a broader measure of saving. In the absence of any data on changes in the value of assets held by respondents, we are limited to computing active saving rates.

4.3 What summary measure should we use?

Having settled on a definition of saving, and measured it for each household in a survey, we will then wish to use the household-level rates to construct some summary measure of saving. This section details how we might use the household-level saving rates calculated according to either of the methods detailed in the previous section to derive an average measure either for the entire economy, or for a certain group of households – defined according to age, income, education level, etc. There are three main summary measures that could be used. They are the democratic mean, the plutocratic mean, and the median. We briefly outline each of these in turn.

Democratic mean

The democratic mean is the simple average of all the saving rates of each household. It gives an equal weight to all households (hence the term democratic). The democratic mean can be described as

$$\frac{1}{N} \sum_{i=1}^N SR_i$$

where SR_i is the saving rate of household i and there are N households in the population.

Plutocratic mean

The plutocratic mean is a weighted average of the saving rates of all households, with more weight given to those with higher income. It might seem strange to give more weight to those with more income. One might, however, want to do this if the aim is to establish the total saving being undertaken by households in the economy. In that case, one would want to give substantially more weight to someone who saves 5% of an income of £10 million than to someone who saves 5% of an income of £10,000. The democratic mean would give these two individuals the same weight. The plutocratic mean, on the other hand, will be dominated by the behaviour of those with the highest incomes. This means that if the saving behaviour is substantially different at the top of the income distribution than it is at the bottom of the income distribution, then the plutocratic mean will be a poor guide to the saving behaviour of the poor.

Precisely, the plutocratic can be defined as

$$\sum_i^N w_i \cdot SR_i$$

where w_i , the household weights, are defined as $\frac{Y_i}{\sum_{i=1}^N Y_i}$. It can easily be shown that this average is actually equal to the following:

$$\frac{\sum_{i=1}^N Y_i - \sum_{i=1}^N C_i}{\sum_{i=1}^N Y_i}$$

This measure, the sum of all saving divided by the sum of all income, is the aggregate household saving ratio as calculated using the National Accounts. Therefore this widely quoted measure (shown in Figure 1.1) is a plutocratic average of the individual saving rates of resident households.

Median

The median saving rate is the saving rate above which half of households lie and below which half of households lie. The median is less sensitive to outliers than is the mean. This means that those with extremely high saving rates or extremely low saving rates (or equivalently extremely high borrowing rates) exert less of an effect on the median than they have on the mean.³⁷

³⁷ It is, of course, possible to calculate a plutocratically weighted median, though the reasons for doing so in the context of saving rates are not clear: hence we don't discuss it here.

Which summary measure?

As was the case with both the definition and the measurement of saving, the choice of average will depend on both the characteristics of the data and the question being answered. For example, if the data contain a lot of measurement error, leading to outliers, one might decide to use a median rather than a mean. If the aim is to estimate the total saving being undertaken, then one might want to use a plutocratic mean.

In the results presented in this paper we use the median to summarise saving rates, rather than either mean, as it is more likely to represent the experience of a ‘typical’ household. We discuss our reasons for using the medians in Appendix B.

Before concluding this chapter it should be noted that the method used to estimate our average saving rates is very different from that which underlies the estimation of the household saving ratio published as part of the National Accounts. We calculate a saving rate for each household and then summarise these measures as described above. On the other hand, the household saving ratio is the difference between aggregate household disposable income and aggregate household consumption (divided by aggregate household income). These two large aggregates are derived using the National Accounts methodology using data from a large number of household and business surveys.³⁸ We noted above that it can be shown that the approach to calculating the household saving ratio is equivalent to calculating a weighted average of household-level saving rates with the weights set equal to each household’s share of total income. That is, it is equivalent to a plutocratic mean of household saving rates. In spite of this equivalence, given the very different method of calculation, and the different survey data that are used in deriving National Accounts aggregates, we would not expect a plutocratic mean that we estimate to equal the household saving ratio. In fact, the measures often differ substantially. This issue is discussed further in Appendix B.

³⁸ For a discussion of the methodology used to calculate the household saving ratio, see Chamberlin & Dey-Chowdhury (2008).

5. Saving: evidence from the British Household Panel Survey

Chapter 4 outlined a method of calculating a saving rate when we have access to panel data on wealth, such as that in the BHPS wealth module. The saving rate that we calculate is the real change in wealth between 2000 and 2005 divided by real income in 2000. All results are presented on an annualised basis, so they can be interpreted as average saving per year over the five-year period.³⁹ Saving here will include both active saving (e.g. payments into deposit accounts, new investments made) and passive saving (unrealised capital gains), so it is a broader definition of saving than we will be able to apply when using the EFS data in Chapter 6.

When we used each wave of the BHPS as a cross-section in Chapter 3, our sample was all families fully responding in that wave. In this chapter, as our results depend on the manner in which wealth changed between two periods for the same family, we use all families that are fully responding in both waves, and where the family composition has not changed except for the addition or the leaving of children.⁴⁰

Throughout this chapter we discuss two different measures of saving, corresponding to the two different measures of wealth that we compute. The first definition of wealth is financial wealth, again calculated as the sum of savings and investments less outstanding non-mortgage debt. The second measure of wealth adds to this the value of housing equity.

5.1 Saving rates: univariate analysis

In this section we summarise the median rate of saving for families according to the age of its members, income, pension status, housing tenure and family composition.

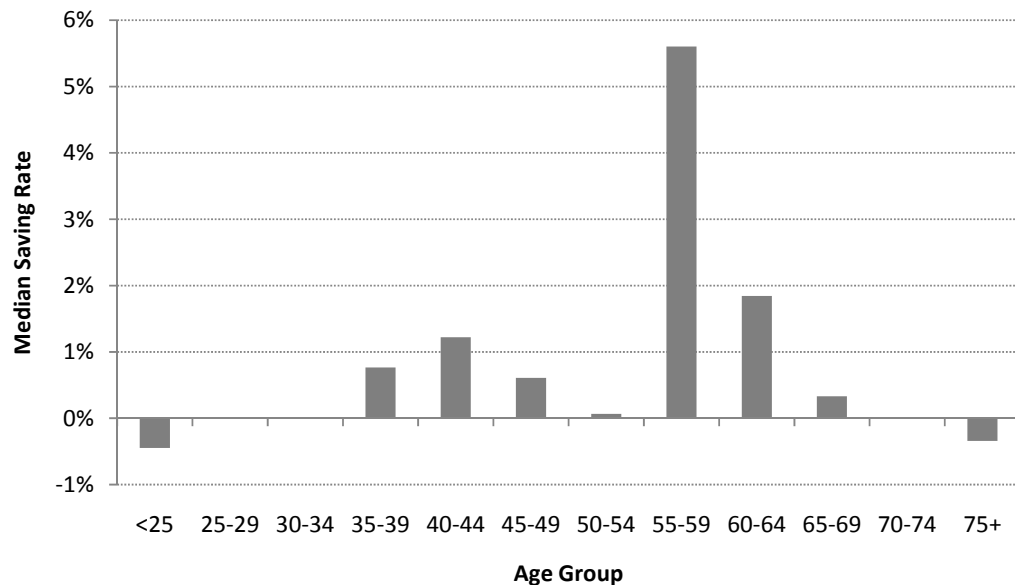
Age

Figure 5.1 shows the average annual saving rate by age group. Families are placed into age groups according to the age of the head of the family in 2000. The saving rates illustrated do not include any change in the value of housing equity. Broadly speaking, median saving rates across the age distribution can be split

³⁹ The period between interviews is not necessarily five years. Some individuals may have been interviewed late in the sampling period for the 2000 wave but early in the sampling period for the 2005 wave. The period between interviews would then be less than five years. We take account of this by dividing the saving rate by the number of years (taken as a decimal) between interviews.

⁴⁰ The sample size is 3,409 families. While we refer to children leaving the family, strictly speaking we mean that they leave the benefit unit: that is, they are no longer dependent children and constitute their own benefit unit.

Figure 5.1. Annual saving rate, excluding changes in housing equity, between 2000 and 2005, medians, by age



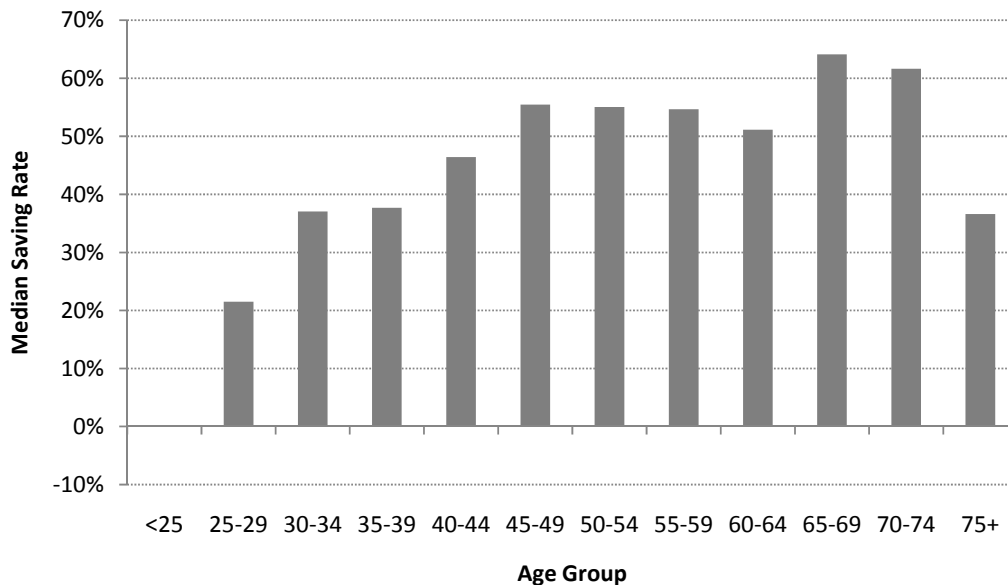
Source: Authors' calculations using data from the BHPS.

into four categories. Those in the youngest age groups (less than 35 years old), at the median, either accumulated no liquid assets between 2000 and 2005 or, in the case of the very youngest group, were net borrowers. Those in middle age (aged between 35 and 50) had positive but modest rates of saving. The median for these groups was approximately 1% per year. The highest median rates of saving were seen for those who were between 55 and 65 in 2000. The median rate for those in the 55 to 59 age group was almost 6%, and that for those in the 60 to 64 age group was approximately 2%. Small positive median saving rates for the recently retired turn to small negative median saving rates for the very oldest group.

Figure 5.2 shows the median saving rates when changes in the value of housing equity are included as saving. The period between the two interviews, 2000–2005, was characterised by strong growth in the value of houses.⁴¹ It is unsurprising, therefore, that all age groups except the very youngest (where home ownership rates are lowest) registered extremely large median annual saving rates between the two years. The magnitude of the saving rates illustrated here dwarfs that of the rates in the previous graph. For all age groups over the age of 30 the median *annual* rate was greater than 35%. While part of this is likely to have come from homeowners paying off their mortgage (active saving), given the scale of the saving rates, most of it will have come from homeowners passively saving the increases seen in the value of their properties. High levels of

⁴¹ House prices rose, on average, by 93% between the fourth quarter of 2000 and the fourth quarter of 2005 (Nationwide Building Society (2010)).

Figure 5.2. Annual saving rate, including changes in housing equity between 2000 and 2005, medians, by age



Source: Authors' calculations using data from the BHPS.

home ownership, combined with the fact that purchasing a home will be, for most families, a leveraged investment, means that a period of large growth in property prices will be a period where median saving rates will be extremely high.

The counterpoint to this is that, in periods when house prices are falling, saving rates for some homeowners are likely to be extremely negative, and will in all probability again dwarf any active saving that they do. This has important implications for the period beginning in 2007, when house prices began to fall, and its effect on household wealth and behaviour will be one worth examining as data covering this period become available.

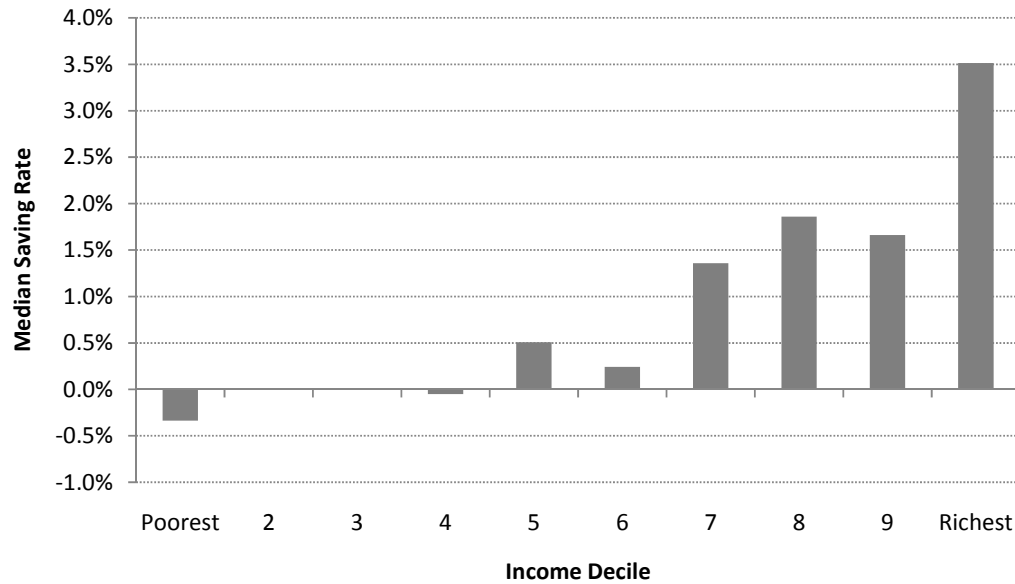
Income

Figure 5.3 shows the median saving rate, per year, for family groups defined according to income. We divide families into 10 deciles according to their equivalised income. The pattern is clear. Broadly speaking, median saving rates tended to be greater at higher incomes than they were at lower incomes. Median saving rates were close to zero for those in the bottom six income quintiles. They rose to approximately 1.5% for the next three income deciles. The richest 10% of households had a median saving rate of approximately 3.5%, substantially higher than any of the other groups.

Figure 5.4 shows the median annual saving rates, this time including changes in the value of housing equity. There are two substantial differences shown here relative to the relationship between non-housing saving and income shown above. The first is that, while those in the bottom six income deciles tended to

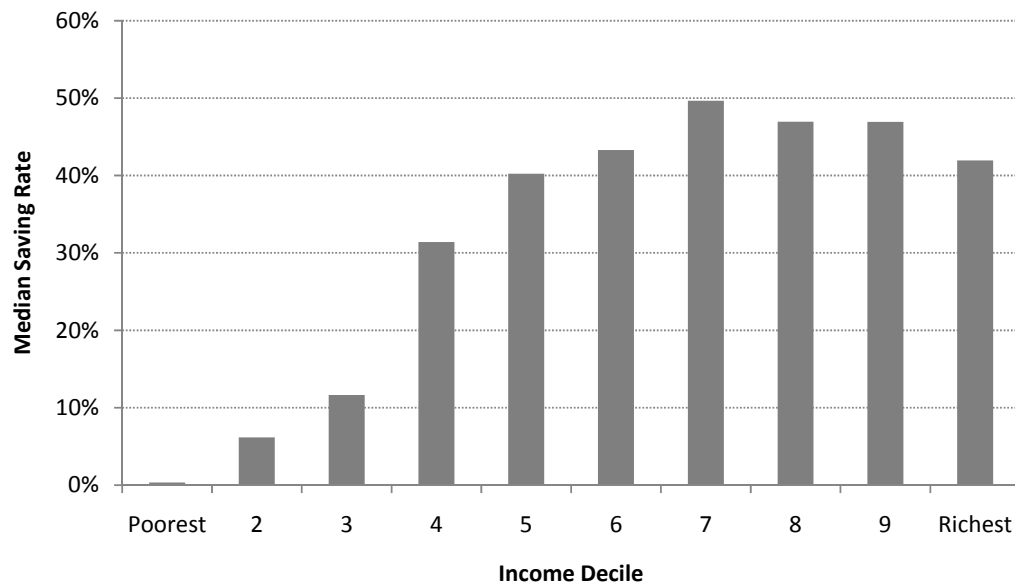
have median non-housing saving rates close to zero, the median saving rate *including* housing was positive for each of these groups. The magnitudes were particularly large for each decile starting from the fourth. The second difference

Figure 5.3. Annual saving rate, excluding changes in housing equity between 2000 and 2005, medians, by income



Source: Authors' calculations using data from the BHPS.

Figure 5.4. Annual saving rate, including changes in housing equity between 2000 and 2005, medians, by income



Source: Authors' calculations using data from the BHPS.

relative to the pattern seen previously is that the differences in the median saving rates within the top six income deciles were substantially less marked here than they were when we considered non-housing saving. While the families with higher current income accumulate, at the median, liquid financial wealth at a substantially faster rate (relative to their income) than families with lower current income, they accumulate housing wealth at a rate roughly comparable to those with less income. Of course, it is important to note that while those at the top of the income distribution had similar median saving *rates* (including housing) as those further down the income distribution, the absolute amount of wealth that they were accumulating was substantially greater.

Pension status

An advantage of having access to panel data is that we can illustrate the association between saving behaviour and the *change* in some family characteristic. We do this here, showing the association between saving rates and the change (or otherwise) of the pension status of a family between 2000 and 2005. We divide families into the following groups (the abbreviations that are used to label the axes in the figures are given in brackets).

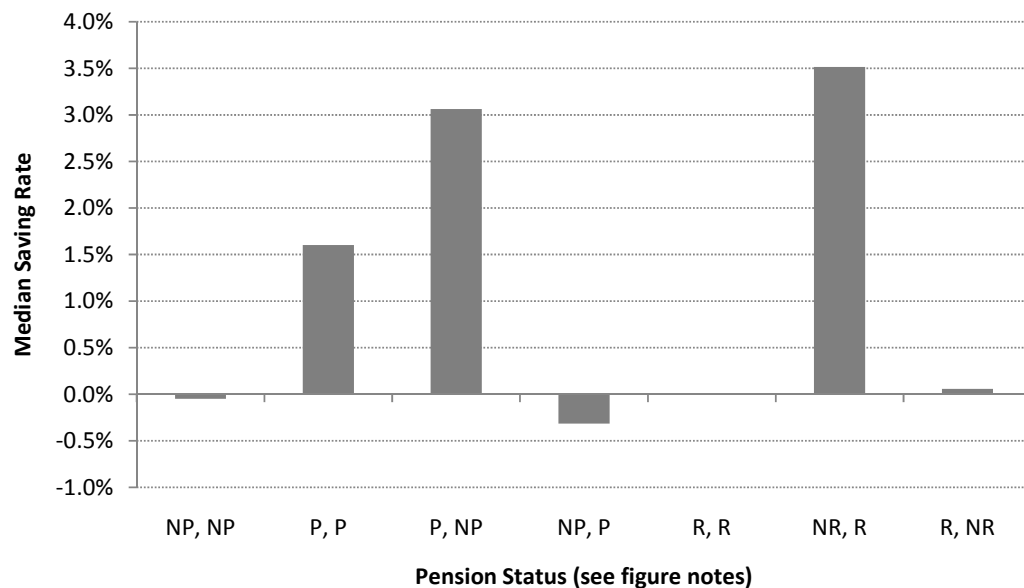
- No payment into a pension in either year (NP, NP)
- Made a payment into a pension in both years (P, P)
- Paid into a pension in 2000, but not in 2005 (P, NP)
- Did not pay into a pension in 2000, but paid into a pension in 2005 (NP, P)
- Retired in both waves (R, R)
- Retired between 2000 and 2005 (NR, R)⁴²
- Retired in 2000, but came out of retirement by 2005 (R, NR).

A number of interesting points are clear from Figure 5.5. The first is that those who paid into a pension fund in both years had higher median rates of saving than those who didn't pay into a pension fund in either year. The median annual rate of saving for the former group was approximately 1.5% while that for the latter group was just under zero. This result echoes that which we showed in Chapter 3, where we found that those who pay into pension funds are likely to have more wealth. As the stock of wealth represents accumulated saving (whether it is active or passive), it is unsurprising that those with a tendency to have higher levels of wealth also have a tendency to have higher rates of saving. Loosely speaking, for these families, who are either 'always' saving into a pension fund or 'never'⁴³ saving into a pension fund, pension saving and non-pension saving exhibit some complementarity: that is, families have a tendency to do either both or neither. However, as we will see in Section 5.2, there is no significant difference between the saving rates of those two types of family once we condition on other family characteristics.

⁴² A couple is considered retired if either one of the adults is retired.

⁴³ We use the terms 'always' and 'never' here loosely, rather than the more cumbersome: 'in both waves' and 'in neither wave' respectively.

Figure 5.5. Annual saving rate, excluding changes in housing equity between 2000 and 2005, medians, by pension status



Notes: Abbreviations stand for no pension payment (NP), pension payment (P), retired (R), and not retired (NR). The first and second abbreviations in each label stand for the pension status of the family in the first and second waves respectively.

Source: Authors' calculations using data from the BHPS.

However, when we look at those families who change their pension status between 2000 and 2005, the picture is somewhat different. Those families who switched from paying into a pension to not paying into a pension saved substantially more than those who switched in the other direction. The median annual saving rate for those who switched *away* from pension saving was approximately 3% while that for those who switched *towards* pension saving was just below zero. For this group of families, pension saving and non-pension saving seem to be substitutes rather than complements. This echoes results that are presented by Attanasio & Rohwedder (2003), who show that, for British households, there is a high degree of substitution between pension and non-pension saving. We show below (see Section 5.2) that this evidence of substitutability between pension and non-pension saving remains significant after conditioning on other family characteristics

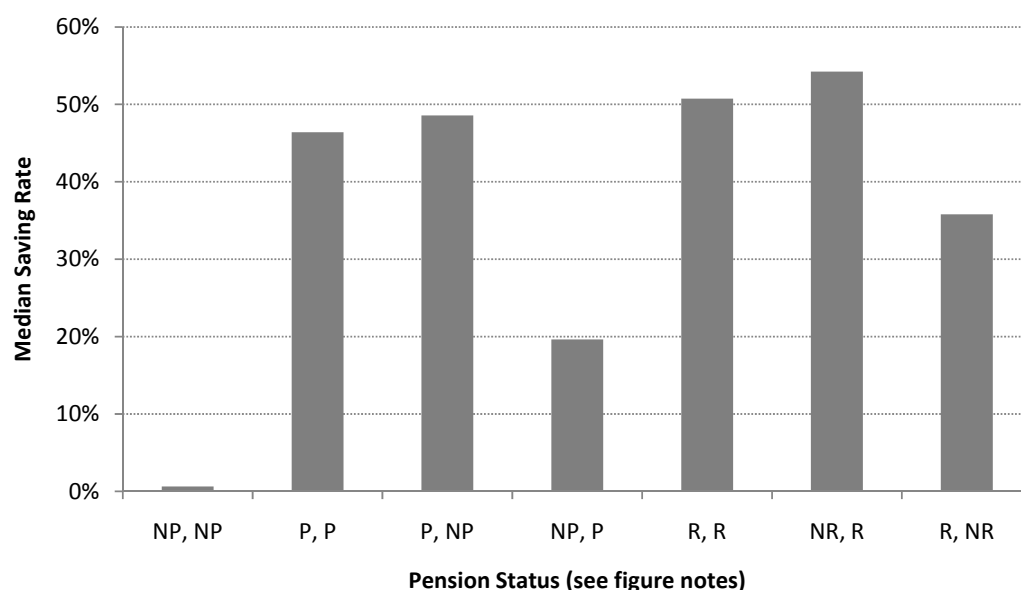
It is worth emphasising that this analysis does not take into account the actual amount of pension saving done; it simply uses the fact that we know whether or not pension saving has been done in a particular year. This means that, although we find evidence that there is some substitution between pension and non-pension saving, we do not know the extent to which falls in pension saving are offset by increases in non-pension saving and vice versa. The interpretation of these results should be that, when looking at a family that has ceased pension saving from one year to the next, simply looking at the decrease in this saving will give an overestimate, on average, of the fall in their total saving (for retirement and other purposes). The opposite is also true: in the case of a family that has

started paying into a private pension fund, the amount of new pension saving they are doing is likely to be an overestimate, all other things being equal, of the total new saving that they are doing

A final point to note from Figure 5.5 is that those who retired between the two years saved a substantial amount. The median saving rate for this group was approximately 3.5%. Some of this is likely to be as a result of lump-sum payments on retirement.⁴⁴

Figure 5.6 shows the median saving rate according to pension status in the two years, this time including changes in the value of net housing equity. Those who ‘always’ pay into pension funds had higher saving rates on this measure than those who ‘never’ pay into pension funds. This is driven by the fact noted in Section 3.1 that there is a positive correlation between the probability of home ownership and the probability of paying into a pension fund. Comparing those who switched either away from or towards pension saving, the pattern is largely the same as it was when we considered non-housing saving. Those who moved away from pension saving tended to save more than those who moved towards non-pension saving.

Figure 5.6. Annual saving rate, including changes in housing equity between 2000 and 2005, medians, by pension status



Notes: Abbreviations stand for no pension payment (NP), pension payment (P), retired (R), and not retired (NR). The first and second abbreviations in each label stand for the pension status of the family in the first and second waves respectively.

Source: Authors' calculations using data from the BHPS.

⁴⁴ If our measure of saving was broader, and included changes in the value of pension wealth, then such payments would not count as saving. They are a transfer of wealth from one form (pension wealth) to another (liquid financial wealth).

Housing tenure

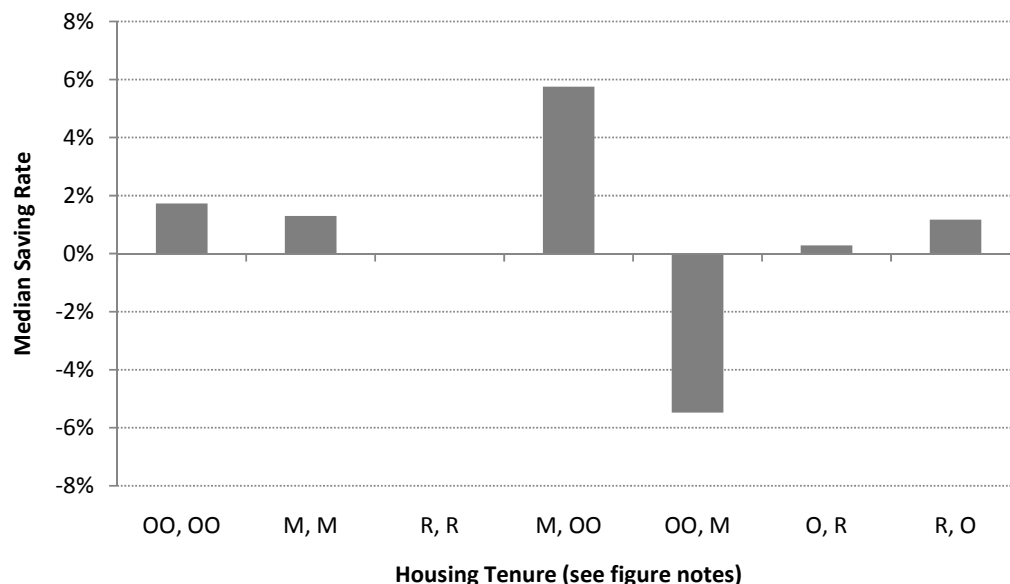
Turning to housing tenure, we can again use the fact that the BHPS is a panel survey to study the relationship between changes in housing tenure and saving rates. Here we define seven groups as follows (the abbreviations that are used to label the axes in the figures are given in brackets):

- Owners outright in both years (OO, OO)
- Mortgagors in both years (M, M)
- Renters in both years (R, R)
- Mortgagors in 2000, owners outright in 2005 (M, OO)
- Owners outright in 2000, mortgagors in 2000 (OO, M)
- Owners (either with or without mortgage) in 2000, renters in 2005 (O, R)
- Renters in 2000, owners (either with or without mortgage) in 2005 (R, O)

The median non-housing saving rates of those who either owned their property outright in both years or were paying a mortgage in both years are quite similar, at 1.7% and 1.3% respectively. Those families that rented their property in both years did no net saving, at the median, between these two years.

Figure 5.7 illustrates some interesting differences in saving behaviour among those whose housing tenure changed between the two years. Those who were paying a mortgage in 2000 but who owned their property outright by 2005 had the highest (non-housing) saving rates, with a median of just under 6% per year.

Figure 5.7. Annual saving rate, excluding changes in housing equity between 2000 and 2005, medians, by housing tenure



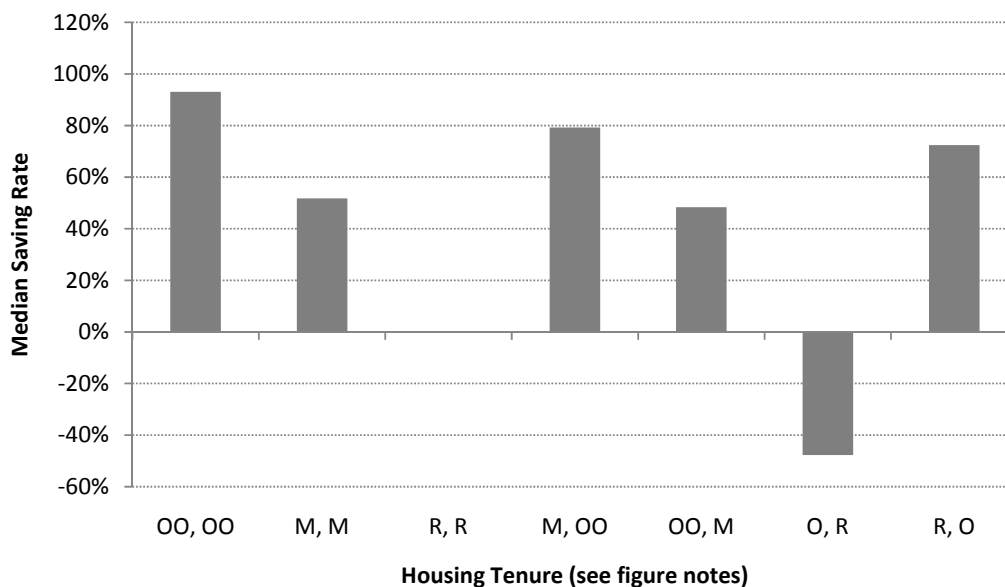
Notes: Abbreviations stand for owner outright (OO), mortgagor (M), renter (R), and owner, either mortgaged or outright (O). The first and second abbreviations in each label stand for the pension status of the family in the first and second waves respectively.

Source: Authors' calculations using data from the BHPS.

One explanation for this might be that families who finish paying off their mortgages continue to save some of the money that they would previously have dedicated to mortgage repayments. This result, which we will show in Section 5.2 remains true after conditioning on other observed family characteristics, echoes that found by Coulibaly & Li (2006). That paper uses Canadian data to show that, in the year after they make their last mortgage repayment, households increase financial saving and saving in the form of the purchase of durable goods. Stephens (2008) finds a similar result using data from the US on those who finish repaying a car loan.

Conversely, those who went from owning their property outright to paying off a mortgage had, at the median, substantial rates of dissaving. There is no evidence of the equity released from the house that they previously owned having been converted to financial wealth (this result remains true when we restrict our sample to those who didn't move residence between the two years and therefore could have used this equity to 'trade up').⁴⁵ Similarly, those who went from owning their property (whether it was mortgaged or not) to renting had median rates of saving that were very close to zero. There is little evidence of any housing equity that they previously might have owned having been converted to liquid financial wealth. One explanation for this might be that, for many of these

Figure 5.8. Annual saving rate, including changes in housing equity between 2000 and 2005, medians, by housing tenure



Notes: Abbreviations stand for owner outright (OO), mortgagor (M), renter (R), and owner, either mortgaged or outright (O). The first and second abbreviations in each label stand for the pension status of the family in the first and second waves respectively.

Source: Authors' calculations using data from the BHPS.

⁴⁵ However, the number of households who switched from owning a property to paying off a mortgage is quite small (see Appendix D for sample sizes), so caution should be exercised in interpreting this result.

families, some shock, either to their income (e.g. unemployment) or to their consumption needs (e.g. a new health problem), might have forced them to release equity in their property.

Figure 5.8 illustrates the correlation between housing tenure and median saving rates, this time including changes in the value of housing equity. Given that property prices rose dramatically between the 2000 and 2005, those who owned homes in the latter year tended to have large saving rates. The median (annual) saving rate, on this measure, was over 90% for those who owned their property outright in both years and over 50% for those who were paying mortgages in both years. On the other hand, those who rented in both years had saving rates, at the median, of zero. The group that had the lowest median saving rate was that comprised of those who went from owning their property to renting between the two years. The median rate of saving for this group was only a little higher than 50% per year. The equity that many of these families might have owned has largely not (at the median at least) been converted into another type of wealth that we observe. Again, one explanation for this might be some income or needs shock that has led to a family dissaving some of the wealth that they had previously accumulated.

Family type

We now look at the correlation between saving rates and changes (or lack of them) in family composition between 2000 and 2005. Recall from the introduction to this chapter that, when defining the sample for analysis using the panel (as opposed to using either wave as a cross-section), we focus on families for whom the adult(s) in the family stayed the same between the two waves. For example, if the only changes to family composition between the two waves involve a new child being born, or a dependent child leaving,⁴⁶ then that family is used in the panel sample. However, if a couple breaks up between the two waves, we do not use the two adults in the panel sample, even if they are both interviewed in the latter wave. The reason why we do not use these is that we do not know what happened to the wealth that they had on the dissolution of the partnership. On the other hand, it is reasonable to assume that new children do not bring any wealth to their family, and departing dependent children do not take any wealth with them.

Here we define seven groups as follows (the abbreviations that are used to label the axes in the figures are given in brackets):

- Single male, both years (SM)
- Single female, both years (SF)
- Lone parent, both years (LP)
- Couple, no children, both years (CNK⁴⁷)

⁴⁶ A dependent child can leave a family in two ways: he/she can move to a different place of residence, or can become a non-dependent child.

⁴⁷ K here stands for kids. This avoids the use of C (for children), which is used as an abbreviation for couple.

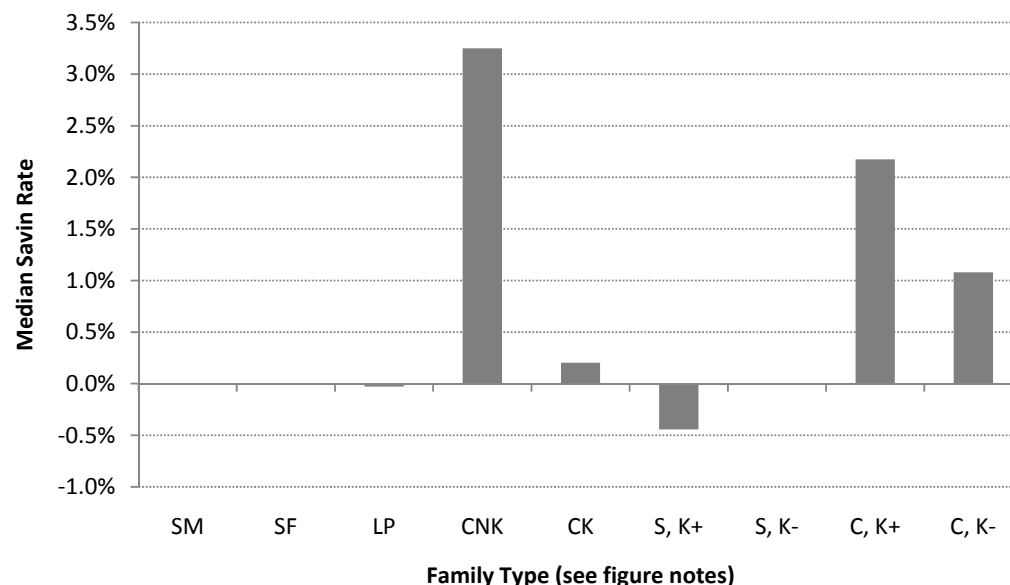
- Couple, with children, both years (CK)
- Single, no children in 2000, with children in 2005 (S, K+)
- Single, with children in 2000, no children in 2005 (S, K-)
- Couple, no children in 2000, with children in 2005 (C, K+)
- Couple, with children in 2000, no children in 2005 (C, K-)

Of the groups where there were no changes in the family composition between the two years, couples who had no children had the highest median saving rate (3.3%). Single-adult families, on the other hand, either with or without children, had saving rates that, at the median, were effectively zero.

Turning to families where there have been some changes in composition between the two years, it is interesting to note that we observe a different pattern for single-adult and two-adult families. Single adults who did not have any dependent children in 2000 but had children by 2005 had a median rate of saving (-0.4%) similar to that of single-adult families who had children in 2000 but did not in 2005 (0%). However, couples who went from not having children to having children had a higher median saving rate (2.2%) than those whose children left the family (1.1%).

Couples had a higher median rate of saving than single-adult families. This is true for those with and without children. It is also true when comparing two-adult families with single-adult families who have experienced the same type of change in family composition between the two waves.

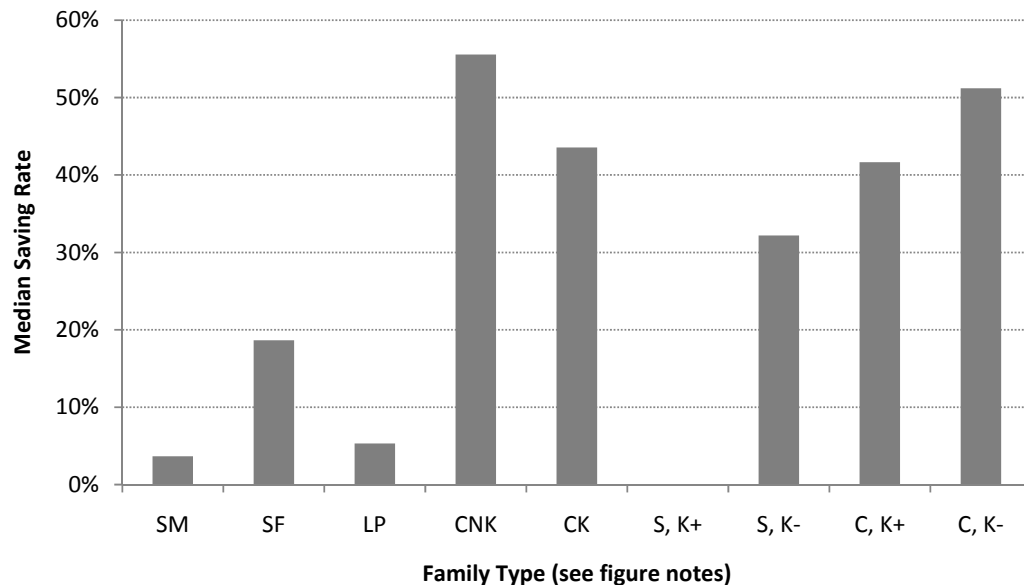
Figure 5.9. Annual saving rate, excluding changes in housing equity between 2000 and 2005, medians, by housing tenure



Notes: Abbreviations stand for single male (SM), single female (SF), lone parent (LP), couple, no kids (CNK), couple with kids (CK), single, no kids in 2000, kids in 2005 (S, K+), single, kids in 2000, no kids in 2005 (S, K-), couple, no kids in 2000, kids in 2005 (C, K+), and couple, kids in 2000, no kids in 2005 (C, K-).

Source: Authors' calculations using data from the BHPS.

Figure 5.10. Annual saving rate, including changes in housing equity between 2000 and 2005, medians, by housing tenure



Notes: Abbreviations stand for: single male (SM), single female (SF), lone parent (LP), couple, no kids (CNK), couple with kids (CK), single, no kids in 2000, kids in 2005 (S, K+), single, kids in 2000, no kids in 2005 (S, K-), couple, no kids in 2000, kids in 2005 (C, K+), and couple, kids in 2000, no kids in 2005 (C, K-).
Source: Authors' calculations using data from the BHPS.

Figure 5.10 shows the median saving rate for the family types defined above, this time including changes in the value of housing equity. The relationship is somewhat similar to that described when we focused only on non-housing saving. On this broader measure of saving it is still the case that couples, conditional on the presence of children or otherwise, save more than single-adult families. However, for couples the pattern is different from that which we saw when our focus was on non-housing wealth. Going from no dependent children to having dependent children is associated with less saving (broadly measured) than going the other way.

5.2 Saving rates: multivariate analysis

In this section we use median regressions to isolate the association between saving rates and each family characteristic from the other observed family characteristics. The coefficient on a particular characteristic should be interpreted as the median association of that characteristic with saving, conditional on all the other characteristics included in the regression. As in Chapter 3, we are careful to avoid implying that any significant relationship that we find represents a causal relationship. A causal relationship, if there is one, could run either from the saving rate to the family characteristic or from the family characteristic to the saving rate.

Using the two waves of the BHPS data, we can look at how *changes* in family characteristics co-vary with saving rates. For example, instead of including dummy variables for income decile as we used in Section 3.2, we divide families into tertiles⁴⁸ in both years. We then form every pairwise combination of these three tertiles, so that we have one representing being in the first tertile in both waves, one representing being in the first tertile in wave 1 but the second in wave 2 and so on.⁴⁹ In looking at housing tenure, family type and pension payments we also allow for changes in status between the two waves. The other family characteristics that we include as regressors are dummy variables representing age in 2000, a set of variables indicating the age at which the person in the family with the most years of education left full-time education, and a set of dummies that indicate whether there were any imputed components used in the estimation of wealth in either or both of the two years.

Table 5.1 gives the results of the two median regressions that we ran. The dependent variable in the first is a saving rate defined as the change in real liquid financial rate, divided by income, and that in the second is the change in real liquid financial and housing wealth, divided by income.⁵⁰ The most interesting results are summarised below.

Table 5.1. Multivariate analysis of family-level saving rates

	Financial wealth saving rate 2000–2005, annualised	‘Financial and housing’ wealth saving rate, 2000–2005, annualised
Age (ref grp: 40–44)		
<25	–0.015*	–0.182**
25–29	–0.015*	–0.130**
30–34	–0.003	–0.118**
35–39	0.001	–0.063
45–49	–0.004	0.120**
50–54	–0.013*	0.099*
55–59	0.032**	0.074
60–64	0.024**	0.119*
65–69	0.017	0.251**
70–74	0.013	0.299**
75+	0.006	0.067

⁴⁸ A tertile is to 3 as a quintile is to 5 or a decile is to 10. That, is we divide the families into three groups. The third with the lowest equivalised income is the first tertile, the middle third is the second tertile, and the third with the highest income is the third tertile.

⁴⁹ Instead of using tertiles, we could of course have used quintiles or deciles. However, in forming every pairwise combination in those cases we would have had, respectively, 25 and 100 variables. Given that many of these combinations would have represented very few families, the isolation of any association between changes in income and the saving rate with reasonable precision would not have been possible.

⁵⁰ In the second regression, that where changes in housing wealth are counted as saving, we do not include dummies for housing tenure as regressors.

	Financial wealth saving rate 2000–2005, annualised	‘Financial and housing’ wealth saving rate, 2000–2005, annualised
Income (tertile in 2000 and tertile in 2005) (ref grp: second tertile in both waves)		
1&1	–0.002	–0.040
1&2	0.005	0.035
1&3	0.022*	0.435**
2&1	–0.008	–0.007
2&3	0.011	0.061
3&1	–0.022*	–0.057
3&2	0.007	–0.044
3&3	0.004	–0.020
Family type (ref grp: Couple, no kids, both years)		
Single male	–0.011*	–0.139**
Single female	–0.019**	–0.142**
Lone parent	–0.011	–0.044
Couple kids	–0.021**	–0.056
Single, no kids in 2000, kids in 2005	–0.010	–0.133
Single, kids in 2000, no kids in 2005	–0.017	–0.071
Couple, no kids in 2000, kids in 2005	–0.004	–0.030
Couple, kids in 2000, no kids in 2005	–0.019**	–0.065
Housing tenure (ref grp: Mortgage, both years)		
Outright, both waves	0.006	
Renting, both waves	–0.001	
Mortgage, then outright	0.032**	
Outright, then mortgage	–0.046**	
Owned (either mort. or outright), then rented	0.007	
Rented, then owned	0.015*	
Pension payments (ref grp: no pension, either year)		
Pension, both waves	0.003	0.129**
From pension	0.013	0.215**
To pension	–0.011	0.059
Retired, both waves	–0.015*	0.067
Retired, only 2005	–0.009	0.078
Retired, only 2000	–0.040*	–0.041
Education (ref grp: ≤16)		
Educ, 17–19	0.009*	0.089**
Educ, ≥20	0.009*	0.119**
Constant	0.013	0.208**
Sample size	3,390	3,179

Notes: * indicates significant at the 5% level, ** indicates significant at the 1% level.

Source: Authors' calculations using data from the BHPS.

Age

- The years immediately before retirement show substantial accumulations in financial wealth, with those aged between 55 and 59 in 2000 having a saving rate that was 3.2 percentage points higher, at the median, than the reference group (those aged between 40 and 44 in 2000). Those aged between 60 and 64 in 2000 had a saving rate that was 2.4 percentage points higher, at the median, than that of the reference group. It is worth noting that the regression includes a control for any member of a family retiring between the two waves, so this pre-retirement effect cannot be explained purely by lump sums paid to early retirees.
- The gradient in saving rate (including changes in the value of housing equity) according to age is clearly positive. Broadly speaking, it rises as we consider successively older families. However, the very oldest families (those where the head was aged 75 or over in 2000) have a median saving rate that is significantly lower than that of those in the two closest age groups (those aged 65–69, and those aged 70–74).
- Those in the youngest age group save significantly less than those in older age groups.

Income

- The most interesting effect here is that moving from the first to the third income tertile (i.e. their current income was higher in 2005 than it was in 2000) is associated with a relatively high saving rate, whereas moving from the third to the first tertile (i.e. their current income was lower in 2005 than it was in 2000) is associated with a relatively low saving rate. This result is consistent with many of the predictions that one would get from a basic life-cycle model.

Housing tenure

- We find that moving from repaying a mortgage to owning a property outright is associated with a median saving rate that is significantly higher than that of the reference group (mortgagor in both years). When we looked at the unconditional relationship between changes in housing tenure and the rate of saving earlier in this chapter, we also found this. Here we find that, conditional on the other observed family characteristics that we include, it remains true.
- Those moving from owning their property outright to paying a mortgage had significantly lower saving rates than the reference group. Again, this fact was also true when we focused on the unconditional relationship between housing tenure and saving.

Pension status

- We noted above the interesting question of whether pension saving and non-pension saving act as substitutes. Looking at the unconditional relationship

between pension status (and changes in pension status), we found tentative evidence, for those individuals who might change from paying into a pension fund to not paying in, that they are substitutes. We find similar evidence here, this time conditional on other observed family characteristics. While neither the coefficient on switching away from pension saving nor that on switching towards it is significant relative to the reference group (not saving into a pension fund in either year), the two coefficients are significantly different from each other. This means that those families who switched from saving into a pension fund to not doing so saved more, at the median, than those who switched in the other direction.

- Those who made payments into pension funds in both years had higher saving rates (including housing saving) than those who didn't pay into a pension fund in either year. However, there is no significant difference between the median non-housing saving rates of these two groups.

Family type

- There is no significant relationship between the saving rate (on either definition) of couples with children and lone parents.
- Couples with no children saved more than couples with children. However, there is no statistical difference between the saving rate of lone parents with children and that of either single males or single females.
- We do not find any significant association between children entering or leaving families and the saving rate.

Education

- For both measures of saving we get a qualitatively similar result when looking at education. Those with the least education (those who left full-time education at or before the age of 16) saved less than those who stayed in school past the age of 16. There is no significant difference, however, between the saving rates of those who left between the ages of 16 and 19 and those who left at or after the age of 20.

In interpreting these results, we should be careful in our interpretation of coefficients that are statistically not different from zero. In regressions such as these, where we are differencing a variable (wealth) and divided by another (income) to get a saving rate, there could be substantial measurement error in the dependent variable. This makes it more difficult to find significant results with sample sizes such as those that we have. Therefore, when we find no significant result, it should not be interpreted as conclusive evidence of there not being an effect. Rather, there is either no effect, or there is an effect and our data are not sufficiently rich to identify it.

6. Saving: evidence from the Expenditure and Food Survey

In this chapter we present results on household saving rates using data from the EFS. We first present median saving rates for groups defined according to one characteristic at a time (e.g. age, income, housing tenure etc.). Then we use regression techniques to isolate the correlation of one particular characteristic with household saving, holding other observed characteristics constant.

In all cases we have calculated saving rates including and excluding durable purchases. We do not always show both sets of results. However, where there are substantial differences in the observed trends according to the particular definition of saving used, we highlight this fact. As the EFS does not collect comprehensive information on pension contributions, our baseline measure of saving does not include pension saving.⁵¹ Also note that we include mortgage capital payments as saving rather than spending, though mortgage interest payments are classed as spending. We adopt this approach as interest payments do not affect the value of wealth (in the form of housing equity owned by the households) whereas capital repayments do increase the value of wealth.

One other issue regarding the interpretation of these results deserves particular attention. As the data series we are using is a long one, there is a difficulty in ensuring that we are measuring saving consistently. As a result, longer-run trends in the underlying savings behaviour should not be inferred from the results presented here. The results that we wish to draw most attention to are those differences *between groups in a particular year*. Appendix B contains more detailed information regarding the calculation and appropriate interpretation of results presented in this chapter.

6.1 Saving rates: univariate analysis

We now turn to presenting some results using EFS data from the period 1974 to 2007.⁵²

Age

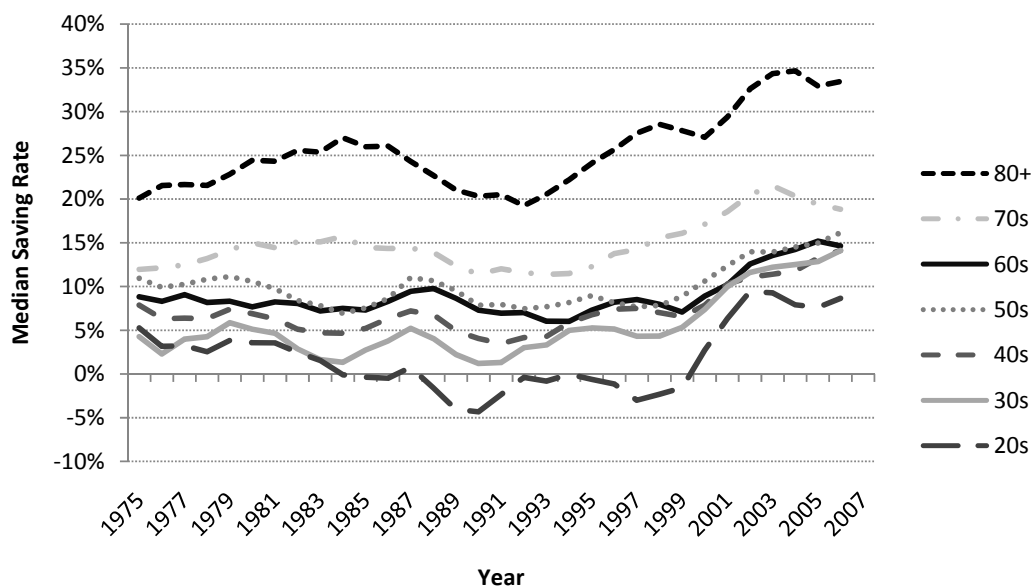
Figure 6.1 shows the median saving rates for groups defined according to 10-year age bands. The ‘age of a household’ is taken to be the age of the head of household (before 2001) or the age of the household reference person (after 2001).⁵³ The most striking aspect of this illustration is the fact that the very old (those aged 80+) have substantially higher median saving rates than any other age group.

⁵¹ Appendix B further discusses our approach.

⁵² For reasons of clarity, all graphs use three-year rolling averages.

⁵³ See Appendix B for the definition of head of household and household reference person.

Figure 6.1. Median saving rates (excluding durable spending), by age



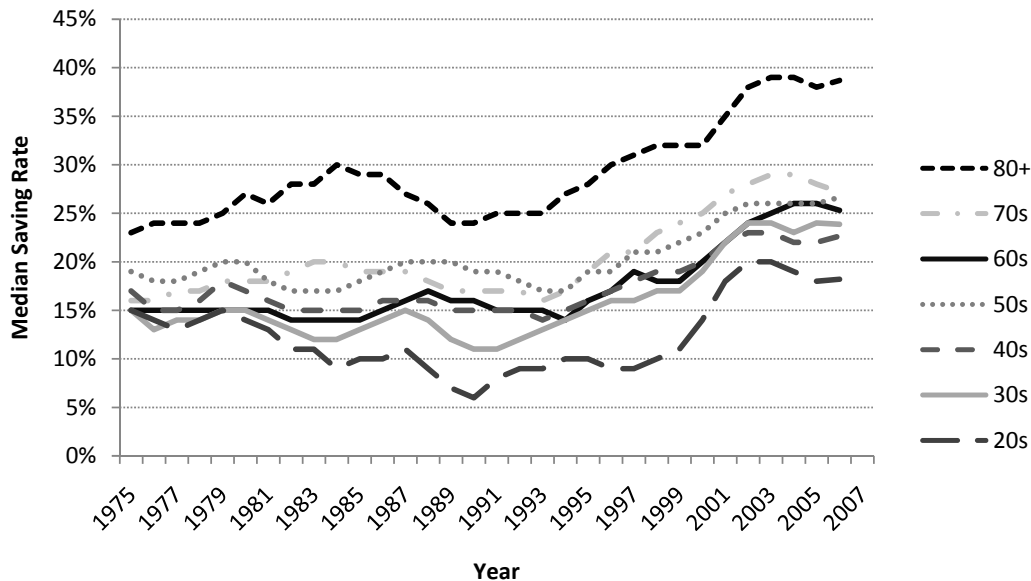
Source: Authors' calculations using data from the EFS.

This fact was documented by Banks & Blundell (1994), who used EFS data for years up to 1990, and has remained true using the most recent data. The second oldest group we define (those where the head of household is aged between 70 and 79) have the second highest median rate of saving. While the gap between these two oldest groups and the younger groups is substantial, there is much less variation in the median saving rates between the younger age groups. In the first 20 years of our data there were some differences between the median saving rates of those in their 30s, 40s, 50s and 60s. However, in the most recent 10 years of data these medians have tended to converge. Those in their 20s have tended to have the lowest median saving rate, and since the mid 1980s a substantial gap has opened up between the median saving rates of this group and those of all other groups.

The result that the very oldest households save the most may be surprising, in light of the opposite result found using the BHPS data in Section 5. Of course, the two definitions of saving are markedly different, and therefore we would not expect identical results using the two methods. This fact could explain some of the divergence. However, accounting conclusively for the difference in these two sets of results remains an open question. We return to this issue in Section 6.3.

Figure 6.2 again shows saving rates according to age, but this time includes durable spending as saving. Clearly, for each group, the median rate of saving is substantially higher than in the former figure, where durable spending is not counted as saving. The clearest difference between this pattern and that shown previously is that, when durable spending is counted as saving, those in their 70s have median saving rates more similar to younger households than when such spending is not considered saving. This points to those in middle age purchasing more durables than those who are older.

Figure 6.2. Median saving rates (including durable spending), by age



Source: Authors' calculations using data from the EFS.

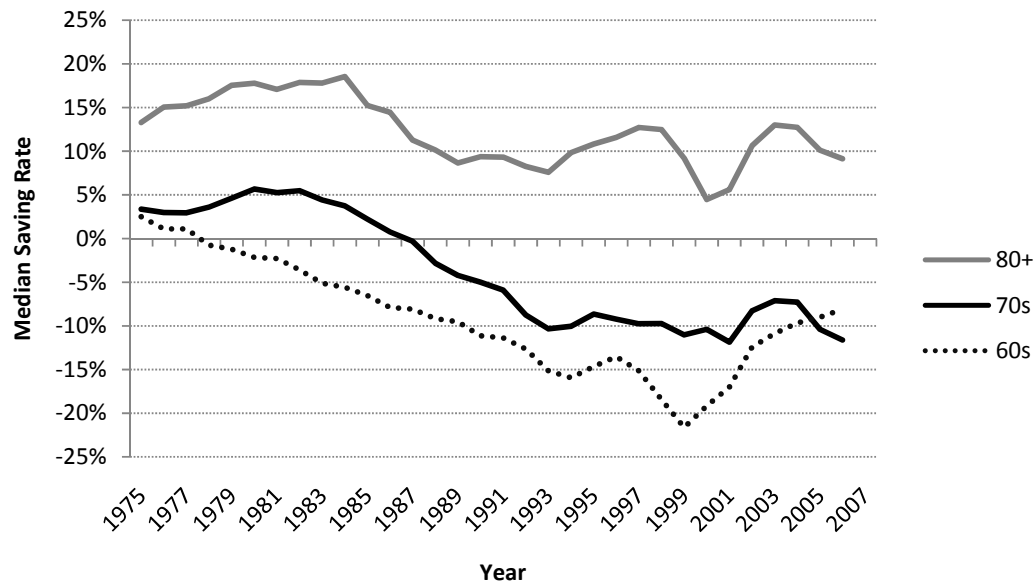
As noted in the introduction to this chapter, and as discussed more extensively in Appendix B, we do not count payments into pension funds as saving in our baseline definition, and therefore do not count payments out of pension funds as dissaving. Of course, from a life-cycle perspective, payments from pension funds might be more appropriately considered as dissaving. Unless we account for this, we may overstate the extent to which pensioners are accumulating more assets as they age. While Figures 6.1 and 6.2 suggest substantial asset accumulation throughout retirement, this might be offset to a large extent by their simultaneously dissaving their private pension assets. The main reason why we cannot define a saving rate incorporating this treatment of pensions is that we do not observe all payments into pension funds. However, for those in the later stage of the life-cycle we can assume that payments into pension funds are zero.

Figure 6.3 shows, for the pensioner households⁵⁴ in their 60s, 70s, and those over 80, the median saving rate where payments from private pension funds are not included in income. Households receiving and then spending such payments will be categorised as dissaving the amount.⁵⁵ Median saving rates, under this definition, are negative for those in their 70s and 80s but remain positive for those in their 60s. What remains true from the previous figures is the pattern of the very old saving, at the median, a larger proportion of their income than younger households who are also past retirement age.

⁵⁴ We define a pensioner household as one in which the head of household or their spouse is over the state pension age.

⁵⁵ Of course, we could go further and count National Insurance payments as saving and state pension payments as dissaving. When we do that, we find that, for the oldest households, almost all of their expenditure is dissaving, as private and public pension payments make up the bulk of the income of these households.

Figure 6.3. Median saving rate (excluding durable spending and private pension payments), pensioner households only, by age



Source: Authors' calculations using data from the EFS.

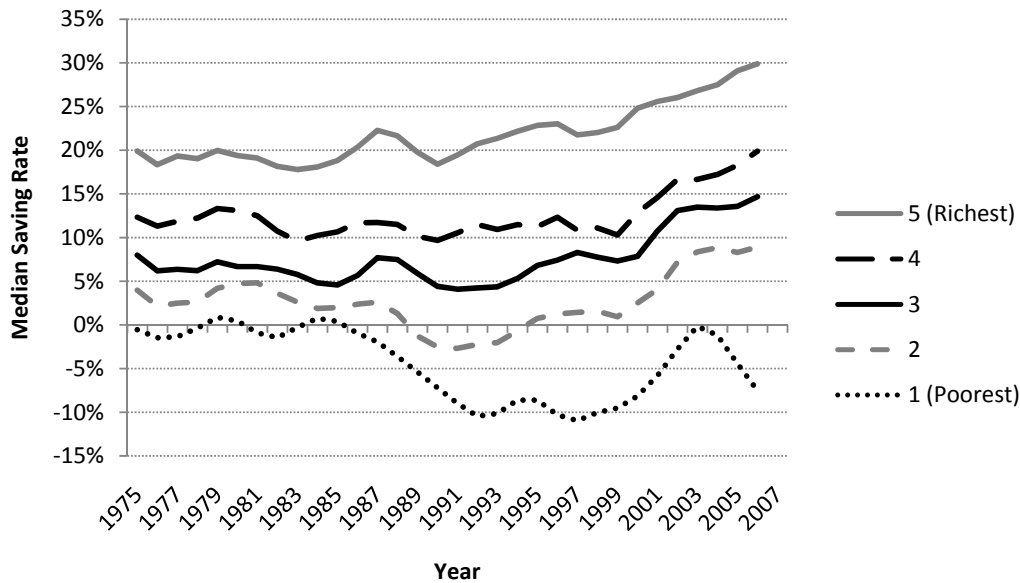
Income

We now turn to looking at saving rates according to household income. In each year of data we divide the sample into five income quintiles according to the current equivalised income of the household. Figure 6.4 shows the median saving rate for each of these groups in each of our years of data. The pattern is clear: those in the richest groups save more, at the median, than those in poorer groups. The extent to which this is true has remained reasonably stable over time, with one exception. While those in the poorest income quintile had, in each year of data, the lowest median saving rate, the magnitude of the gap seems to have risen somewhat, beginning around 1990. A divergence similar to this was observed above with regard to the youngest age groups. It could be these two phenomena (the youngest saving less⁵⁶ and the poorest saving less) are actually the same thing, as younger households tend, on average, to be poorer than older households. When defining households according to one characteristic at a time, we cannot separate these effects. We can, however, go some way to doing this when we use regression techniques in Section 6.2.

This finding that richer households, at the median, save more than poorer households mirrors the results we presented using the BHPS data in Chapter 5.

⁵⁶ Or, for many, borrowing more.

Figure 6.4. Median saving rate (excluding durable spending), by income



Source: Authors' calculations using data from the EFS.

The broad trends in saving rates by income do not differ according to whether durable spending is included as saving or not. For this reason we do not show saving rates including durable spending.

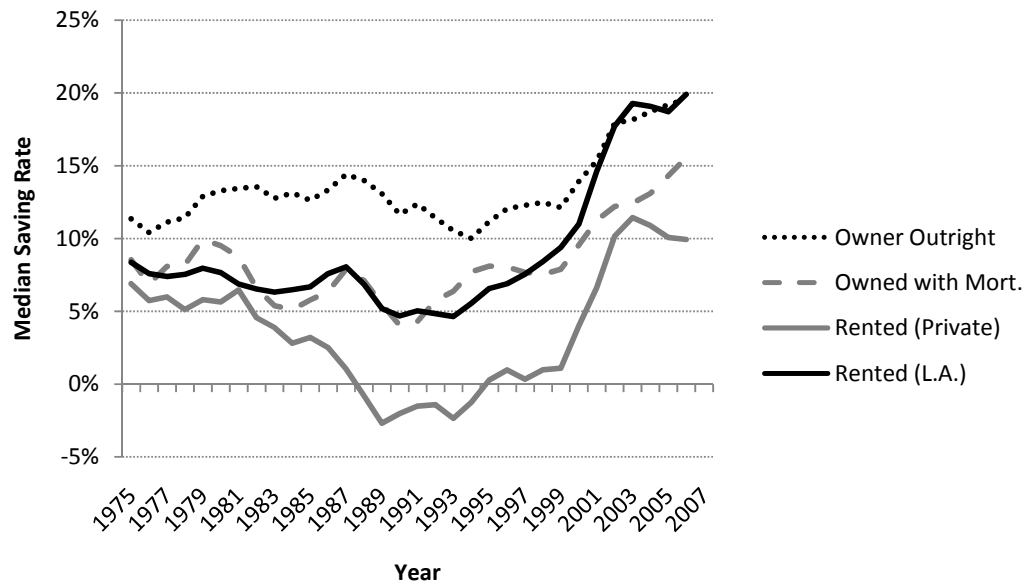
Housing tenure

This section examines how saving rates differ according to the housing tenure of households. We divide households into four groups: those who are renting from a local authority, those who are renting from a private landlord, those who own the property in which they live, but are paying off a mortgage, and those who own their property outright.

Figure 6.5 illustrates the median saving rates for each of these groups in each year for which we have data. Owners outright tend to have the highest median saving rates, while private renters have always had the lowest median saving rates. Since 1990, however, there has been an increase in the median saving rate of local authority renters relative to the other groups, with no difference, at the median, between their saving rate and that of owners outright in the most recent years of data.

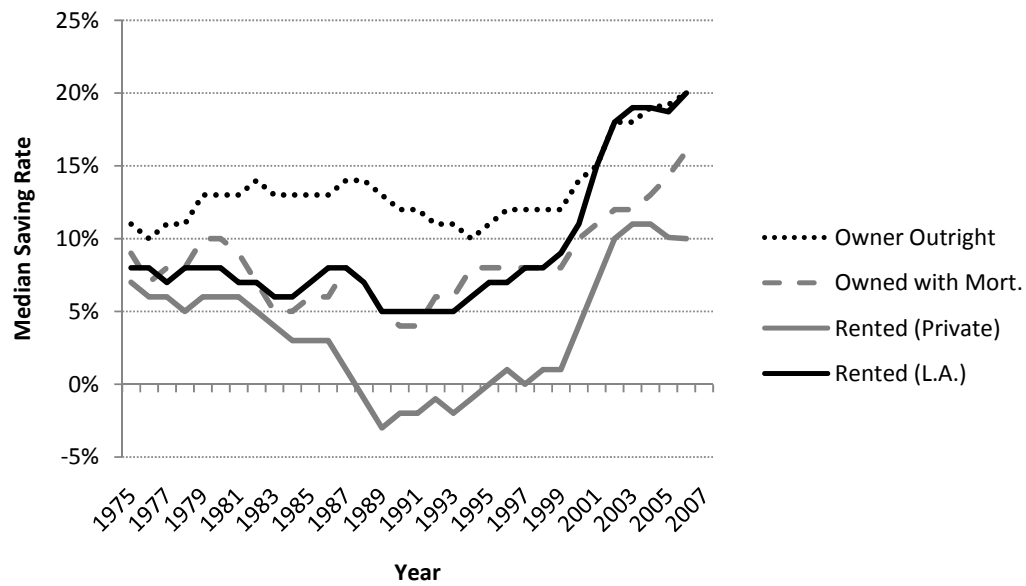
Figure 6.6 also shows median saving rates by housing tenure, but broadens the definition of saving to include spending on durables. The main difference between this and the pattern we showed in Figure 6.5 is that, in the most recent years, the median saving rate of owners outright is higher relative to other groups. This indicates that they spend more (as a proportion of their income) on durables than those with other types of housing tenure.

Figure 6.5. Median saving rates (excluding durable spending), by housing tenure



Source: Authors' calculations using data from the EFS.

Figure 6.6. Median saving rates (including durable spending), by housing tenure



Source: Authors' calculations using data from the EFS.

Household type

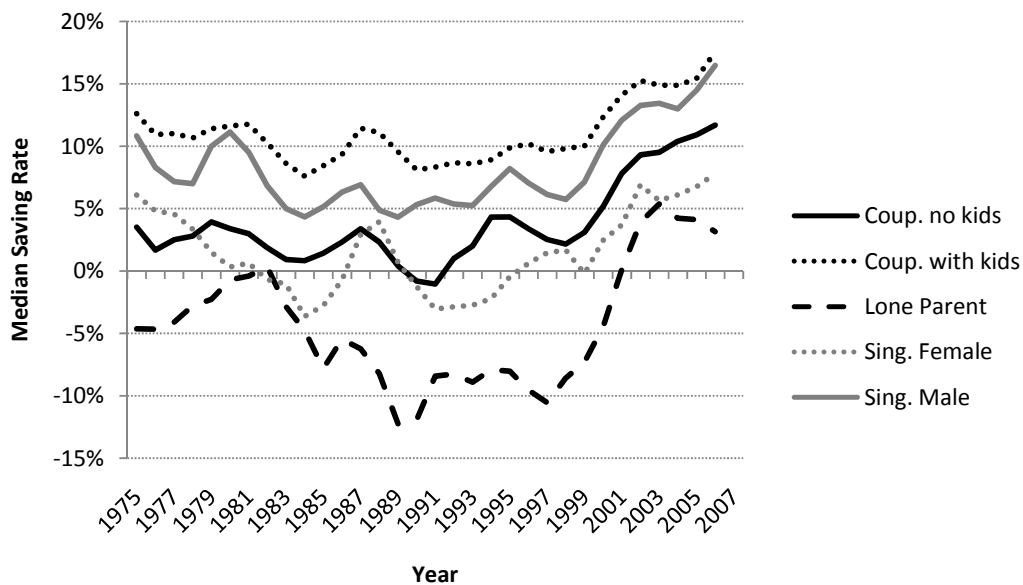
We now divide households into groups according to the composition of the household. The groups we define are:

- Single males
- Single females
- Lone parents
- Couples with no children
- Couples with children.

We do not include those past retirement age, nor do we include households that contain more than one family.⁵⁷

Figure 6.7 gives the median expenditure for each of these five groups since 1974. For both singles and couples, the presence of children in the household is associated with a lower saving rate than having no children.⁵⁸ In addition, couples tend to have a higher saving rate than singles. This is true whether we compare couples with children with lone parents, or whether we compare couples with no children with single adults with no children. One further interesting point to note from Figure 6.7 is that single males, in all years of data, recorded a higher saving rate than single females.

Figure 6.7. Median saving rates (excluding durable spending), by household type



Source: Authors' calculations using data from the EFS.

⁵⁷ Excluding households that contain more than one family (as we do in this subsection) excludes, for example, households where non-dependent children are still living at home.

⁵⁸ Again, it should be borne in mind that we are probably conflating the effect of age, income and other characteristics with household composition.

Trends in the rate of saving according to household type do not vary substantially if the purchase of durables is counted as saving. For this reason, we do not present those results here.

6.2 Saving rates: multivariate analysis

In defining groups for the analysis of household saving so far in this chapter, we have divided the population according to one household characteristic at a time. As we noted above, this type of analysis cannot be used to isolate the association of one particular household characteristic with saving. Multivariate regression, on the other hand, can isolate the correlation of one characteristic with a variable of interest (in this case, the saving rate).

We perform a median regression⁵⁹ of the saving rate on dummy variables that represent the characteristics of the household. The characteristics that we include cover the age, income, housing tenure, composition and education levels of the household. We use only our most recent year of data (2007). Table 6.1 summarises the results of these median regressions. The left-hand panel uses the saving rate excluding durable spending as our dependent variable, and the right-hand panel uses the saving rate including durable spending as our dependent variable. All results should be interpreted as the median association of the variable in question with the saving rate relative to the reference group. For example, the coefficient on the dummy variable indicating that a household head is over the age of 80 is 0.26 in the left-hand panel. The reference group for age is those households who are in their 40s. Therefore households over the age of 80 had, at the median and conditional on the other characteristics included in the regression, saving rates 26 percentage points higher than those in their 40s in 2007.

The main results from Table 6.1 are as follows:

- There is no statistically significant correlation between age and the saving rate until the head of household reaches the age of 70. The coefficients on the dummy variables representing heads of household in their 20s, 30s, 40s and 60s are all not significant (relative to the reference group of those in their 40s). Nor is there any significant difference between any pairwise combination of those four coefficients. However, the correlation between age and the saving rate is significant and substantial for the oldest age groups. Those in their 70s saved (at the median and not including durable spending) 11 percentage points more than those in their 40s, and those over the age of 80 saved, at the median, 26 percentage points more.

⁵⁹ As we noted in Chapter 3, a coefficient on an explanatory variable in a median regression can be interpreted as the median association of that variable with the dependent variable, holding all the other included variables constant. It is important to note our use of the term ‘association’, which does not necessarily imply causation. We are not implying that the variables we include ‘cause’ saving in any sense. Where we show an association, causation could run either way. For example, owning a house outright could ‘cause’ high saving rates or, conversely, higher saving rates could ‘cause’ home ownership.

- There is a strong positive correlation between income and the saving rate. Higher incomes are associated with higher rates of saving. The differences as incomes increase are statistically significant, and substantial in magnitude.
- Single males saved more in 2007 than single females. The difference between the two coefficients is statistically significant. The presence of children, either

Table 6.1. Multivariate analysis of household levels saving rates in 2007

	Saving rate (not including durables) (1)	Saving rate (including durables) (2)
Age (ref grp: 40s)		
20s	-0.03	-0.02
30s	-0.02	-0.01
50s	-0.02	-0.01
60s	0.00	0.02
70s	0.11**	0.08**
80+	0.26**	0.23**
Income (ref grp: Decile 5)		
1 (Poorest)	-0.51**	-0.5**
2	-0.19**	-0.19**
3	-0.12**	-0.13**
4	-0.04	-0.06**
6	0.04	0.04*
7	0.10**	0.09**
8	0.14**	0.14**
9	0.18**	0.20**
10 (Richest)	0.29**	0.30**
Family type (ref grp: Couple, no children)		
Single male	0.05**	0.04**
Single female	0.01	0.01
Lone parent	0.04	0.03
Couple, with children	0.01	0.03*
Other	0.03	0.03*
Housing tenure (ref grp: Mortgagor)		
Renting (LA)	0.21**	0.20**
Rented (other)	0.06**	0.05**
Owned outright	0.05**	0.07**
Education (ref grp: ≤16)		
Education, 17–19	-0.04**	-0.06**
Education, ≥20	-0.03	-0.06**
Constant	0.06*	0.15**
Number of observations	6,129	6,129

Notes: * indicates significant at the 5% level, ** indicates significant at the 1% level.

Source: Authors' calculations using data from the EFS.

for single-adult households or for couples, is not associated with any increase or decrease in the rate of saving.

- Renting from a local authority is associated with a significant increase in the rate of saving at the median, relative to those with mortgages. Mortgagors had the lowest median rates of saving, conditional on all other factors.
- Those households where one member has remained in full-time education past the age of 16 had, conditional on all other factors, lower rates of saving than households where all members stayed in school beyond this age. There is no significant difference between the rate of saving of those households where the maximum school-leaving age is greater than 20 and those where it is between 17 and 19 inclusive.

In some cases, the results from the regression tell a story that is different from the results using the univariate-type analysis of Section 6.1. An example of this is education. Unconditional on other household characteristics, having stayed in education past the age of 20 is associated with a higher rate of saving than having left school before the age of 16.⁶⁰ However, the regression results indicate the reverse: that is, those with more education had *lower* saving rates than those with more.⁶¹ This result should be interpreted as that, in the population, those with more education saved more. However, this association is seen because of other observed characteristics that the more educated, as a group, tend to have (most likely the fact that they tend to have higher income) rather than the additional education *per se*.

Most of the results for the regression, on the other hand, are broadly similar to the results we found previously when our analysis focused on the unconditional relationship between household characteristics and saving.

6.3 Comparing saving rates from the EFS and the BHPS

We described in Chapter 4 how saving rates can be measured either with cross-sectional data on incomes and spending, or with longitudinal data on asset values. We have used both methods in this report, the former using data from the EFS, and the latter using data from the BHPS. The measures we calculate here differ in a number of ways – most crucially in that, when saving is estimated using longitudinal data on wealth, it will include both active and passive saving, whereas when saving is estimated as the difference between income and spending, it will include only active saving. Therefore we would not expect the two sets of results to be identical. However, in spite of this, it is worth comparing the two sets of results to determine which results are robust to different measures of saving and different methods of calculation.

⁶⁰ We do not present these results in Section 6.1. They are available on request from the authors.

⁶¹ The coefficient on having stayed in education past the age of 20 is statistically less than zero at the 10% level when saving is defined not to include durables and at the 1% level when saving is defined to include durable spending.

One area where there is a tension between the two sets of results is in the overall median level of the saving rate, with saving rates using the EFS appearing to be much higher than those estimated using the BHPS. There are a number of reasons why we might not trust the *level* of saving rates calculated using the EFS data. These are briefly discussed in Chapter 4 and outlined in more detail in Appendix B. The results that we trust more using these data, however, are the differences in the level of the saving rates between households of different types.

Some results are consistent between the two surveys, for example those concerning income. We find in both cases that there is a positive relationship between income and the rate of saving. This is true whether or not we condition on other household and family characteristics. Similarly, there is evidence in both surveys that those who own their property outright save more than those who own their property but are paying a mortgage. The results on the association between saving rates and family type are also broadly consistent across the two surveys, and across the definitions of the saving rate.

Other results are not consistent between the two surveys. One puzzling divergence is with regard to the results on the saving rate of the very oldest individuals. Using the EFS data, we find that these individuals had higher rates of saving than any other age group. Using the BHPS data, however, we find that these individuals had rates of saving that are lower than those either just before or just after retirement age.

It is difficult to reconcile these divergent sets of results. It is likely that some of the difference could be explained by the fact that we are including very different items in saving (crucially that the results from the BHPS include capital gains and those from the EFS do not), or the fact that the level of analysis is at the household level in one case (EFS) and the family level in another case (BHPS). They could, on the other hand, be explained by measurement error in one or both of the surveys. How to account fully for the results that diverge between the two surveys remains an open question.

7. Conclusion

This report has aimed to summarise the distribution of wealth and saving in the years leading up to 2007. Our analysis therefore illustrates the levels of wealth and rates of saving as the UK entered the economic downturn through which it is currently going.

One clear fact that emerges from our analysis is that levels of housing wealth dwarf levels of liquid financial wealth for households. In addition, changes in the price of property dwarf the impact of any active saving that households do. As a result of property prices largely trending upwards between 2000 and 2005 (the years covered by our wealth data), those who owned property saw their wealth increase dramatically. The counterpoint to this is that the falls in the price of property seen since 2007 will have substantially reduced the wealth of many of the types of family who in 2005 looked in the data (and presumably felt) quite wealthy. The effect on these families, and the implications for their saving behaviour, are issues that will warrant considerable attention as the data covering this period become available.

It is important to emphasise the illiquidity of the wealth that families hold. Median housing wealth in 2005 was £60,000. The implied value of a fully accrued basic state pension was calculated as £80,000 for men and £88,000 for women in 2004 (Pension Commission (2004)). On the other hand, the median level of liquid financial wealth for families in 2005 was approximately £1,000.

These results indicate that, with regard to financial wealth, very little has changed over much of the distribution, at least since the mid 1990s. Two previous investigations into the holdings of financial wealth among UK households (Banks & Tanner (1999) and Banks, Smith & Wakefield (2002)) come to a conclusion similar to ours. They find, using different sources of data, that median financial wealth in 1997–1998 and 2000 was respectively £1,000 and £750 in real terms.⁶² Between these years and 2005 we find very little change at the median: as we noted above, median real financial wealth (for families) was approximately £1,000 in 2005. While we show that there have been somewhat larger increases in wealth at the top of the distribution (from the 75th wealth percentile and upwards), and decreases in wealth at the bottom of the distribution, those changes that occurred are substantially smaller than the changes that occurred in the value of illiquid wealth. This illustrates, at the cusp of the domestic and global downturn, the vulnerability of many families to sudden falls in their income that might be seen in the case of, for example, unemployment.

Our approach in this report has been to use microdata to look at the distribution of saving across households and families. We illustrated, using two different

⁶² These figures, like all cash amounts presented in this report, are expressed in December 2007 prices.

sources of data, that there is substantial heterogeneity in saving rates. This fact underlies the importance of analysing saving at the level of the household or family, rather than focusing solely on the aggregate level using, for example, the household saving ratio. The latter measure, published on a quarterly basis by the Office for National Statistics, and widely cited, is a crucial measure of the total saving undertaken by households in the economy, but does not illustrate any of the heterogeneity in saving rates across families. An important and interesting line of research in the years that follow will involve comparing the evolution of the saving behaviour of those affected by a greater or a lesser extent by the economic downturn currently under way.

Appendix A: BHPS Technical Appendix

A.1 Imputation of wealth data

If BHPS respondents indicate that they have any financial assets or debt, they are first asked for the actual amount of assets (or debt) that they hold under each of the three broad categories (savings, investments, and debt). If they either do not know or they refuse to answer, they are asked a series of questions that attempt to put bounds on their holdings of assets and/or liabilities.

While the original sample of the BHPS (which we use) was designed to be a representative sample of the population of Britain, the sub-sample who are willing and able to give an exact figure for their wealth is unlikely to be a representative sample. Those who give an exact figure have, on average, less income than those who either give no information, or only give bounds on their information.⁶³ As we would expect wealth to be correlated with income, the sample of those who report their assets exactly will have a different income distribution from the population as a whole, and therefore cannot be truly representative.

In order to use the entire sample we impute wealth holdings for families who do not report exact figures. We use the procedure used by Banks et al. (2002), who analyse the wealth data in the 2000 wave of the BHPS. Their paper (pp. 5–6) gives a detailed description of the imputation procedure. We provide a summary of it here.

Families are divided into groups according to the age of the head of the family, the maximum level of education of the head and his/her spouse, and whether the head of the family is self-employed or not. For each family for which we have missing wealth information, we impute a value by selecting at random a value of wealth from a reporting household in the same age–education–self-employment cell that *does* report its wealth exactly. For families that report bounds on their wealth, we impute an exact amount by selecting at random a value of value of wealth from a family in the same age–education–self-employment cell who report a value for wealth within those bounds. This imputation procedure is known as a ‘conditional hot-deck’.

A.2 Family-level analysis

When using the EFS data, an analysis of saving is possible only at the household level, as we observe expenditure (a key ingredient in the calculation of the saving rate using those data) at the household level. In the BHPS we observe wealth at

⁶³ There are a number of reasons why this might be true. For one thing, it could be that those who have no wealth are more likely to know exactly how much wealth they hold (zero) than those who have positive wealth.

the individual level, so we can construct a measure at the individual level, the family level, or the household level. Recall that a family (strictly speaking, a benefit unit) is defined as a single adult or couple along with their dependent children. Non-dependent children living in the same household are considered to be in a different family.

We follow Banks et al. (2002) by focusing on wealth at the family level. The main reason for doing this is that much of the wealth that is held by individuals is owned jointly with other members of the same family. In addition, in many cases, two adults in a couple report contradictory information with regard to the ownership of assets. For example, in some cases one adult says that a certain sum is held jointly while the other says that they are the sole owners of that same balance. Reconciling these contradictory data is best carried out at the family level as part of our imputation procedure. Our approach is to calculate the minimum and maximum levels of wealth consistent with both respondents' answers. We then treat these as upper and lower bounds to the family's wealth level and impute a value as we would if these were the bounds that the respondents had reported themselves (see section on imputation above).

A.3 Sample selection

As noted in Chapter 2, the original BHPS sample was selected in order, as far as practicable, to be a representative sample of the British population. Additional sub-samples were subsequently added to facilitate the analysis of certain groups (those in Scotland, in Wales, or in Northern Ireland). We use only the original sample in our analysis. Therefore the results generated using BHPS data do not include Northern Irish households, whereas those generated using EFS data do.⁶⁴

A.4 Pension wealth

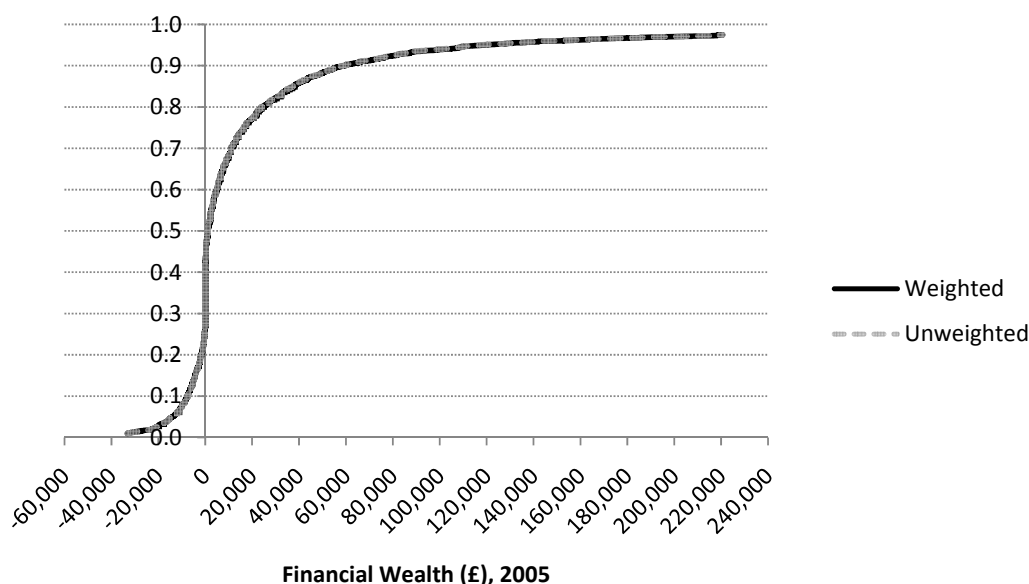
The BHPS does not contain data on the value of pension holdings. Therefore all wealth levels here are for non-pension wealth.

A.5 Weighting

The BHPS comes with a set of weights that allow for differential non-response among householders. There are a number of reasons why we cannot use these weights. First, weights in the BHPS are published at the individual and household level, but not at the family level, at which our analysis is carried out. Second, the sample we use is not the entire sample of responding families in a particular year, but a subset for whom we have the required data (for example, we do not use those families for whom we don't have data on income).

⁶⁴ Dependent children of original sample members are followed when they leave the household, and treated as members of the original sample, even if they were born after 1991, when this sample was originally defined. In this way the original representative sample remains representative as it grows and develops in the way the population does.

Figure A.1. CDFs of financial wealth in 2005, comparison of weighted and unweighted data



Source: Authors' calculations using data from the BHPS and FRS.

In response to this, we derived weights using the population totals for families defined by region of residence and family type implied by the weights published with the Family Resources Survey. Application of these weights does not substantially alter the overall distribution of wealth generated using the BHPS data. As an illustration of this, Figure A.1 shows the cumulative distribution function of financial wealth in 2000 before and after the application of the weights.

The two cumulative distribution functions of financial wealth are almost identical. As the weighting scheme does not substantially change the observed cumulative distribution function, we do not use our derived weights. The results we present in Chapters 3 and 5 use unweighted data.

A.6 Endowment mortgages

Our measure of housing equity is calculated using the responses to two questions. The first asks for the respondent's estimate of the value of their property. The second asks for the value of outstanding mortgages. The latter question is

*'Could I just check, approximately how much is the **total** amount of your outstanding loans on **all** the property you (or your household) own, including your **current** home?' (emphasis in the original)*

The wording in this question has an ambiguous interpretation when it comes to those respondents who have endowment mortgages. Repayments of mortgages

of this type have two components. The first is the interest payment on the capital. The second is the capital repayment part of the mortgage. For those with an endowment mortgage, however, this payment is not set off against the outstanding capital (as it would be for those with a repayment mortgage), but is invested in a fund. The aim is that, at the end of the term of the mortgage, this fund can be used to pay off the mortgage principal.

For such a mortgage it is not clear how respondents interpret their outstanding loan on the property. It could be that they interpret it as the principal that they first borrowed, as no repayments of this are made until the end of the mortgage term. On the other hand, respondents could consider their outstanding mortgage to be the principal less the current balance in the investment fund that will ultimately be used to repay the principal.

In the report we assume that respondents take the latter interpretation. This means that, if the family had taken the first interpretation, we will be *underestimating* the level of housing wealth for those with endowment mortgages. Of course, if they take that first interpretation, they could consider the capital repayment an 'investment', and therefore we will be recording it as part of their financial wealth. If this is the case, our measure of financial and housing wealth will be correct, as financial wealth will be overestimated by the same amount as housing wealth is underestimated.

This is not a particular concern when looking at the change in housing wealth between the two waves, as the vast majority of any changes between those two waves are likely to have come from increases in property prices rather than repayment of mortgages.

Appendix B: EFS Technical Appendix

B.1 Components of the calculated saving rate

Our approach in deriving the results presented in Chapter 6 is to calculate household saving by subtracting expenditure from income. A saving rate is then calculated by dividing this level of saving by household income. Here we discuss the treatment of capital gains, pension saving, durable spending and mortgage capital repayments in the results we present in Chapter 6.

Capital gains

We do not observe unrealised capital gains. Saving rates presented in Chapter 6 represent active saving only.

Pension saving

While the EFS contains data on pension contributions made by individuals directly, they do not contain any information on pension contributions made by employers on behalf of respondents. Therefore we do not observe all pension saving. In Chapter 4 we discussed the treatment of payments into and out of pension funds in the treatment of saving. We argued that there are two approaches that avoid either double (or non-) counting of saving across an individual's lifetime. These are:

1. Count payment into pension funds as saving, and count pension payments as dissaving.
2. Do not count pension payments as saving, and do not count pension payments as dissaving.

As we do not observe all payments into pension funds, in our main results we take the first approach. We therefore measure non-pension saving. However, when looking at the savings of retired households – that is, households for which we can reasonably assume that pension saving is zero – we also take the second approach.

Spending on durables

We use two definitions of saving: one that includes spending on durables as saving, and one that doesn't include this spending as saving. Durable spending comprises the purchase of furniture and furnishings, household appliances, motor vehicles, audio-visual equipment, and gardening tools.

Mortgage capital repayments

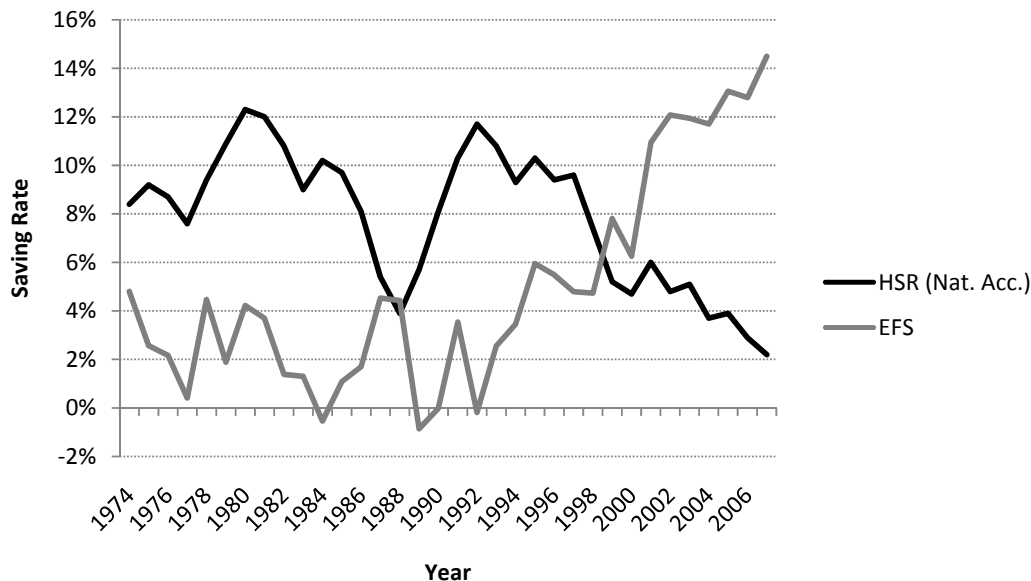
Both of our measures of saving count mortgage capital repayments as saving, and count mortgage interest payments as spending.

B.2 Comparison of EFS saving rates with National Accounts household saving ratio

In principle, if we gross up our figures using population weights,⁶⁵ we can derive a measure of household savings that comes close to the definition of the household saving ratio. When we do this we get a measure of saving that differs quite considerably in level and in trend from the household saving ratio (see Figure B.1).

While the definition of the two measures is similar, the process of constructing them is very different (see Chapter 4), so it is not surprising that there are some differences in the measures. In addition, given that the National Accounts measure that we are interested in (the household saving ratio) is the difference between two very large aggregates that are almost certainly measured with substantial error, quite a lot of variation from year to year is to be expected. Caution should therefore be exercised in the interpretation of short-run trends. What is perhaps surprising, however, is the substantial differences between the two series in the most recent years: saving as measured by the EFS increases substantially, whereas that measured using the National Account methodology falls.

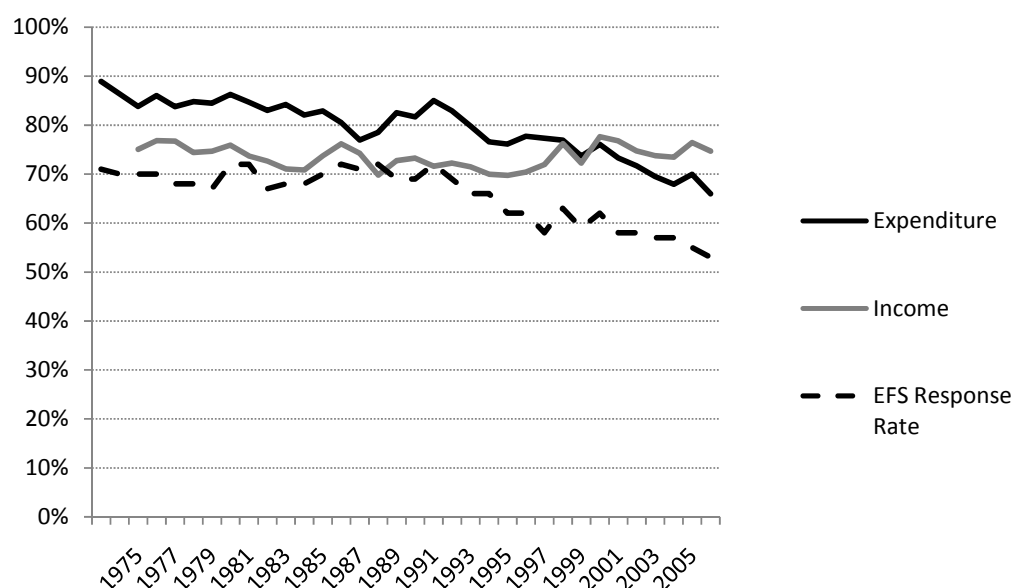
Figure B.1. Comparing household saving ratio with saving rate from EFS



Source: ONS, authors' calculations using data from the EFS.

⁶⁵ For years prior to 2001 we use weights derived by colleagues at the IFS. For most of this period no population grossing weights were published with the EFS. For years after 2001 we use the grossing weights published with the EFS. However, it is important to note that, for years up to 2006, these weights gross up to a population defined using the 1991 census. The grossing weights published with the 2007 version of the EFS gross up to a population defined by the 2001 census.

Figure B.2. Income and expenditure microdata coverage of National Accounts aggregates, EFS response rate.



Source: Coverage estimates are authors' calculations using data from the EFS and the National Accounts. EFS response rate is from Hawthorne & Salmon (2008).

To understand why these measures might be diverging, it is important to look at the two 'ingredients' used in the calculation of these saving rates: income and expenditure. Household saving in both measures is calculated as the difference between total household income and total household expenditure. For both these aggregates we can calculate the ratio of the total recorded by the EFS (grossed up to a national aggregate) to the total recorded by the National Accounts. We refer to this as the microdata 'coverage' of the National Accounts aggregate.

Figure B.2 shows that in recent years consumption coverage has been falling dramatically.⁶⁶ Clearly, this fact, and the fact that the saving ratio in the EFS is rising relative to the National Accounts are driven by the same phenomenon. We do not take a stand in this paper on which of these aggregates is 'correct'. This remains an important issue, and an open question.

Figure B.2 also shows that the response rate to the EFS has been falling, with a decline starting in the early 1990s, around the same time as the fall in expenditure coverage started falling quite quickly. Note that the falling response rate does not affect sample size; more households are sampled to ensure an adequate sample size it achieved. However, the falling response rate could

⁶⁶ We have made some attempt to ensure that the series we are comparing are as similar as possible in their definition. The measure of consumption is non-housing final consumption by households resident in the UK. The measure of income is net disposable income, not including council tax or mortgage interest. We do not calculate the coverage of income in 1974 and 1975 because of the difficulty in splitting local tax payments from water payments in those years.

indicate that the resulting sample is less representative of the population from which it is drawn. The deterioration of these two measures of data quality: micro-data coverage of National Accounts aggregates and the response rate to the expenditure survey is a cause for concern.

The divergence between saving in the National Accounts and that measured using the EFS microdata suggests a very careful interpretation of the results that we present in Chapter 6. First, no direct comparison should be made between the level of saving for a particular group as we measure it and the level of saving in the National Accounts. Second, given the falling microdata coverage of the National Accounts, the reader should not necessarily interpret trends in our measure as being caused by underlying trends in household savings behaviour.

However, we do believe that there is value in looking at the differences in saving rates across groups in a particular year using the microdata. These differences are reliable estimates of the underlying differences in savings behaviour if, loosely speaking, to the extent that there is measurement error in the survey data, it does not differ systematically across the groups that we define.

To summarise this important section: the results that we present for any particular group should be interpreted relative to other groups, and not relative to the National Accounts measure of saving. In addition, the absolute level of saving for any particular group should not be read as a reliable estimate of their true underlying saving rate. The results that we consider more reliable are the differences between groups in a particular year.

B.3 Averaging: which summary measure?

The household-level results from the EFS are summarised at the group level using medians rather than either democratic or plutocratic means. In this section we explain why we use the median rather than either mean. We also summarise the conditions under which the median from the sample is an unbiased estimator of the underlying population median.

As described in Chapter 4, the plutocratic mean places a greater weight on households that have higher incomes. Of the three aggregates discussed in Chapter 4 (democratic mean, plutocratic mean, median), this might be the *least* favourable method of summarising the household-level saving rates, as it gives more weight to a group of households in whom we are not necessarily interested.

However, the use of the democratic mean, which weights all households equally, is also problematic, owing to the presence of measurement error in income, which leads to saving rates that are extremely high in absolute value. There are some households that report very low incomes. In some cases there is reason to suspect that these low incomes are inaccurately measured (see Brewer et al. (2009)). As household income is the denominator in the saving rate, an extremely low income leads to an extremely high saving rate (or an extremely high borrowing rate if savings are negative), even if the absolute level of savings (the

numerator) is of a modest magnitude. These extremely high saving rates exert a large effect on the democratic mean, potentially distorting the actual pattern of savings behaviour in the process.

The presence of outliers, which precludes the use of the democratic mean, suggests the use of the median, which is less sensitive to these outliers, and, unlike the plutocratic mean, does not give different weights to different households. However, there is a quite different problem with the use of the median here, which is a result of the time frame over which the two ‘ingredients’ with which we calculate the saving rate (income and expenditure) are measured. Household income in the EFS is the ‘usual’ amount earned by the household in a week. Expenditure, on the other hand, is made up mostly of the items that households purchase during the two-week diary period. As long as each household’s average expenditure is the same in each two-week period, then the median saving rate we observe in the data will be an unbiased estimate of the median saving rate of the population. However, if expenditure varies systematically for households between two-week periods, then the median in the data will not be an unbiased estimate of the population median. A simple (stylised) example makes this point clearer:

Suppose all households make all their purchases on a single day every two months. In addition, suppose households do not save anything. In our data (which cover two weeks), we will observe one-quarter of households spending four times their income (so that they have a saving rate of -300%). We will observe the other three-quarters of households spending nothing (so that they have a saving rate of 100%). The median saving rate we observe here is 100%, despite the fact that the true median saving rate is 0%.

Of course, the supposition that all households make purchases only once every two months is an extreme one – and it is this extreme assumption that leads to an answer that is so far from the truth in our example. However, non-smooth consumption of a more realistic type would still lead to biases in our estimates.

However, for items that are infrequently purchased (motor vehicles, kitchen appliances etc.), expenditure is taken not from the diary but from a questionnaire that asks respondents whether they have purchased the item over the previous number⁶⁷ of months. If they have, the value of their purchase is divided by the number of weeks to which the question refers, and a weekly equivalent value is added to expenditure. So, while the expenditure total for items that are frequently purchased (food, alcohol, household consumables etc) comes from the diary, the expenditure total for infrequently purchased items comes from the questionnaire. This makes it more likely that the expenditure total that is recorded does not differ systematically from usual expenditure. Therefore, while each of the three averages (the plutocratic mean, the democratic mean, and the

⁶⁷ The number of months varies across items, and has also varied across years.

median) is potentially problematic, it is the median that we use as our summary measure.

B.4 Definition of head of household and household reference person

The head of household is defined as follows (Office for National Statistics (2002) Volume 1 Part 5): 'The head of the household must be a member of that household. By statistical convention the head is the person, or the husband of the person who:

- a. owns the household accommodation, or
- b. is legally responsible for the rent of the accommodation, or
- c. has the household accommodation as an emolument or perquisite, or
- d. has the household accommodation by virtue of some relationship to the owner who is not a member of the household.

When two members of different sex have equal claim, the male is taken as head of household. When two members of the same sex have equal claim, the elder is taken as head of household.'

The household reference person is defined as follows (Office for National Statistics (2007) Volume 1 Part 5): 'From 2001–02, the concept of household reference person (HRP) was adopted on all government-sponsored surveys, in place of head of household. The household reference person is the householder, i.e. the person who:

- a. owns the household accommodation, or
- b. is legally responsible for the rent of the accommodation, or
- c. has the household accommodation as an emolument or perquisite, or
- d. has the household accommodation by virtue of some relationship to the owner who is not a member of the household.

If there are joint householders the household reference person will be the one with the higher income. If the income is the same, then the eldest householder is taken.'

Appendix C: Age and Cohort Effects

We noted at several points throughout this report that the results that show the distribution of wealth or saving by age in a cross-section of data conflate age and cohort effects. Here we explain what this means with an example.

Using the BHPS wealth data, we showed that those who are over the age of 75 in 2005 have lower mean wealth than those who are aged between 70 and 74. This could be explained either because the older group have dissaved some of their wealth since they turned 75, or because the individuals in these groups were born at a different time, and therefore had different experiences throughout their lives and therefore never had the levels of wealth that the younger cohort now have. This means that we should not interpret the fact that the mean for those aged above 75 is lower than the mean for those aged between 70 and 74 as implying that individuals, on average, run down their wealth after the age of 75. All we know is that those aged over 75 in 2005 had lower wealth on average than those aged slightly younger. Therefore statements to the effect of 'wealth increases with age' should be interpreted to mean that older people in 2005 tend to have more wealth than younger people in 2005. They should not be interpreted as meaning that as individuals get older they accumulate more wealth. This could in fact be true. However, with a cross-section of data we cannot conclusively identify whether it is true or not.

Panel data cannot be used, by themselves, to definitively solve this identification problem. Whereas with a panel we observe the effect of people ageing, we now have an additional effect that we must identify: the effect of time. With panel data we have three effects to estimate: age, time, and cohort. We cannot identify these three effects separately without making further assumptions.

See Section 2.7 of Deaton (1997) for a comprehensive discussion of this issue.

Appendix D: Sample Sizes

In this appendix we give the size of the samples that are used in the analysis in Chapters 3, 5 and 6.

Chapter 3 of this report looked at the cross-section of wealth in 2000 and 2005 using the BHPS data. Table D.1 gives the number of families in each of the sub-groups we defined in that chapter.

Chapter 5 of this report looked at the saving rates among families that were observed in the BHPS in both 2000 and 2005. Table D.2 gives the number of families in each of the sub-groups we defined in that chapter.

Chapter 6 of this report looked at the saving rates among families using EFS data from 1974 to 2007. Table D.3 gives the number of households in each of the sub-groups we defined in that chapter in the data for 2007.

Table D.1. Sample sizes in each group used in analysis of wealth in cross-section using the BHPS

	2000		2005	
	Sample size	Percentage	Sample size	Percentage
Age				
<25	970	16.9	829	16.2
25–29	497	8.7	408	8.0
30–34	497	8.7	390	7.6
35–39	555	9.7	423	8.3
40–44	500	8.7	471	9.2
45–49	437	7.6	443	8.6
50–54	415	7.3	384	7.5
55–59	380	6.6	357	7.0
60–64	288	5.0	331	6.5
65–69	274	4.8	240	4.7
70–74	303	5.3	246	4.8
75+	609	10.6	607	11.8
Total	5,725	100.0	5,129	100.0
Pension				
No pension	3,142	54.9	2,932	57.2
Personal pension	488	8.5	340	6.6
Occupational pension	1,351	23.6	1,337	26.1
Both	465	8.1	325	6.3
Missing	279	4.9	195	3.8
Total	5,725	100.0	5,129	100.0
Education				
Low	2,998	52.4	2,597	50.6
Middle	1,191	20.8	1,158	22.6
High	1,536	26.8	1,374	26.8
Total	5,725	100.0	5,129	100.0

	2000		2005	
	Sample size	Percentage	Sample size	Percentage
Income				
Decile 1	573	10.0	513	10.0
Decile 2	572	10.0	513	10.0
Decile 3	573	10.0	513	10.0
Decile 4	572	10.0	513	10.0
Decile 5	573	10.0	513	10.0
Decile 6	572	10.0	513	10.0
Decile 7	573	10.0	513	10.0
Decile 8	572	10.0	513	10.0
Decile 9	573	10.0	513	10.0
Decile 10	572	10.0	512	10.0
Total	5,725	100.0	5,129	100.0
Family type				
Married pensioner	459	8.0	444	8.7
Single pensioner	781	13.6	701	13.7
Married with children	1,148	20.1	999	19.5
Married with no children	1,143	20.0	1,052	20.5
Single with children	306	5.3	278	5.4
Single with no children	1,888	33.0	1,655	32.3
Total	5,725	100.0	5,129	100.0
Housing tenure				
Owned outright	1,204	21.0	1,227	23.9
Owned with mortgage	1,931	33.7	1,740	33.9
LA renter	621	10.9	417	8.1
Private renter	766	13.4	712	13.9
Living with relative	1,024	17.9	915	17.8
Other	179	3.1	118	2.3
Total	5,725	100.0	5,129	100.0

Source: Authors' calculations using data from the BHPS.

Table D.2. Sample sizes in each group used in analysis of saving using the BHPS

	Sample size	Percentage
Age		
<25	343	10.1
25–29	223	6.6
30–34	273	8.1
35–39	361	10.7
40–44	355	10.5
45–49	308	9.1
50–54	299	8.8
55–59	287	8.5
60–64	213	6.3
65–69	214	6.3
70–74	216	6.4
75+	298	8.8
Total	3,390	100.0

	Sample size	Percentage
Income (tertile in 2000 and tertile in 2005)		
1&1	737	21.7
1&2	280	8.3
1&3	89	2.6
2&1	297	8.8
2&2	619	18.3
2&3	226	6.7
3&1	87	2.6
3&2	234	6.9
3&3	821	24.2
Total	3,390	100.0
Family type		
Single male	547	16.1
Single female	746	22.0
Lone parent	115	3.4
Couple, no kids	977	28.8
Couple kids	642	18.9
Single, no kids in 2000, kids in 2005	27	0.8
Single, kids in 2000, no kids in 2005	49	1.5
Couple, no kids in 2000, kids in 2005	120	3.5
Couple, kids in 2000, no kids in 2005	167	4.9
Total	3,390	100.0
Housing tenure		
Outright, both waves	786	24.6
Mortgagor, both waves	955	29.9
Renting, both waves	971	30.4
Mortgage, then outright	196	6.1
Outright, then mortgage	31	1.0
Owned (either mort. or outright), then rented	73	2.3
Rented, then owned	181	5.7
Total	3,193	0.0
Pension payments		
No information	151	4.5
No pension, either wave	620	18.3
Pension, both waves	1,211	35.7
From pension	159	4.7
To pension	205	6.1
Retired, both waves	757	22.3
Retired, only 2005	257	7.6
Retired, only 2000	30	0.9
Total	3,390	100.0
Education		
Educ, ≤16	1,755	51.8
Educ, 17–19	685	20.2
Educ, ≥20	950	28.0
Total	3,390	100.0

Source: Authors' calculations using data from the BHPS.

Table D.3. Sample sizes in each group used in analysis of saving, 2007
Expenditure and Food Survey

	2007	
	Sample size	Percentage
Age		
20s	565	9.2
30s	1046	17.1
40s	1258	20.5
50s	1099	17.9
60s	1015	16.5
70s	741	12.1
80+	412	6.7
Total	6136	100.0
Education		
Low	3,806	62.0
Middle	1,227	20.0
High	1,103	18.0
Total	6,136	100.0
Income		
Quintile 1	1,228	20.0
Quintile 2	1,227	20.0
Quintile 3	1,227	20.0
Quintile 4	1,227	20.0
Quintile 5	1,227	20.0
Total	6,136	100.0
Family type		
Single male	443	7.2
Single female	359	5.9
Lone parent	406	6.6
Couple, no kids	1206	19.7
Couple, with kids	1148	18.7
Pensioner single male	331	5.4
Pensioner single female	649	10.6
Pensioner couple	724	11.8
Other, with kids	338	5.5
Other no kids	532	8.7
Total	6,136	100.0
Housing tenure		
Rented – LA	682	11.1
Rented – Other	1152	18.8
Owner – Still mortgaged	2351	38.3
Owned outright	1951	31.8
Total	6,136	100.0

Source: Authors' calculations using data from the EFS.

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