Institute for Fiscal Studies

IFS Report R209

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How does spending change through retirement?

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Copy-edited by Judith Payne

Published by **The Institute for Fiscal Studies**

ISBN 978-1-80103-072-4

This research was funded by the IFS Retirement Saving Consortium, which is comprised of Age UK, Association of British Insurers, Association of Consulting Actuaries, Canada Life, Interactive Investor, the Investment Association, Money and Pensions Service, and Pensions and Lifetime Savings Association, and by the ESRC through a Secondary Data Analysis Initiative grant (ES/W002671/1) and the ESRC Centre for the Microeconomic Analysis of Public Policy (ES/T014334/1). We are grateful for helpful comments and suggestions from James Banks, Richard Blundell, Jonathan Cribb, Carl Emmerson, Paul Johnson and the IFS Retirement Saving Consortium members. This work was produced using statistical data from the Office for National Statistics (ONS). The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research data sets which may not exactly reproduce National Statistics aggregates.

Executive summary

Fuelled by changes to UK pensions policy over the last decade, most notably automatic enrolment into workplace pensions, an increasing number of people save for their retirement in defined contribution pension pots. Due to the end of compulsory annuitisation in 2015, known as 'Pension Freedoms', those saving in this way have a great deal of flexibility over the pace at which to withdraw income from their accumulated pension pot and how to vary this through their retirement.

These changes have led to concerns around what the appropriate withdrawal rate of pension pots should be for retirees. Desired profiles of spending in retirement are a key ingredient in how fast funds should be withdrawn. Whether people prefer a constant, increasing or decreasing profile of spending through their retirement will affect the kind of income profile they should aim for.

In this report, we shed light on this question by examining the spending patterns of current retirees in the UK using data from the Living Costs and Food Survey, from 2006 to 2018, which allows us to get a detailed picture of retired households' spending patterns. We consider how spending changes with age and how it relates to levels of income and saving among retirees. We also document how spending on different categories of goods and services changes with age. Finally, we consider how spending patterns differ between different types of household.

Having documented these spending patterns, we consider their implications for current and future retirees in relation to 'Pension Freedoms', planning the drawdown of defined contribution pensions and the adequacy of the pension saving of current workers.

Key findings

1 On average, retirees' total household spending per person remains relatively constant in real terms through retirement, increasing slightly at ages up to around age 80 and remaining flat or falling thereafter. For example, for those born in 1939–43, spending at age 67 was on average £245 per person per week, rising to £263 per person per week at age 75, a real (in CPI-adjusted terms) increase of 7%, or just under 1% per year. For those born in 1924–28, spending fell from £197 per person per week at age 82 to £185 at age 88, a fall of 6%, or around 1% per year.

2 By contrast, average household income per person for retirees aged 62 and older is more clearly increasing in real (CPI-adjusted) terms as people age. This is driven by private pension incomes increasing faster than the Consumer Prices Index (CPI) and by increasing numbers of people receiving the state pension and disability benefits as they age.

3 In conjunction with relatively constant spending, increasing incomes mean that more people save, and save at higher rates, as they age. For example, for those born in 1939–43, almost six-in-ten (59%) saved at age 67 but this rose to almost seven-in-ten (69%) by age 75. Over the same ages, the share of income saved by that group rose from 2% to 15%.

4 The composition of spending changes as people age, with per-person spending on food inside the home and on motoring falling steadily, spending on holidays increasing up to age 80 and then decreasing, and spending on household services (which includes spending on home help and domestic cleaning) and household bills increasing in later years of retirement.

5 There are differences in spending patterns across different types of households. Households with above-average incomes for their age and birth cohort have an increasing profile of spending in their 60s and 70s (for example, increasing by 7% between ages 67 and 75 for the 1939–43 birth cohort), with spending falling slightly for those in their 80s. On the other hand, those with incomes below median have a slightly declining age profile of spending in their 60s (with the 1939–43 birth cohort seeing a fall of 1% between ages 67 and 75) and spending remains flat at older ages.

6 These results suggest that, on average, in order to have an income profile that would match the age profile of spending through retirement seen among earlier cohorts, people should aim for a total income profile that is roughly constant in real (CPI-adjusted) terms through retirement. Given that policy is for the state pension to rise faster than prices over time, this suggests that, at least among current retirees, a declining profile of income from private sources might, on average, be appropriate – and particularly so for those with lower incomes, who are more reliant on the state pension in retirement. However, for those largely reliant on private pension income, a non-index-linked annuity would leave them more exposed to inflation and they may not be able to maintain the level of spending they would like in retirement.

7 The death of one member of a couple will affect per-person spending of the surviving partner as many shared expenditures, such as housing costs, will not fall when a partner dies. When thinking about future spending needs, households thus need to consider how changes in circumstances, in particular the death of a partner, will affect income and spending in order to ensure that resources are available to fund increases in per-person spending. Future retirees, who are less likely to have occupational or state pensions with a survivor's benefit, will have to decide how to take this into account when deciding speed of drawdowns and whether to buy an annuity that provides survivor's benefits.

8 If the spending patterns of current retirees are a good guide to how people in the future will want to spend, current savers might be best advised not to plan their retirement saving on the basis that their overall spending will fall sharply during retirement. Furthermore, we find that later-born generations spend more at the start of retirement on categories such as leisure services and holidays (which make up 7% of total spending at age 65 for the 1924–28 birth cohort compared with 11% for the 1944–48 birth cohort), which tend to increase with age, and less on categories such as food inside the home, which tend to decrease with age. This might mean that the spending of younger, and future, generations of retirees could grow more strongly with age than is the case for current retirees.

1. Introduction

The living standards of current and future retirees is a topic of much interest both for policymakers and for the general public. The success of automatic enrolment means that an increasing number of employees have defined contribution (DC) pensions, which allow a more flexible choice over their pension saving rates during working life. In addition, when it comes to saving for retirement, individuals now also have more control over how to withdraw their pension. In the past, most retirees either had a defined benefit (DB) pension, which paid out an inflation-linked income until death, or, if they had a DC pension, they were typically required to purchase an annuity. Since the introduction of 'Pension Freedoms' in 2015, the requirement to annuitise DC pension pots has been removed, and in response a large majority of people now draw down their pension wealth without annuitising (Cannon, Tonks and Yuille, 2016). Those drawing down their pot without annuitising can either choose to have a certain amount paid to them each month (with the option to change this amount in future) or draw on their wealth in an ad hoc manner.

As fewer people have annuitised incomes, there is increased concern over the sustainability of withdrawal rates through retirement. Specifically, there are concerns that some might draw down too fast, leading to lower living standards later in retirement than they had wished. This risk may be of greater concern now given that the pandemic has led to greater numbers of individuals approaching the state pension age becoming economically inactive (Brewer, McCurdy and Slaughter, 2021) and therefore potentially drawing on their DC pension pots to a greater extent than they would have done had the pandemic not struck (Crawford and Karjalainen, 2020). There is also the converse risk – that some individuals may draw down too slowly and therefore unnecessarily forgo desirable spending.

Assessing whether withdrawal is 'too fast' or 'too slow' requires an assessment of how much individuals would like to spend at each point in their retirement. The adequacy of pension wealth is often assessed by looking at the replacement rate of pension income, defined as the ratio of pension income entitlements to pre-retirement earnings. This approach to assessing pension income adequacy has been criticised in the past for several reasons (see, for example, Crawford and O'Dea (2014)); one of those reasons is that benchmark replacement rates do not take into account the fact that people's spending preferences in retirement may change with age.

Desired profiles of spending in retirement should inform the choice of an income profile – whether people prefer a constant, increasing or decreasing profile of spending in retirement will affect the kind of income profile they should plan for. The patterns of spending that people have,

or want to have, during retirement have implications both for the appropriate withdrawal from their DC pension pots and their desired indexation of any annuity income (including income from both DB pensions and the state pension). In particular, for a given level of retirement resources, we want to understand how people would most prefer to allocate these over their retirement. With an annuity, individuals' income streams were constant (typically in either real or nominal terms) throughout retirement. With Pension Freedoms, people can choose to draw on their wealth at varying rates through retirement. In particular, with an annuity income, people with 'too much' income early on in retirement would have been able to save it for a later period, but if they would have liked to spend more in the early years of retirement, people would have had to spend down their (potentially limited) non-pension wealth to do so.

This illustrates that Pension Freedoms, which removed the requirement to annuitise DC pension pots, can be beneficial for retirees who would like to spend more of their pension wealth early on in retirement. For past retirees, another way to adjust their spending profile would be to draw down on liquid non-pension wealth. However, people entering retirement often have low levels of liquid wealth – for example, in 2018–19, 22% of retirees aged 65–70 held less than £5,000 in net financial wealth (i.e. in a liquid form that could be spent relatively easily).[1] Pension Freedoms mean that people are able to access 25% of their DC pension pot as a tax-free lump sum and can also draw down on the rest of the pot flexibly. Thus, these individuals will not be constrained in their ability to spend their income early on in their retirement.

In order to shed light on what the desired profiles of spending of retirees may be, in this report we analyse spending patterns of current retirees. We do this mainly using a UK expenditure survey, the Living Costs and Food Survey, from 2006 to 2018, which allows us to get a detailed picture of retired households' spending patterns. It is worth keeping in mind that we cannot say with certainty whether retirees' observed spending patterns reflect their desired pattern of spending or whether, for example, they would choose to spend more earlier in retirement if some of their income could be 'brought forward' from older ages or if they had more certainty about their later life costs. Nevertheless, for reasons we will discuss, these results are suggestive of the desired spending profiles and provide helpful context for thinking about how future retirees should best draw their pension income.

Related literature

This work relates to a wide set of literature on saving and consumption over the life cycle. A simple economic model of the life cycle predicts that, under certain assumptions, people would choose to decumulate their wealth through retirement in such a way as to have their spending constant as they age. However, studies examining wealth at older ages find that individuals do

[1] Authors' calculations using the English Longitudinal Study of Ageing.

not spend down their wealth as much as a simple life-cycle model would suggest. A number of explanations for this have been offered, such as the desire to leave a bequest, saving for medical expenditures in later life, or changes in the amount of satisfaction or benefit people derive from consumption in retirement (see, for example, Love, Palumbo and Smith (2009), De Nardi, French and Jones (2010 and 2016), Nakajima and Telyukova (2016), Lockwood (2018) and Christensen, Kallestrup-Lamb and Kennan (2022)).

A related empirical puzzle is the 'retirement consumption puzzle'; spending falls at the time of retirement, which again goes against the consumption smoothing hypothesis of the standard life-cycle model where the reduction in income at retirement is predictable (see, for example, Banks, Blundell and Tanner (1998)). There are a number of explanations that have been suggested to help explain this puzzle. First, work-related spending on categories such as commuting and clothing falls as people retire (Aguiar and Hurst, 2013). Second, people have more time to spend on cooking at home and looking for cheaper goods, which leads to lower spending on food (Aguiar and Hurst, 2005). Finally, some people will be forced to retire unexpectedly (for example, due to an adverse health shock), in which case retirement will lead to a negative income shock, which the standard model would predict to lead to a fall in spending (Hurd and Rohwedder, 2013). A recent study for the US also finds that there is substantial heterogeneity in how spending changes at retirement, and while spending falls sharply at retirement for about a quarter of households, it in fact increases for a quarter of them and remains unchanged for the remaining half of households (Moran et al., 2021).

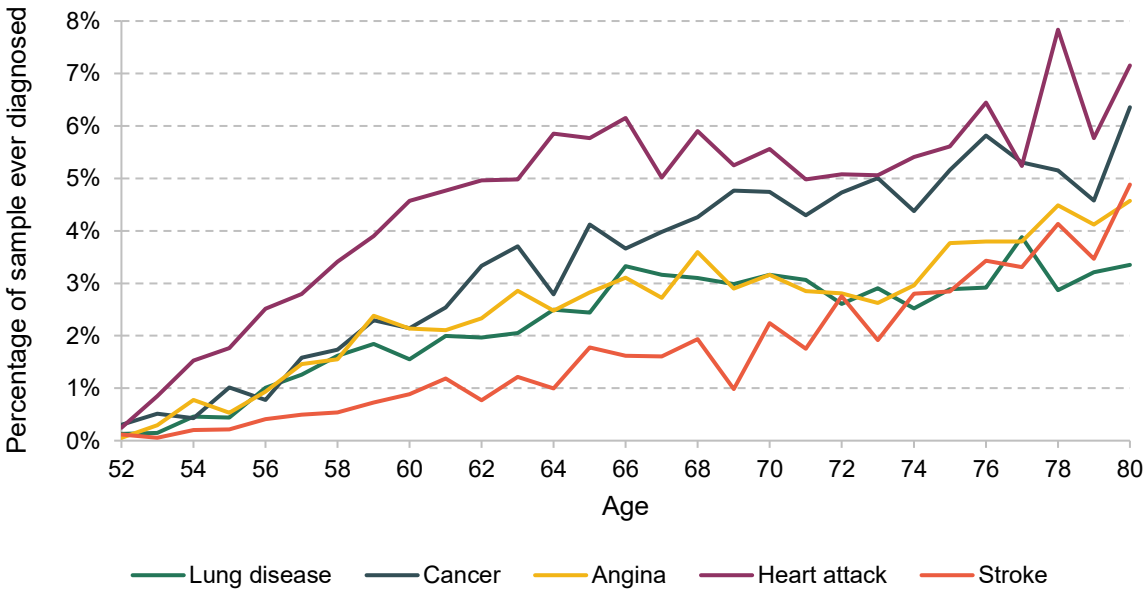
Our work differs from the retirement consumption puzzle literature in that we look at how spending changes through retirement rather than at the point of retirement. There are past studies looking at this question in the UK, both in the academic and in policy-related literature. Banks et al. (2019) find that within-birth-cohort age profiles of non-durable spending fall in the UK as people age, whereas age profiles are flatter in the US.[2] They attribute this difference to the higher private healthcare costs in later life in the US. Our focus is slightly different in that rather than focusing on non-durable spending, we consider total spending. In the policy-related literature, International Longevity Centre UK analysis (Brancati et al., 2015) illustrates that a majority of older households save, and the proportion saving is greater at older ages (for example, 85% of those aged 80 and over save, compared with 61% of those aged 60–64). Spending is argued to decline with age, as is the proportion of spending that goes towards non-essential goods. However, this analysis looks at cross-sectional profiles of spending and

[2] The contrast between the Banks et al. (2019) finding of spending falling with age and our finding of flat age profiles of expenditure is largely explained by the fact that they deflate expenditures by Retail Prices Index (RPI) inflation and we use Consumer Prices Index (CPI) inflation. RPI inflation rates tend to be higher than CPI ones.

abstracts from potential differences between birth cohorts, which we find to be an important factor in driving cross-sectional profiles.

A falling profile of spending is often expected on the basis that health worsens through retirement and this may make it more difficult to engage in some leisure activities, for example. Indeed, the prevalence of major health conditions increases with age, as shown in Figure 1.1, while self-reported health declines (Blundell et al., 2020). In particular for pensioners, health shocks can influence available resources through increased health costs, but they can also affect the enjoyment people derive from certain leisure activities (Blundell et al., 2020). This is the case with spending on goods and services such as holidays, as people may derive less enjoyment from spending on holidays when they are in worse health. However, the relationship between health and spending in some other areas may go the other way – for example, people may spend more on things such as help at home when they are in poor health (Finkelstein, Luttmer and Notowidigdo, 2013). There is some evidence that suggests health can drive a declining profile of overall spending but does not do so for everyone, as not everyone experiences health shocks as they age. Recent work in the US (Chen and Munnell, 2021) finds that spending falls by 0.7–0.8% per year through retirement, but among wealthy and healthy households spending is virtually flat, suggesting that, in the absence of deteriorating health and wealth constraints, retirees may prefer a constant spending profile through retirement.

Figure 1.1. Prevalence of health conditions by age



Note: Percentage of people in each age group who have ever been diagnosed with the condition.

Source: Authors' calculations using the English Longitudinal Study of Ageing, waves 1–7 (2002–15).

This report will begin by describing in Section 2 the data sets and sample used for analysis. In that section, we will also discuss how we construct the expenditure variables and adjust them for household composition, inflation, differences between birth cohorts and differential mortality. Section 2 is focused on the technical detail of the data and construction of results, and the subsequent sections, which outline the key results, can be read without reading it.

Section 3 shows the first key results: profiles of spending, income and saving among retirees. In Section 4, we construct age profiles for different categories of spending and we discuss differences in spending patterns across different types of households, first considering the impact of changing household composition on average spending profiles and then showing how spending patterns differ between low-income and high-income households. Section 5 concludes with a discussion of the implications of our findings.

2. Data, sample and construction of age profiles

The analysis in this report is based on the Living Costs and Food Survey (LCFS) (Department for Environment, Food & Rural Affairs and Office for National Statistics, 2021) and the English Longitudinal Study of Ageing (ELSA) (Banks et al., 2021). Below we briefly describe each and how we compare the household spending of couples with that of singles. We then describe how we construct age profiles of spending that are adjusted for differences between birth cohorts and for differential mortality. The sample sizes we use are shown in Appendix A.

2.1 Data sets

The Living Costs and Food Survey is a UK household survey of household expenditures. Adult members of the household are asked to keep a diary of all of their expenditure over two weeks. In addition to the expenditure diary, there is a household survey which gathers information about household characteristics and infrequent purchases such as spending on durables and holidays, made within a 3- to 12-month recall period.

The survey is representative of UK non-institutionalised households. This means that we do not capture people moving into residential care and the high levels of spending on care costs among that part of the population. The lack of data on social care spending is a limitation of our work, as we do not observe the (potentially very large) care costs at the end of life, which may affect people's spending and saving throughout retirement. A previous study using data from ELSA on nursing-home costs in England shows that while nursing-home costs are a significant expense for a small minority of households, on average they are small (Banks et al., 2019). The Department of Health and Social Care estimates that around one in seven adults in England faced lifetime care costs of over £100,000 under the social care system in place to date. The extent to which social care costs affect spending towards the end of life – and how this may change given recent reforms to social care charging – will be an important area for future research.

It is worth noting a caveat with the LCFS data set. There are ongoing concerns about the reliability of expenditure surveys in many countries, including the UK. Comparing the spending and income data from the LCFS with national accounts shows that the LCFS does not cover all spending we see in national accounts, and this difference is getting larger over time (see, for

example, Barrett, Levell and Milligan (2015)). Some of the explanations provided include undersampling of high-income households (Barrett et al., 2015) or households being overburdened by surveys, leading to a decline in survey cooperation and quality (Meyer, Mok and Sullivan, 2015). While the under-reporting of expenditures and incomes may lead to discrepancy in the level of average spending and incomes when compared with national accounts, we believe that this should not dramatically affect how we estimate changes in spending and income with age.

We use data from 2006 to 2018 and focus on households where all members are retired (defined as reporting being retired and having no labour earnings). Especially for those in their 60s, as not everyone is retired, this group changes in composition with age. We focus on the sample of people born between 1924 and 1948 who we observe between the ages of 62 and 90. To our knowledge, ours is the first study to look at spending among retirees at ages beyond 80 in the LCFS. We focus on households with either a single person or two people of the opposite sex, in order to exclude households with several benefit units (for example, parents living with adult children) from our analysis. Our unit of observation is the individual, meaning that there will be two observations per couple in our data. Some characteristics, including expenditure, are measured at the household level and so will be the same for both members of a couple. For the main part of our analysis, we focus on a measure of total expenditure.[3]

The English Longitudinal Study of Ageing is a longitudinal study of people aged 50 and over living in England, running from 2002–03 to 2018–19. A key benefit of ELSA is the ability to follow the same individuals over time. However, the spending measures in ELSA are more limited. ELSA asks detailed questions about housing costs and some household bills, but for food inside and outside the home, leisure, clothing and transfers to others, the questions are recall questions about ‘the last four weeks’ or ‘a usual week’. These questions also do not cover all categories of spending, and for this reason we use the LCFS for most of our analysis on spending.

2.2 Adjusting for household composition

In order to compare households of different sizes (in our case, singles and couples), we need to adjust for household composition. Much of the existing literature looking at consumption uses ‘OECD modified’ equivalence scales, where the total spending by couples is divided by 1.5, to

[3] We consider spending (the amount of money spent by households each week) rather than consumption, as we want to analyse how total spending by a household matches the income available to it. Thus, we include spending on categories such as durables, mortgage principal payments, health and education, which measures of consumption would typically exclude on the basis that they can be considered as investments rather than consumption. Figure B.1. in Appendix B illustrates that our main conclusions hold even if we consider a more traditional measure of non-durable spending.

adjust for household size (Office for National Statistics, 2015). The equivalence scale accounts for the fact that some of the goods in a household can be shared. For example, for a couple that spends £100 on rent and £200 on food, total expenditure is £300 and per-person expenditure is £150. But when considering consumption, each member of the household enjoys £100 worth of housing consumption and consumes half of the private good (food), meaning that per-person consumption is worth £200.[4] In reality, spending on goods and services in a household can be shared, private or something in between, and the equivalence scale of 1.5 is an estimation of the average degree of economies of scale of consumption within and across households.

However, as we want to consider spending explicitly, we divide total household expenditure by the number of people in the household. We want to use this approach as it more explicitly allows us to compare per-person spending and income in a household. It is also not clear that the OECD equivalence scale is the appropriate factor when considering older households only, especially as we use a measure of total expenditure rather than the more standard non-durable spending.

All amounts are shown as weekly expenditure in 2019 prices (where the CPI is used for the inflation measure). We use means as the measure of average spending and income, and to ensure that the means are not skewed by very high spending we remove observations with spending in the top 1% for their age and cohort.

2.3 Methods for constructing age profiles of spending

Some of the previous analysis of spending patterns in the UK has found that spending declines with age (e.g. Brancati et al., 2015). However, retirees from different birth cohorts differ a great deal in terms of their lifetime resources, with more recent retirees having on average higher levels of income and wealth through their working lives than earlier retirees (see Cribb (2019)). These differences in available resources are likely to translate into different levels of spending throughout their lives. The difference in spending between different birth cohorts who are observed at different ages may therefore reflect permanent differences in their spending levels rather than a change in spending that we would expect to happen to a fixed group of people as they age. It is therefore important to examine how spending varies with age for a given birth cohort, rather than examining all differences in spending between those born in different years.

[4] The expenditures in this illustrative example are chosen in a way that justifies the equivalence scale of 1.5.

When illustrating spending patterns (starting from Section 3), we thus show the underlying data by five-year birth cohorts (from those born 1924–28 to those born 1944–48),[5] where each datapoint illustrates the mean value for that particular age-and-birth-cohort group. In order to illustrate the shape of age profiles of spending, we also show results from a regression of spending on a cubic in age, controlling for five-year birth cohort and year of observation.[6]

In addition, we adjust the data to account for the impact of differential mortality. Higher levels of lifetime income and wealth are associated with lower mortality and, as a result, birth cohorts change in their composition as they age, with wealthier people going on to make up a larger share of the population at older ages. Studies looking at age profiles of wealth have found that failing to adjust for differential mortality will bias age profiles of wealth at older ages and that adjusting for differential mortality yields age profiles of wealth that decline more rapidly with age (Attanasio and Hoynes, 2000).

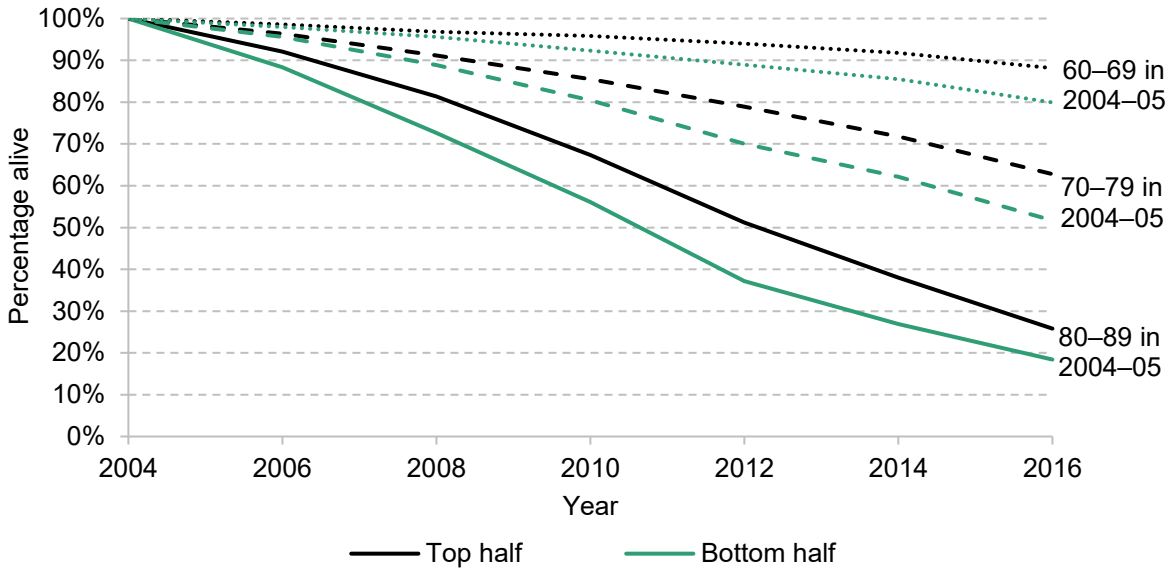
If spending is also associated with mortality, a similar bias would arise in age profiles of spending. However, it is not clear how we should expect mortality and spending to be associated. If households with higher levels of wealth and lifetime income spend more, spending would be negatively associated with mortality. On the other hand, people may factor in their survival expectations in their spending decisions, and households with lower chances of mortality – who expect to live longer – may choose to spend less in order to stretch out their resources over a longer period (Chen and Munnell, 2021). The level and composition of spending could also affect mortality. If households spend more because of higher spending on items such as alcohol and tobacco, higher spending would be expected to lead to higher mortality, while spending on some other items could reduce it.

Using spending data from ELSA, which allows us to follow the same individuals over time, we find that there are differences in mortality based on expenditure in earlier years of retirement. As Figure 2.1 shows, those with leisure and food spending outside the home that is above the median level for the cohort (black lines) have, on average, lower rates of mortality. For example, for those in their 70s in 2004–05 (dashed lines), of the those in the top half of the leisure spending distribution in the first period (black dashed line) 63% were still alive by the last period (2016–17), compared with 52% of those in the bottom half (green dashed line) – a difference of 11 percentage points. This suggests that the first effect, where wealthier and healthier households spend more, is more salient at least when considering leisure expenditure.

[5] These cohorts are aged 62–90 during the period of LCFS data we use (2006–18).

[6] More detail in Appendix C. This is different from a ‘cross-sectional’ profile where each datapoint illustrates the mean value for the age, averaged across all years of observation and birth cohorts, and where the smooth profile is derived from a regression without controlling for birth cohort.

Figure 2.1. Cumulative mortality by half of the leisure spending distribution



Source: Authors' calculations using ELSA waves 2–8 linked to ONS administrative data on deaths.

In order to adjust the age profiles of spending in this report for differential mortality, we first construct a model of mortality using ELSA, and then use the estimates from that model to adjust the LCFS (more detail on our approach and the mortality model can be found in Appendix D). The purpose of this adjustment is to correct for the differences in the composition of the LCFS samples with age that arise due to differential mortality, by giving weight to observations in proportion to their probability of surviving to the oldest age of observation for the cohort.

As Figure D.1 in Appendix D shows, the mortality adjustment makes only a modest difference to the age profiles of spending. This is consistent with the fact that while there are differences in mortality based on levels of spending, compared with the large differences seen in wealth the differences in spending between high-mortality and low-mortality groups of retirees are not big enough to drive large differences in average spending. Furthermore, the mortality rates in our sample are relatively low, especially for the younger cohorts, which again reduces the potential bias arising from differential mortality. A similar pattern of differential mortality biasing age profiles of wealth but not consumption has been found in the data from the US (Hurd and Rohwedder, 2011). All the following results have the mortality adjustment applied.

3. Spending patterns in retirement

In this section, we show patterns of average spending, income and saving among current UK retirees, accounting for differences between birth cohorts and adjusting for differential mortality.

3.1 Age profiles of spending

Figure 3.1 shows the cross-sectional profile of spending where the age profile is derived by smoothing the pattern in average spending across ages.[7] Here we see that the age profile appears to be sharply declining over retirement, particularly up to age 80. This picture on its own would suggest that spending in retirement declines rapidly with age.

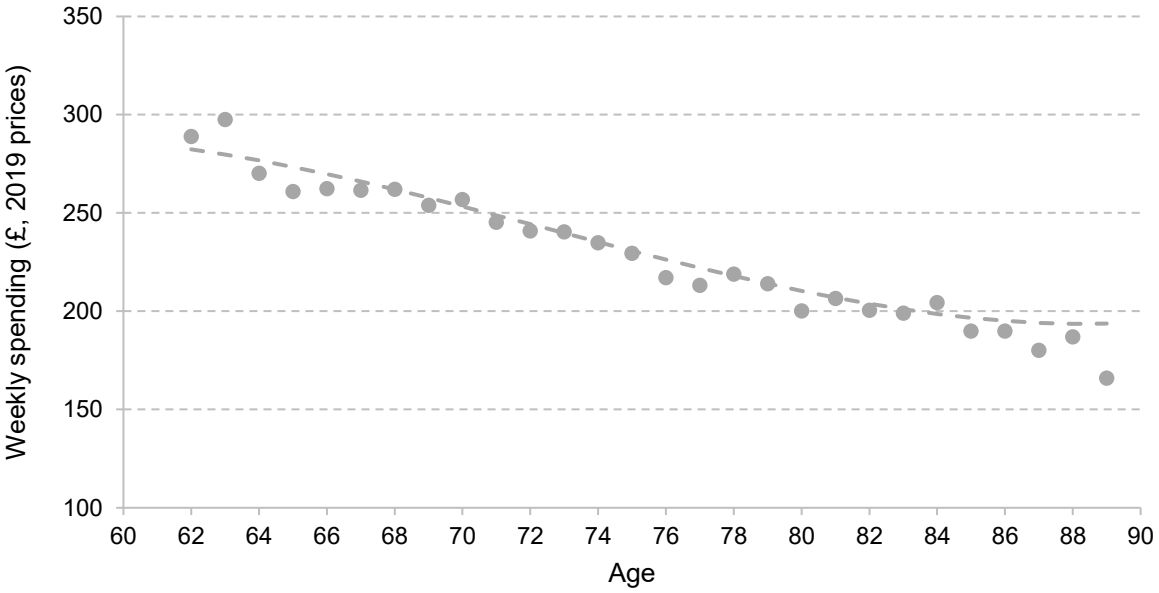
Once we control for differences between birth cohorts, the picture looks very different. Figure 3.2 shows average total spending by age for each of the five-year birth cohorts, where the dots show the average level of spending for each cohort observed at those ages and the lines show the estimated age profiles, which smooth the age patterns separately within each birth-cohort group.[8] The cohort profiles are compared with the cross-sectional age profile which is still shown as the dashed grey line. The cohort profiles tell a different story from that told by the cross-sectional age profile. They show that while total spending seems to be dramatically decreasing with age, once we account for birth cohort differences by looking at changes within each generation, the age profile is flat or even slightly increasing. Increasing spending is seen in particular for those aged 62–80 and, as will be shown in Section 4.3, for couples.

This very clearly illustrates the importance of accounting for generational differences when looking at age profiles of spending. There are very clear differences in the levels of spending between five-year cohorts, and particularly so between those born 1934–38, 1939–43 and 1944–48. Once we take into account these generational differences, the spending profiles among retirees are flat or increasing, rather than decreasing.

[7] Specifically, the line is the fitted values from a regression of spending on age, age squared and age cubed, and year dummies, but no cohort controls.

[8] Specifically, the lines are the fitted values from a regression of spending on age, age squared and age cubed, and year dummies and cohort dummies.

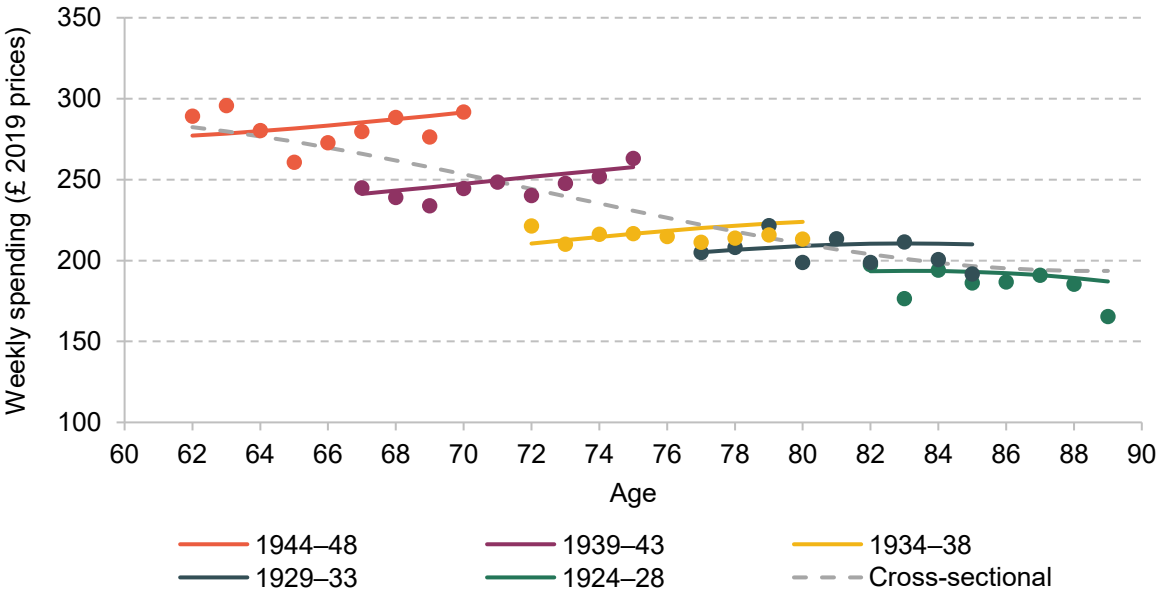
Figure 3.1. Mean and fitted cross-sectional age profile of total household expenditure



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Age profile derived from a regression of spending on a cubic in age, and year dummies, but no cohort controls. Dots represent average spending at each age, pooling all data.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Figure 3.2. Mean and fitted age profiles of total household expenditure, by birth cohort



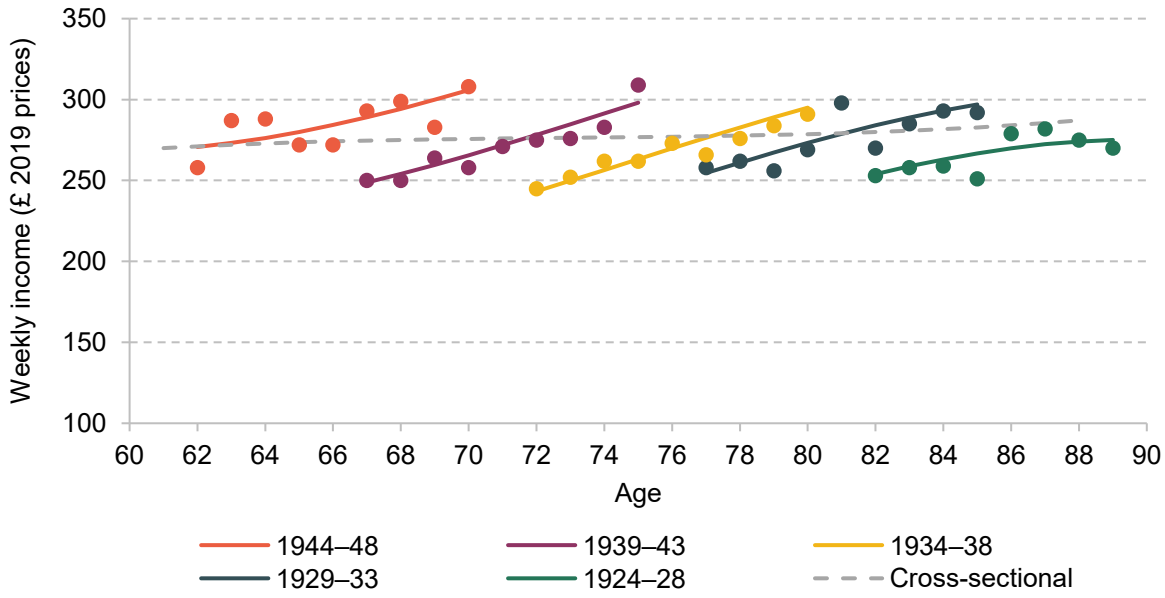
Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Solid lines: estimated age profiles from a regression of spending on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dots: average spending among the given cohort and age. Dashed grey line: the cross-sectional profile derived from a regression of spending on a cubic in age, and year dummies, but no cohort controls.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

3.2 Age profiles of income and saving

As mentioned, these birth cohorts differ in terms of their lifetime resources, which is likely to explain at least some of the cohort differences in spending. We can confirm this by comparing average income levels between cohorts. Particularly in retirement, income is a sensible proxy for lifetime earnings and wealth, as it reflects saving and pension contributions that were made during working life. Consistent with our expectations, Figure 3.3 shows that while the cross-sectional age profile of income is flat, there are clear cohort differences in income as well.

Figure 3.3. Mean and fitted age profiles of total income, by birth cohort



Note: CPI used for inflation adjustment. Average weekly per-person income in £ 2019 prices. Solid lines: estimated age profiles from a regression of income on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dots: average income among the given cohort and age. Dashed grey line: the cross-sectional profile derived from a regression of income on a cubic in age, and year dummies, but no cohort controls.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

A natural question arising from this is why incomes of retirees are increasing in real terms, especially as people in our sample have no labour earnings. There are several reasons for this.

In their 60s, many people go from having only partial sources of pension income to receiving all of the different components of income as they (and their spouses) reach state pension age or start drawing their private pension(s). Having more sources of income, including the state pension, pushes average incomes up. Similarly, at older ages, more people start receiving disability benefits and more people start receiving more of the components of disability benefits, which pushes up average income from benefits later in retirement.

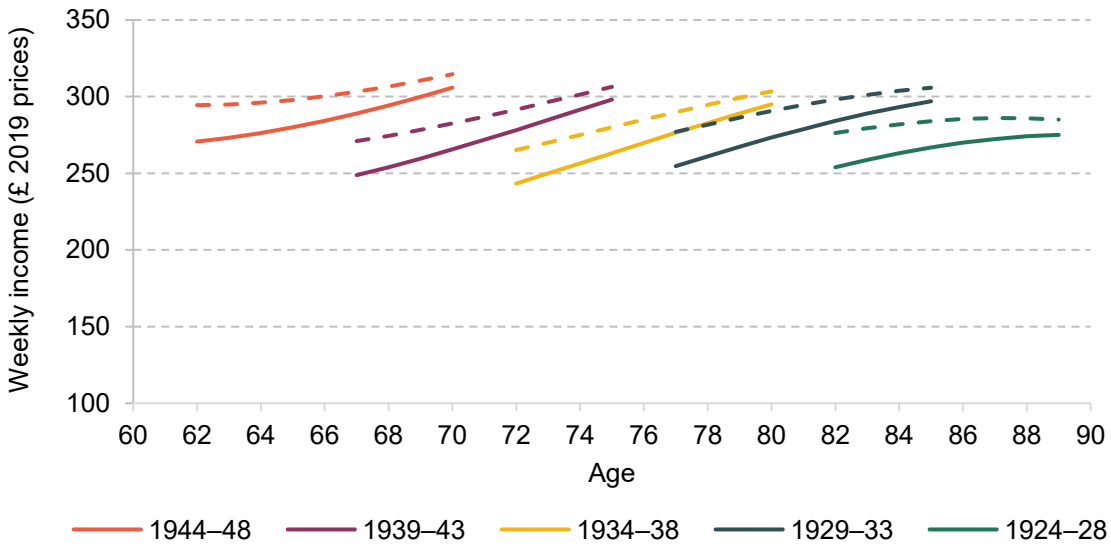
Another part of the explanation comes from the way that pension incomes are indexed. Many DB pensions are indexed in line with the RPI, albeit up to a cap, rather than the CPI,[9] which is the inflation measure that we use to convert the nominal income and expenditure figures to real pound amounts. Additionally, the state pension was typically increased in line with the RPI from 1981 to 2010, and in line with a 'triple lock' (highest of average earnings growth, CPI inflation and 2.5%) since then. Over the period we consider (2006–18), the RPI increased by 42.2% whereas the CPI increased by 32.5%, which would explain why RPI-indexed sources of income increase in CPI-adjusted real terms. Since the introduction of the triple lock in 2011 up to 2021, the basic state pension has increased by 41% in nominal terms, compared with increases of 25% if it had been indexed in line with the CPI and 22% if it had been indexed in line with earnings (Emmerson, 2020). Of course, in a higher-inflation environment, pension incomes would likely see weaker real-terms growth as most DB pensions have a cap on indexation such that pension income will grow at the lower of RPI inflation and 2.5% or 5%.

When we compare income profiles where we deflate the nominal amounts by the RPI (dashed lines) rather than the CPI (solid lines) in Figure 3.4, we see that while the amounts are increasing also in RPI terms, they are increasing at a lower rate than when deflating with the CPI. Furthermore, Figure 3.5 shows, in a dotted line, the RPI-adjusted income profiles for income excluding disability benefits. This illustrates the particular importance of increasing receipt of disability benefits driving up average incomes of older retirees.

Per-person income also tends to increase upon the death of one member of a couple, pushing up per-person incomes as cohorts age. This can happen for a number of reasons. If the member of a couple with lower private or state pension entitlement dies first, or if the survivor benefits or inherited state pension entitlements of the surviving spouse are great enough, then income for the surviving spouse will be larger than half of the household's prior income. We find that for the generations at ages 75 and older, the age profiles of income grow less strongly when looking at couples only than when looking at singles and couples together. In addition, following couples in ELSA when one member dies, we find that while household income falls by £204, per-person income rises by £55 (see Appendix E for details). These findings are consistent with the fact that most occupational DB schemes provide survivor benefits and that some additional state pension rights could be inherited for the generations we examine.[10]

[9] Or some otherwise specified rate. This can also be the case for escalating or inflation-linked annuities.
[10] See Department for Work & Pensions (2014) and https://www.gov.uk/additional-state-pension/inheriting.

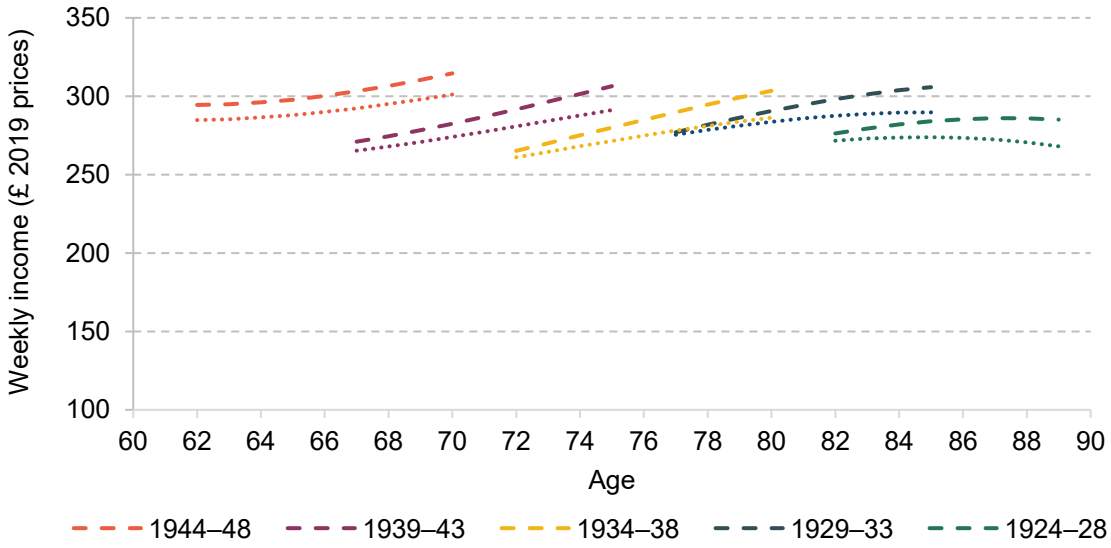
Figure 3.4. Fitted income profiles in real CPI terms (solid lines) and real RPI terms (dashed lines), by birth cohort



Note: CPI and RPI used for inflation adjustment. Average weekly per-person income in £ 2019 prices. Solid lines: estimated age profiles from a regression of income in CPI-adjusted terms on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dashed lines: estimated age profiles from a regression of income in RPI-adjusted terms on a cubic in age, and year and cohort dummies, drawn separately for each cohort.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

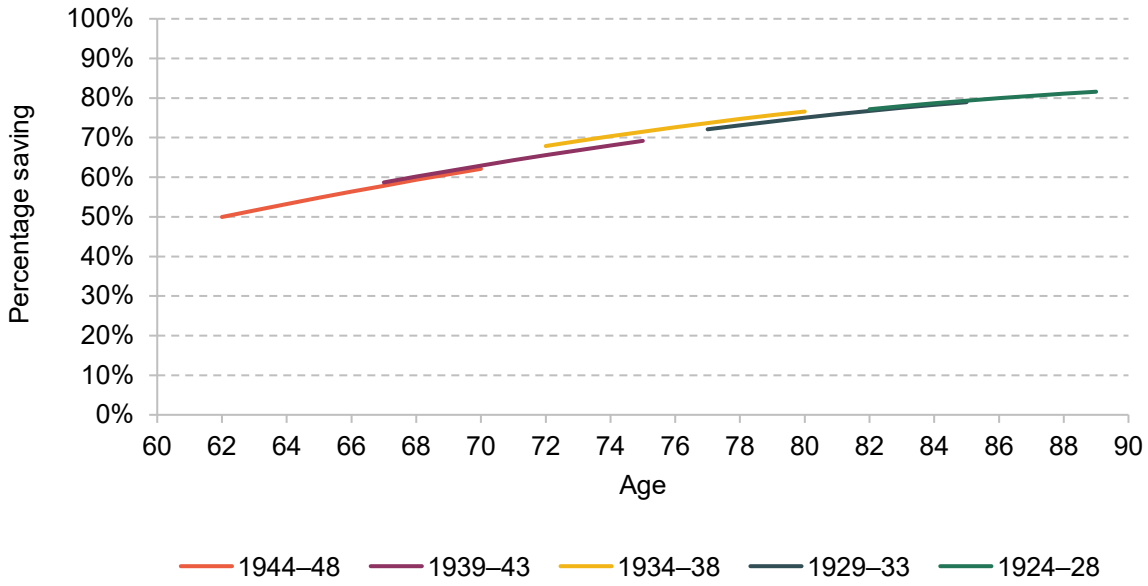
Figure 3.5. Fitted income profiles in real RPI terms (dashed lines) and in real RPI terms excluding disability benefits (dotted lines), by birth cohort



Note: RPI used for inflation adjustment. Average weekly per-person income in £ 2019 prices. Dashed lines: estimated age profiles from a regression of income in RPI-adjusted terms on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dotted lines: estimated age profiles from a regression of income without disability benefits in RPI-adjusted terms on a cubic in age, and year and cohort dummies, drawn separately for each cohort.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

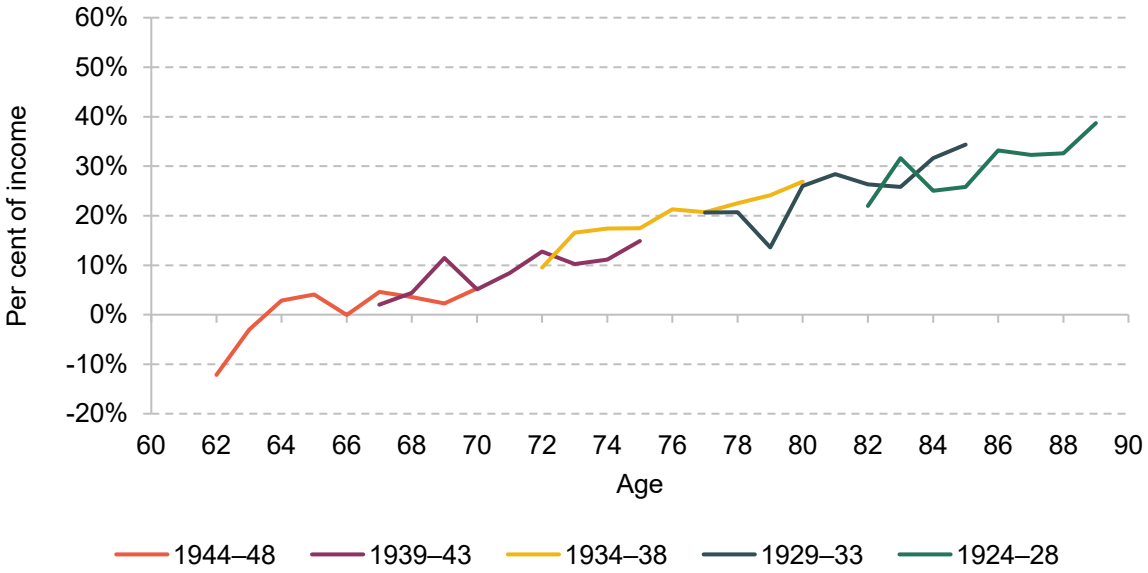
Figure 3.6. Fitted age profiles of percentage saving, by birth cohort



Note: Saving is defined as having income higher than expenditure. Estimated age profiles from a regression of saving on a cubic in age, and year and cohort dummies, drawn separately for each cohort.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Figure 3.7. Average saving rates, by birth cohort



Note: The average saving rate is calculated by taking the average income and expenditure for each age–cohort group separately and calculating (Average income – Average expenditure) / Average income.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Finally, another possible explanation for rising incomes among the younger retirees is that, as our sample includes those who are retired and people are moving into retirement during their 60s, the changing income profile at those ages may not reflect the changing composition of the group of retirees rather than a change in income for any given group of individuals. This is possible given that some of those who retire before reaching the state pension age may be involuntarily retired – for example, due to ill health – and have relatively low levels of income.

So far, we have shown that while average total spending is reasonably flat with age, average income is more clearly increasing with age. Combining the two outcomes and comparing saving rates among households, we can see that both the proportion of people saving and the average saving rate are increasing with age among these cohorts of retirees (see Figures 3.6 and 3.7).[11]

In particular, even around age 62, more than half of the sample have incomes higher than expenditure, and this figure increases to about 80% by the end of retirement. The average saving rates go from negative rates for the younger retirees (i.e. spending down of wealth), up to 30% for those in their 80s. These figures show that the majority of retirees do not seem to have their spending choices constrained by the timing of their income, and this is increasingly the case as people age. While the saving rates may seem high, the implications of these findings are consistent with previous evidence that suggests people do not draw down on their retirement wealth at the rate we might expect based on a standard life-cycle model. Due to the under-coverage of spending and incomes in the LCFS, the rate of saving may be overstated. However, this should not substantially affect our estimates of how saving changes with age.

[11] We have also examined an alternative definition of saving where we require income to be a certain small amount (£10 or £25 per week) higher than expenditure. While, on these definitions, a lower proportion of people are saving, we still find the upward-sloping age profile of saving.

4. Components of spending

4.1 Age profiles of components of spending

In Section 3, we saw that on average total per-person spending is flat – and at some ages rising – through retirement. Next, we turn to look at how components of spending change with age to see whether spending follows different patterns across categories. Previous evidence suggests that there are important differences in the age profiles of spending on different components of consumption over the life cycle (Aguiar and Hurst, 2013). In line with this, we find different profiles for different categories of spending at older ages.

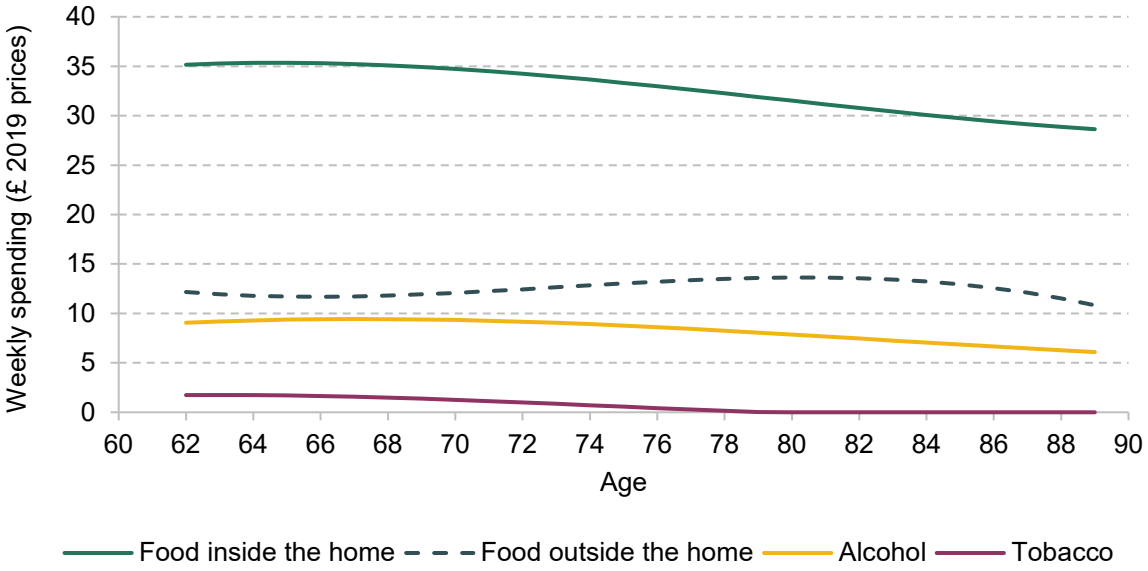
The figures in this section illustrate the age profiles for different categories of spending, controlling for birth-cohort differences as before, but this time removing the cohort differences when showing the age profiles.[12] The idea is to allow us to look at the change in spending with age across the full range of ages we observe. Cohort differences in the *level* of spending mean that each cohort could follow an age profile of spending that is shifted up or down relative to the profile shown.

We can immediately see from these figures that spending changes more with age for particular components than it does overall. Figure 4.1 shows the age profiles for food consumed inside the home, food consumed outside the home, alcohol and tobacco. The profiles show that spending on food inside the home falls with age. This is consistent with the fact that appetite tends to fall with age, which could be due to reduced activity or other reasons such as illnesses, medication, physiological changes and so on (Pilgrim et al., 2015). It is also consistent with the fact that as people have more free time in retirement, they may have more time to cook and look for economical deals which can reduce food costs (Aguiar and Hurst, 2005), although the effect of this for our sample is smaller given that everyone in our sample is already retired. We also see spending on alcohol and tobacco fall, while spending on food outside the home first increases and only starts decreasing for people in their 80s.[13]

[12] These age profiles include the cohort effect for the youngest cohort.

[13] Our predicted profiles for tobacco turn negative from age 80 onwards. This likely reflects a secular decline in smoking over time within birth cohorts. This tells us that the decrease in average tobacco spending with age that has happened for older generations in the period 2006–18 is more than the total amount spent on tobacco at age 62 for the youngest cohort. In this case, extrapolation of this age trend is perhaps implausible. We set spending to equal zero at these ages.

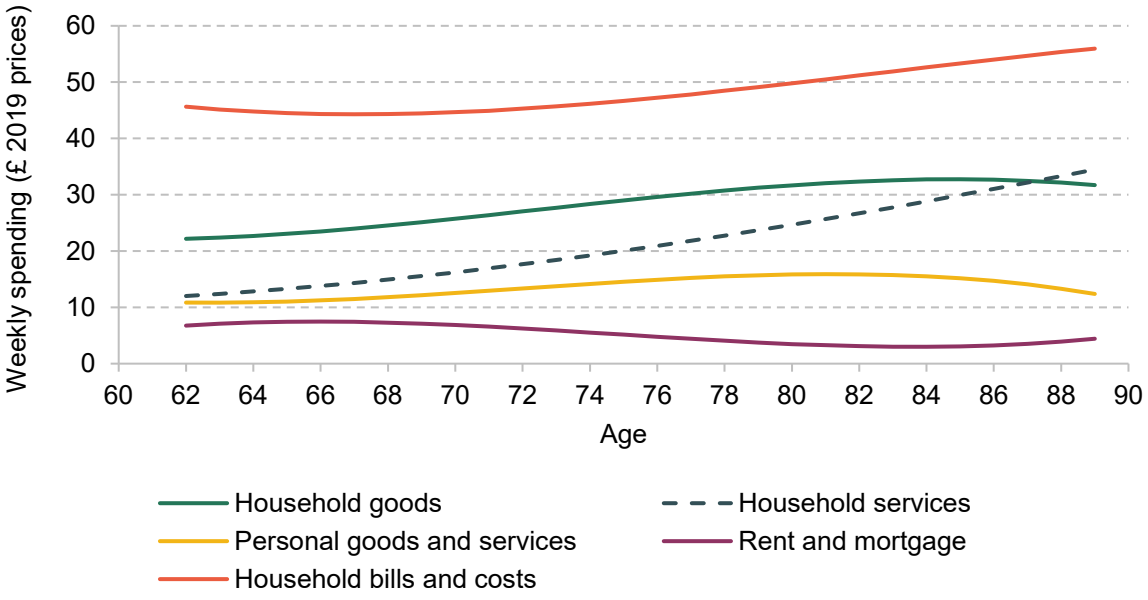
Figure 4.1. Fitted age profiles for mean spending on food, catering, alcohol and tobacco



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Estimated age profiles from a regression of each component of spending on a cubic in age, and year and cohort dummies, drawn for the youngest cohort across the age distribution.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Figure 4.2. Fitted age profiles for mean spending on household goods, household services, personal goods and services, rent and mortgage, and household bills and costs



Note and source: As for Figure 4.1.

Figure 4.2 shows spending on household goods (such as furniture and household consumables), household services (such as domestic cleaning and home help), personal goods and services (such as personal consumables), rent and mortgage, and household bills and costs (including gas and electricity bills). We see that spending on bills and other housing costs increases after age 70, which is consistent with the fact that a growing number of single-person households leads to fewer economies of scale when it comes to these goods (the effect of composition will be discussed further in Section 4.3). Specifically, we estimate that weekly spending on household bills and costs increases by £6.70 per person between the ages of 75 and 85. Similarly, spending on household services increases through retirement. This category includes components such as home help and domestic services like cleaning, so the increase in average spending can be driven both by changing household composition, as was the case for household bills, and by higher consumption of those services.[14]

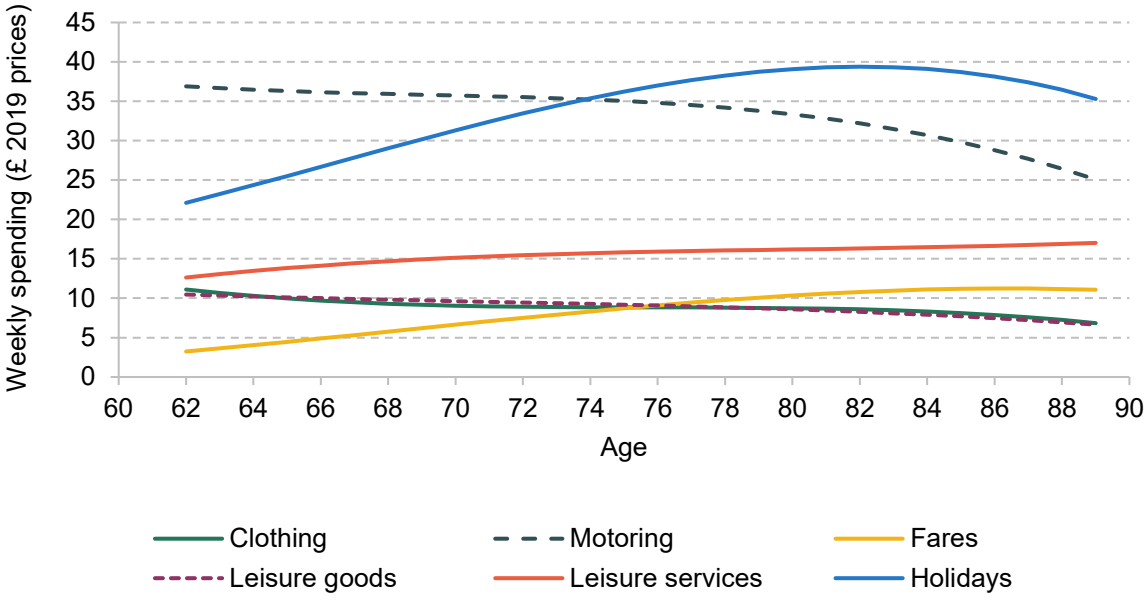
Figure 4.3 shows how spending on clothing, motoring, fares, leisure goods, leisure services and holidays changes with age. So far, most of the components of spending we have looked at include some necessities, meaning that any decline in spending on, for example, food inside the home is due to people spending less on food on average, rather than fewer people spending money on food. However, for these expenditure categories which relate to leisure activities, average spending changes as a result both of the level of spending changing and of the fact that the proportion of retirees who have some spending in these categories tends to fall. For example, if we compare individuals aged 82 and born 1924–28 with individuals aged 62 and born 1944–48, 57% of the older birth cohort spend something on motoring and 19% spend something on holidays, compared with the younger birth cohort where we see that the proportion spending something was 83% for motoring and 41% for holidays.[15]

These two categories of spending are relatively large parts of spending at the start of retirement, and show interesting age patterns. Spending on motoring falls steeply from the late 70s, as we would expect given that people tend to drive less as they age. However, spending on holidays increases up to the early 80s and, perhaps surprisingly, only starts falling from the mid 80s. The estimated increase in spending on holidays is substantial: a rise of £13.60 from age 65 to age 80. We also see this when looking at questions in ELSA about whether the respondent has been on holiday in the past 12 months. The prevalence of going on holiday is relatively stable for people up to their mid 70s and only starts falling after that point.

[14] We are not able to break down in more detail what kind of help or domestic services people are spending on, so cannot conclude with certainty that this increase is directly driven by increases in costs of healthcare at home.

[15] Authors' calculations using the LCFS.

Figure 4.3. Fitted age profiles for mean spending on clothing, motoring, fares, leisure goods, leisure services, and holidays



Note and source: As for Figure 4.1.

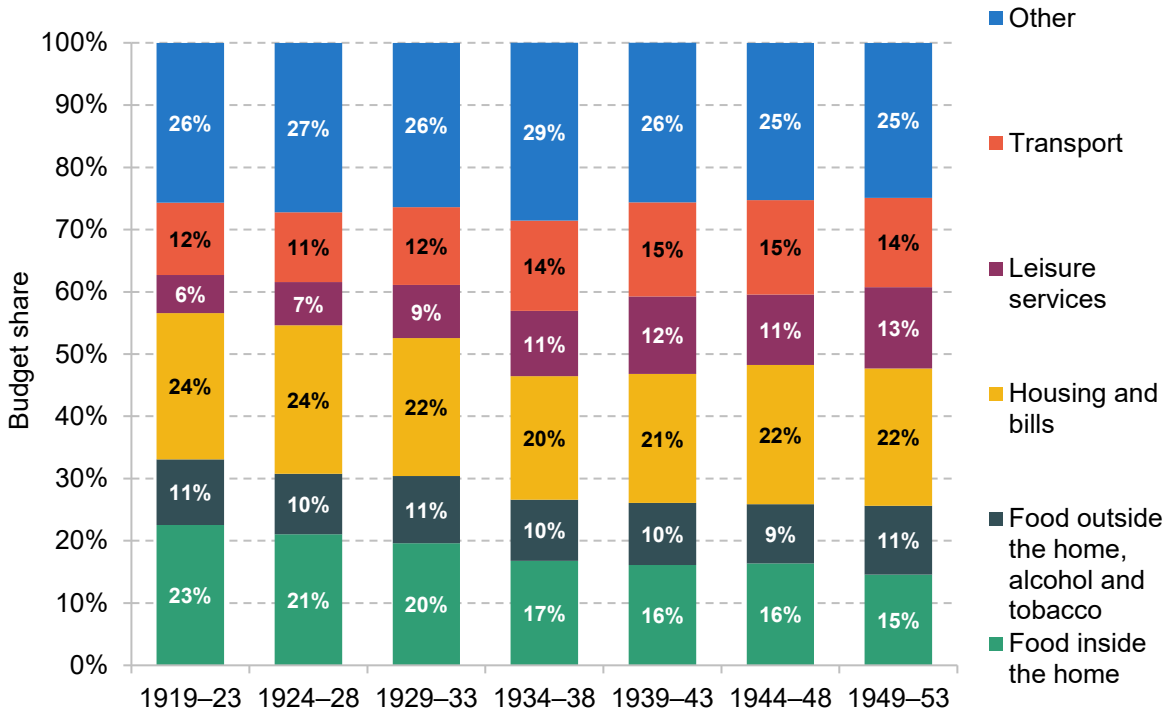
Recent research using data from the US finds that for about a quarter of households, spending on trips and transport increases sharply at retirement (Moran et al., 2021). The authors argue that this is due to the fact that households have more leisure time and that, for certain households, leisure and spending on trips are complementary, meaning that the increase in leisure time leads to an increase in demand for trips. It is notable that we find spending on holidays continues to increase even among a sample where all are retired. As future cohorts of retirees are, on average, healthier than the current cohorts, there is a chance this increase will last even later into retirement for future cohorts.

4.2 Budget shares of different birth cohorts at age 65

In order to understand implications of this for future cohorts of retirees, it is informative to look at how budget shares of spending differ between different birth cohorts at the same ages. We have looked at this for cohorts born between 1919 and 1953, to get a sense how the composition of spending has changed for people at age 65 between 1984 and 2018.

Figure 4.4 shows some interesting patterns in terms of the composition of spending. The share of total spending spent on food inside the home has fallen from 23% for the 1919–23 cohort, who were 65 between 1984 and 1988, to 15% for the 1949–53 cohort, who were 65 between 2014 and 2018. This is consistent with the fact that food is what economists describe as an inferior

Figure 4.4. Budget shares of different generations at age 65



Note: The categories here are aggregated versions of the categories in Figures 4.1–4.3. 'Housing and bills' is made up of household bills & costs and rent & mortgage. 'Transport' is made up of fares and motoring. 'Leisure services' is made up of leisure services and holidays. 'Other' is made up of household goods, household services, clothing, personal goods & services and leisure goods.

Source: Authors' calculations using LCFS 1984–2018.

good, meaning that as the later cohorts are richer than the earlier cohorts, they will spend a smaller proportion of their budget on food.

Two categories of spending that make up a larger share of spending for younger cohorts are transport and leisure services (the latter here includes spending on holidays). Foreign holidays in particular have increased in popularity over time, and people in their 60s are also healthier today than they were four decades ago (see, for example, Banks, Emmerson and Tetlow (2016)). Holiday spending increases with age even for the older cohorts, which suggests that spending on this category will be increasingly important also going forward.

Spending on housing and bills as a share of total budgets has remained relatively stable, falling from 24% to 22%. This is despite the fact that there are stark differences in housing tenure among these generations; for example, 37% of the 1919–23 cohort at age 65 lived in social housing (local authority or housing association) compared with 18% of the 1949–53 cohort at the same age. More people in the younger cohort also own their housing outright – these

proportions were 48% for the 1919–23 cohort compared with 71% for the 1949–53 cohort.[16] This large change in housing tenure type only leads to a small change in budget share spent on housing costs, because while the change in housing tenure composition alone (with fewer people renting and more people as owner-occupiers) would have pushed average housing costs down, housing costs as a share of total budget among all tenure types have increased. Younger cohorts at age 65 also spend a smaller proportion of their budget on gas and electricity, which offsets some of the increase in total household costs and bills.

4.3 Differences in spending patterns by household composition

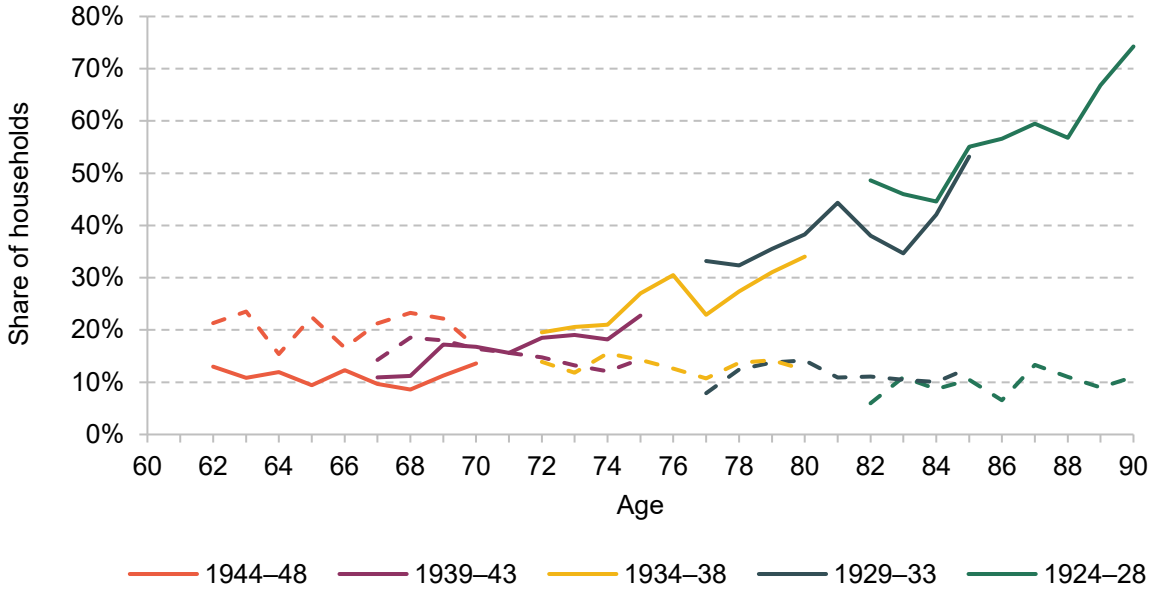
As mentioned in Section 3, some of the changes in age profiles of spending may be affected by the fact that as we look at progressively older ages, a larger share of individuals are single rather than in a couple, because a growing share of partners have died. Depending on the extent of economies of scale of consumption, even if an individual's consumption stays stable, losing a spouse can significantly increase per-person expenditure within the household. This is due to goods and services that can be shared. For example, unless a surviving spouse reduces their household's heating by half when their partner dies, their per-person spending on bills will go up mechanically as they can no longer share them with a spouse.

Figure 4.5 shows the rate at which the share of one-person households changes, showing the percentage of widowed and other unmarried households separately. From around age 70, the share of one-person households starts to rise as there are fewer married couples and an increasing number of widows and widowers. In this section, we examine the extent to which changes in the composition of households may drive the patterns seen in our spending profiles.

While the LCFS is a cross-sectional survey, meaning that we cannot follow the same households over time, we can create a 'thought experiment' to try to understand how much average spending would have changed if the level of consumption remained stable among those who were originally couples and singles while some of those who were originally in couples became singles. In other words, we ask how much average spending would have to increase to maintain consumption levels given the number of people who move from being in a couple to being single and so lose the economies of scale from being in a couple. The detail of this exercise is explained in Appendix F.

[16] Authors' calculations using the LCFS.

Figure 4.5. Share of widowed (solid line) and unmarried (dashed line) one-person households, by birth cohort



Note: Solid lines: share of widowed households within the given cohort and age group. Dashed lines: share of other unmarried (never married, separated or divorced) households within the given cohort and age group.

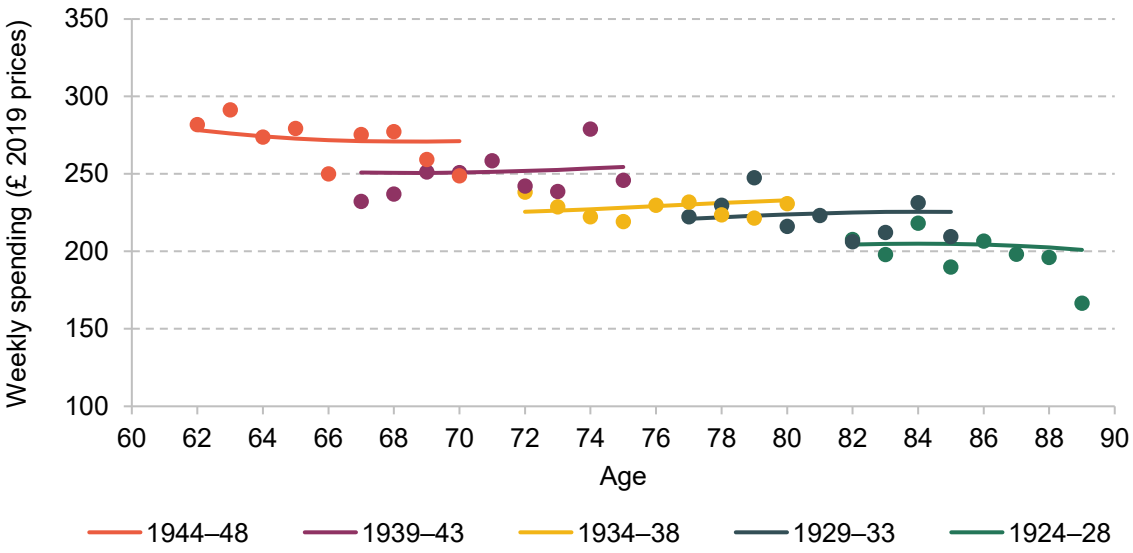
Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

The results of this thought experiment show that, especially when looking at cohorts in their 70s where the change in household composition starts to pick up, spending would be expected to increase as a result of the average size of households falling. However, the increases in spending are small. This means that the number of people within a birth cohort becoming widowed over the 12-year period we examine, and the increase in spending this implies, are modest compared with overall spending of the cohort. As the thought experiment assumed constant consumption within household types, this implies that our average age profiles are consistent with spending that is relatively flat by age, for a given household type. It does not appear to be the case that our flat profiles are driven by a large compositional effect due to mortality counteracting an otherwise declining age profile.

We can provide further evidence that compositional changes are not a significant determinant of our age profiles by looking at profiles of spending where we split the sample into households of the same size. In essence, we strip out much of the effect of changing composition from the age profiles.[17] Figures 4.6 and 4.7 show that the age profiles are flat or, in the case of couples, slightly increasing.

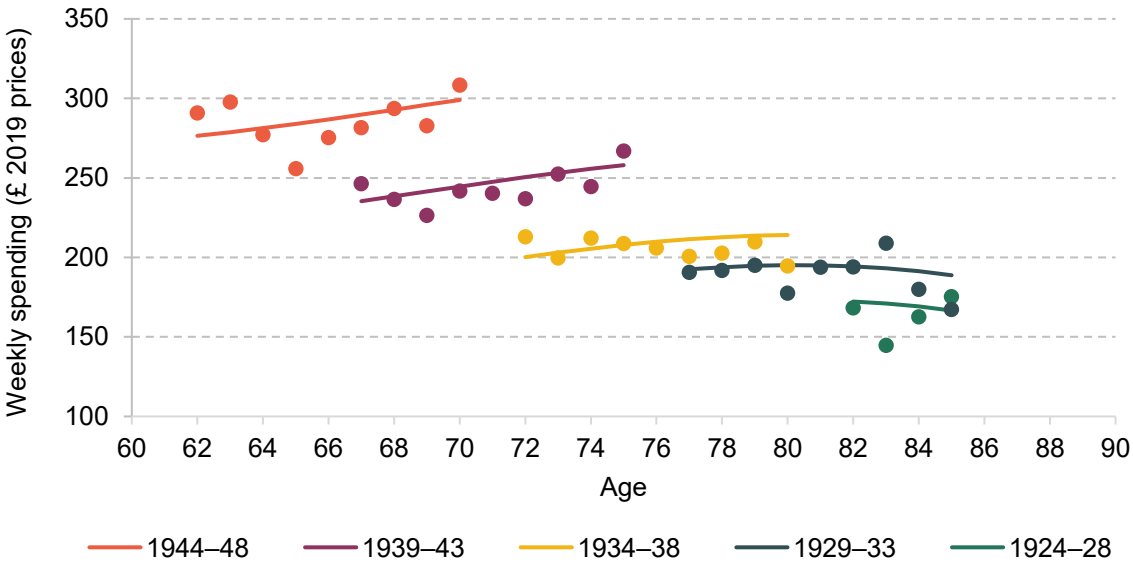
[17] Some compositional changes can remain if those who are newly widowed at a given age have on average higher spending as singles than did those who were already single at the prior age. But this effect was shown in the thought experiment to be likely to be small.

Figure 4.6. Mean and fitted age profiles of total household spending per person, by birth cohort, for one-person households only



Note and source: As for Figure 3.2. One-person households only.

Figure 4.7. Mean and fitted age profiles of total household spending per person, by birth cohort, for two-person households only



Note and source: As for Figure 3.2. Two-person households only. The 1924–28 line is truncated due to small sample sizes at older ages.

The thought experiment and Figures 4.6 and 4.7 only illustrate that changing composition of households has a limited effect on the *average* spending patterns among households. However, our profiles could be consistent with a significant increase in per-person spending immediately following the death of a partner. To assess whether this occurs, we use data from ELSA to look at how spending within a household changes when a spouse dies. In ELSA, we can observe

households over time and can see how the responses to the spending questions change as an individual goes from being in a couple to being a widow or widower between waves. We do this by running a regression of spending on whether the household has lost a spouse between waves, and a list of covariates (more detail can be found in Appendix E).

The results (in Appendix E) show that total spending and income within the household fall, but both per-person spending and per-person income increase. This is true for both male and female survivors, although we find that the increase in per-person income is lower if the remaining spouse is female (which is consistent with the man being more likely to be the holder of the pension, and survivor benefits being lower than the full value of the pension). The findings on spending are also consistent with some spending such as housing costs having economies of scale for couples, meaning that a surviving spouse must increase per-person spending in order to maintain the same standard of living. Indeed, we find that total household spending on housing does not fall after a spouse dies, which means that per-person spending on housing approximately doubles. There are some differences in how spending changes by sex – namely, that per-person spending on clothing increases when the survivor is a woman (while this is not true for men). Thus, while changing household composition is not a big enough factor in the aggregate to drive large changes in average spending patterns of retirees, those who lose a partner see a substantive rise in per-person spending. Couples need to consider how the changes in their incomes will compare with expected increases in per-person spending when a partner dies.

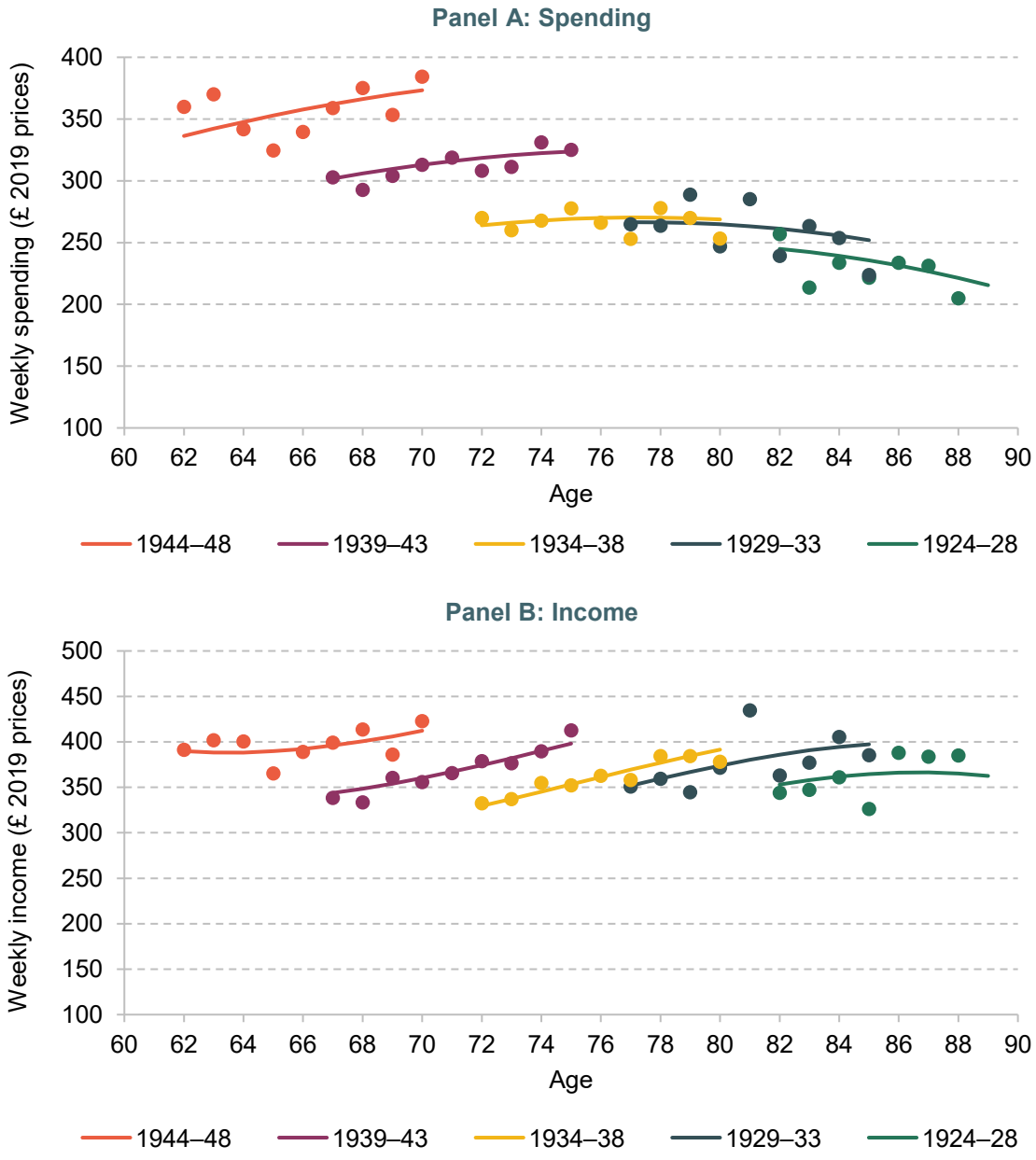
4.4 Differences in spending patterns by income

In most of the analysis in this report, we have focused on looking at average spending patterns and on what spending looks like among households of one or two people only. It is also interesting to consider how spending might vary between different groups based on their financial situation. Recent research on spending patterns at and through early retirement has found that spending patterns show a great deal of heterogeneity between different types of households (Moran et al., 2021).

Ideally, we would like to understand how spending differs between those who are and are not financially constrained, in the sense that they would like to spend a larger fraction of their retirement income earlier, but do not have the wealth to draw down or the ability to borrow to achieve this. This would tell us whether the spending patterns we see reflect people's desired spending profiles or whether they would spend differently if they were able to spend down more of their wealth earlier. Given that we do not have data on wealth in the LCFS, we are not able to observe directly the extent to which people are constrained in how they can spend their

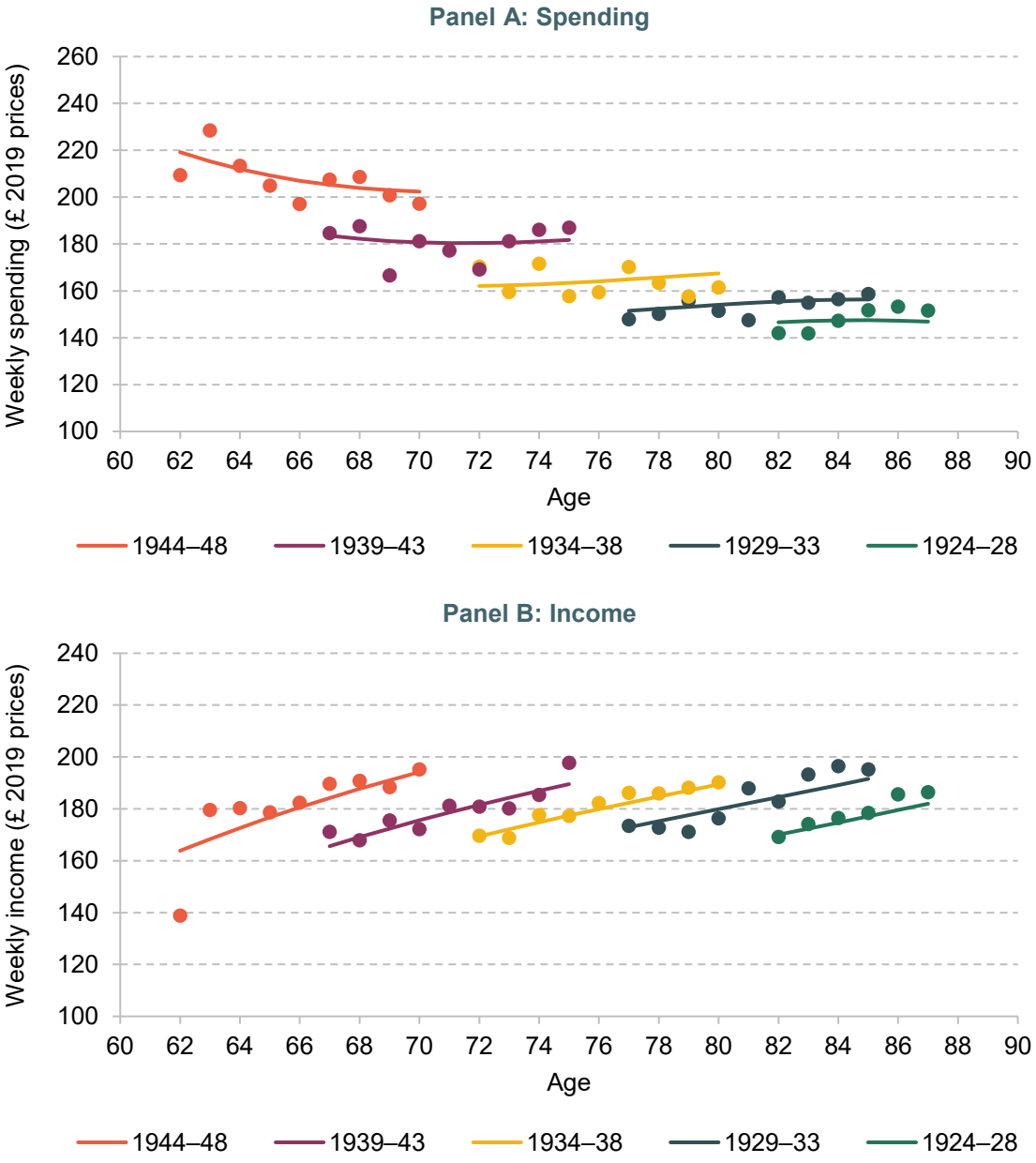
resources. Instead, we can compare spending between the top and bottom half of the income distribution. Those with higher income tend to have higher wealth and are less likely to be constrained.

Figure 4.8. Mean and fitted age profiles of total household spending and income per person, by birth cohort, for households above median per-person income



Note and source: As for Figures 3.2 and 3.3. Includes only households whose income is above the median income of their age and cohort.

Figure 4.9. Mean and fitted age profiles of total household spending and income per person, by birth cohort, for households below median per-person income



Note and source: As for Figures 3.2 and 3.3. Includes only households whose income is below the median income of their age and cohort. The 1924–28 lines are truncated due to small sample sizes at older ages.

Figures 4.8 and 4.9 show the spending patterns and income age profiles of retirees who were above and below the median income for their age and cohort. We can immediately see that the spending patterns between these groups are indeed different. For the households above median income, their spending increases in early retirement, especially among those in their 60s, and starts declining for retirees in their 80s. For households below median income, their spending first falls in their 60s and then remains stable afterwards. Both types of households also have increasing income profiles, although the increases are steeper for the above-median households (note the different scales of Figures 4.8 and 4.9). The proportion of households saving (with

income higher than expenditure) is also increasing in age for both types of households (as shown in Figures G.13 and G.18 in Appendix G). Looking at the composition of spending (in Figures G.15–G.17 and G.20–G.22), the increases in spending on holidays and leisure services we saw in the average spending charts are driven by the above-median-income households, with below-median-income households spending very little on holidays. Similarly, the amounts spent on motoring are lower for the below-median-income households, so the sharp decline is driven more by the above-median-income households. These results illustrate how the average profiles hide heterogeneity in spending patterns between different types of households.

5. Conclusion and discussion

Summary of results

In this report, we have used an annual UK household survey of expenditures to document how spending changes with age for retirees. A simple cross-sectional picture of spending through retirement shows that, on average, older retirees spend less than younger retirees. However, we have shown that this apparent decline is in fact entirely driven by differences in levels of spending between generations. Adjusting for these generational differences, as well as changes in sample composition as people die, reveals that age profiles of spending are much flatter than the cross-sectional picture suggests and that, for higher-income households and those in couples, spending rises slightly with age in early retirement.

We also find evidence showing that incomes are rising in real terms with age. This is due both to increased receipt of state pension in early retirement and disability benefits in later retirement, and to state and private pension incomes rising faster than inflation (as measured by the Consumer Prices Index) through retirement. However, it does not seem to be the case that spending patterns are driven by income profiles; an increasing number of retirees are saving as they age, and the average rates of saving are similarly increasing with age. In other words, over the past decade or so, average spending of retirees has not grown as quickly with age as their state and private pension incomes have.

While spending remains relatively flat over time, the composition of spending does change with age. Some of this is driven by the changing composition of households – as married individuals become widowed – driving up average shareable costs such as household bills. Other categories, such as spending on leisure earlier in retirement, also increase. However, the increases in these categories are largely offset by spending on other categories, such as spending on food inside the home, decreasing.

Implications for income profiles

While most of the individuals in our sample were observed before ‘Pension Freedoms’ and many would not have had significant DC pension pots even after the introduction of flexible drawdown policies, our findings have interesting implications both for those reaching retirement and deciding how best to draw down their accumulated pension and for public and private policymakers seeking to serve this group well. First, in contrast to anecdotal evidence, we find no evidence that on average the spending needs of retirees fall at older ages. Thus, planning drawdowns based on an expectation of lower spending in late retirement may result in

unexpected shortfalls in standards of living once older ages are reached. Instead, our results suggest that people's desired spending profiles are on average flat (and possibly slightly rising) in real terms.

We emphasise that we cannot say definitely that observed patterns represent the desired profiles of spending. It is possible that some people are constrained by the profile of their income and would choose to 'bring forward' and spend some of their future income if they could. It is also possible that a lack of awareness of how much income will grow, or caution due to uncertainties over later-life costs, holds back spending in early retirement. However, for the majority of our sample, the level of saving we observe suggests that they are not constrained by the age profile of their income.

Of course, average profiles may also hide important heterogeneity between different types of people. The introduction of Pension Freedoms would benefit households that prefer a front-loaded profile of spending but would be unable to obtain this under the requirement to annuitise pension pots. On average, this does not seem to be the preferred profile of spending and the majority of people have levels of spending that are lower than their income. Having access to pension pots early on in retirement is unlikely to affect the spending profiles of most retirees as, at most ages, the majority could have chosen to spend more of their resources earlier in retirement.[18] However, for people who are retired in their early 60s, a large minority are spending more than their income and thus may have preferred access to more of their pension wealth earlier in retirement. Some of those people may also end up saving later in retirement as their incomes rise faster than prices. While a minority, this is still a substantial group of people for whom flexible access to their pension pot would potentially have been beneficial.

The differences in spending patterns between lower- and higher-income households have further implications for Pension Freedoms. The households who are most likely to have significant DC pension pots are those at the higher parts of the income distribution. We saw that spending for these households increased with age until about age 80, while saving rates were increasing, which implies that this is the desired average pattern of spending for these households (although we could also observe this pattern for other reasons, especially cautious spending or lack of information as described above). On the other hand, some of the lower-income individuals, who see spending falling in the earlier years and saving rates increasing later on in retirement, may benefit from being able to access their pension pot earlier on. However, they could only take advantage of Pension Freedoms to the extent to which they have a reasonable amount of DC pension wealth.

[18] Most of these individuals would also have been able to draw 25% of their pot tax-free, giving them additional liquidity early on in retirement if they had wanted to front-load any spending.

Even if, on average, people seem to have flat profiles of per-person spending as they age, there are certain circumstances where people may deviate from this that they should also plan for. In particular, for people who start retirement as a couple, it is likely that one member of the couple will pass away before the other, and households should be prepared for the fact that this is likely to lead to an increase in per-person spending on shareable goods such as household bills.

Annuity or flexible drawdowns?

When considering how to achieve this flat age profile of real spending, people will need to decide whether to purchase an annuity, or whether to draw down on their wealth flexibly, or whether to use some combination of these two, either concurrently or consecutively. Some economic research argues that purchasing an annuity to insure against outliving existing wealth can be welfare-improving for many people (see, for example, Mitchell et al. (1999)). However, there are reasons why an optimal drawdown strategy would in fact be to draw flexibly and only as much as is needed for spending or passing on as gifts.

First, while the focus of this report has been to look at spending by age, having a flexible drawdown profile rather than an annuity can also be beneficial when thinking about how income is received throughout the year. On average, about 20% of total spending of retirees in our data goes into 'lumpy' purchases such as durables and holidays,[19] and people with these types of purchases may benefit from being able to draw down their income throughout the year in a way that matches these purchases.

Another reason for preferring a flexible drawdown profile may be because of means-tested benefits, especially in the context of paying for social care costs. Under the current benefits system, non-pension assets and income are determinants of eligibility for both pension credit and housing benefit (or universal credit for those still under state pension age) and how much people will pay for social care, but DC pension pots are not considered as part of *assets* for this calculation. Instead, individuals are assumed to receive a 'notional income' equal to the maximum income the individual could get from their pension pot if they had purchased an annuity with it.[20] Thus, people wanting to hold on to their DC wealth – for example, in order to

[19] Authors' calculations using the LCFS.
[20] As explained in Age UK (2021) and in annex C, paragraph 26 of Department of Health & Social Care (2022).

leave an inheritance – *may* be better off keeping as much as possible of their assets in their DC pension rather than in other forms of financial wealth.[21]

If people are trying to draw down flexibly from their DC pot to achieve an overall income profile that is relatively flat in real terms, this will also have implications for the investment of their DC wealth through retirement. The growth rate of the income drawn down from DC pensions may, on average, be less than inflation, given that people receive state pension income which tends to grow in real terms and that as people age they are more likely to start receiving other benefits such as disability benefits. It is important to consider the implications of this drawdown profile for investment strategies. Many DC schemes move towards lower-risk assets in the lead-up to retirement.[22] If the rate of drawdown is relatively slow, the case for moving the whole of a retiree's pension pot into safe assets is not obvious. There may be good reason to keep greater amounts of DC pension wealth in riskier but potentially higher-return assets such as equities further into retirement, though clearly this would require careful management and advice. Such an investment strategy may also be appropriate for someone intending to leave some or all of their DC pot as a bequest, depending on the circumstances of the beneficiary.

Beyond just a choice between flexible drawdowns and annuities, there are a number of decisions that pensioners with DC pots will need to make when choosing a pension income product. They can, for example, choose between flat nominal or index-linked payments, and products with or without survivor's benefit for a remaining spouse after death. People can also choose to use a combination of drawdowns and purchasing an annuity. This can happen concurrently – for example, having an annuity to fund essential expenditure and complementing this with flexible drawdowns – or consecutively, by using flexible drawdowns earlier on in retirement and annuitising later in life. These product features illustrate the level of flexibility as well as complexity when it comes to choice of drawdown products.

Another consideration that is increasingly important is the prospect of receiving an inheritance in retirement. The average age at which people receive inheritances is increasing as life expectancies increase, and the average size of inheritances is also increasing (Bourquin, Joyce and Sturrock, 2020; Karagiannaki, 2017). Receiving an inheritance could in part explain the increasing saving rates especially among younger retirees. Currently, inheritances are most commonly received among the 55–64 age group, with 7% receiving an inheritance of £1,000 or

[21] Some individuals receiving social care and not wishing to deplete their assets may increase their means-tested support for social care by moving their pension wealth into another form, depending on the level of 'notional income' assumed by their local authority to come from their DC pension pot. Additionally, some people may still have an incentive to draw down their 25% lump-sum amount – for example, to give it away as a gift which is free of income tax and inheritance tax (as long as the individual dies after age 70 and at least seven years after giving the gift). However, holding any of this originally DC pension wealth in non-pension assets will mean that the amount will count as assets towards means-testing for benefits and social care payments.

[22] For example, Nest default pots (Retirement Date Funds).

more in a two-year period, with a median value of £33,000 (Office for National Statistics, 2018). However, in the data used in this study, we cannot observe receipt of inheritances, so we are unable to assess how it affects spending patterns of past retirees. This is an interesting area of future research.

Implications for the future

More new retirees will have DC pension pots in the future, and their DC pension pots will on average be larger than current retirees' DC pots, as people will have been saving in them for longer. There are a number of factors that will affect the kind of income profile people may want to have in retirement, and a number of considerations around the best product features for any given individual. The complexity of these decisions and lack of a 'default' option highlights how people may benefit from financial advice when deciding how to access their DC pension pots. The importance of financial advice being readily available will also increase over time, as an increasing number of new retirees will be relying on DC pension pots for most of their private pension incomes, which means that the decisions they make will have long-lasting implications for much of their income profile through retirement.

During the pandemic, those who were already retired have been accumulating wealth as a result of both strong stock market performance and reduced spending due to lockdowns. Given that retirees were already saving at increasing rates with age before the pandemic, there is no clear evidence that people in retirement were constrained and would be going out to spend these extra savings now restrictions are lifted. However, more monitoring will be required to make any final assessment of the impact of the pandemic on the spending of retirees.

The conclusions from this report have implications for how much people currently working should be saving for retirement. As there is no evidence of a declining profile of spending with age, on average people should aim to save enough to make up the difference between state pension and their desired level of spending throughout retirement. A prudent approach to assessments of the adequacy of retirement wealth would seem to be to base these on an assumption that spending will remain constant through retirement.

We have seen that there are differences in composition of spending at age 65 between generations. While some of these are due to the fact that younger generations of retirees are richer, this also implies that future generations of retirees are likely to be different from current retirees in a number of ways. In particular, in our data, we have seen a shift from 37% of retired people at age 65 living in social housing in the early 1980s, to a vast majority of retired households at age 65 now owning their home outright. This is likely to change again in the future, as younger cohorts are less likely to own their home and look to be more likely to be renting privately in retirement. Another important category of spending is holidays, which is already more important for current retirees than for those in the past, and likely to be

increasingly important in future. Given the differences in age profiles of different categories of spending, the composition of initial spending may also have implications for how the level of spending develops over time.

Appendix A. LCFS sample sizes

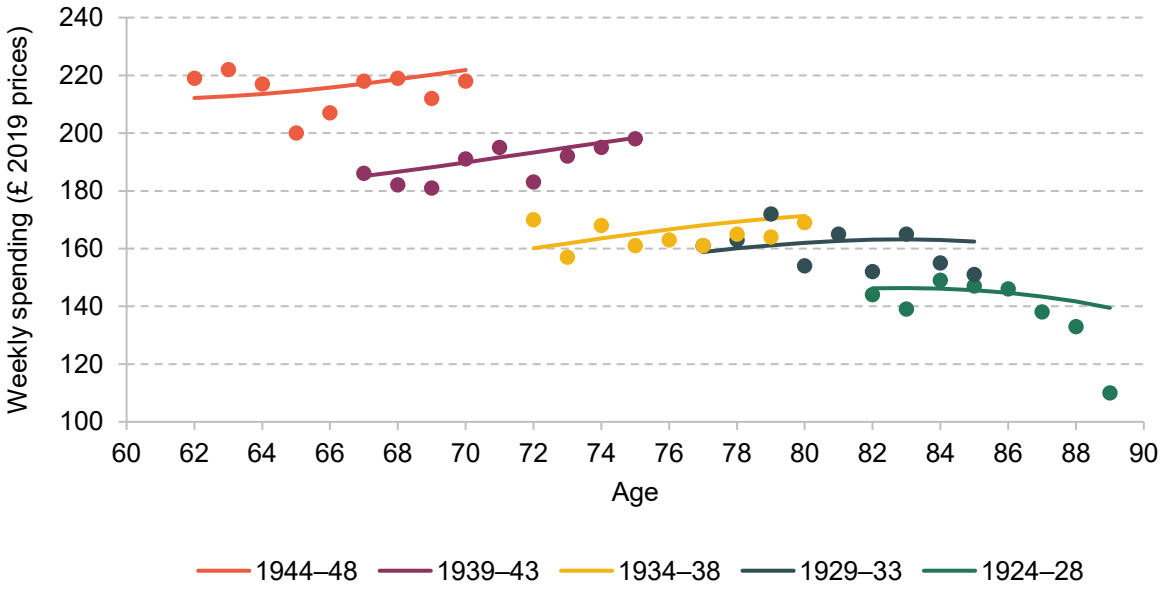
Table A.1. LCFS sample size by age and cohort

Age	Cohort				
	1924–28	1929–33	1934–38	1939–43	1944–48
62					247
63					299
64					353
65					497
66					493
67				426	481
68				421	481
69				434	489
70				470	521
71				473	
72			437	423	
73			429	408	
74			464	366	
75			407	402	
76			406		
77		367	331		
78		346	323		
79		328	303		
80		313	295		
81		279			
82	240	250			
83	254	206			
84	197	173			
85	152	149			
86	130				
87	104				
88	80				
89	53				

Source: Authors' calculations using LCFS 2006–18.

Appendix B. Non-durable expenditure

Figure B.1. Mean and fitted age profiles of non-durable expenditure, by birth cohort



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Solid lines: estimated age profiles from a regression of non-durable spending on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dots: average non-durable spending among the given cohort and age.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Appendix C. Estimation of age profiles

In most of the figures in Sections 3 and 4, we show the raw data means for each age–cohort group, as well as the estimated age profile. We also estimate age profiles of spending and incomes. We do this by regressing the variable in question on age, age-squared, age-cubed, five-year birth cohort dummies, and year dummies. That is, we estimate the following regression:

$$y_{iatc} = \beta_1 a_{it} + \beta_2 a_{it}^2 + \beta_3 a_{it}^3 + \gamma_t + \theta_c + \epsilon_{iatc},$$

where y_{iatc} is the outcome of interest (i.e. spending or income) for an individual i at age a in year t who belongs to cohort c, and where γ_t are a set of year dummies and θ_c are a set of five-year-of-birth cohort dummies.

This specification assumes that the shape of the age profile is the same across all generations and they only differ in terms of their level of spending or income. This allows us to draw the smooth profiles across the age distribution seen in Sections 3 and 4. A second assumption is that time effects are common across generations.

A well-known issue when estimating age profiles is that it is impossible to simultaneously control for age, year of observation and year of birth, as they have an exact linear relationship. While our approach is slightly different as we use a cubic in age rather than age dummies and five-year-of-birth cohort dummies rather than single-year-of-birth cohort dummies, in order to estimate a smooth age profile we also restrict our year dummies following Deaton and Paxson (1994). We restrict the time effects to sum to zero, i.e. $\Sigma_t \gamma_t = 0$, and to be orthogonal to a linear trend, i.e. $\Sigma_t \gamma_t * t = 0$.

Appendix D. Mortality model and adjustment

In order to counteract changes in the composition of the sample over time due to differential mortality, we estimate a mortality model in ELSA and use the estimates from that model to reweight the LCFS data to match the composition of the data at the maximum age at which we observe the cohort.

ELSA is a panel data set, meaning that we can follow people over time. We also know when a respondent has passed away, which allows us to use ELSA for modelling mortality. We know the mortality status of individuals in ELSA up to April 2018. For each five-year birth cohort, we calculate the maximum age that we observe that cohort in 2018, and create a dummy of whether the individual has died by that age.

We run a regression where the outcome variable is the dummy for whether the individual has died by the last observed age for their cohort. The covariates are:

- age dummies interacted with sex
- whether the person is renting (rather than owns their home with a mortgage or outright)
- whether the household has income from a private pension or is saving into one
- whether the household is in receipt of disability benefits (attendance allowance (AA), disability living allowance (DLA), severe disablement allowance (SDA), personal independence payment (PIP), employment and support allowance (ESA), incapacity benefit (IB))
- spousal age variable where the categories are:
  - never married / divorced / separated
  - widow/widower
  - has a younger male spouse
  - has a male spouse same age or older
  - has a younger female spouse
  - has a female spouse same age or older
- quartile of household income for their age and cohort
- quartile of food expenditure for their age and cohort
- region
- whether in work

In our mortality model, we can only use characteristics that we can observe in both ELSA and LCFS, as we need to be able to predict mortality in the LCFS using the estimates from the ELSA regression. This means that, for example, we cannot control for education or wealth because we do not have those variables in the LCFS (education is not asked of people over the age of 70).

For each cohort c and two-year age band $t - c + n \leq a \leq t - c + n + 1$, where t is the first year of observation for the cohort and $n = \{0,2,4,6\}$, we estimate the following specification using maximum likelihood estimation:

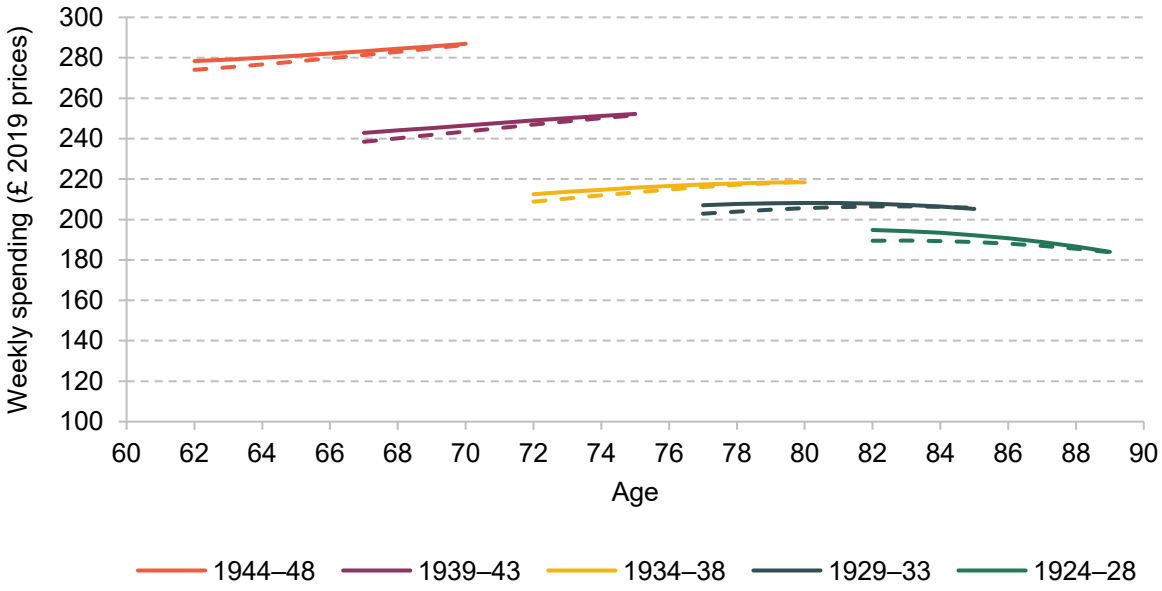
$$\Pr(DeadByMaxAge_{ict} = 1) = F(\alpha + \boldsymbol{\beta X_{ict}}),$$

where X_{ict} are the list of covariates above and

$$F(z) = \frac{1}{1+\exp(f(z))}$$

is the cumulative logistic function.

Figure D.1. Fitted age profiles of total household expenditure, unadjusted (dashed lines) and adjusted (solid lines) for differential mortality



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Solid lines: estimated age profiles from a regression of spending on a cubic in age, and year and cohort dummies, weighted for differential mortality and drawn separately for each cohort. Dashed lines: estimated age profiles from a regression of spending on a cubic in age, and year and cohort dummies, without weighting for differential mortality and drawn separately for each cohort.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

We take the estimates from these regressions to the LCFS and for each observation predict the probability that they die by the maximum age at which their cohort is observed. We use these predictions to adjust the LCFS sample weights. We multiply the weights by the probability that person survives to the maximum age, so that those who have a lower probability of survival get a lower weight in earlier years.

Figure D.1 shows the effect of the mortality adjustment on total spending profiles. The dashed lines show the unadjusted profiles and the solid lines show the adjusted profiles. We can see that without the adjustment, spending in earlier years of the cohort profile is slightly lower. This is in line with the finding that those with lower levels of expenditure have higher mortality. However, the impact of differential mortality on spending profiles is quite small.

Appendix E. ELSA analysis of effect of losing a spouse

In ELSA, we can observe households over time and can see how the responses to the spending questions change as a household goes from being in a couple to being a widow or widower between waves. We do this by running a regression of spending on whether the household has lost a spouse between waves, and a list of covariates.

We create a dummy variable of whether the household has lost a spouse, where it takes the value 1 if between waves the size of the household has gone from two to one and the remaining person is now a widow or widower, and the value 0 if the household size has been two in both waves and the respondent is married or cohabiting.

We then regress spending on the different categories that we observe in ELSA (food inside the home, food outside the home, leisure, clothing, fuel and electricity, housing expenditure and the total of these categories) or total household income, on the dummy of whether the household has lost a spouse, spending on that category (or income) in the previous wave, education, age, housing tenure, sex, whether the individual is a private pension member, wealth quintile, whether their ethnicity is non-white, and wave dummies. We restrict this analysis to those who are retired in both periods, and cluster standard errors at the couple level.

We run these regressions separately for non-equivalised (total household) spending and for per-person spending (where the spending measure is divided by the number of people in the household). We drop the observations in the top percentile of spending among the sample.

The results are shown in Table E.1, where we show the coefficient estimates for the regressor of interest – i.e. whether the household has lost a spouse – from these regressions.

Table E.1. Results from a regression of spending or income on whether household has lost a spouse and covariates

Variables	Household spending/income	Per-person spending/income
Food inside the home	–25.97***	12.15***
Food outside the home	–4.06***	1.10**
Leisure	–3.03***	1.95***
Clothing	–4.01***	2.95***
Fuel and electricity	–3.44***	8.01***
Housing	0.39	5.84***
Total of the categories above	–35.81***	31.43***
Income	–204.1***	54.62***
Number of observations	*6,745*	*6,745*

*** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations using ELSA waves 4–9.

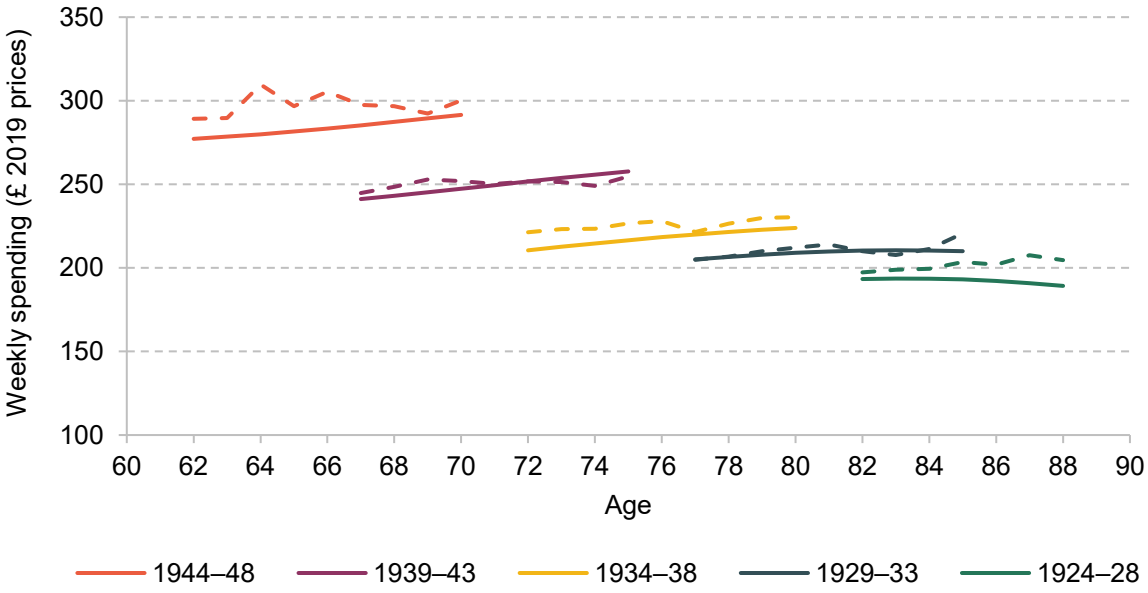
Appendix F. Effects of changing household composition

We run a 'thought experiment' using LCFS data to try to understand how much average spending would have changed if the level of consumption remained stable among couples and singles while the average size of households fell. The idea is to gauge what sort of change in average spending per person we should expect if changes in household composition due to mortality were the only driver of changes in spending with age. We assign a fixed level of consumption for singles and couples in a cohort based on the average level of consumption observed at the initial age for each birth cohort. We use statistics on the proportion of two-person households in the sample to construct the proportion of 'new singles' or widows/widowers at each age in the cohort. We then assign a level of expenditure for these new singles which is calculated by assuming that the new singles have the same level of consumption as the couples did in the base period (i.e. we take couple expenditure and divide it by 1.5). We calculate counterfactual average spending under these assumptions.

This thought experiment takes into account the fact that, to achieve the same level of consumption, the per-person spending of a couple that loses one member will have to increase as economies of scale are lost. We have used a factor of 1.5 but, in reality, economies of scale within households may differ depending on the composition of spending of the household. Additionally, these households may change their consumption as a result of losing a spouse – for example, using more home help or other services than they did while in a couple or spending less on leisure activities than they did while in a couple. The couples that remain as single or couple households could also change their consumption by age. This counterfactual analysis does not take any such changes in level of consumption into account.

This thought experiment shows that, especially when looking at cohorts in their 70s where the change in household composition due to mortality is most significant, spending would be expected to increase as a result of the average size of households falling, if levels of consumption were to be maintained. However, the increases in spending are small and comparable to the increase in the age profiles we constructed from the data shown in Figure 3.2. As the thought experiment assumed constant consumption within household types, this again implies that our average age profiles are consistent with spending that is relatively flat by age. In other words, the flat profiles are not the result of a large mortality effect offsetting a large downward age profile but rather are consistent with a relatively flat age profile and modest mortality impact.

Figure F.1. Thought experiment showing effect of changing household composition on mean total expenditure (dashed line), compared with the fitted age profiles of total expenditure (solid line)



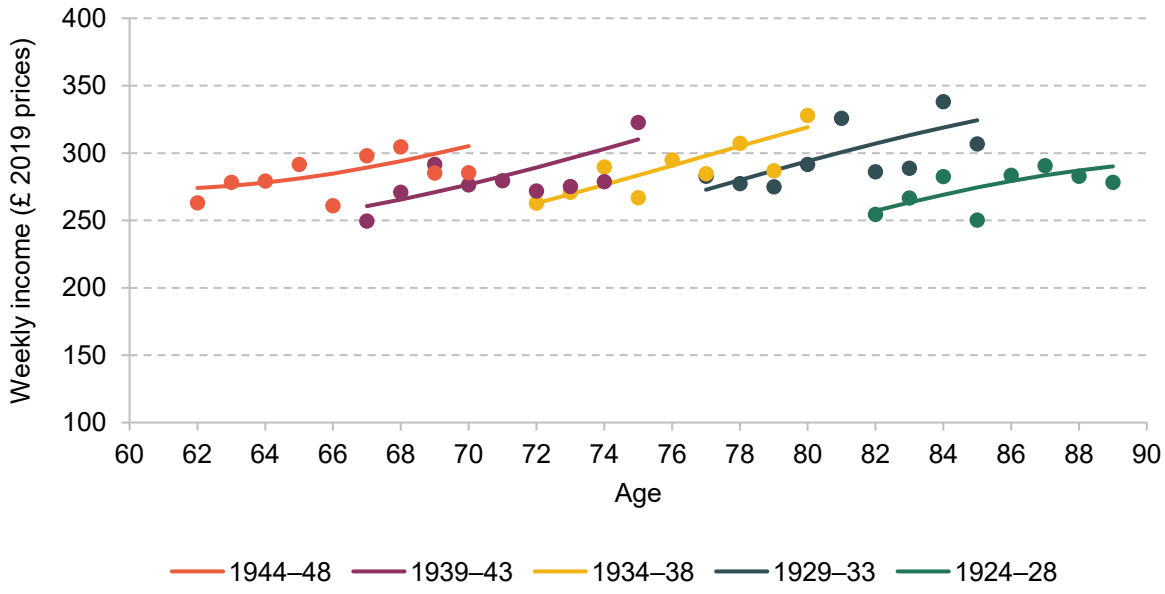
Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Solid lines: estimated age profiles from a regression of spending on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dashed line: thought experiment showing effect of changing household composition on average total expenditure. The 1924–28 line is truncated due to small sample sizes at older ages.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Appendix G. Additional figures by different household types

One-person households

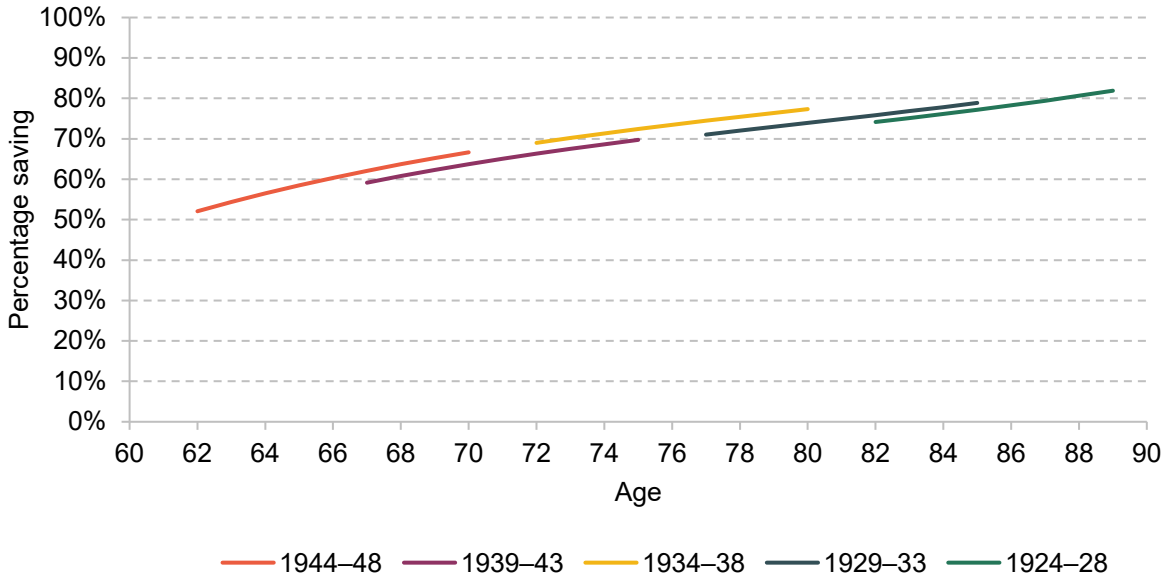
Figure G.1. Mean and fitted age profiles of total household income per person, by birth cohort, for one-person households only



Note: CPI used for inflation adjustment. Average weekly per-person income in £ 2019 prices. Solid lines: estimated age profiles from a regression of income on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dots: average income among the given cohort and age. One-person households only.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

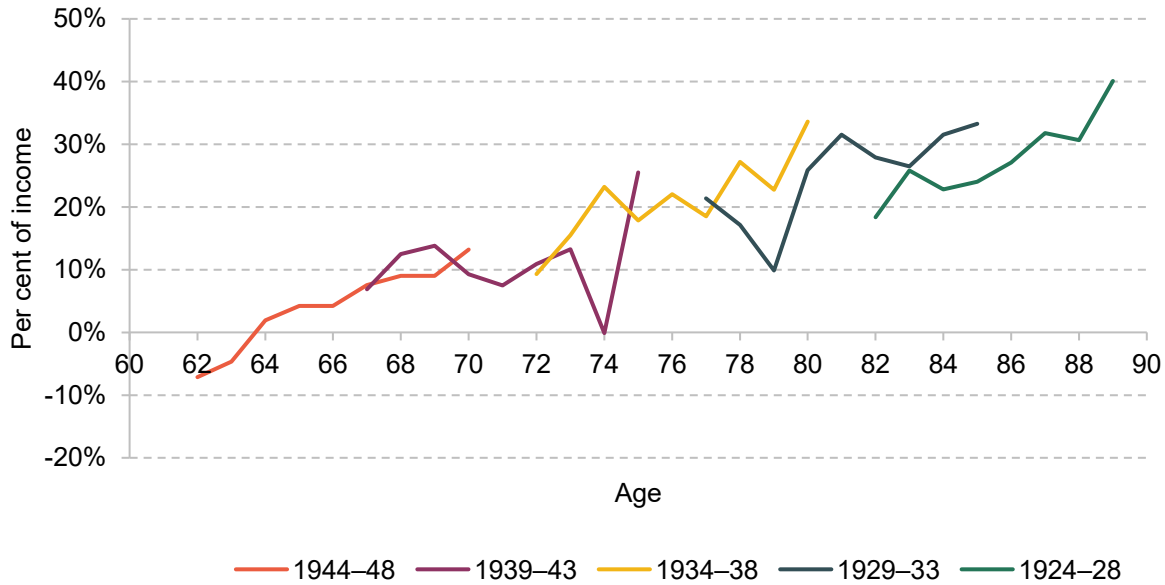
Figure G.2. Fitted age profiles of percentage saving, by birth cohort, for one-person households only



Note: Saving is defined as having income higher than expenditure. Estimated age profiles from a regression of saving on a cubic in age, and year and cohort dummies, drawn separately for each cohort. One-person households only.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

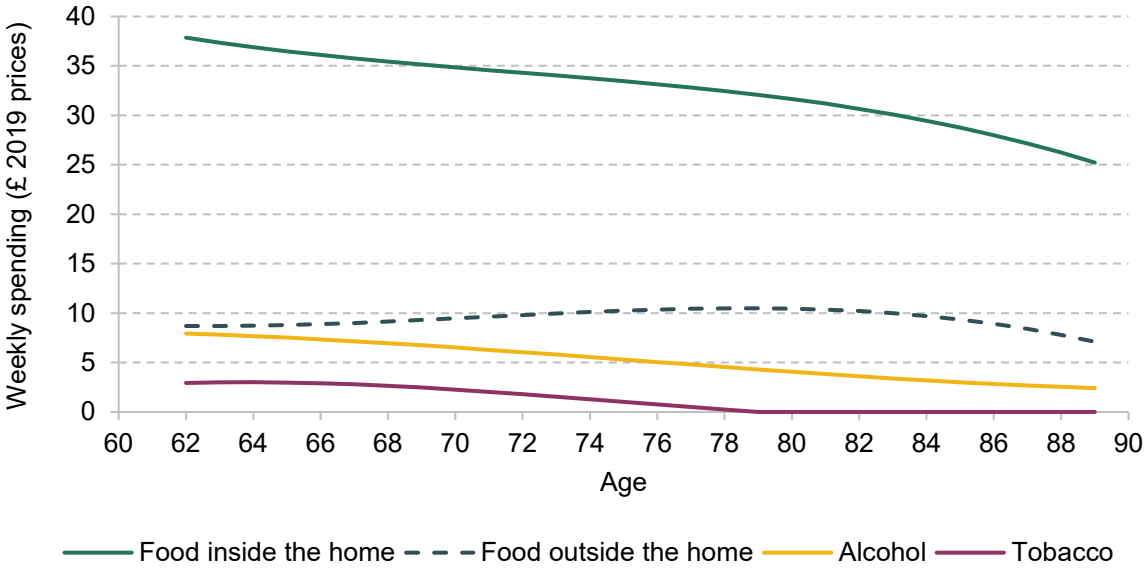
Figure G.3. Average saving rates, by birth cohort, for one-person households only



Note: The average saving rate is calculated by taking the average income and expenditure for each age–cohort group separately and calculating (Average income – Average expenditure) / Average income. One-person households only.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

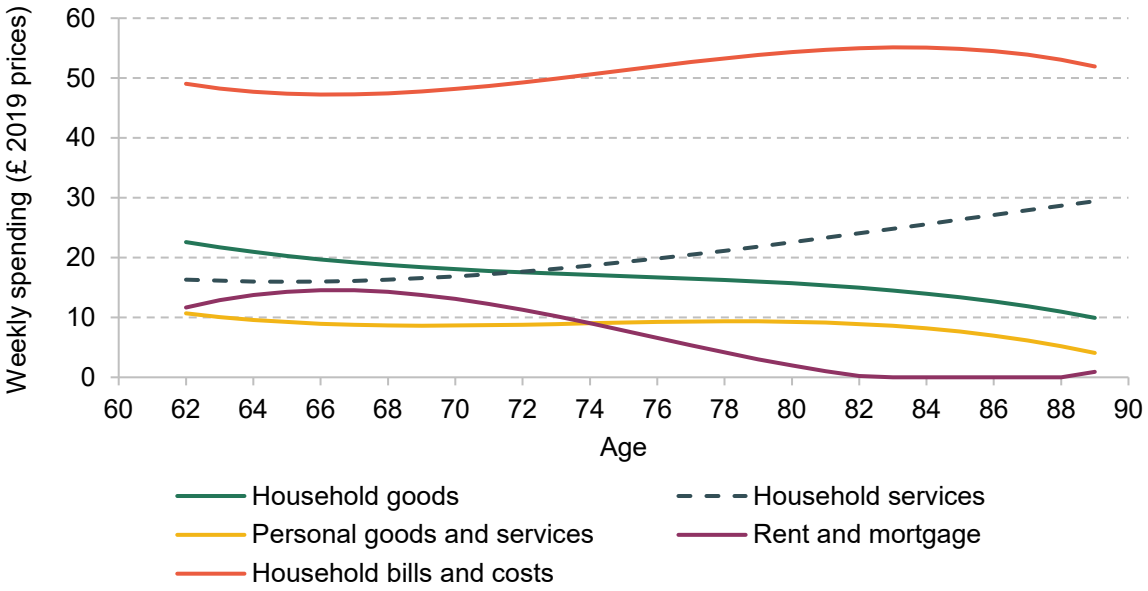
Figure G.4. Fitted age profiles for mean spending on food, catering, alcohol and tobacco, for one-person households only



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Estimated age profiles from a regression of each component of spending on a cubic in age, and year and cohort dummies, drawn for the youngest cohort across the age distribution. One-person households only.

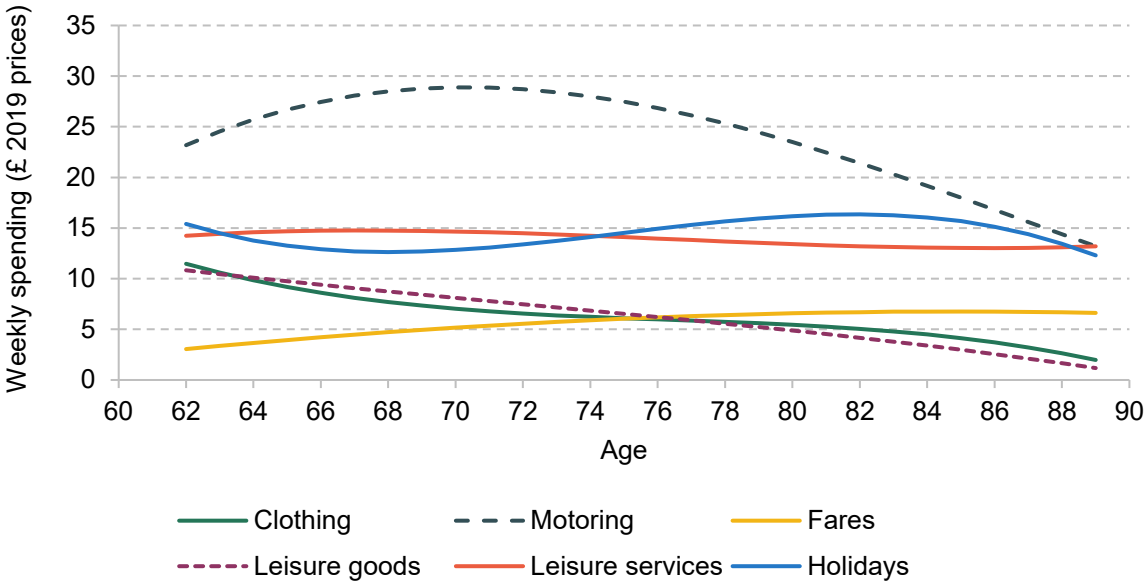
Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Figure G.5. Fitted age profiles for mean spending on household goods, household services, personal goods and services, rent and mortgage, and household bills and costs, for one-person households only



Note and source: As for Figure G.4.

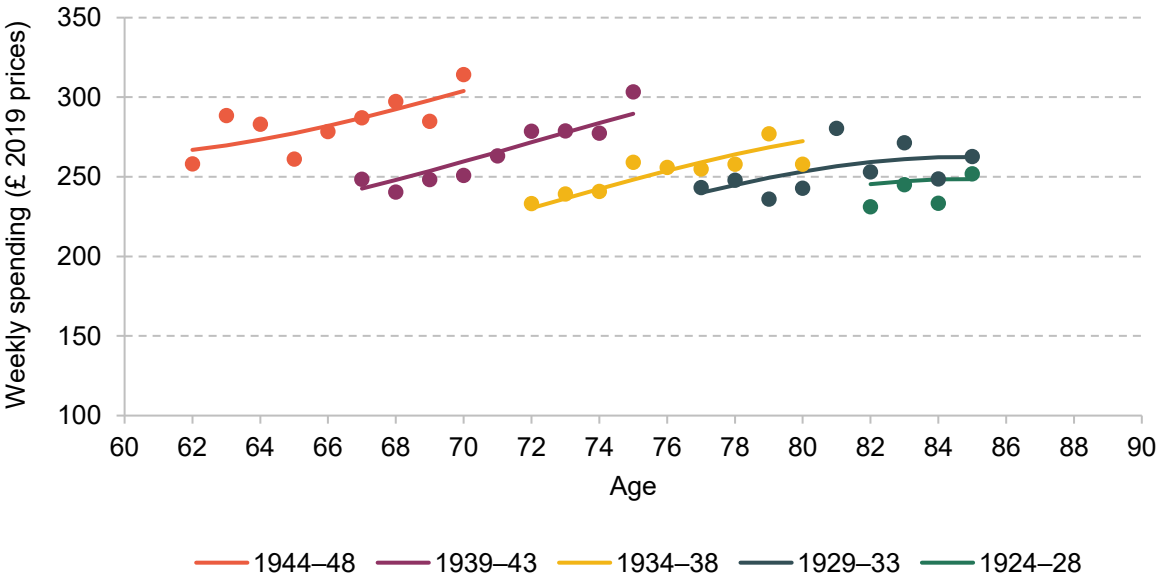
Figure G.6. Fitted age profiles for mean spending on clothing, motoring, fares, leisure goods, leisure services, and holidays, for one-person households only



Note and source: As for Figure G.4.

Two-person households

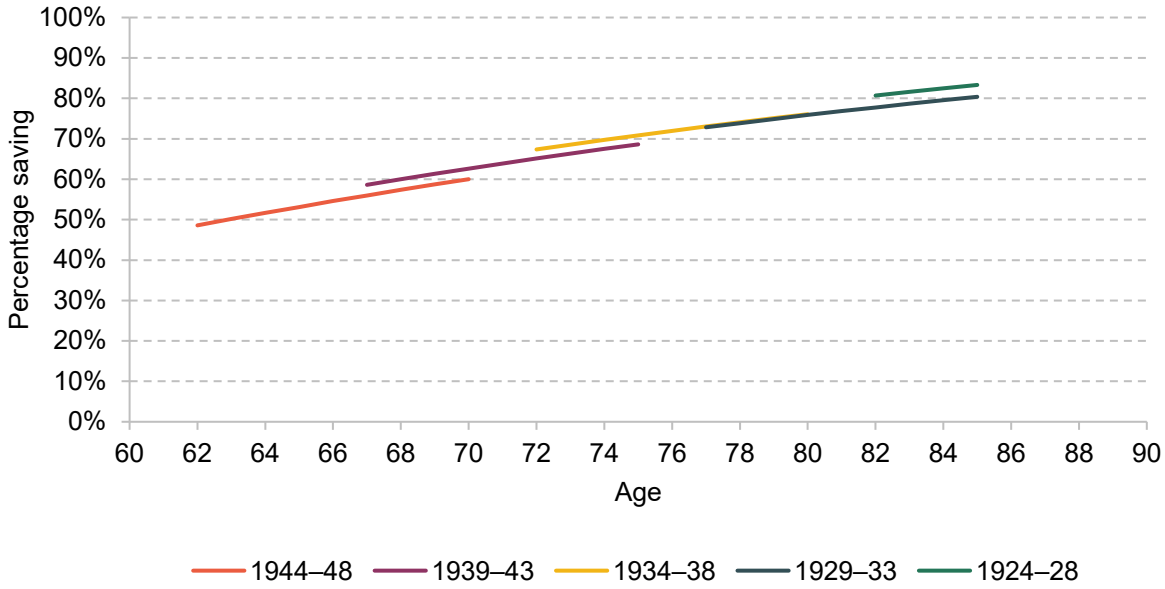
Figure G.7. Mean and fitted age profiles of total household spending per person, by birth cohort, for two-person households only



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Solid lines: estimated age profiles from a regression of spending on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Dots: average spending among the given cohort and age. Two-person households only. The 1924–28 line is truncated due to small sample sizes at older ages.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

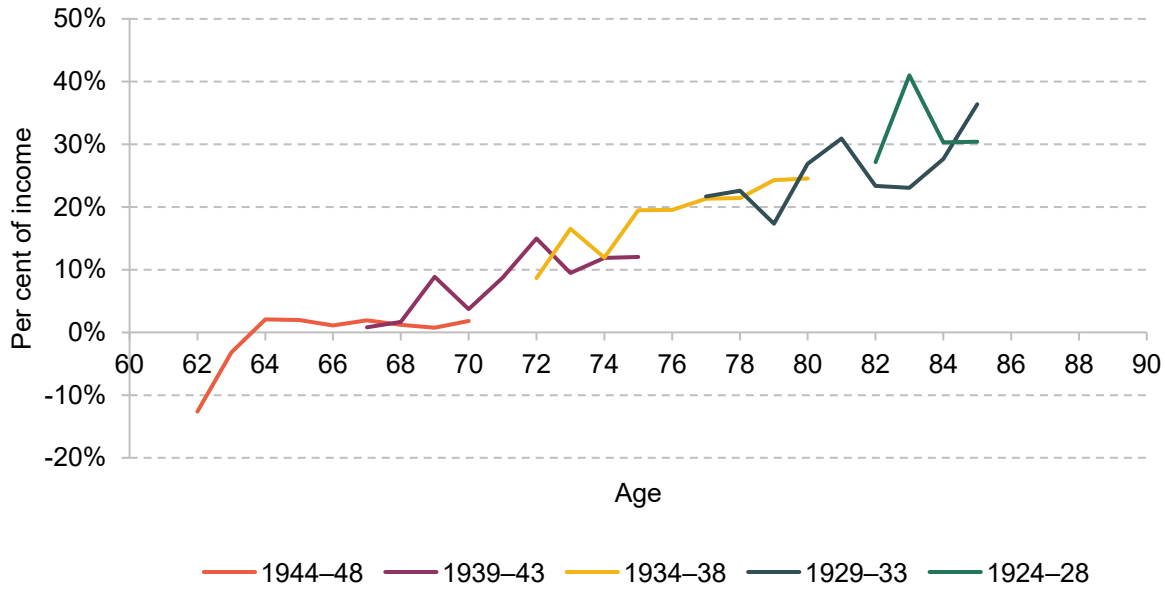
Figure G.8. Fitted age profiles of percentage saving, by birth cohort, for two-person households only



Note: Saving is defined as having income higher than expenditure. Estimated age profiles from a regression of saving on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Two-person households only. The 1924–28 line is truncated due to small sample sizes at older ages.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

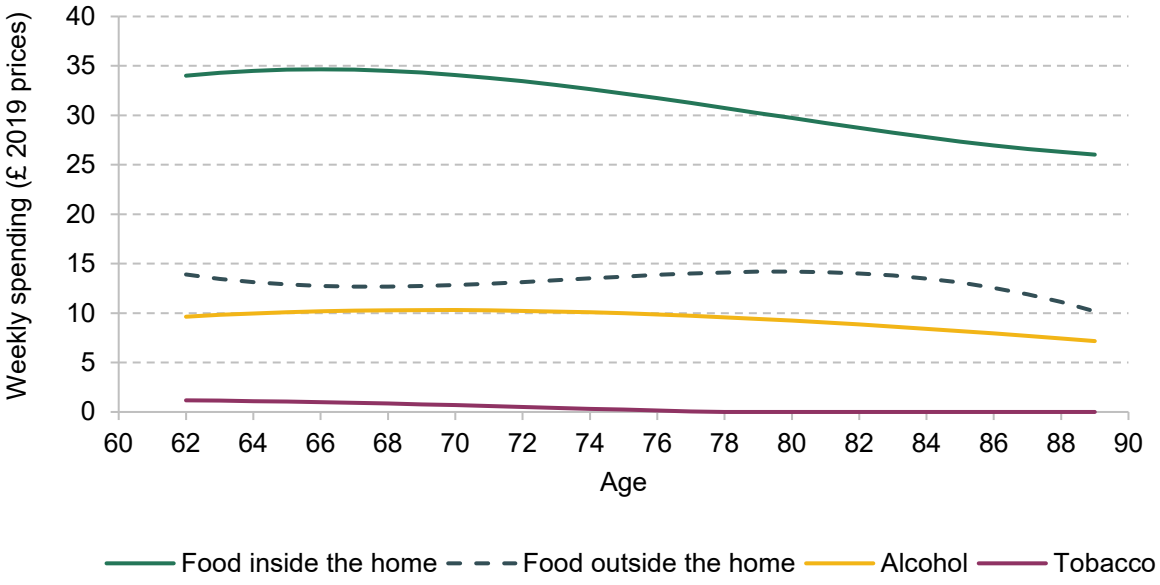
Figure G.9. Average saving rates, by birth cohort, for two-person households only



Note: The average saving rate is calculated by taking the average income and expenditure for each age–cohort group separately and calculating (Average income – Average expenditure) / Average income. Two-person households only. The 1924–28 line is truncated due to small sample sizes at older ages.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

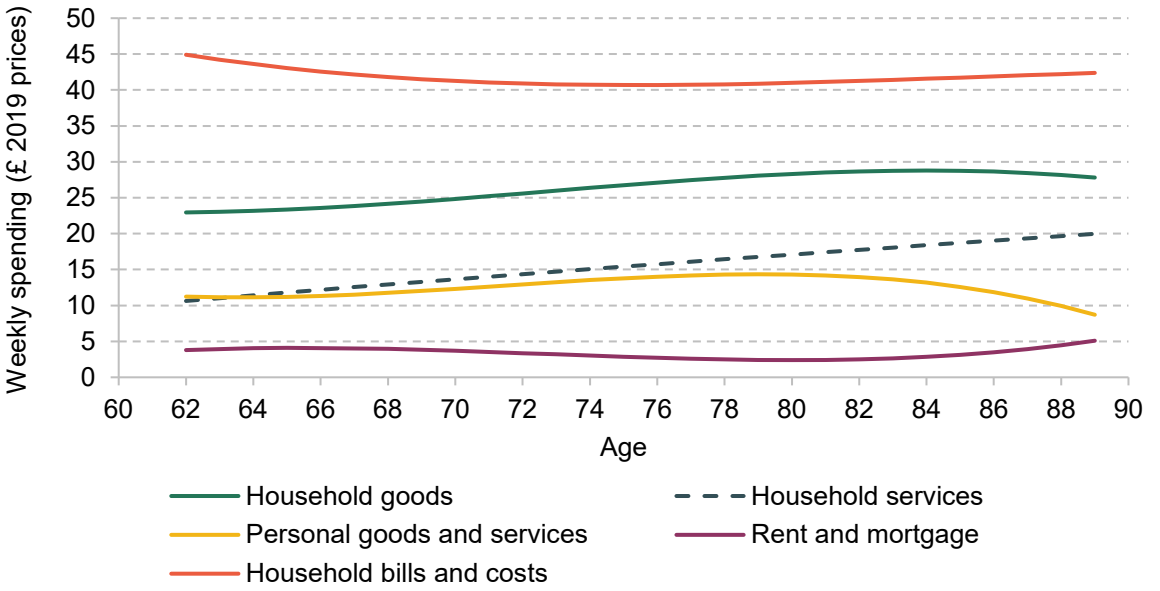
Figure G.10. Fitted age profiles for mean spending on food, catering, alcohol and tobacco, for two-person households only



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Estimated age profiles from a regression of each component of spending on a cubic in age, and year and cohort dummies, drawn for the youngest cohort across the age distribution. Two-person households only.

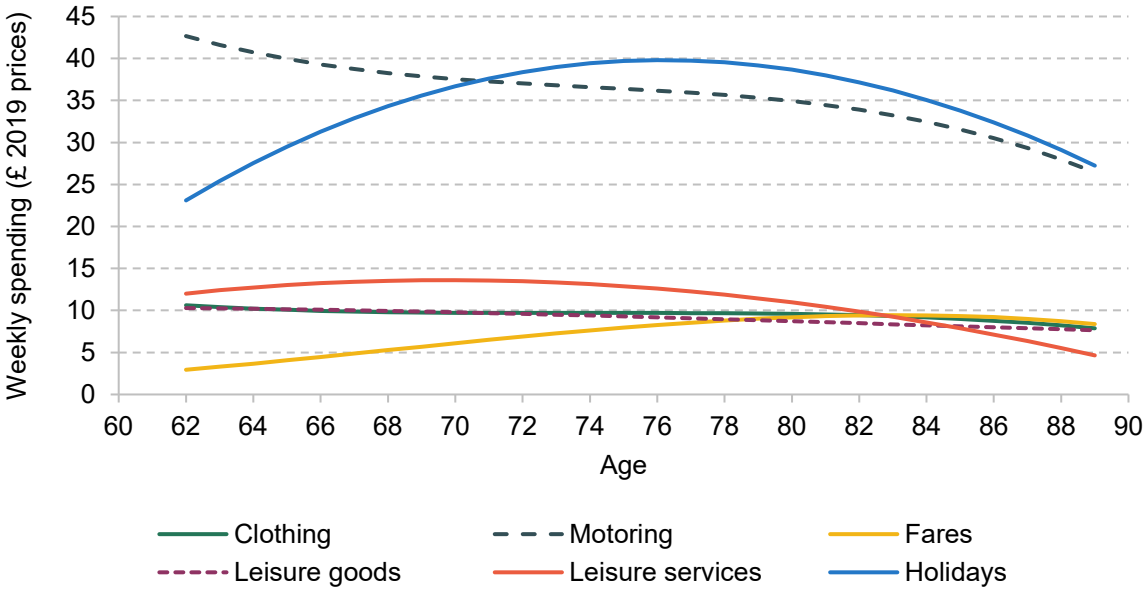
Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Figure G.11. Fitted age profiles for mean spending on household goods, household services, personal goods and services, rent and mortgage, and household bills and costs, for two-person households only



Note and source: As for Figure G.10.

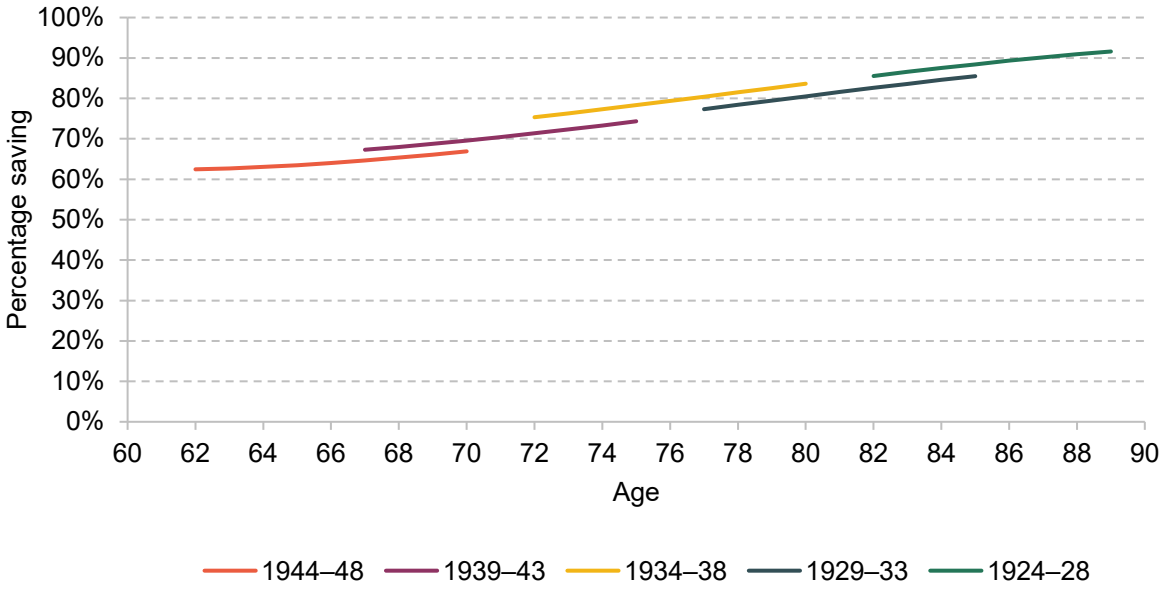
Figure G.12. Fitted age profiles for mean spending on clothing, motoring, fares, leisure goods, leisure services, and holidays, for two-person households only



Note and source: As for Figure G.10.

Above-median-income households

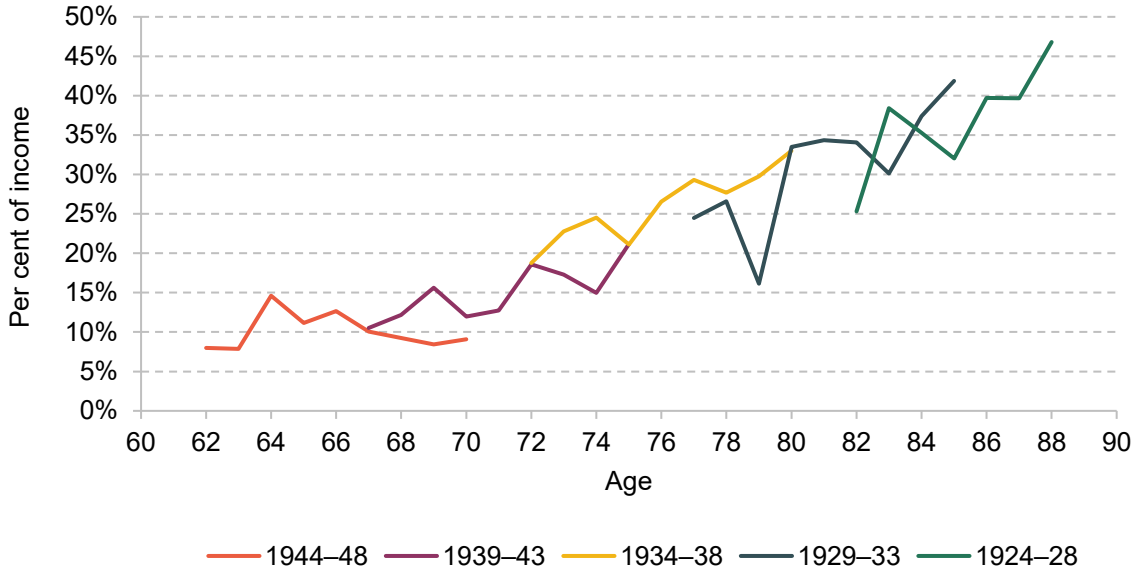
Figure G.13. Fitted age profiles of percentage saving, by birth cohort, for households above median per-person income



Note: Saving is defined as having income higher than expenditure. Estimated age profiles from a regression of saving on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Above-median-income households only.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

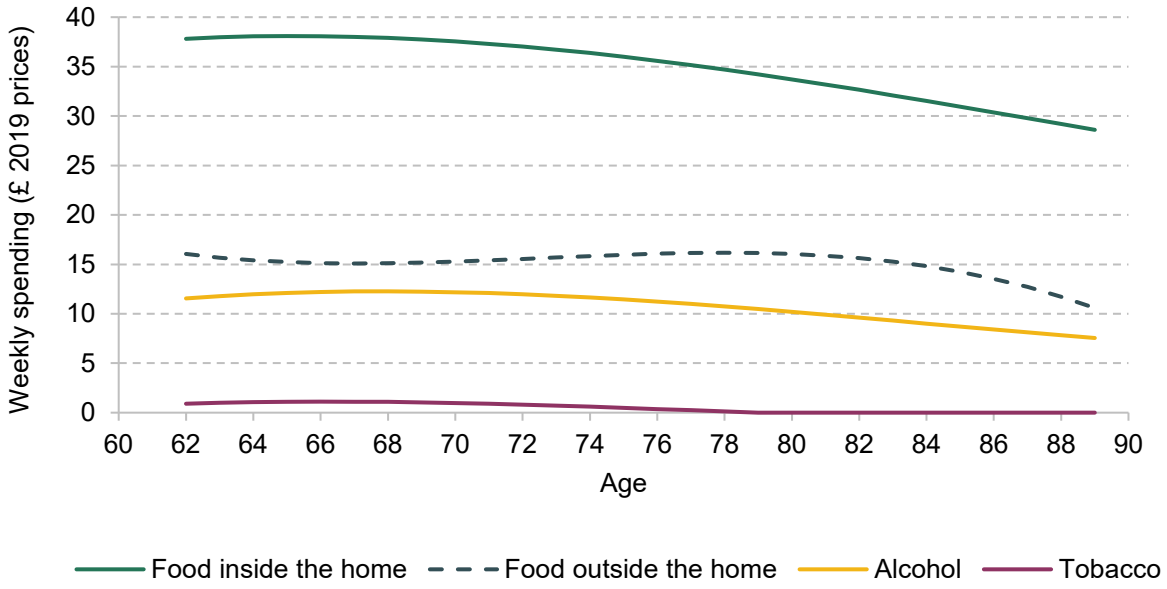
Figure G.14. Average saving rates, by birth cohort, for households above median per-person income



Note: The average saving rate is calculated by taking the average income and expenditure for each age–cohort group separately and calculating (Average income – Average expenditure) / Average income. Above-median-income households only.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

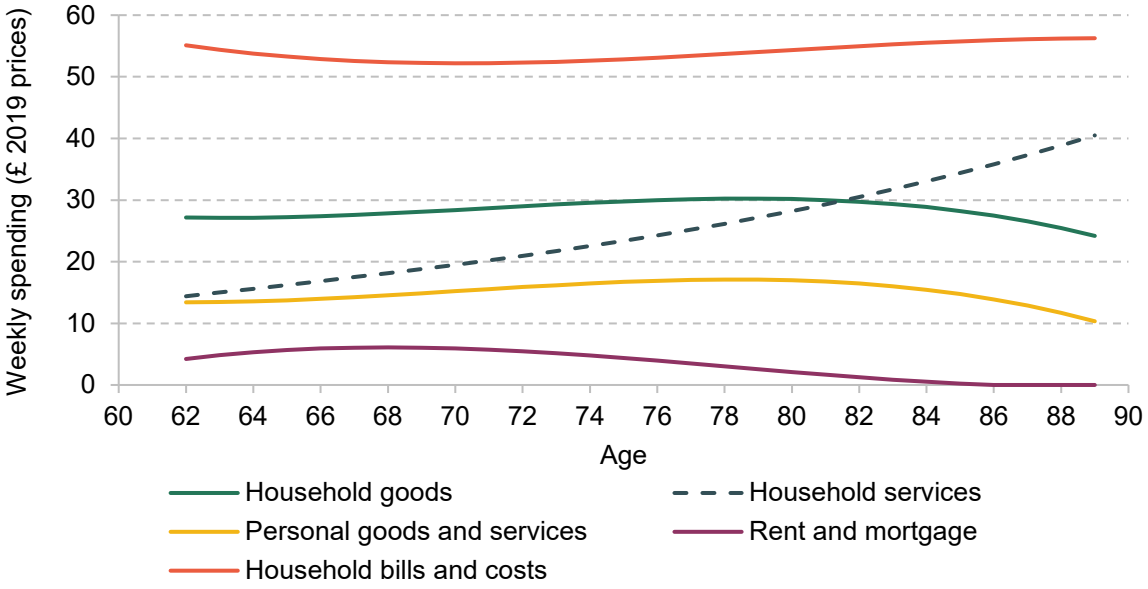
Figure G.15. Fitted age profiles for mean spending on food, catering, alcohol and tobacco, for households above median per-person income



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Estimated age profiles from a regression of each component of spending on a cubic in age, and year and cohort dummies, drawn for the youngest cohort across the age distribution. Above-median-income households only.

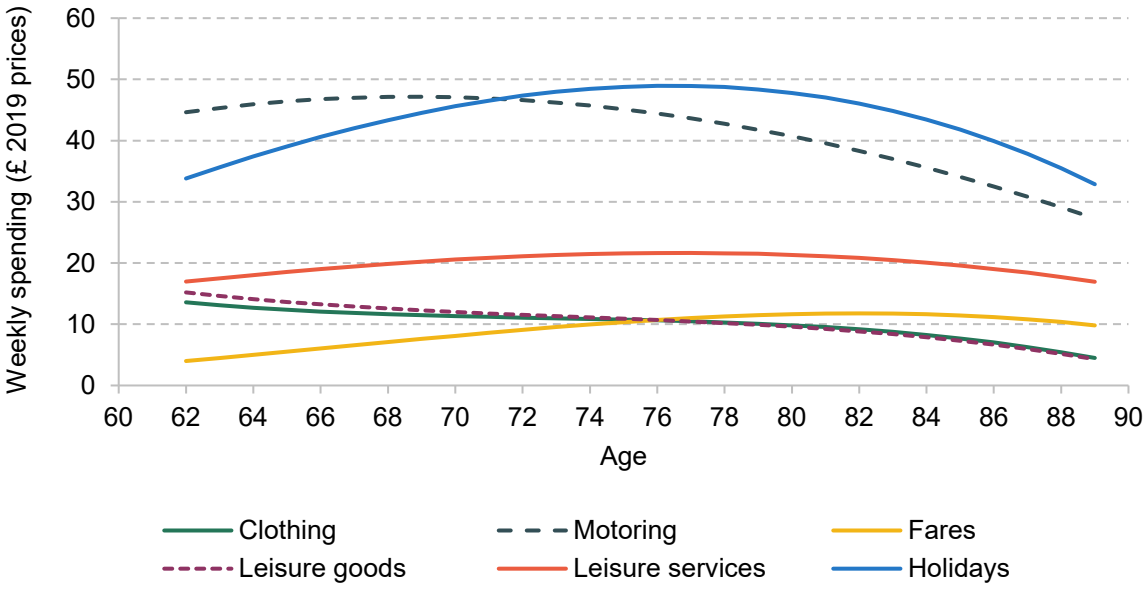
Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Figure G.16. Fitted age profiles for mean spending on household goods, household services, personal goods and services, rent and mortgage, and household bills and costs, for households above median per-person income



Note and source: As for Figure G.15.

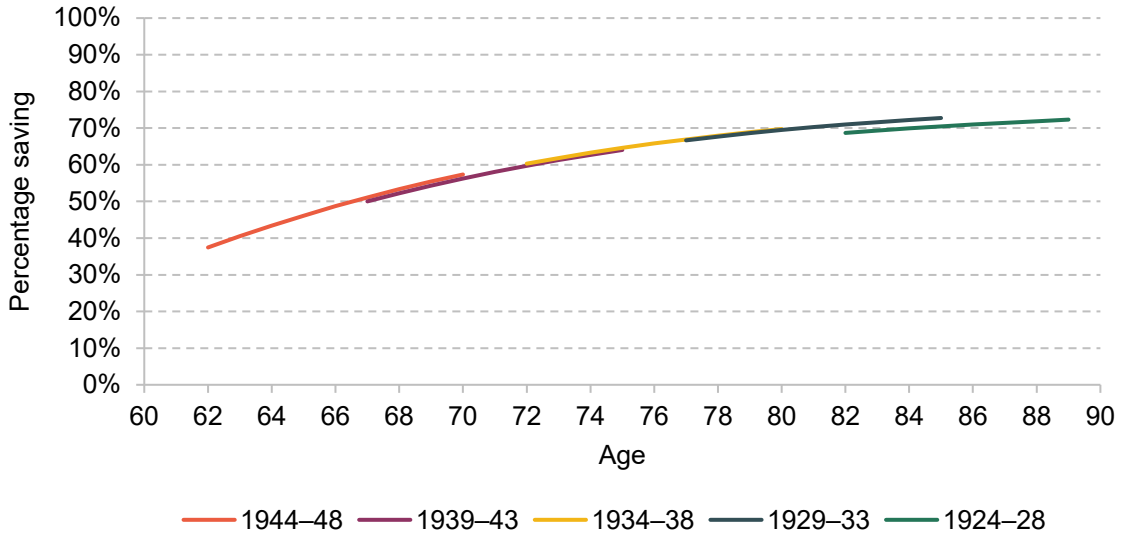
Figure G.17. Fitted age profiles for mean spending on clothing, motoring, fares, leisure goods, leisure services, and holidays, for households above median per-person income



Note and source: As for Figure G.15.

Below-median-income households

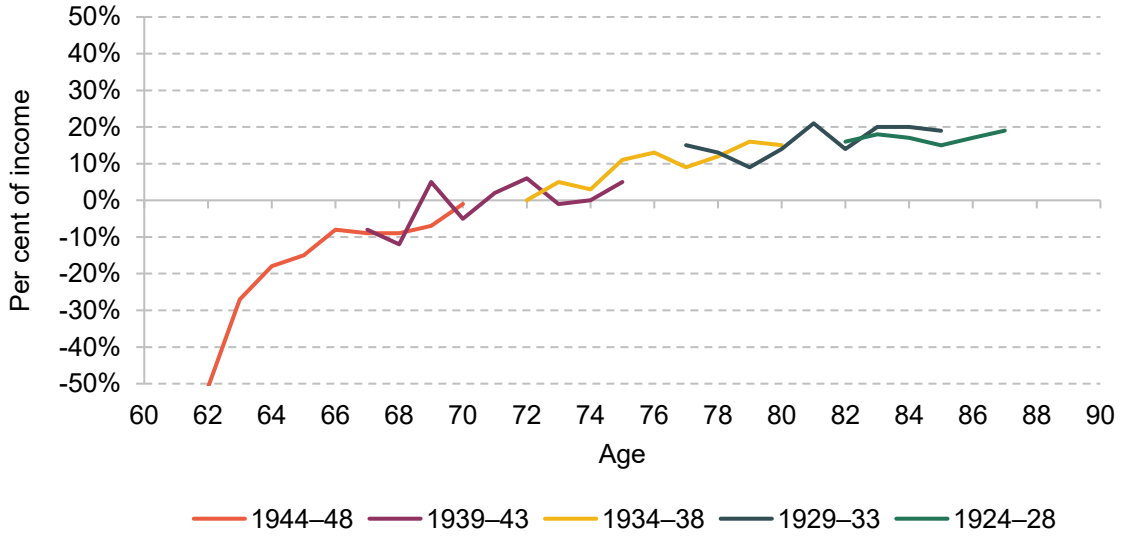
Figure G.18. Fitted age profiles of percentage saving, by birth cohort, for households below median per-person income



Note: Saving is defined as having income higher than expenditure. Estimated age profiles from a regression of saving on a cubic in age, and year and cohort dummies, drawn separately for each cohort. Below-median-income households only.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

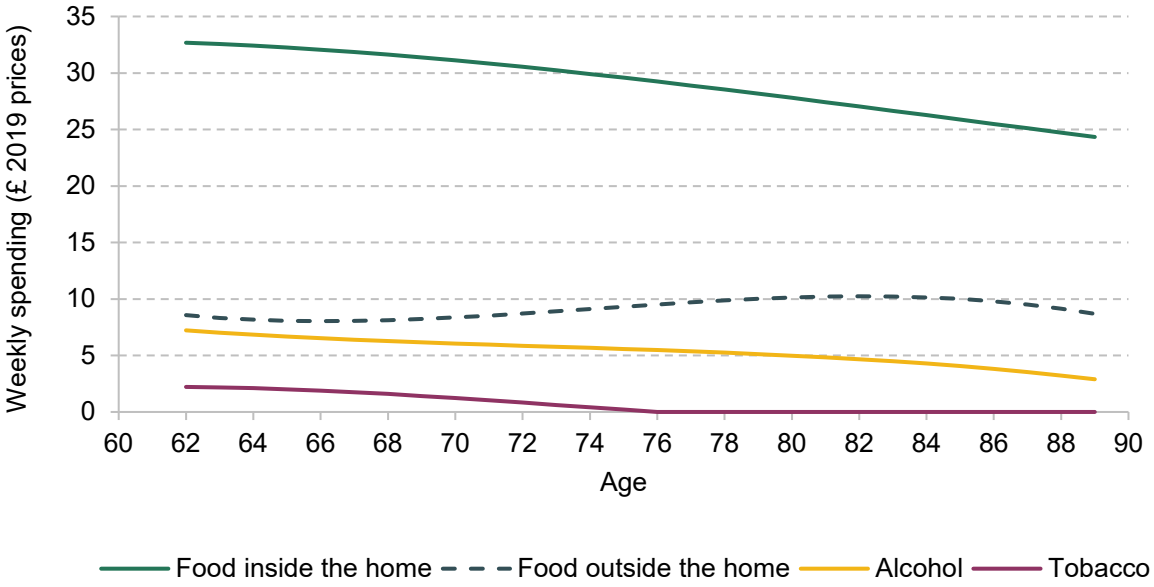
Figure G.19. Average saving rates, by birth cohort, for households below median per-person income



Note: The average saving rate is calculated by taking the average income and expenditure for each age–cohort group separately and calculating (Average income – Average expenditure) / Average income. Below-median-income households only. The 1924–28 line is truncated due to small sample sizes at older ages.

Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

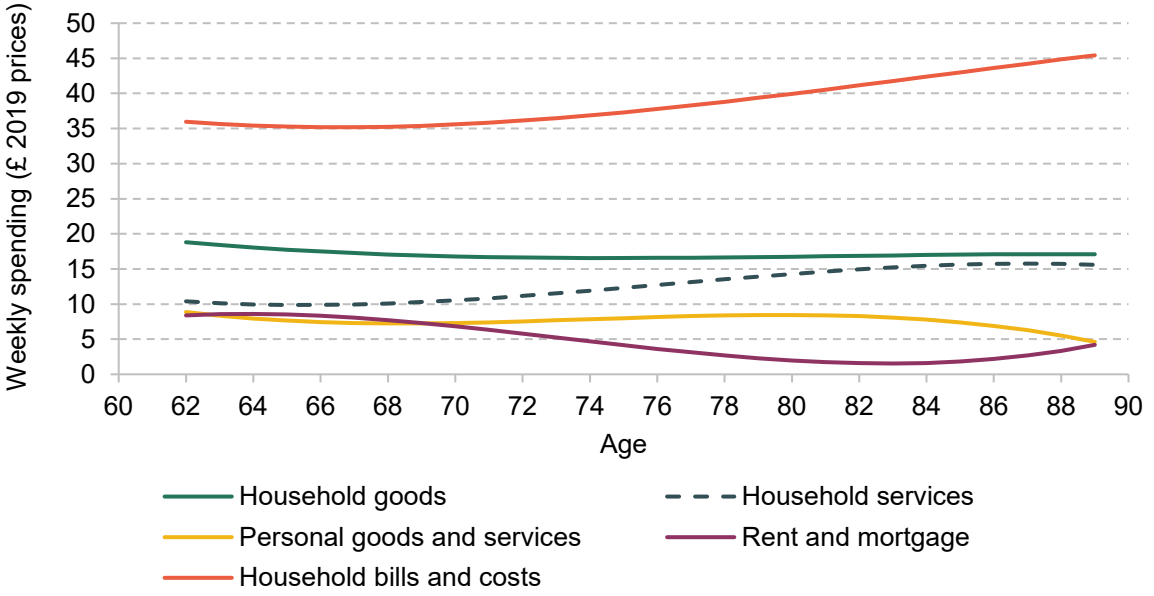
Figure G.20. Fitted age profiles for mean spending on food, catering, alcohol and tobacco, for households below median per-person income



Note: CPI used for inflation adjustment. Average weekly per-person spending in £ 2019 prices. Estimated age profiles from a regression of each component of spending on a cubic in age, and year and cohort dummies, drawn for the youngest cohort across the age distribution. Below-median-income households only.

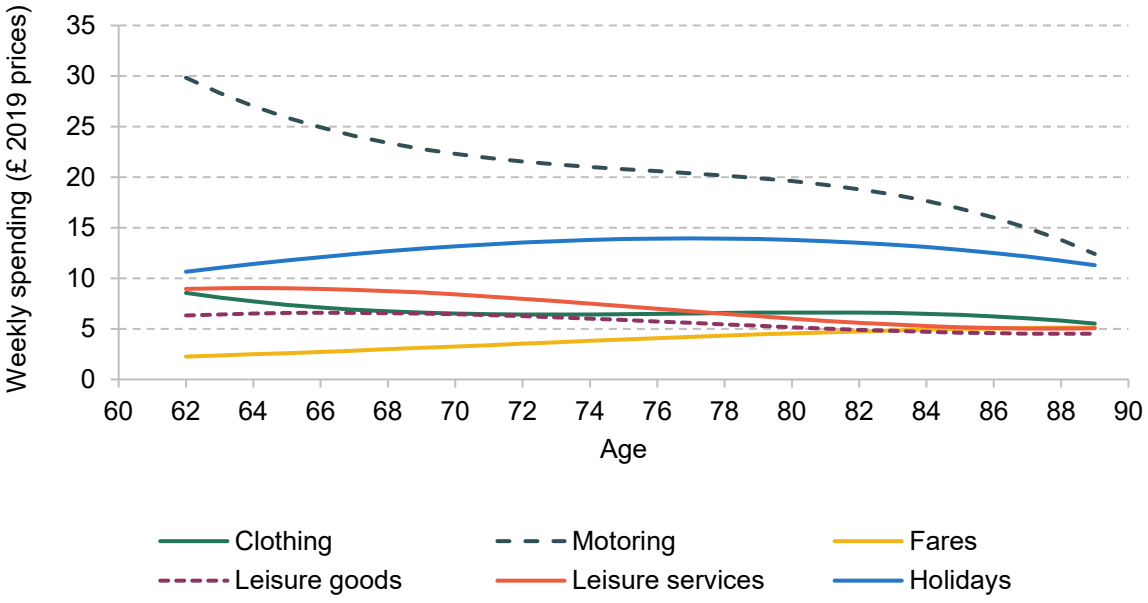
Source: Authors' calculations using LCFS 2006–18 and ELSA waves 2–9.

Figure G.21. Fitted age profiles for mean spending on household goods, household services, personal goods and services, rent and mortgage, and household bills and costs, for households below median per-person income



Note and source: As for Figure G.20.

Figure G.22. Fitted age profiles for mean spending on clothing, motoring, fares, leisure goods, leisure services, and holidays, for households below median per-person income



Note and source: As for Figure G.20.

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