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Inheritances and inequality within generations

Economic and Social Research Council

Nuffield Foundation

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Preface

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The authors alone are responsible for the interpretation of the data and any errors.

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Executive summary

This report examines the inheritances that are likely to be received by those living in England who were born in the 1960s, 1970s and 1980s. We explore the age at which inheritances are likely to be received and the amounts that we expect to be inherited, focusing on key inequalities in each. All figures are in 2017–18 prices.

Key findings

On average, people born in each decade since the 1960s have no more wealth than people born a decade earlier had at the same age, but the amount of wealth held by their parents is higher than that of their predecessors. People born in the 1980s have parents with average household wealth of about £370,000. This is over 40% higher in real terms than the £250,000 held on average by the parents of those born in the 1970s, when they were at the same age.

Parental wealth is very unequally distributed. One fifth of people born in the 1980s have parents with wealth 'per heir' (i.e. after dividing it equally between their children) of less than £10,000, but 25% have per-heir parental wealth of £300,000 or more and 10% have £530,000 or more.

Education and region are very strong predictors of parental wealth. On average, graduates born in the 1980s have parents with about 70% more wealth than the parents of people born at the same time who have no more than GCSEs. Children of Londoners have parents with over twice as much wealth, on average, as those whose parents live in the North East. Most of that difference is due to higher housing wealth.

The average age of people when their last-surviving parent dies is expected to rise from 58 for those born in the 1960s to 62 for those born in the 1970s and 64 for those born in the 1980s. For about a third of people born in the 1980s, this will not happen until they are in at least their 70s. Of course, this is not necessarily the moment at which all wealth gets passed down, and these trends may themselves lead to more wealth being passed down to children before parents die, or being passed straight down from grandparents. But it seems clear that the natural tendency will be for wealth transfers to occur later and later.

This is driven by the happy news of rising life expectancies across the relevant generations of parents. Within each generation, more highly educated individuals have parents who are likely to live to older ages. However, their parents also tended to have children at an older age, meaning that there will not be large differences in the age of last parental death across the education spectrum.

Higher levels of parental wealth and fewer siblings are expected to result in larger inheritances for those born later. While many things could affect what happens to parents' wealth between now and when they die – particularly for the youngest generations, for whom we are looking furthest into the future – as an illustration we estimate what people would inherit if their parents accumulate or spend down wealth in a similar way to their predecessors as they age. On that (inevitably uncertain) basis, the median inheritance for those born in the 1980s is expected to be around £136,000, compared with £107,000 for those born in the 1970s and £66,000 for those born in the 1960s.

Inheritances are likely to become larger, not just in absolute terms, but also relative to average lifetime earnings. We project that the median inheritance of the 1960s generation will be worth 8% of average lifetime earnings for that generation, but will rise to 14% of lifetime earnings for the 1980s-born generation. Whereas one in six of those born in the 1960s are projected to receive an inheritance worth more than 10 years of average annual earnings for that generation, this rises to one in three of those born in the 1980s.

Inheritances are expected to reflect the unequal distribution of parental wealth. A fifth of those born in the 1980s are expected to inherit less than £10,000, while a quarter are expected to inherit over £280,000. 1980s-born graduates are expected to inherit almost twice as much, on average, as those born in the same decade who only have GCSE qualifications, though these inheritances represent a very similar proportion of each group's average lifetime earnings.

The distribution of inheritances is not expected to become more unequal. The amount received by the top 10% of inheritors is expected to rise from over £260,000 to almost £500,000 when comparing those born in the 1960s and those born in the 1980s, an increase of 84%. But the equivalent percentage increase at the 75th percentile is 87%, while the median inheritance is expected to more than double, so inheritances are not expected to grow more at the top than at the middle of the distribution, in percentage terms.

Changes in the size of, and inequality in, inheritances do not by themselves tell us whether inheritances are becoming more or less important for economic inequality. This depends on who receives inheritances, when they receive them, their existing levels of income and wealth, and how inheritances impact these (among other things).

The ongoing health and economic crisis due to COVID-19 makes the outlook more uncertain. This report is based on data and trends from before the crisis. One tragic consequence of the crisis is that many members of the groups we examine will lose, or have lost, their parents earlier than expected. But while the ultimate mortality effects of the virus are not yet known, at the population level this seems unlikely to be the major variable that would affect the conclusions of this report. The indirect effects of COVID-19 through the ongoing economic crisis do, however, have the potential to depress asset price growth and earnings, particularly of younger generations, in the coming years. This could mean less wealth to bequeath if house price growth is depressed or pension values fall. It may also result in lower earnings for those who will receive inheritances, meaning these inheritances become a larger part of their lifetime income. It is possible that those economic effects could have a significant impact on the conclusions of this report – but again, it is too early to say with any confidence.

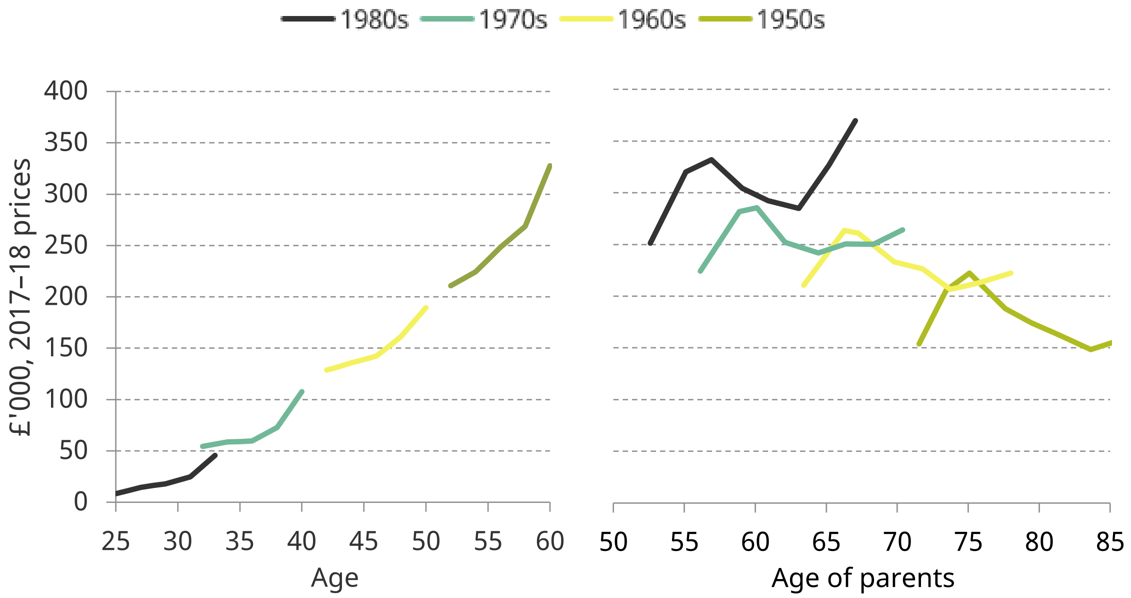
1. Introduction

Across advanced economies, recent decades have seen rises in wealth-to-income ratios and a growing awareness of the potential re-emergence of inheritances as an important determinant of inequalities in wealth (Piketty, 2014; Atkinson, 2018). There is concern about the potential impacts on inequalities in living standards, as well as the social and political consequences if economic inequalities become more entrenched across generations.

The UK is no exception to these trends. In England, older generations are arriving at retirement with progressively higher levels of wealth, bolstered by rising property values coupled with high rates of owner-occupation. Younger generations, on the other hand, have seen their rates of homeownership collapse (Cribb, 2019). The consequences of these trends are illustrated in Figure 1.1. While those born in the 1960s, 1970s and 1980s have accumulated no more wealth than those born a decade before them had done by the same age, levels of *parental* wealth for those same generations are higher for those born later. Average household wealth of the parents of those born in the 1980s is £370,000. This is over 40% higher than the £250,000 held on average by the parents of those born in the 1970s, when they were at the same age.

Rising levels of parental wealth suggest that inheritances may become more common and larger for those born later, compared with their predecessors. Indeed, this shift has already begun, with the annual value of estates passing on death doubling in real terms

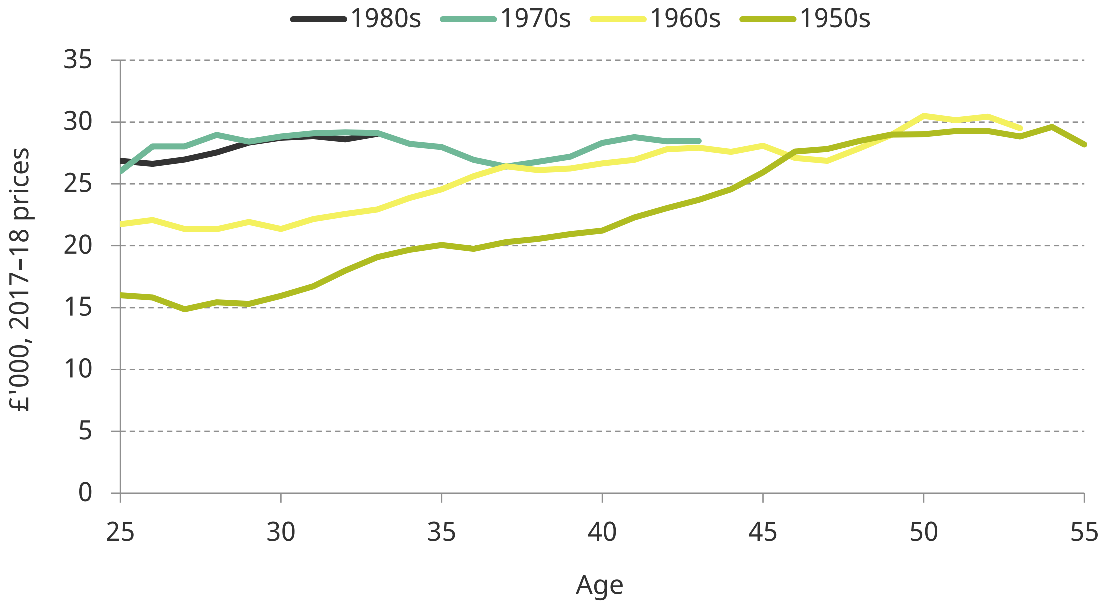
Figure 1.1. Median per-adult household wealth by cohort (left panel) and median wealth of their parents (right panel)



Note: Left panel shows data for Great Britain and right panel for England only. The 1980s group in the left panel includes only people born in the first half of that decade. Right panel includes wealth of any biological and/or step-parents. All figures are adjusted to 2017–18 prices using a variant of the Consumer Prices Index that includes mortgage interest payments.

Source: Left panel – Cribb (2019). Right panel – authors' calculations using the English Longitudinal Study of Ageing (ELSA).

Figure 1.2. Median annual net equivalised household income, by birth cohort and age



Note: All incomes are adjusted to 2017–18 prices using a variant of the Consumer Prices Index that includes mortgage interest payments. Income is equivalised using the OECD modified scale and is expressed as equivalent for a childless couple.

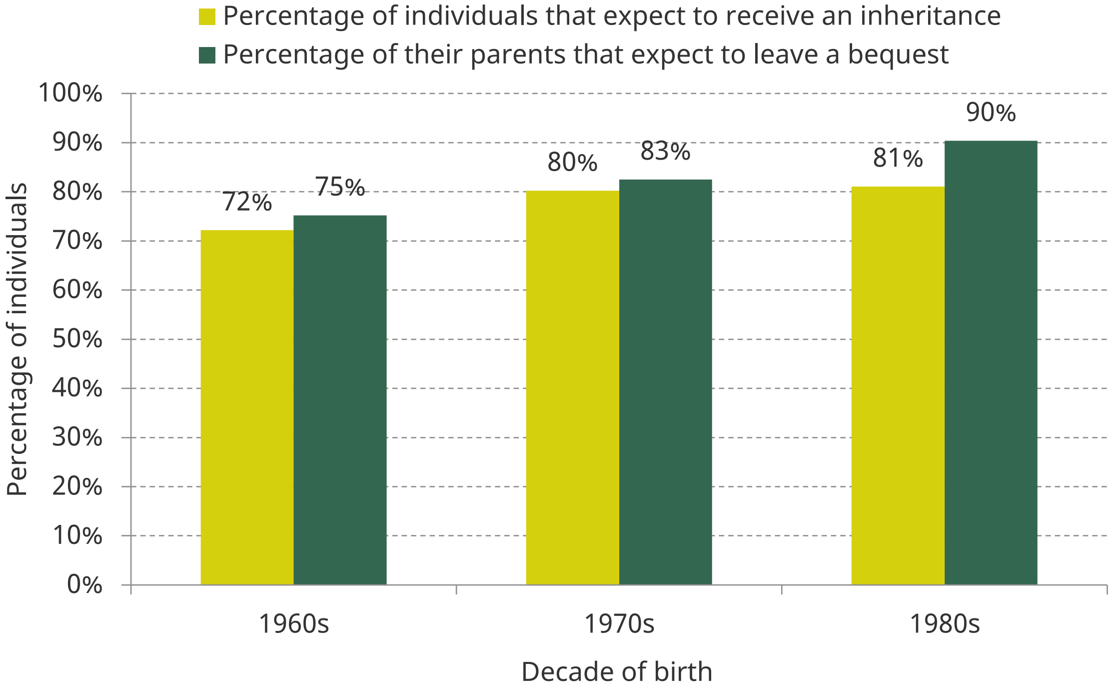
Source: Authors' calculations using the Family Expenditure Survey (FES) for 1968–93 and the Family Resources Survey (FRS) for 1994–2018. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

between 1995–96 and 2014–15 (Gardiner, 2017). Furthermore, given that across-generation increases in wealth and household incomes have slowed or stalled for younger generations in recent years (see Figure 1.2), and the possible further damage to the earnings prospects of younger people brought about by the economic effects of the coronavirus pandemic,[1] there is a potential for inheritances to become not only larger in absolute terms, but also to grow in importance compared with the other economic resources of those who receive them.

There is evidence that individuals themselves are expecting inheritances to become more prevalent in future generations. Figure 1.3 shows that individuals born in the 1980s, and their parents, are more likely to report expecting to receive (or leave in the case of parents) an inheritance than those born in the 1970s. Those born in the 1970s are in turn are more likely to expect to inherit than those born in the 1960s.

[1] Analysis of past downturns in a range of developed countries has shown economic downturns tend to have a greater negative short- and long-term impact on the incomes and earnings of young adults than on those of older age groups (Pissarides, 1992; Kahn, 2010; Oreopoulos, von Wachter and Heisz, 2012; Brunner and Kuhn, 2014). Furthermore, research at IFS has found that younger workers are far more likely to work in sectors that have been shut down as part of the public health response to COVID-19 than other workers: 30% of all employees under the age of 25 were employed in a shut-down sector in 2019, compared with just 13% of older workers (Joyce and Xu, 2020). While it is challenging to predict which parts of the economy will be most negatively affected by the COVID-19 pandemic, these figures suggest that younger workers are more at risk of experiencing a drop in their earnings or of losing their job entirely as a result.

Figure 1.3. Inheritance and parental bequest expectations, by birth cohort



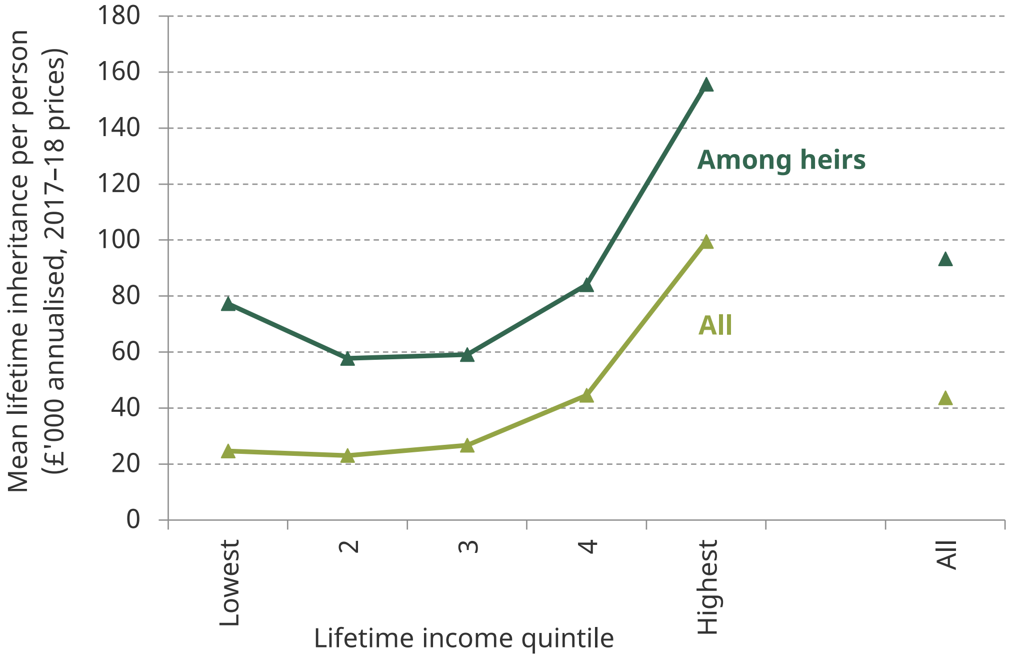
Note: We define individuals as expecting to receive an inheritance if they do not respond 'not at all likely' to the question of whether it is likely that they will receive an inheritance in the future. In order to determine the proportion of a group of parents that are 'expecting to leave a bequest', we average the stated probabilities that individuals (and their partners) will leave a bequest.

Source: Authors' calculations using the Wealth and Assets Survey (WAS) wave 1 and ELSA waves 2–4.

Parents may also transfer their wealth in the form of gifts *inter vivos*, of course, and so the trends outlined here could have implications for these transfers too. In the UK in the recent past, the annual intergenerational flow of gifts has been small relative to that of inheritances (Nolan et al., 2020). For this reason, we believe that a focus on inheritances tells us a lot about intergenerational wealth transfers, though clearly analysis of future flows of gifts would be valuable too.

In summary, the evidence points towards the likely growing importance of inherited wealth. But we remain uncertain about who is likely to receive inheritances, how much they will receive, when they will receive them, and how inheritances will contribute to inequalities in wealth and living standards in future decades. Furthermore, whether inheritances will increase or decrease inequalities in wealth and lifetime economic resources is not clear. Previous research on past receipt of inheritances has found that inheritances are highly unequally distributed (Hood and Joyce, 2017; Karagiannaki, 2017). As shown in Figure 1.4, amongst those born in the 1930s and 1940s, those in the top fifth by lifetime incomes received inheritances that were on average almost five times larger than inheritances received by those in the bottom fifth by lifetime income. Crucially, though, these inheritances had only a small impact on wealth inequality in the generations that received them. While wealthier individuals inherited more, inheritances as a proportion of wealth did not vary significantly across the wealth distribution (Crawford and Hood, 2016; Karagiannaki, 2017).

Figure 1.4. Lifetime receipt of inheritances by annualised lifetime income quintile, for households born in the 1930s and 1940s



Note: The sample includes all individuals aged between 65 and 80 in ELSA wave 6 (and their partners) for whom inheritance and lifetime income data are available. See Hood and Joyce (2017) for more details.

Source: Hood and Joyce, 2017.

This piece of research quantifies the likely size and distribution of inheritances that will be received in the coming decades. Specifically, we focus on the inheritances to be received by individuals living in England and born in the 1960s, 1970s and 1980s. We quantify the likely overall size of transfers to these generations, and also their distribution, the age at which they will be received, and their association with key economic characteristics of those who receive them.

Previous analysis of inheritances to be received in the coming decades has looked at the reported expectations of those who may receive and leave bequests. Hood and Joyce (2017) find that a growing proportion of individuals in each generation expect to receive (or already have received) an inheritance. Other studies have looked at the wealth of the parents of today's younger generations. Gardiner (2017) finds that while a greater proportion of millennials are likely to inherit something than in earlier generations, those individuals who themselves have relatively high levels of income and wealth have parents with higher levels of property wealth, on average. We will build on these studies by drawing on and combining new sources of data on wealth and intergenerational linkages and, for the first time, explicitly estimating the levels of inheritances that we expect to be received in the coming decades, based on the ways in which wealth has evolved at older ages in recent years.

In Chapter 2, we briefly describe the data and methodology employed in this report. We then analyse the current distribution of parental wealth in Chapter 3. In Chapters 4 and 5, we set out our estimates of the timing and size of inheritances that will be received. Chapter 6 concludes. Further information on our data sources and methodology is available in the appendix. Unless otherwise stated, all figures are in 2017–18 prices, deflated using a variant of the Consumer Prices Index that includes mortgage interest payments.

2. Data and methodology

This chapter gives a brief summary of the data and methodology used in this report, with full details available in the appendix.

In order to estimate the distribution of inheritances that will be received by younger generations, and how inheritances vary across groups of receivers, we require a substantial amount of information. First, we need information on the characteristics of those who expect to inherit, whom we here refer to as part of the 'receiving generations'. Second, we require information on the characteristics of these individuals' parents, including, crucially, their wealth. Lastly, we must be able to link the two sets of information – ideally at the individual level, linking specific members of younger generations to their parents directly – so that we can estimate who will inherit what. Unfortunately, there is no data set for the UK that meets all of these criteria and covers the birth cohorts we wish to examine. We therefore combine information from three main data sets: the Office for National Statistics Longitudinal Study of England and Wales (LS), the English Longitudinal Study of Ageing (ELSA) and the Wealth and Assets Survey (WAS).

The LS is a 1% sample of the population of England and Wales. LS participants are selected based on being born on one of four (undisclosed) birth dates, and are traced to the NHS register, allowing census data from five consecutive censuses (1971, 1981, 1991, 2001 and 2011) to be linked together, in addition to enabling the linkage of events data, such as mortality and cancer registrations. The LS therefore provides representative cross-sectional and longitudinal information about the population of England and Wales for the years 1971 to 2011. In addition to extensive information on census members, the LS also includes information on all individuals living in the same household as the LS member at the time that the census was taken. The LS therefore gives us a source of data that links characteristics of parents and children in the same family.

As the LS does not contain measures of wealth and inheritances, we also employ ELSA and WAS. ELSA is a household panel study that collects information on a representative sample of individuals living in England and aged 50 and above. There are eight waves, conducted biennially from 2002–03 to 2016–17. Importantly, ELSA collects detailed information on wealth and bequest expectations and its sample members are drawn from the decades of birth of the parents of the 'receiving generations' – broadly the 1920s to 1960s. WAS is a biennial household panel survey representative of the Great Britain population, with five waves currently available, covering the years 2006–08 to 2014–16. WAS collects detailed wealth and inheritance expectations data.

We use ELSA to examine the distribution of parental wealth. With ELSA alone, we are limited to analysing how these outcomes vary across characteristics of the 'parents' and the year of birth of the 'receiving generations' (ELSA tells us the number and year of birth of the children of sample members, as well as whether they are biological, step- or foster children, but no further information on the characteristics of the children). In conjunction with the LS, we are able to estimate how the distribution of parental wealth differs across and within education groups within our 'receiving generations'. The method for doing so is outlined in full in the appendix, but the main idea is as follows. The LS informs us about the relationships between parental characteristics (including education, social class, homeownership and region of residence, all of which are closely related to wealth) and child education levels. Using this information, we can then estimate the likelihood that the children of the parental households in ELSA have attained different education levels. This allows us to make an estimate of how the distribution of parental wealth that we observe in ELSA translates into distributions of wealth across education groups within the ‘receiving generations’.

We show our results under two assumptions about inheritance receipt. In the first (our main results), we assume ‘children’ inherit wealth from all ‘types’ of parent (i.e. from biological, step- and foster parents). In the second, we assume that children only inherit from their biological parents (results presented in the appendix). Where not all parents (or only one parent in the case of the second scenario) of a child are observed because the parents have separated or do not live in the same household, we assume that the unobserved parent(s) hold the same level of wealth and will leave the same level of inheritance as the observed parent and reweight these observations accordingly to avoid double-counting. For children with a widowed parent, we assume that the widowed parent inherited the wealth of the deceased parent.

Having analysed parental wealth, we use ELSA to construct measures of the bequests that older households may leave when they die. We do this by estimating and simulating a model of wealth ‘decumulation’, drawing on past wealth-holding behaviour of older generations. We use a link between ELSA and administrative death records to estimate the variation in the timing of death (and consequent timing of receipt of inheritance) across different types of households. Combining the estimates of the size of wealth holdings and the timing of parental deaths yields estimates of the distribution of possible bequests. By applying the inheritance tax system and dividing the post-tax estate by the number of children that we assume will inherit in these households, we obtain an estimate of the distribution of inheritances. We then analyse this distribution of bequests and inheritances across education groups within our ‘receiving generations’ by using the method that draws on the LS, as used to analyse the distribution of wealth. Again, the method is more fully described in the appendix.

We use a measure of ‘total net wealth’ that combines net property wealth (including primary residence and additional property, net of any outstanding mortgage debt), physical wealth (including vehicles, art and other valuables) and net financial wealth (including all shares, stocks and bonds, savings accounts and products, and current accounts, less any debts).

In employing this method, we make the crucial assumptions, discussed further in Chapter 5, that the first partner in a couple leaves their entire estate to their surviving spouse and that after the death of the second member of a couple, all bequests are made to children. We also assume that parents split their estate equally between their children. Our results are clearly dependent upon the way in which we simulate that households will build up, or draw down, wealth in future years. Implicitly, our ‘decumulation’ model assumes that households at older ages will continue to draw on their wealth in the same manner as they have done in the recent past and that long-term economic trends that drive wealth decumulation will continue into future years. We discuss evidence for our assumptions and show the sensitivity of our results to alternative scenarios for the decumulation behaviour of households in Chapter 5.

Throughout our analysis, we employ two education categorisations. For the ‘receiving generations’, we classify individuals as either ‘low-educated’ (no education qualifications higher than GCSEs), ‘mid-educated’ (completed A levels and/or received a higher education qualification other than a degree) or ‘high-educated’ (degree holder). For the parental generations, we are forced by data constraints to split by those with a degree or higher education qualification and those without.

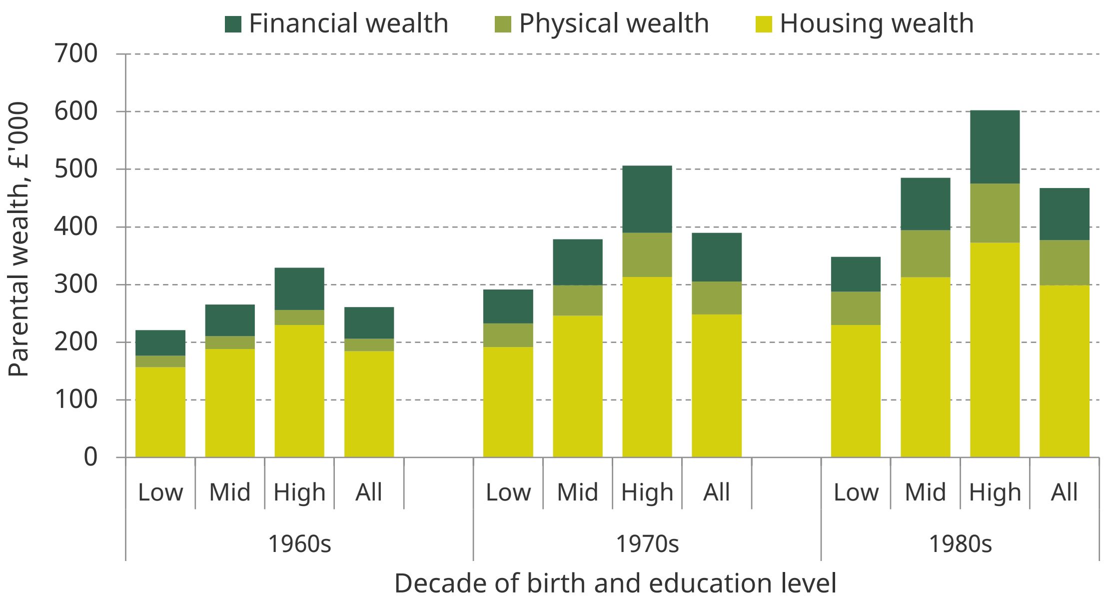
3. The distribution of parental wealth

A starting point when considering the wealth that older generations are likely to bequeath in future is to examine wealth that they hold today. This chapter analyses the distribution of wealth held by the parents of those born in the 1960s, 1970s and 1980s.

Figure 3.1 shows the estimated wealth of people's parents, split by decade of birth (of the 'children', not the parents) and by education level, and distinguishing between the three components of parental wealth. Because the parents of different birth cohorts are currently different ages, and wealth tends to change with age, we convert all parental wealth amounts into 'equivalent' amounts for a 65-year-old (based on typical changes in wealth between age 65 and the age at which each parent is last observed in our data) so that they can be compared more meaningfully across birth cohorts.[2]

Average parental wealth has risen sharply across recent birth cohorts, with a particularly notable step-change between those born in the 1960s and those born since then. Age-adjusted parental wealth is about 50% higher on average for those born in the 1970s than for those born in the 1960s, whose parents were on average born in 1947 and 1936, respectively. Housing accounts for the majority of parental wealth in all cohorts, although physical and financial wealth have also risen significantly and hence contributed to the overall trend.

Figure 3.1. Average parental wealth, by decade of birth and education level

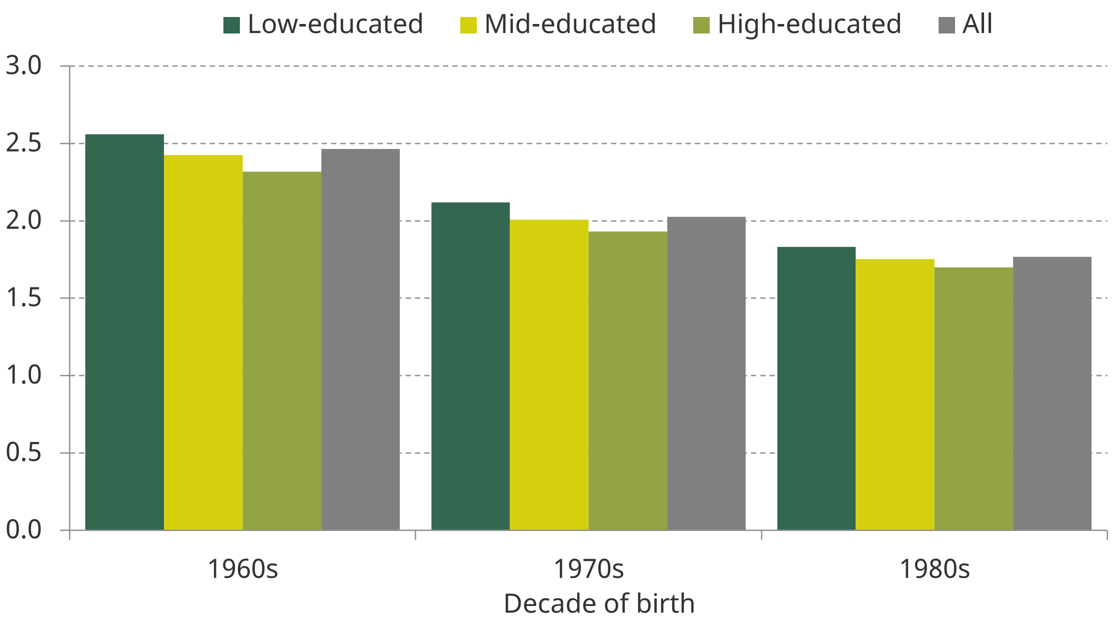


Note: Wealth has been adjusted to 'age-65-equivalent' terms. Wealth estimates for each education group are created by weighting the ELSA data using estimates from the LS, as described in Chapter 2.

Source: Authors' calculations using ELSA and the LS (ONS).

[2] The method for making this age adjustment is explained fully in the appendix. Figure A.1 presents the non-age-adjusted average parental wealth figures.

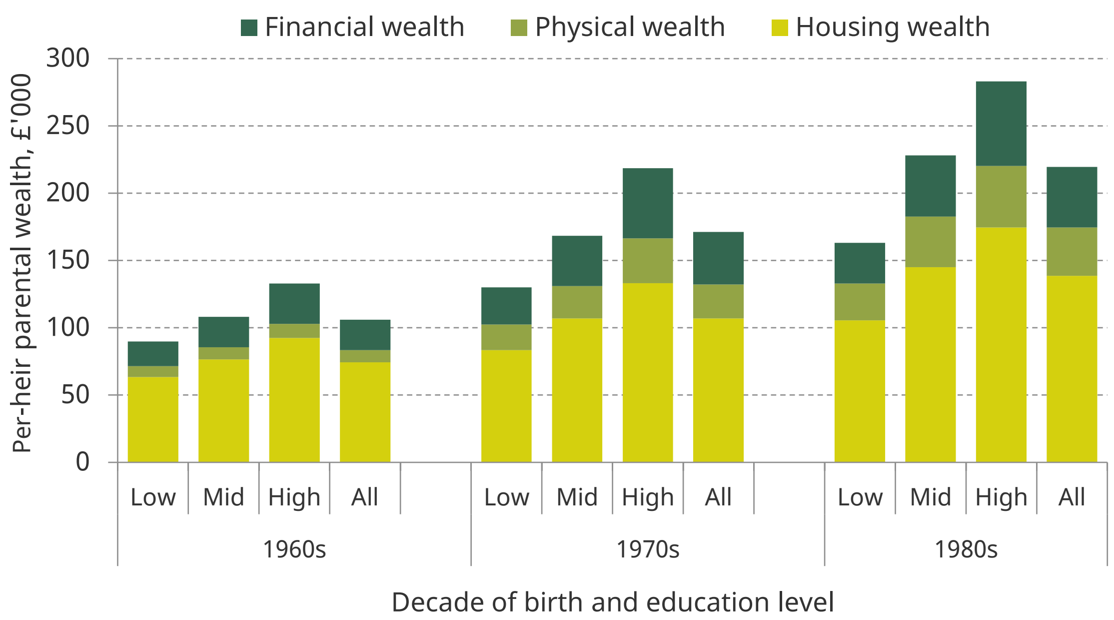
Figure 3.2. Average number of siblings of 'receiving generations', by decade of birth and education



Note: Estimates of the number of siblings (step, foster or biological) for each education group are created by weighting the ELSA data using estimates from the LS, as described in Chapter 2.

Source: Authors' calculations using ELSA and the LS (ONS).

Figure 3.3. Average parental wealth per heir, by decade of birth and education level



Note: Wealth has been adjusted to 'age-65-equivalent' terms. Wealth estimates for each education group are created by weighting the ELSA data using estimates from the LS, as described in Chapter 2.

Source: Authors' calculations using ELSA and the LS (ONS).

As one would expect, more highly educated people have parents with much higher wealth, on average. Taking the latest cohort shown, whose parents were on average born in 1957, graduates born in the 1980s have parents with age-adjusted wealth just over 70% higher than their contemporaries with no qualifications above GCSE level. This education differential is larger than the roughly 50% difference seen among those born in the 1960s – although we focus mostly on the within-cohort education differences due to the large rise in education levels over time and hence the changing sizes and compositions of the different education groups.[3]

The ultimate aim of this report is to shed light on the wealth that might ultimately flow down to younger generations through inheritances. If we want to get a sense not just of the total scale of those inheritances but also of who will get what, we also need to think about the sharing of any inherited wealth between siblings. The average number of children in a family has been falling over time: Figure 3.2 shows that people born in the 1980s have on average 1.8 siblings, compared with 2.0 and 2.5 for those born in the 1970s and 1960s respectively. These falls in family size across cohorts are seen for each education group.[4]

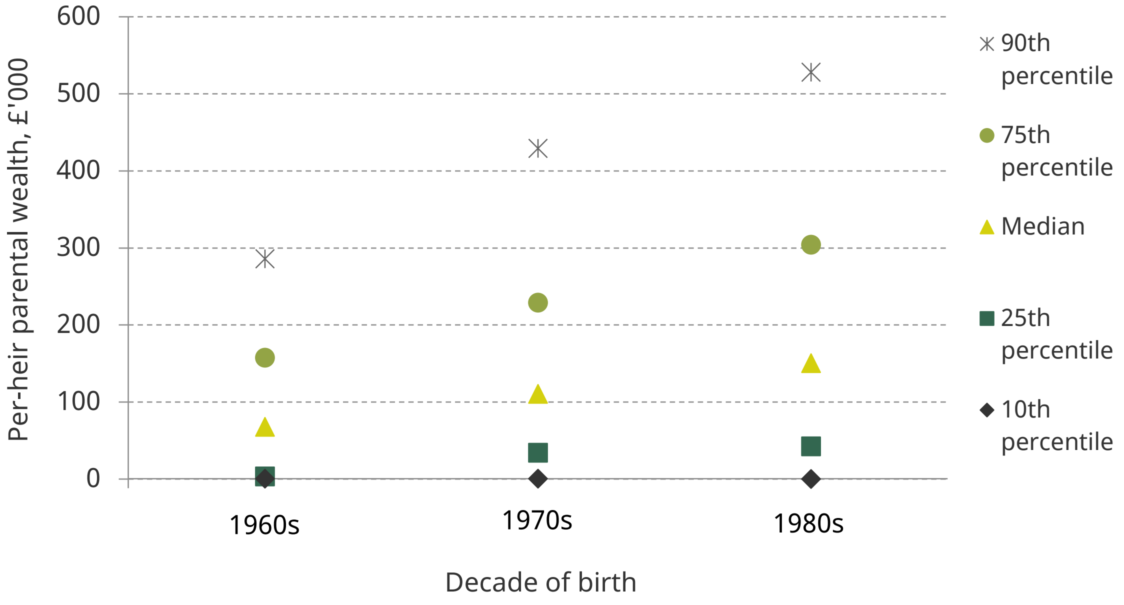
The consequence of this is to inflate further the parental wealth of more recent cohorts relative to earlier ones once we use a 'per-heir' basis as in Figure 3.3 (implicitly assuming that all inheritances are equally split between siblings in a family). Age-adjusted parental wealth per heir for those born in the 1980s is about 28% higher on average than for those born in the 1970s and more than twice the size of that of those born in the 1960s.

The following figures break down the spread of per-heir parental wealth in more detail, starting with percentiles of the overall distribution in Figure 3.4. The 10^{th} percentile is zero in all cohorts; in fact, the proportion of people whose parents have per-heir net wealth of less than £10,000 is around 20% in each cohort. While the scale of potential inheritances (as captured by this initial proxy) has clearly increased across cohorts, the overall degree of inequality in those potential inheritances does not seem to have changed dramatically. The central estimates are that age-adjusted parental wealth per heir has risen by about 123% at the median, 93% at the 75^{th} percentile and 85% at the 90^{th} percentile between those born in the 1960s and 1980s. There have, however, been significant changes in the differential across regions, as shown below. In addition, the overall implications of inheritances for economic inequality depend on who is inheriting (those who would have been well off anyway, or those who would have been relatively poor), which Figure 3.4 says nothing about – and, of course, the overall scale of inheritances relative to other economic factors.

3 For example, 53% of individuals born in the 1960s were low-educated compared with 43% and 42% of those born in the 1970s and 1980s. In turn, 30%, 38% and 34% of individuals born in the 1960s, 1970s and 1980s were high-educated (see Table A.1 in the appendix). Note that individuals of the 1980s cohort will be aged 21 to 31 in the last available census (2011). It is therefore possible that we are miss-classifying some of these individuals as being mid- rather than high-educated, as they may not yet have completed full-time education.

4 The figures for siblings are estimated using ELSA and the LS. While the number of siblings is available directly from the LS, we believe that this data source may slightly underestimate the number of children in each family as the number of siblings is calculated when the sample member is still living with their parents (and could feasibly have a younger sibling arrive in future). Indeed, the ELSA figures for the number of children per family are marginally higher for each cohort (but show a very similar estimated differential across education levels) compared with the LS.

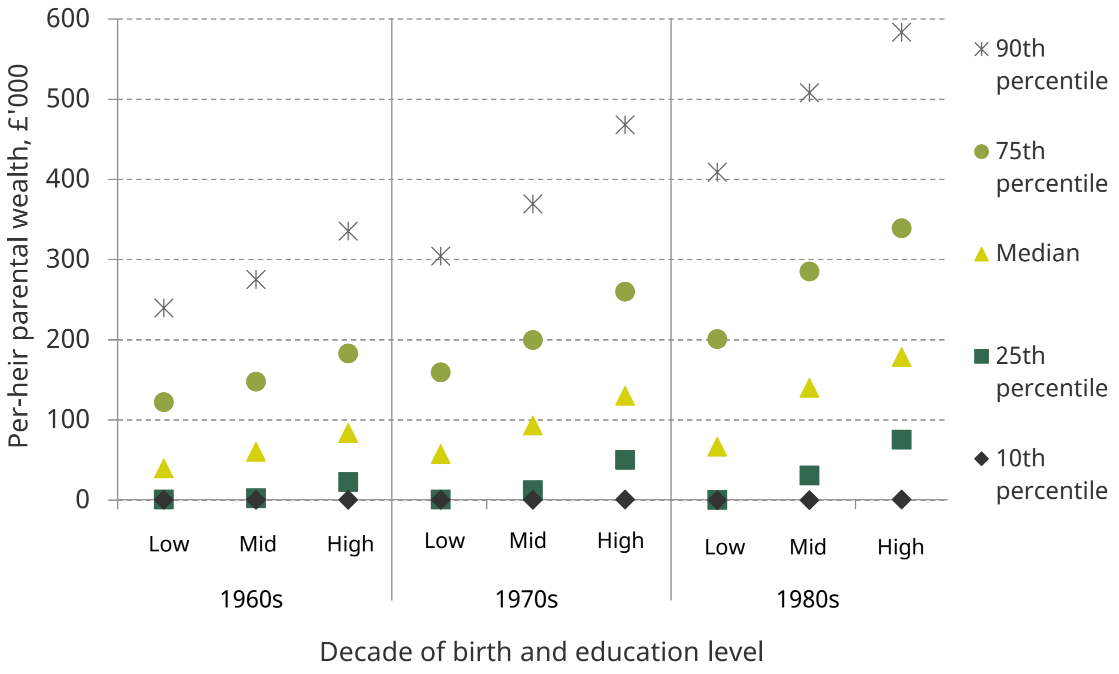
Figure 3.4. Distribution of per-heir parental wealth, by decade of birth



Note: Wealth has been adjusted to 'age-65-equivalent' terms.

Source: Authors' calculations using ELSA.

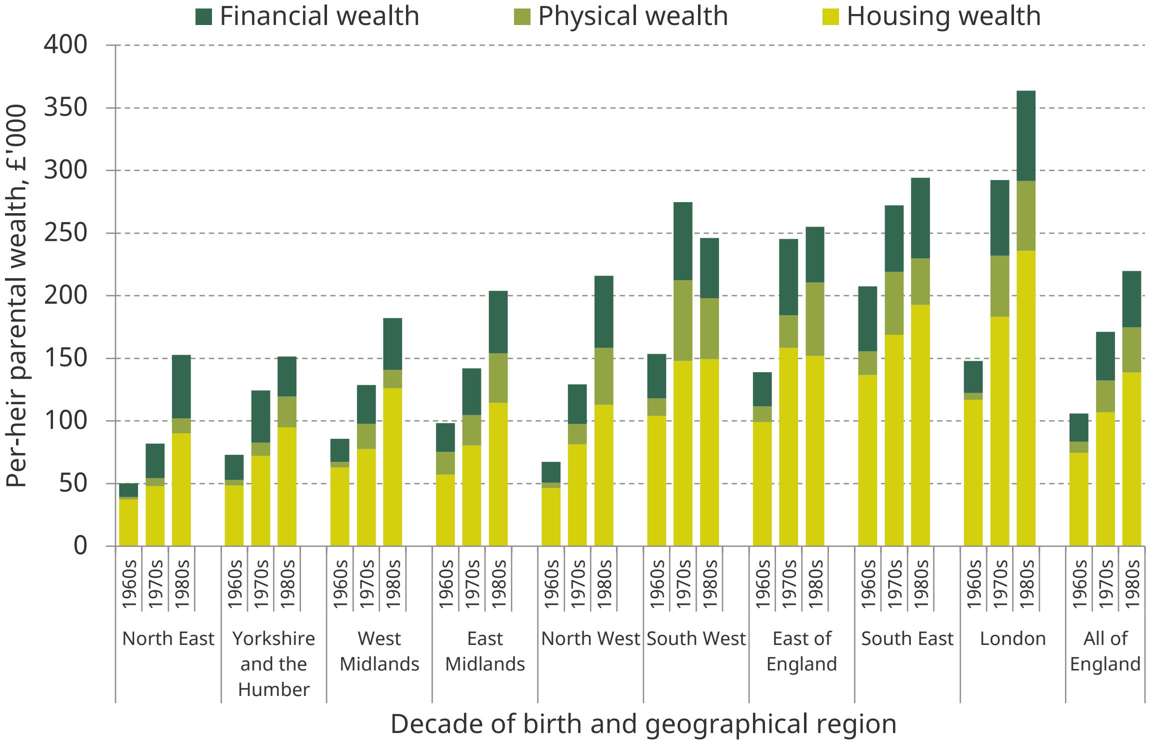
Figure 3.5. Distribution of per-heir parental wealth, by decade of birth and education



Note: Wealth has been adjusted to 'age-65-equivalent' terms. Wealth estimates for each education group are created by weighting the ELSA data using estimates from the LS, as described in Chapter 2.

Source: Authors' calculations using ELSA and the LS (ONS).

Figure 3.6. Per-heir parental wealth, by decade of birth and region



Note: Wealth has been adjusted to 'age-65-equivalent' terms. Wealth estimates for each education group are created by weighting the ELSA data using estimates from the LS, as described in Chapter 2.

Source: Authors' calculations using ELSA and the LS (ONS).

Figure 3.5 displays the same information separately for each education group. It is striking how much of the variation in per-heir parental wealth is within education groups. For example, even for graduates, in all cohorts at least 10% have parents with essentially no wealth to bequeath.

Finally, Figure 3.6 splits by the nine regions of England, according to the region of residence of the parents. We use the parents' region because this is what we observe in the ELSA data that form the basis of this analysis. Clearly this will not always line up with the region of residence of their children, though in most cases it will.[5] The figure shows the large differences in potential inheritances between those whose parents live in the south of the country – especially London – and those whose parents live elsewhere. For example, for the 1980s birth cohort, children of Londoners have parents with more than twice as much wealth, on average, as the children of people living in the North East and 66% more wealth than the English average. Differences in house prices, and hence housing wealth, account for most of these regional differences.

The rise in per-heir parental wealth across cohorts has been especially dramatic among those whose parents live in London – more than doubling between those born in the 1960s and those born in the 1980s. While some regions with initially much lower wealth

[5] Social Mobility Commission (2019) documents that around 70% of individuals aged 25–60 live in the same region that they lived in at age 14. Rates of mobility are higher for those whose parents work in 'professional' as compared with 'intermediate' and 'working-class' occupations.

have also seen large proportional rises in parental wealth, it is notable that amongst the later-born cohorts, London has pulled away from areas such as the South West, East and South East, in which levels of parental wealth were previously comparable to those in London.

4. Age at inheritance receipt

In this chapter, we consider the timing of inheritance receipt. The effects of an inheritance on a household's behaviour and living standards may depend crucially on when it is received. Inheritances received during working life are potentially more useful in funding home purchases or the costs associated with having children. Timing of receipt is also a potentially important determinant of the size of inheritances.

The age at which someone receives an inheritance from their parents is determined by how long their parents live and the difference in age between the receiver and their parents. Both longevity and the age at which people have children vary significantly both across and within cohorts. We combine information on mortality rates of different groups from ELSA and from official life tables with information on the age difference between parents and children from the LS to analyse the age at which inheritances will be received, and how this is likely to vary across the population.

In interpreting this whole chapter, we should bear in mind that parental death is not necessarily the moment at which all wealth gets passed down. To preview slightly the findings of this chapter, it is possible that rising parental longevity will itself cause more wealth to be passed down to children before parents die (and, as for previous cohorts, there remain strong tax incentives to do this at least seven years before death for those who can plan as such), or to increasingly 'skip a generation' and be passed straight down from grandparents. Predicting those kinds of phenomena with any precision is beyond the scope of this work.

4.1 Parental longevity

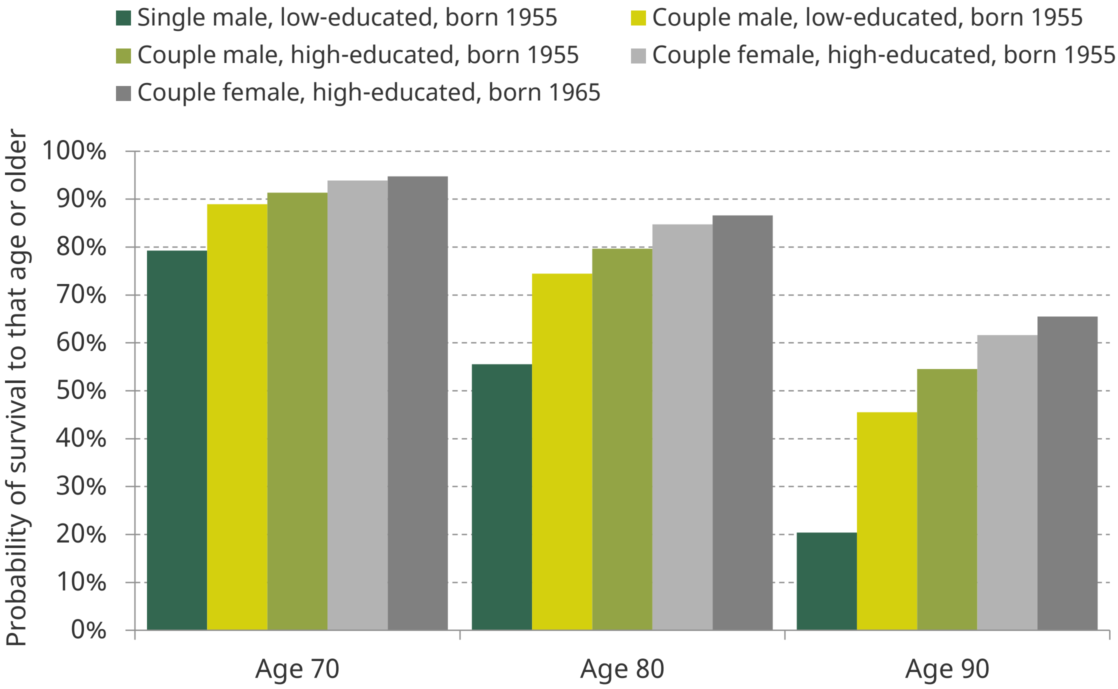
Life expectancy varies substantially between different groups. It is well established, for example, that more economically advantaged individuals tend to live longer and that life expectancy for later-born cohorts is higher than for those born earlier.

To quantify how longevity varies across different groups, we use a combination of ONS life table survival curves for England and Wales and ELSA data. The ONS survival curves tell us the proportion of each sex-and-year-of-birth group that have survived, and are projected to survive, to each age. However, ONS life tables do not tell us how longevity varies by characteristics such as education and marital status. In order to quantify variation along these dimensions, we use a link between ELSA and administrative mortality records, which allows us to assess how mortality rates have varied between different groups of people since 2002. By assuming that these differential mortality rates between different groups hold in future, we can estimate the probability that an individual of a certain sex, year of birth, level of education and marital status will survive to each older age.[6]

Figure 4.1 illustrates the results of our survival curve estimation by showing the estimated probability that a 50-year-old will survive to particular older ages, for some selected groups. There is significant variation. We estimate that a 50-year-old single man (someone

[6] Further details of the method for constructing sex-, cohort-, education- and marital-status-specific survival curves are given in the appendix.

Figure 4.1. Probability of survival to selected ages, for selected groups



Note: Probabilities of survival to selected ages or older are for an individual of each group who survives to at least age 50.

Source: Authors' calculations using ELSA and ONS 2016-based Cohort Life Tables for England and Wales.

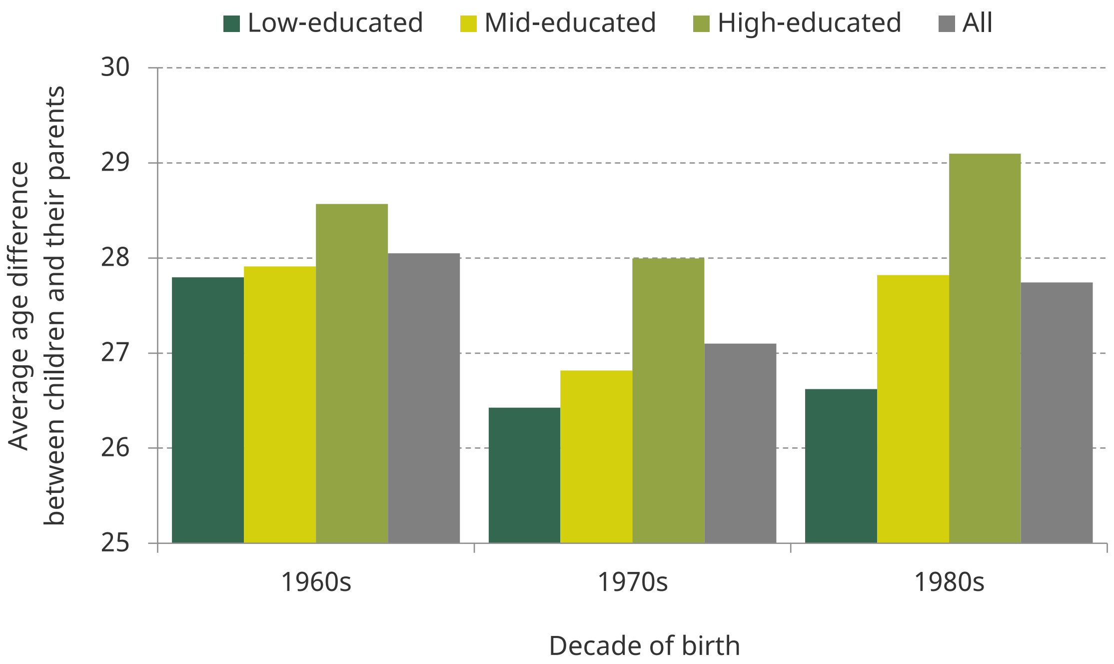
who reports being 'never married', 'divorced' or 'separated') born in 1955 who is low-educated has a 79% chance of surviving to at least age 70 and a 56% chance of surviving to at least age 80. The equivalent male who instead reports being coupled (i.e. either married or widowed) has an 89% chance of survival to at least age 70 and a 74% chance of survival to at least age 80. Being more highly educated, female or later-born are all associated with greater longevity. We estimate that a highly educated, coupled woman born in 1955 is over three times more likely to survive to at least age 90 than a low-educated single man born in the same year.

The strong relationship between longevity and individuals' education and marital status does not necessarily mean that these characteristics *cause* people to live longer. Much of the differences between these groups are likely driven by the fact that those in couples and those with higher levels of education tend to be healthier and to have benefited from a more advantaged environment earlier in life. Estimating differences between these groups is useful because these characteristics are a good proxy for socio-economic background, and therefore capture much of the difference in longevity across individuals, and can also be related to characteristics of children, using the method outlined in Chapter 2.

4.2 Age differences between parents and children

Figure 4.2 shows the mean age difference between individuals and their parents for those born in the 1960s, 1970s and 1980s. For each decade of birth, more highly educated individuals tend to be born to older parents than those with lower levels of education. This

Figure 4.2. Mean age difference between individuals and their parents, by decade of birth and education level



Note: For children with two parents, the average age difference is the mean of the age difference from each of the parents.

Source: Authors' calculations using the LS (ONS).

is most stark for those born in the 1980s where the parents of those with a degree were on average 29 when having a child, but the parents of those who achieved up to GCSEs were on average 26½ when having a child. A second notable pattern is that the overall age gap is lower for the 1970s cohort than for the 1960s cohort, and then rises again for the 1980s cohort. This pattern is the result of two trends. On average, subsequent generations of parents have had their first child at progressively older ages, but have also had fewer children. The first trend acts to increase the age gap between parents and children and the latter to decrease it. When comparing the 1970s-born and 1960s-born, the latter effect is overall more important, but when comparing the 1980s and the 1970s, the former effect dominates.

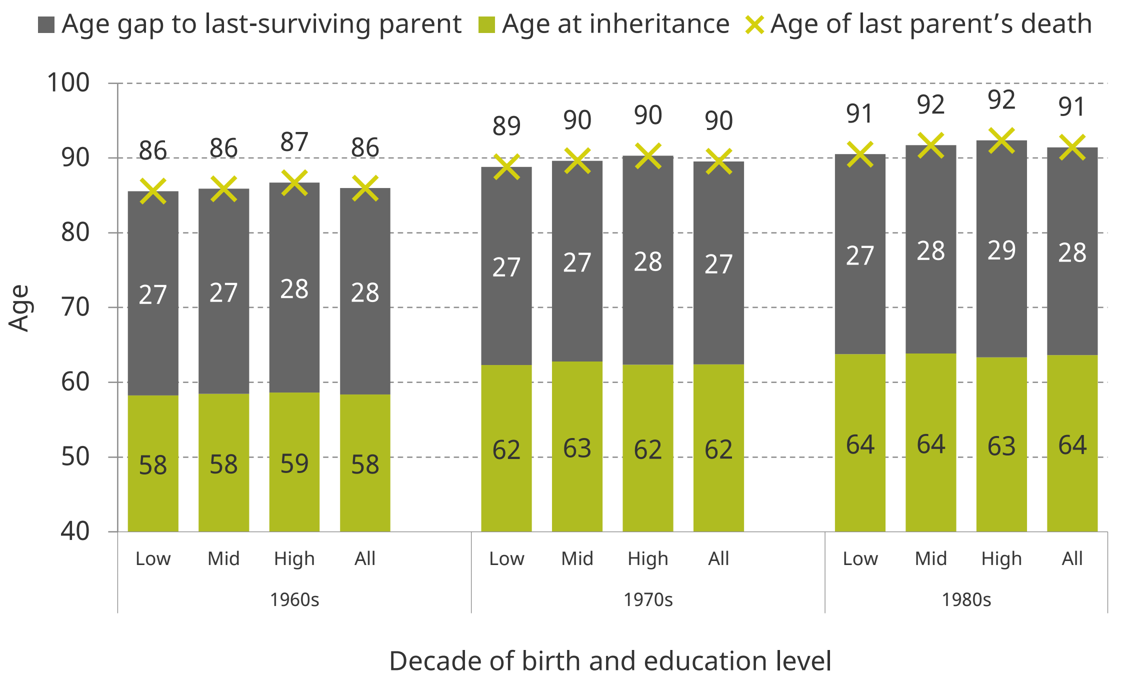
4.3 Age at receipt of inheritance

We now combine the analysis of parental longevity with the age gaps between individuals and their parents to estimate the age at which inheritances may be received. We assume that children receive an inheritance only when the last of their parents dies, on the basis that estates are typically transferred to surviving spouses. We have already discussed at the outset of this chapter that people may receive transfers of wealth from their parents (or even grandparents) before that point, and that it is possible that they increasingly do so, perhaps precisely as a response to rising life expectancy. We cannot predict those kinds of changes here.

With that caveat in mind, we use our estimated survival curves to calculate the expected age of second death for couples with different combinations of levels of education and birth year, assuming that the timing of death of one member of a couple is – given education and birth year – independent of when their partner dies (for single parents, we can simply use the individual survival curve for that group). We can then use the method employing the LS, as set out in Chapter 2, to calculate the average age of (second) death of the parents for those born in each decade of each education level. Using information about the age gaps between individuals and their parents and for each type of individual and their parents, we can also calculate the average age gap at death for each type of individual. By subtracting the average age gap to the last surviving parent from the average age at death of parents from that decade and education group, we obtain the average age at which an individual would inherit.[7] Here we calculate the age at which individuals *may* inherit from their parents. That is, we do not exclude from these figures those who will inherit nothing from their parents.

Figure 4.3 shows the estimates of the average (mean) age of death of last-surviving parent, age gap to last-surviving parent and age at inheritance receipt, by education and decade of birth. This suggests that, on average, those born in the 1960s will inherit (and in some cases have inherited already) at age 58. The age at which people inherit increases substantially for those born in the 1970s to 62, with a further rise for those born in the

Figure 4.3. Average (mean) age of death of last-surviving parent, age gap to last-surviving parent, and age at inheritance receipt, by decade of birth and education level



Source: Authors' calculations using the LS (ONS), ELSA and ONS 2016-based Cohort Life Tables for England and Wales.

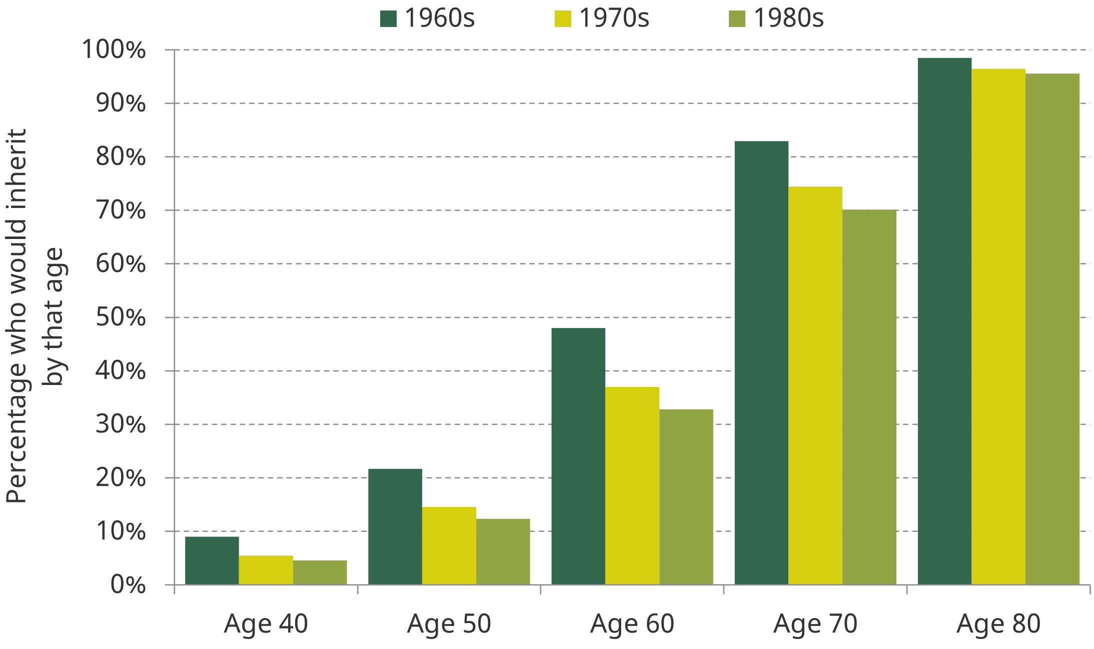
7 This average age gap at death takes into account the fact that certain types of parent are more likely than others to be the second parent to die in a couple and so the age gap to the second surviving parent may be different from the average age gap to parents when both are alive (which is shown in Figure 4.2).

1980s, who will inherit at age 64 on average. These changes are primarily driven by the increases in parental longevity across cohorts. This later death of parents is slightly exacerbated by the smaller age gaps between parents and children for those born in the 1970s, compared with the 1960s, and is slightly offset by the larger age gap for the 1980s cohort when compared with the 1970s.

Comparing across education groups, we see that while those with higher levels of education tend to have parents who will live longer, tending to delay the point at which they will inherit, they also tend to have a larger age gap to their last-surviving parent, which acts to decrease the likely age at receipt of inheritance. Overall, these approximately offset each other, such that there are not substantial differences across education groups in the age at which inheritances would be received, for those born in the 1960s, 1970s or 1980s. It should be noted, however, that our method may understate the degree of inequality in the timing of last parental death across education groups. Due to data constraints, we are only able to quantify differences between these groups that are captured by differences in mortality rates between parents of different education levels, marital status and cohorts. If, for example, there were systematic differences in parental longevity between differently educated individuals, even when holding constant their parents' levels of education, marital status and years of birth, these would not be captured by our method, which may consequently understate inequality.

The average age at inheritance in each cohort does not tell us about the great variation in the age at inheritance receipt that underlies this. Figure 4.4 shows the share of each cohort that we estimate would inherit by certain ages. While a fifth of people in the 1960s cohort lost both of their parents before age 50, almost a fifth will be in their 70s before that happens to them. In the 1980s cohort, we estimate that 30% will be in at least their 70s when their last-surviving parent dies.

Figure 4.4. Percentage of individuals who would inherit before selected ages, by decade of birth



Source: Authors' calculations using the LS (ONS), ELSA and ONS 2016-based Cohort Life Tables for England and Wales.

5. Size and distribution of inheritances

In this chapter, we consider the amount that individuals are likely to inherit in the coming decades. As these transfers have not happened yet, we need to estimate their likely size and distribution. We look at individuals' self-reported expectations about receiving and giving inheritances. We also construct our own estimates of the distribution of inheritances that will be received, based on what we know about the current wealth holdings of older generations and how households tend to use or hold onto their wealth at older ages.

5.1 Distribution of inheritances

We construct, for individuals of each level of education, and born in each decade from the 1960s to the 1980s, an estimate of the distribution of inheritances that these groups will receive. Our approach is to start with the wealth currently held by the parents of our 'receiving generations' (as documented in Chapter 3) and then to estimate how wealth levels of parental households will evolve in future, based on data from ELSA on how older households have drawn on, or held onto, wealth in the past.

We take into account the fact that there is uncertainty about how wealth levels will change, both at the individual level and in the aggregate. Combining our estimates of the *amounts* of parental wealth that different groups would have if they survived to each older age with the estimated *timing* of death and inheritance from Chapter 4 gives us the estimated distribution of estates. By applying the inheritance tax system and splitting the bequest net of inheritance tax between children, we obtain the distribution of inheritances.[8] Full details of our method are set out in the appendix.

The main findings of our analysis of the accumulation and spending-down of wealth at older ages, which underlie our inheritance estimates, are as follows. Individuals and couples tend to increase their wealth holdings up until around age 70, on average. After age 70, households tend to draw down on their wealth only slightly and the distribution of wealth is fairly steady. In essence, this means that the level of (non-pension) wealth that households have at age 70 is a reasonably good estimate of what they will bequeath. The exact rates at which households build up and draw on their wealth depend on their economic and demographic characteristics (such as whether they are a homeowner, their education level and whether they are a single individual or a couple). More highly educated individuals see a greater build-up of wealth in their 50s and 60s (as makes sense given they are more likely to be in work and to have higher earnings) and wealth declines more rapidly at older ages for those who have higher wealth to begin with, but the differences along these lines, on average, are not stark.

There are a number of crucial assumptions underlying our analysis. The first is that the way in which future cohorts of pensioners will draw down their wealth will be similar to

[8] As discussed in the appendix, the inheritance tax system that we apply is necessarily simplified because we do not fully model the composition of wealth or whether households take advantage of a number of possible exemptions and avoidance possibilities. The inheritance tax liabilities that we calculate likely overstate what would be paid. That said, only 5% of estates were liable for inheritance tax in 2016–17, and the presence of inheritance tax makes only a very minor impact on our estimated distribution of inheritances in our calculations, and so our results are unlikely to be sensitive to our approach here.

the behaviour of those at older ages over the past two decades, on whom we base our analysis. This assumption would be violated if the behaviour of previous cohorts were dependent on the particular economic conditions they faced, and if these are not representative of what future cohorts of older people will face. For example, if slow wealth decumulation in previous cohorts over our data period of 2002–17 were driven by the fact that real house prices grew by 1.8% per year, and house price growth in future is lower than this, then we may overestimate the size of inheritances. We show the robustness of our main assumptions to alternative rates of wealth decumulation in Section 5.3.

A second assumption is that the way in which households build up and draw down on wealth depends on their age and other characteristics, but does not vary systematically with how far they are from death. While in practice the use of wealth will vary depending on proximity to death, evidence from an ELSA 'End of Life' module, which collects data on individuals' estates and other activities around the time of their death, provides no strong indication that wealth as reported in the final ELSA interview before death is systematically higher or lower than the wealth subsequently reported in estates. This analysis is based on a relatively small sample, and so we cannot rule out substantial expenditures being incurred around death for a minority of individuals – for example, due to social care costs. But based on this analysis, we do not expect that our assumption about end-of-life costs would have large quantitative implications for the broad distribution of inheritances.

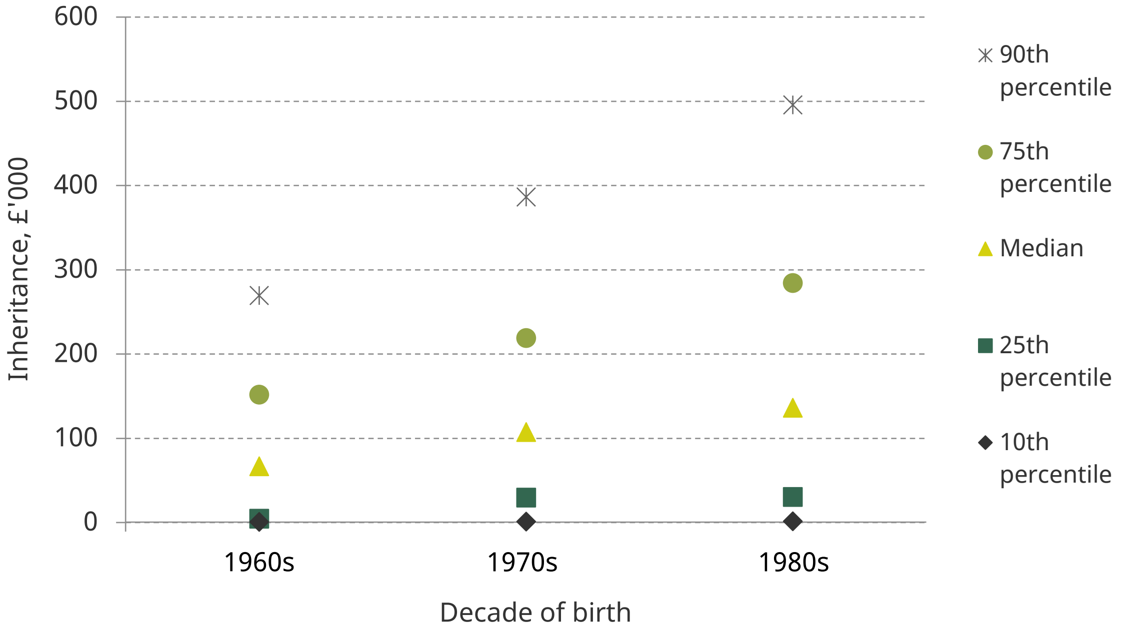
Third, moving from wealth at death to inheritances, we assume that the first member of a couple will pass the entirety of their estate to their surviving spouse and that the final parent to die will split their estate evenly between their children. Clearly people sometimes behave differently: sometimes inheritances are made directly to grandchildren, other family members or charities, and sometimes inheritances are split unequally. But the assumptions we make describe what is by far the most common practice and a natural assumption in the absence of any information about households' intentions. Crawford and Mei (2018) document that 86% of respondents to the ELSA 'End of Life' module who were homeowners and died with a surviving spouse gave their main home entirely to their partner and 82% of those holding 'other' assets (the closest category to financial and physical wealth) who had a surviving spouse bequeathed them the entirety of this wealth. Among those with no surviving spouse, 75% of those with housing wealth bequeathed at least some of it to their children, and of those with non-housing wealth, 60% gave the entirety of this wealth to their children. Menchik (1980) and Wilhelm (1996) document that equal division of estates between children is very much the norm.

Figure 5.1 shows our estimated distribution of inheritances by decade of birth.[9] As would be expected given patterns in the use of wealth at older ages and the lack of bite of inheritance tax, the expected distribution of inheritances looks broadly similar to the distribution of per-heir parental wealth set out in Chapter 3. Inheritances are estimated to be substantially larger for those born later. The median inheritance for those born in the 1980s is estimated to be £136,000, compared with £107,000 for those born in the 1970s and £66,000 for those born in the 1960s. This represents a more than doubling of the size

[9] These results are based on the assumption that inheritances are received from step-parents and other non-biological parents as well as biological parents. We show results under the assumption that children inherit only from biological parents in the appendix.

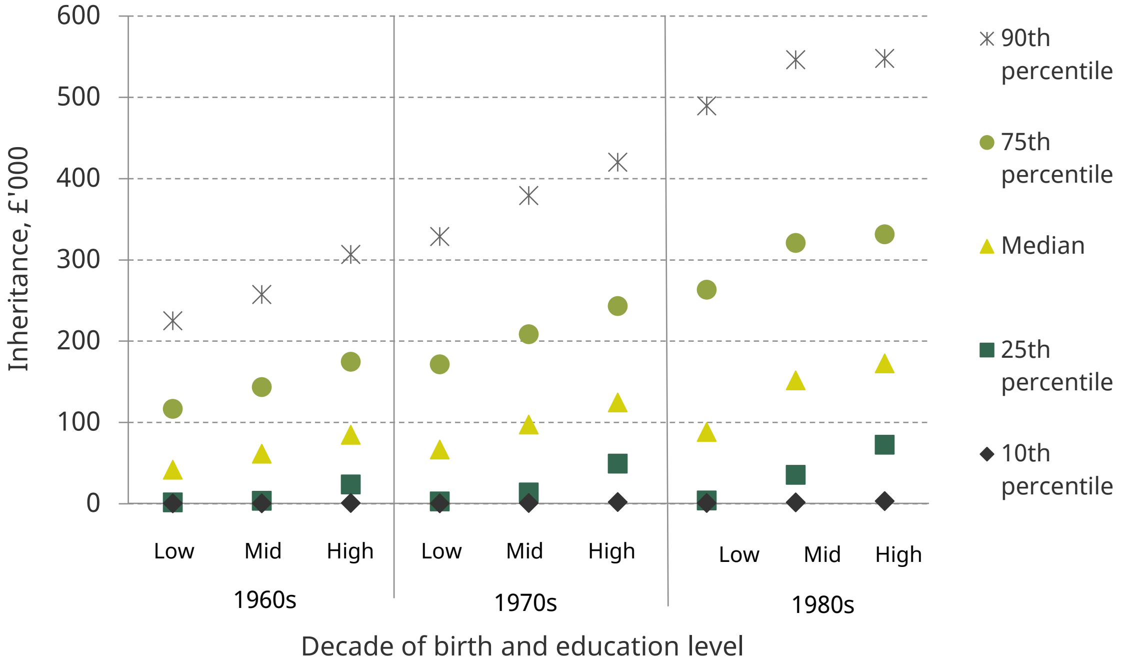
of the median inheritance when comparing those born in the 1980s and those born in the 1960s.

Figure 5.1. Percentiles of the distribution of inheritances, by decade of birth



Source: Authors' calculations using ELSA and the LS (ONS).

Figure 5.2. Percentiles of the distribution of inheritances, by decade of birth and education level



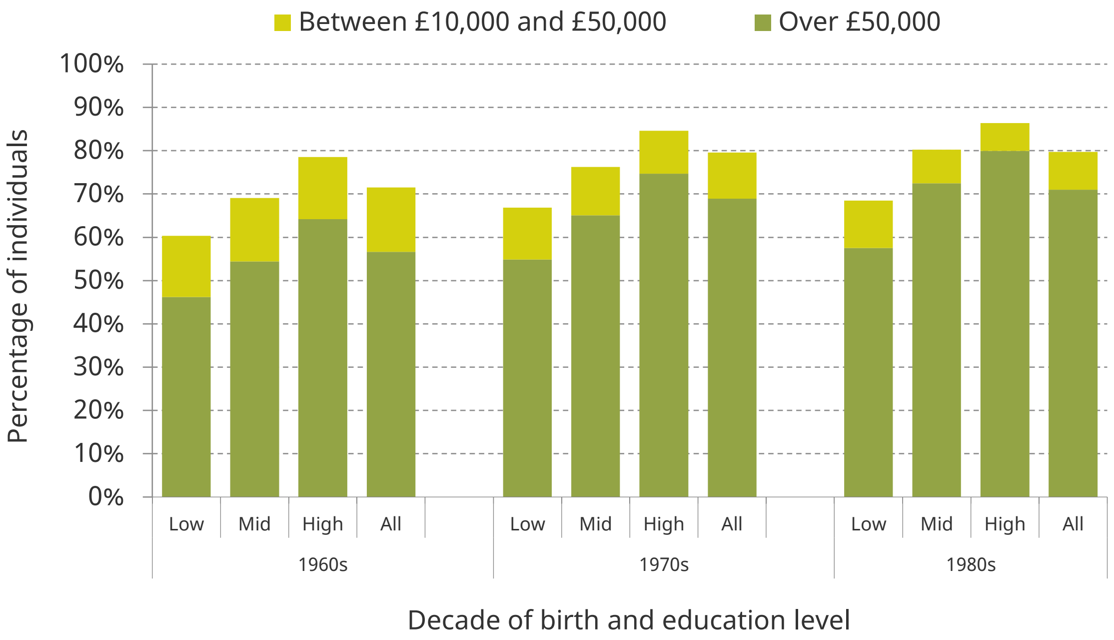
Source: Authors' calculations using ELSA and the LS (ONS).

There is substantial inequality in the amounts that we expect individuals to inherit, within each decade of birth. At the bottom end, the 10th percentile is close to zero for each birth decade. In fact, over a fifth of those in each birth cohort are expected to inherit less than £10,000. At the same time, 25% of individuals in the 1960s cohort are expected to inherit more than £151,000. For those born in the 1980s, the top quarter are expected to inherit over £284,000. At the upper end, the top 10% will inherit more than £269,000, £386,000 and £495,000 amongst those born in the 1960s, 1970s and 1980s, respectively. The increases in expected inheritances across birth decades are clearly highest in absolute terms at the top of the distribution. In relative terms, however, the changes are similar across the distribution and so inequality in inheritances is not expected to change substantially by decade of birth.

We now turn to look at the distribution across and within education groups, shown in Figure 5.2. As with parental wealth, a significant amount of the dispersion in inheritances is expected to be *within* education groups. Comparing *between* education groups, we see that for those born in the 1980s, the median inheritance for an individual who achieved only compulsory schooling is £88,000, whereas the median inheritance for a graduate is expected to be almost twice as much, at £172,000. In proportional terms, this difference in median inheritances between high- and low-educated groups is similar across cohorts. However, differences in the educational attainment of the different cohorts mean that these gaps are not directly comparable.

Figure 5.3 breaks down the distribution of inheritances across decade-of-birth and education groups in a slightly different way, showing us the percentage of individuals in each group that are expected to receive what might be deemed a ‘substantial’ inheritance (using the thresholds of £10,000 and £50,000). Taking those born in the 1980s, this tells us that, overall, 80% of individuals are expected to inherit more than £10,000 and 71% of individuals are expected to inherit more than £50,000. Amongst those with the lowest level

Figure 5.3. Percentage of individuals predicted to inherit a certain amount



Source: Authors’ calculations using ELSA and the LS (ONS).

of education, these figures are 68% and 58%. But amongst those with a degree, 86% are expected to inherit more than £10,000 and 80% are expected to inherit more than £50,000. There are only small differences across cohorts: the 1970s- and 1980s-born are slightly more likely to receive a substantial inheritance than the 1960s-born. This demonstrates that the main differences between the cohorts are in the amounts we expect individuals to receive, rather than whether or not they will receive an inheritance. This accords with the fact that homeownership rates at age 60 were similar at around 75–80% for each of the 1930s-, 1940s- and 1950s-born generations, i.e. for the parents of these individuals (Cribb, 2019).

How do our estimated inheritances compare with individuals' expectations of what they will receive and their parents' expectations of what they will leave? We should be very cautious in making quantitative comparisons between our simulated inheritances and reported expectations due to the large amount of uncertainty about what the expectations questions actually capture. Bearing that caveat in mind, the overall proportion that we expect to receive a substantive inheritance in each cohort quite closely matches the level and pattern seen in Figure 1.3 (when we treat £10,000 as the threshold for a substantive inheritance).

How do our estimated inheritances compare with the inheritances received by earlier cohorts? Hood and Joyce (2017) analyse ELSA data on inheritances already received for those born between 1933 and 1948, finding that just under half of these individuals received any inheritance, with a mean inheritance of £44,000. The results we show would therefore represent a marked increase in the prevalence and size of inheritances compared with this generation. This progression is, though, in line with the rise in the proportion in successive generations who have received (or still expect to receive) an inheritance: while less than 40% of those born in the 1930s reported having received or expecting to receive an inheritance, this rose to 55% of those born in the 1940s and around 60% of those born in the 1950s (Hood and Joyce, 2017).

5.2 Inheritances compared with earnings from work

Our analysis suggests that it is highly likely that inheritances will be larger for future generations than for their predecessors and larger for more highly educated individuals than less educated individuals. Generally, incomes from paid work also increase over time and are higher for those with higher levels of education. We might therefore want to know whether these patterns in sizes of inheritances are likely to hold not just in absolute terms but also when inheritances are compared with what might on average be earned from work by someone in each of these groups.

In this section, we estimate the size of future inheritances to be received as a percentage of average lifetime gross earnings, for each of our cohorts and education groups. To make this comparison, we estimate average individual lifetime earnings for those of low, mid and high levels of education in each of the 1960s, 1970s and 1980s cohorts. We do this by estimating the average 'age profile' of earnings (i.e. relative levels of earnings at each age) for each education group using data for those born from the 1930s through to the 1980s. Assuming that this 'age profile' of earnings is the same across cohorts, while allowing the overall level of earnings to be different across cohorts, we can project forward earnings for each group in future years, at ages they have not yet reached. A full explanation of our method is given in the appendix.

While cohort differences in earnings were relatively large for earlier generations, those born in the 1960s, 1970s and 1980s have seen more modest increases in earnings relative to their predecessors to date. While the 1950s cohort have earned around 20% more than the 1940s cohort did over their working lives, the 1960s- and 1970s-born have earned around 10% more than those born a decade before had earned by the same age. Those born in the 1980s have so far earned slightly less than those born in the 1970s did by the same age.

We project that over their whole working life up to age 64, the 1960s- and 1970s-born will earn 11% more than their immediate predecessors and that the 1980s-born will earn the same as the 1970s-born cohort.[10] There is clearly a great amount of uncertainty in our projections of earnings and greater uncertainty for later-born generations. Given the current economic climate and that our projections are based on pre-coronavirus-crisis data, the risks are strongly to the downside, particularly for younger cohorts.

Figure 5.4 shows how the distribution of inheritances amongst each cohort compares when expressed as a percentage of estimated average lifetime earnings. For example, we estimate that the median inheritance of those born in the 1980s will be equivalent to 14% of their average lifetime earnings. This compares with the median inheritance for the 1960s-born being worth 8% of average lifetime earnings for that cohort. It is important to note that this chart does not tell us about the distribution of individuals' inheritances compared with their *own* earnings but the distribution of individuals' inheritances compared with the *average* earnings for someone in their cohort. Inheritances are likely to be higher for those with higher earnings but further work would be required to quantify this association. It is nevertheless a useful benchmark, in its own right, to consider how much some individuals might inherit as compared with an average working life's earnings. We find that while one in ten of those born in the 1960s would inherit an amount equal to at least 32% of average lifetime earnings, one in ten of those born in the 1980s will inherit more than 52% of average lifetime earnings.

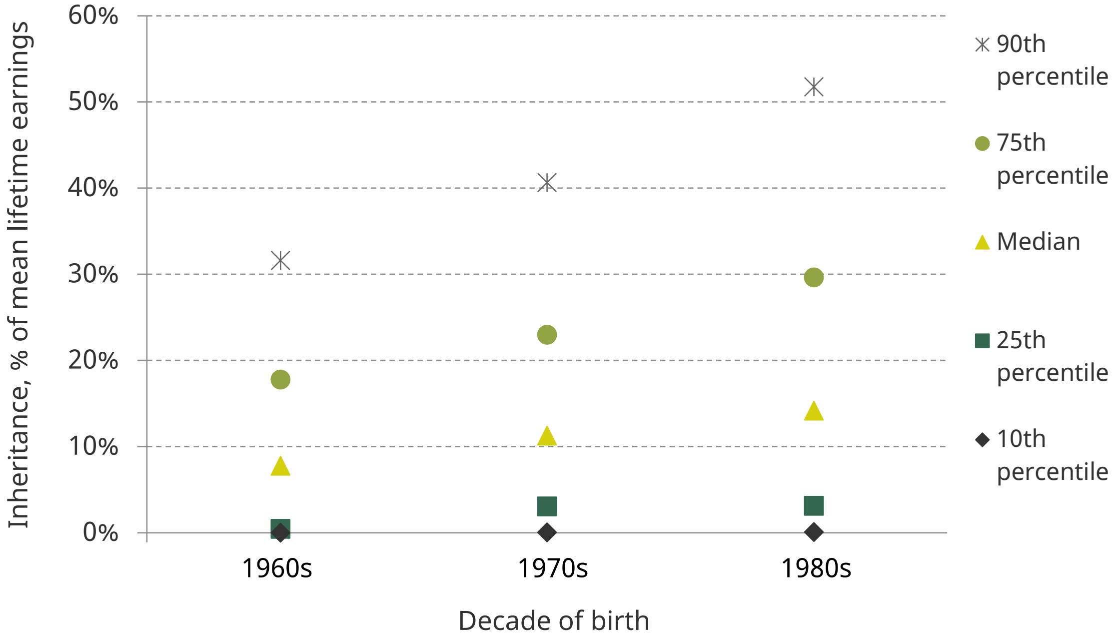
We show our results in an alternative way in Figure 5.5. It shows the percentage of individuals in each cohort whose own inheritance is projected to be worth more than a certain number of years of average earnings from work for that cohort. Around three-quarters of those born in the 1970s and 1980s are projected to inherit more than one year's worth of their cohort's average earnings. This is slightly higher than the 69% for those born in the 1960s. One in six (17%) of those born in the 1960s are projected to inherit more than a decade's worth of earnings. This rises to 25%, or one in four, of those born in the 1970s and 34%, or one in three, of those born in the 1980s.

Figure 5.6 shows the distribution of inheritances for each education group in each cohort, expressed as a percentage of average lifetime earnings for that group. Doing this, we see that median inheritances of those who are more highly educated within each cohort are very similar in size, as a share of average earnings, to the median inheritances received by those who are less educated. At the 25th, 75th and 90th percentiles, there appear to be some differences, with the more highly educated receiving larger inheritances as a share of average lifetime earnings at the 25th percentile and smaller inheritances as a share of average lifetime earnings at the 75th and 90th percentiles. However, given the uncertainties

[10] We treat a 'working life' as being from age 22 until age 64. We choose to fix the length of working life so that comparisons are not affected by changes in the length of working lives across cohorts. It is likely that later-born individuals will on average retire later, contributing to higher average lifetime earnings.

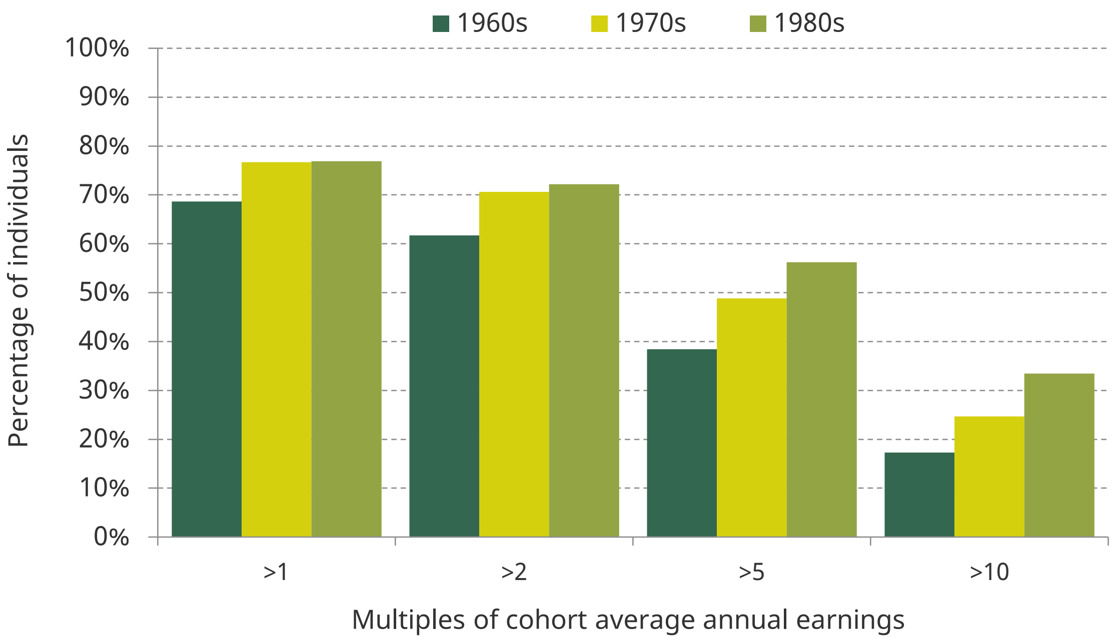
involved in our estimation, we do not place strong weight on these differences. In sum, the larger inheritances received by the more highly educated are approximately matched by their larger lifetime earnings such that there is no evidence that inheritances will increase inequalities *between* education groups. This holds true within each of the three birth cohorts.

Figure 5.4. Distribution of inheritances by birth cohort, as a percentage of mean lifetime earnings within the birth cohort



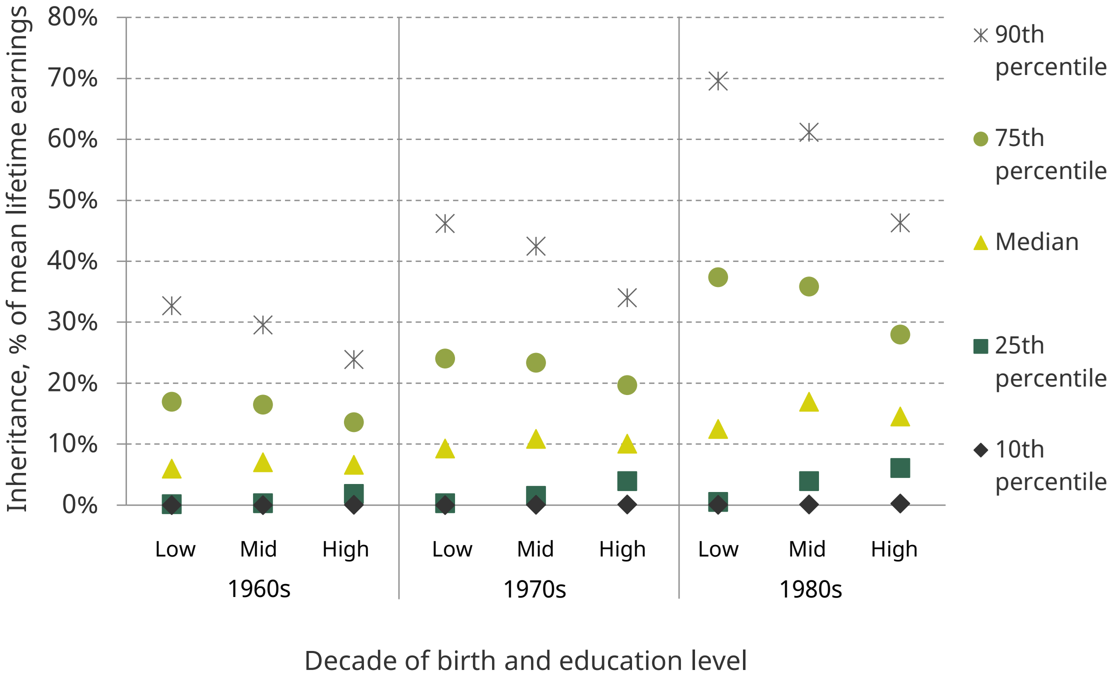
Source: Authors' calculations using the FES, ELSA and the LS (ONS).

Figure 5.5. Percentage of individuals in each birth cohort expected to inherit different multiples of average annual earnings for their birth cohort



Source: Authors' calculations using the FES, ELSA and the LS (ONS).

Figure 5.6. Percentiles of the distribution of inheritances expressed as a percentage of mean lifetime earnings, by decade of birth and education level



Source: Authors' calculations using the FES, ELSA and the LS (ONS).

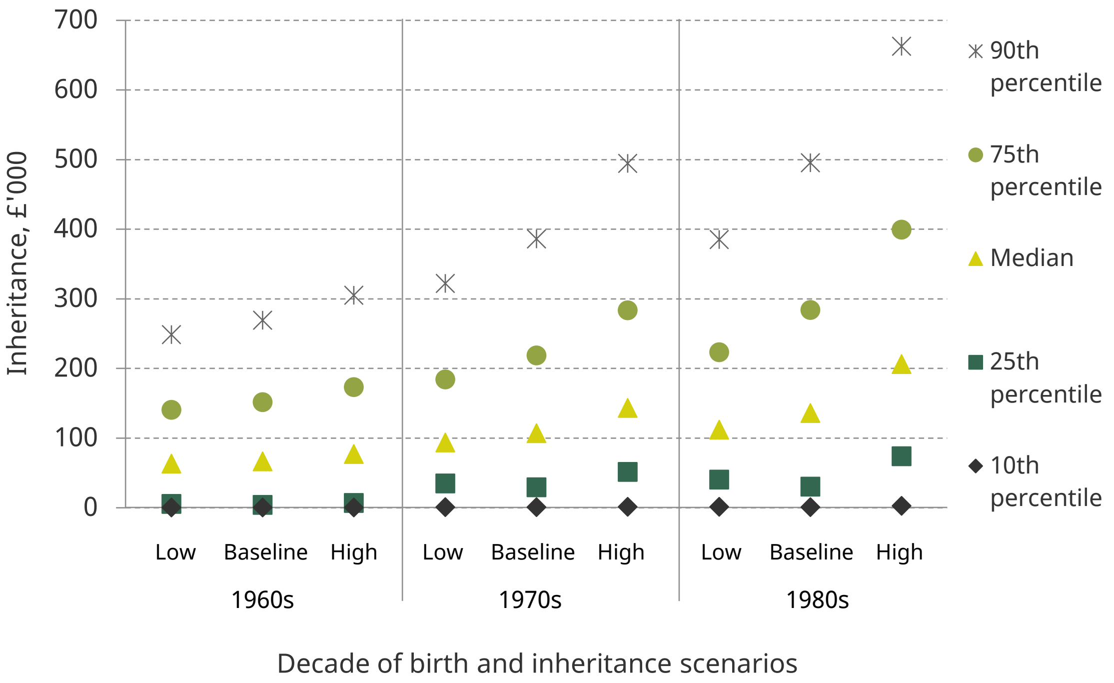
5.3 Alternative scenarios

The results in the previous section illustrate the inheritances that we would expect to be received if trends in economic conditions and household behaviour observed in the past continue into the future. For example, if households to some extent save 'passively' by staying in their home in retirement, and allow their wealth to change as house prices appreciate or fall, then their wealth held at death will depend on the dynamics of house prices. Implicitly, we assume in our main results that the average growth in asset prices (and other economic conditions) experienced over the period 2002–17 will continue into the future. A second example is the change in household behaviour that may result from the 2014 'pension freedoms' reforms. By removing the effective requirement to annuitise defined contribution pension wealth, these changes *may* result in more of this wealth being held in a bequeathable form until death, and passed on to heirs. There is in fact a strong tax incentive for those who wish to leave a bequest to do so using a defined contribution pension as these can generally be passed on without inheritance tax being due (nor income tax being payable by the heir if the deceased died before age 75). A third example is the possibility that social care costs will consume more of the wealth of the elderly in future than they do at present.

In this section, we show the sensitivity of our main results under alternative scenarios for the path of future wealth. There are many uncertainties that could impact on household wealth holdings in future years, including changing economic conditions, government policies around taxation and pensions, changing household composition and changing attitudes towards the use of wealth and inheritances. Rather than attempt to explicitly model the impact of these, we show how our results would vary if households tended to decumulate their wealth somewhat more slowly and if they tended to do so somewhat more quickly. Specifically, we show results in the cases where each household draws down their wealth on average 1 percentage point less and 1 percentage point more than in the baseline, in each year. These scenarios represent substantial, though not implausible, departures from the baseline scenario.

Figure 5.7 compares the distributions of inheritances under these alternative scenarios with the baseline predicted levels of inheritances. The biggest differences in the distributions of inheritances between scenarios, both in absolute and in percentage terms, are for those born in the 1980s. This is because their receipt of inheritances is furthest in the future and hence most uncertain. Under our high scenario, the median inheritance of an individual born in the 1980s is £206,000, 52% higher than in the baseline. Under the low scenario, the median inheritance of those born in the 1980s is £112,000, 18% lower than in the baseline. For those born in the 1960s, by contrast, the median inheritance is 16% higher under the high scenario, and 4% lower under the low scenario, than in the baseline. It is worth noting that under each scenario, we would expect a quite substantial rise in the size of inheritances received by those born in the 1970s and 1980s as compared with those born in the 1960s.

Figure 5.7. Percentiles of the distribution of inheritances, by decade of birth, under baseline and alternative scenarios



Note: The 'low' scenario refers to a simulation in which the annualised change in wealth of each household is 1 percentage point (of initial wealth) lower than in the baseline. The 'high' scenario refers to an equivalent simulation in which the change in wealth is 1 percentage point higher than in the baseline.

Source: Authors' calculations using ELSA and the LS (ONS).

6. Conclusion

Parents of the 1960s-, 1970s- and 1980s-born generations hold more wealth than the parents of their immediate predecessors. Parental wealth holdings are very unequally distributed, and differ substantially across regions and for those with different levels of education.

In the recent past, older households have tended to continue building up wealth until around age 70, before drawing down on this wealth only slowly in older age. If those patterns remain an approximate guide to how wealth evolves at older ages in the coming years (and assuming that inheritance tax continues to apply to only a small minority of estates), the sizes of inheritances received would grow significantly across successive generations and would largely reflect the huge inequalities seen in parental wealth holdings today.

A lot can happen to affect the levels of inheritances that will be received in future, particularly for those born later, most of whom will not receive any inheritance from their parents for over 20 years. The current COVID-19 crisis could hardly be a starker reminder of how unforeseen events can affect any prediction. There is clearly a possibility that the wealth of those at older ages will not grow as fast as it otherwise would have, and may fall in value, in the coming years – for example, due to a slowdown in the housing market. However, while much is uncertain, the big-picture trends look clearer: even if patterns in the drawdown of wealth at older ages differ quite markedly from those in the past, we would still expect a substantial rise in the size of inheritances received by those born in the 1970s and 1980s as compared with those born in the 1960s.

As parents live longer and have children at later ages, the age at which inheritances will be received will increase. Even when comparing those born in the 1960s with those born in the 1980s, we see an increase in the average age at inheritance receipt of five years, with a large proportion of those born in the 1980s unlikely to inherit until they are close to, or in, retirement.

What are the implications of these findings? While those born later are likely to receive much larger inheritances than their predecessors, they are currently experiencing the stagnation of their own levels of earnings and wealth when compared with those born earlier. Projecting levels of earnings into the future, it looks likely that inheritances are set to become a more significant component of overall lifetime resources for younger generations, unless their own levels of earnings or rates of return on their wealth pick up substantially. The ongoing COVID-19 crisis makes this unlikely in the short term and threatens long-term damage to the earnings prospects of younger generations, exacerbating these trends further.

One consequence of this is that inheritances may play a role in addressing some concerns about ‘low’ levels of wealth of younger generations, at least when viewed at the aggregate level. However, our findings suggest important caveats.

First, in many cases, these wealth transfers look set to happen only rather late in the lives of the receiving generation. A third of those born in the 1980s will not inherit anything until at least their 70s. In broader terms, this is good news, since the main explanation is rising life expectancy among their parents. But when it comes to concerns about intergenerational economic inequality, it means that inheritances are going to be a less powerful 'leveller' than they would appear ignoring this fact – limiting their use as a means of helping with investments in housing, or with the costs of raising children, for example. Of course, this in turn may lead to an increasing share of transfers of wealth taking place before death for those parents who feel able to do that without taking risks with their own financial situation late in life – a topic worthy of further research.

Second, we find that there are likely to be significant inequalities in the inheritances received, with around a fifth of each cohort receiving no significant inheritance at all. Those who receive large amounts also look likely to be those who are already better off: graduates are expected to inherit almost twice as much as those with no qualifications beyond GCSEs (although these amounts are similar when compared with each group's expected earnings from work). Those whose parents live in the south of the country, and especially London, are also set to inherit far more. Parental wealth levels in London have far outpaced those in other areas of southern England where, in the past, wealth levels were similar.

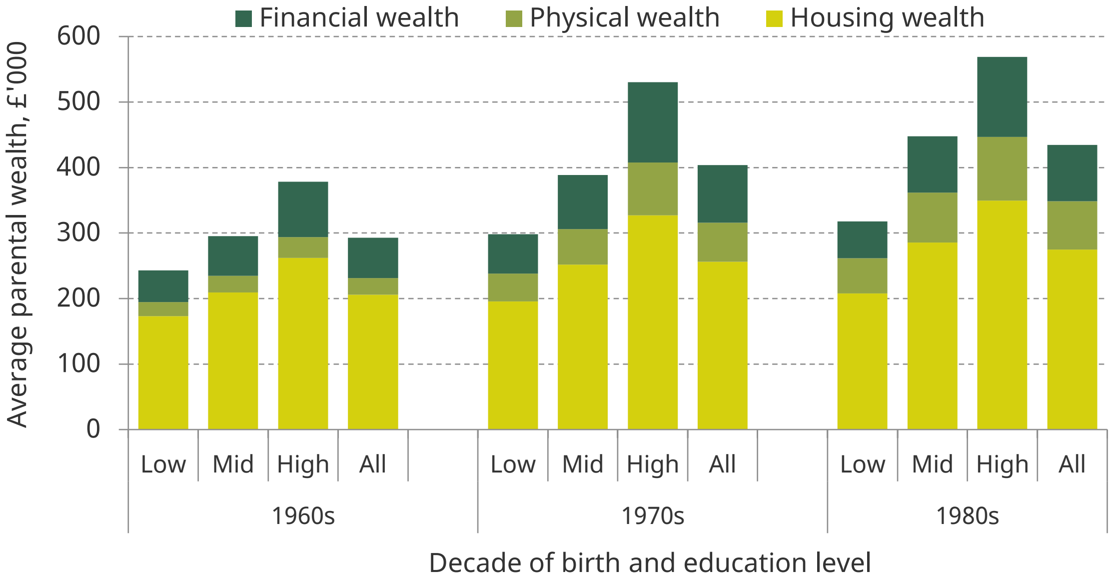
If inherited wealth does come to comprise a larger part of the lifetime wealth of younger generations, this could raise concerns about equality of opportunity and social mobility, given the potential for it to entrench differences in economic status across generations. The design of inheritance and capital taxation may become increasingly consequential in determining individuals' wealth levels. Our finding that inequality in inheritance receipt does not look likely to increase across generations (in that increases look to be similar across the distribution in proportional terms) may temper these concerns somewhat. But when the overall scale of inheritances is increasing so rapidly, the scope for them to be impacting overall economic inequalities is clearly growing, even if inequalities in inheritances per se are relatively stable.

However, the ultimate implications of inheritances for inequalities in wealth and living standards will depend on who exactly receives these inheritances and whether they exacerbate or ameliorate existing inequalities. That in turn will depend on how households react to the receipt (and perhaps the anticipation of the future receipt) of inheritances. Further work following on from this report will be examining precisely those issues.

Appendix

A.1 Additional tables and figures

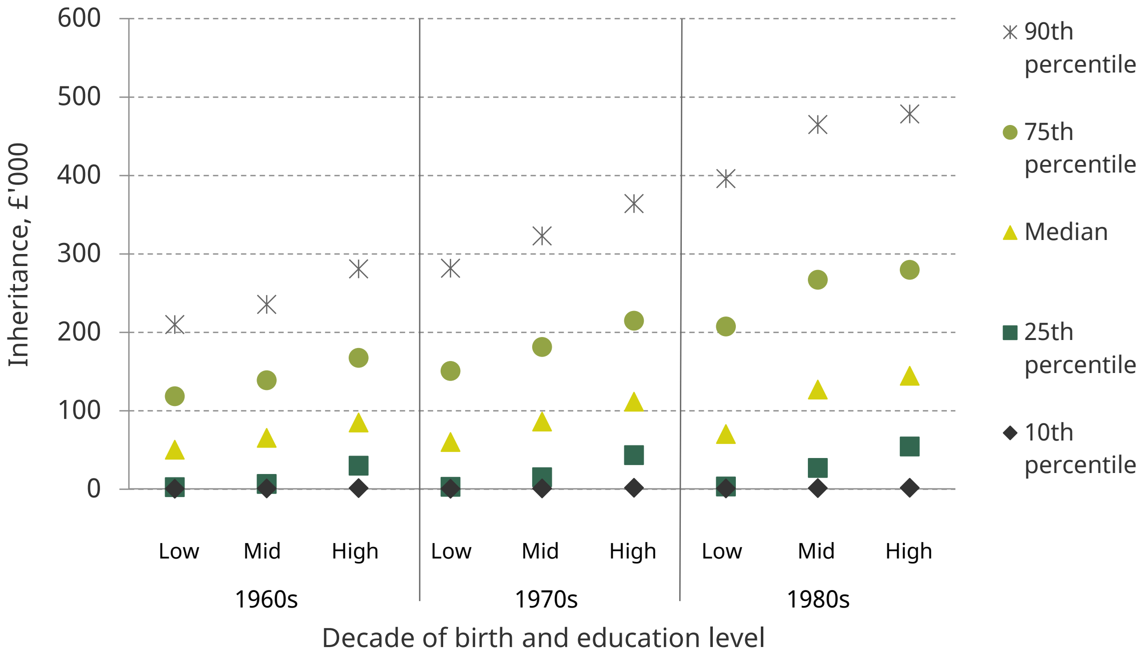
Figure A.1. Average parental wealth, by decade of birth and education level: not age-adjusted



Note: Wealth estimates for each education group are created by weighting the ELSA data using estimates from the LS, as described in Chapter 2.

Source: Authors' calculations using ELSA and the LS (ONS).

Figure A.2. Percentiles of the distribution of inheritances, by decade of birth and education level: scenario where only biological children inherit



Note: Inheritances are estimated as described in Chapter 5 and in Section A.2.

Source: Authors' calculations using ELSA and the LS (ONS).

A.2 Detailed data and methodology description

In order to analyse the impact that inheritances are likely to have on inequality within younger generations, we require a substantial amount of information. First, we need information on the characteristics of those who are expected to inherit, whom we here refer to as part of the 'receiving generations'. Second, we require information on the characteristics of these individuals' parents and, crucially, the wealth of those parents. Lastly, we must be able to link the two sets of information – ideally at the individual level, linking specific members of younger generations to their parents directly – so that we can estimate who will inherit what. Unfortunately, there is no data set for the UK that meets all of these criteria and covers all of the cohorts that we are interested in – namely, people born between 1960 and 1989 and their parents.[11] We therefore combine information from two main data sets: the Longitudinal Study of England and Wales (LS) and the English Longitudinal Study of Ageing (ELSA). We explain the method for combining the information from these two sources in the following subsections. We also make use of a third data set, the Wealth and Assets Survey (WAS), to 'age-adjust' wealth levels as described in the final subsection.

Longitudinal Study: intergenerational link

The LS is a longitudinal census and life events data set which covers 1% of the population of England and Wales. Individuals become part of the LS if they are born on one of four (undisclosed) birth dates in a calendar year. There are currently five linked successive censuses available, which were conducted decennially from 1971 to 2011. Each census round contains information on over 500,000 individuals. In addition to extensive information on census members, the LS also includes information on all individuals living in the same household as the LS member at the time that the census was taken. Only LS members, however, are followed over time irrespective of who they live with. This means that we can only observe both LS members and their parents simultaneously at those censuses when they are living together. In practice, this means we can only include LS members that are observed at a young age in our sample: for those LS members only observed at older ages (i.e. those already adults by 1971), the set of individuals whose parents are also observed is a highly non-random subsample (i.e. it is those who live with their parents during their adult years).

We hence restrict the 'receiving generations' sample to individuals who were observed at least once at the age of 16 or below and again aged 19 or older. Essentially all children still live with their parents at the age of 16 and below;[12] restricting our sample in this way prevents us from oversampling the types of individuals who live with their parents at older ages. We additionally restrict our sample to individuals who are observed at least once at the age of 19 or older, so that we are able to infer their highest level of education.[13] We are

[11] Understanding Society (USoc), which supersedes the British Household Panel Survey (BHPS), is a household panel survey which in combination with the BHPS covers the years 1991 to 2017–18. It contains information on respondents' characteristics and information on their wealth (for five waves) and provides a link between parents and children for those children who are observed when in the same household as their parents in at least one wave. However, given the years it examines, we are not able to use it for this research, as we would only be able to include people born in the mid 1970s to early 1990s.

[12] Analysis using the BHPS and Understanding Society confirms this.

[13] We assume that anyone who is still at university at the age last observed will indeed go on to obtain a degree and anyone who has not begun university by that point will not obtain a degree in the future. For brevity, we refer to the former group as those having a degree.

interested in the educational attainment of the 'receiving generations', as a proxy for their likely lifetime socio-economic position. We use it to group the 'receiving generations' and analyse differences in the distribution of expected inheritance receipt across those groups.

Our core sample therefore comprises people born between 1960 and 1989 and for whom we observe both their own educational outcomes and those of their parent(s). The education variable available in the LS has changed across the census years. Given that parents are only observed in the earlier censuses, where the education variable is less fine-grained, we are restricted to using a two-way education classification for them (splitting simply by whether or not people have a degree or other higher education qualification). For the 'receiving generations', who we can follow over subsequent years and thus are observed also in later censuses, we can construct a three-way education variable. This splits these individuals into three groups: those with a degree ('high-educated'), those who completed A levels and/or received a higher education qualification other than a degree ('mid-educated') and those who have no education qualifications higher than GCSEs ('low-educated').

Table A.1 presents some summary statistics by decade of birth and education level.

Table A.1. Summary statistics from LS, by decade of birth and education level

Decade of birth	**1960s**			**1970s**			**1980s**		
Education	Low	Mid	High	Low	Mid	High	Low	Mid	High
Mean year of birth	1965	1965	1965	1974	1975	1975	1985	1985	1984
Homeownership rate	67%	76%	84%	51%	61%	71%	40%	52%	60%
% employed at 30+	74%	82%	88%	71%	83%	89%	68%	84%	91%
% with non-single parents	78%	80%	84%	73%	78%	83%	66%	75%	80%
% with at least one parent with a degree	9%	15%	33%	16%	24%	46%	28%	44%	59%
Mean year of birth, mother	1938	1938	1937	1949	1949	1948	1959	1958	1956
Mean year of birth, father	1935	1935	1934	1946	1946	1945	1956	1955	1953
Average age difference from parents	27.8	27.9	28.6	26.4	26.8	28	26.6	27.8	29.1
Parental homeownership rate	52%	60%	77%	62%	74%	86%	61%	77%	86%
% where at least one parent is in paid work	87%	90%	94%	81%	87%	92%	75%	86%	91%
% where at least one parent is unemployed	8%	7%	5%	11%	8%	5%	10%	7%	5%
Number of observations	39,932	12,106	22,770	26,489	12,107	23,607	24,289	13,748	19,335

Note: Homeownership includes both owning a home outright and having a mortgage. It is measured as the average of all homeownership observations for when individuals are aged 30–60. Employment and unemployment rates of parents are calculated as an average of all observations for when the parents are aged 25–60.

Source: Authors' calculations using the LS (ONS), censuses 1–5.

One thing we do not observe in the LS, but which we need in order to be able to estimate the distribution of inheritances that our 'receiving generations' could receive, is parental wealth. We thus use information from an additional data set, ELSA, as described below.

English Longitudinal Study of Ageing: wealth and expected inheritances

ELSA is a household panel study that collects information on a representative sample of individuals living in England and aged 50 and above. There have been eight waves so far, conducted biennially from 2002–03 to 2016–17. Importantly, ELSA collects detailed information on wealth and bequest expectations and its sample members include the birth cohorts corresponding to the parents of our 'receiving generations' – broadly, parents born in the 1920s to 1960s. Additionally, ELSA provides information on the year of birth of all children of all sample members so we can match precisely each parent in the ELSA data to the cohort of their children. It also provides information on whether children are biological, step- or foster children. This allows us to estimate inheritances under two different bequest scenarios, one where only biological children inherit the wealth of their parents and one where all types of children (so also step- and foster children) inherit. The results under the first scenario are presented in the main text while the results under the second are presented in this appendix.

In addition to the information in ELSA on current wealth, we wish to analyse estimates of the bequests that will be left at the end of life. We do this by estimating a model of wealth 'decumulation' and using this to predict wealth in each future year for each household in the event that at least one parent in the household is still alive in that year. We then estimate the probability that each member of the household will die in each future year and calculate the probability that the final member of the couple dies in each future year. Combining all this, we obtain a distribution of estimated bequest levels and ages of parental death for each household. We now describe the process of estimating and predicting these bequest distributions in more detail.

Estimating wealth 'decumulation' and predicting future wealth levels

We first estimate a regression model using the ELSA data, where the outcome variable is a household's level of wealth and the explanatory variables are the household's level of wealth in the previous wave (i.e. two years earlier) interacted with various characteristics and time controls. The wealth measure used is total net wealth, which we transform using the inverse hyperbolic sine function.[14] The interacted characteristics are age (measured by four dummy variables for whether the average age of the household is under 60, 60–69, 70–79 or 80+), decade of birth (in dummies), education (a two-category variable), a dummy for whether the individual was a homeowner at the start of the sample period, and marital status (a series of dummies for whether a household is a couple, widow, widower or single/divorced individual). We also include the square of wealth and the interaction of wealth, age and education. The time controls are a series of dummy variables for each wave of the ELSA survey. This specification can be written as

$$ihs(w_{i,t}) = ihs(w_{i,t-2}) \times [\alpha_1 age_{i,t} + \alpha_2 age_{i,t} \times educ_i + \alpha_3 mar_{i,t} + \alpha_4 ihs(w_{i,t-2}) + X_i'\beta + \lambda_t] + \epsilon_{i,t}$$

[14] The inverse hyperbolic sine transformation approximates the log function but is equal to zero at zero and is defined for all, including negative values. It is commonly used when estimating regression models of wealth and other variables where zero and negative values are important.

where $ihs(w_{i,t})$ denotes the inverse hyperbolic sine of wealth of household i at time t, $age_{i,t}$ is the series of age-group dummies for household i at time t, $educ_i$ is the series of dummies for the education level of household i, $mar_{i,t}$ is the series of dummies for marital status of household i at time t, X_i is a vector of permanent characteristics including initial homeownership, decade of birth and education, λ_t is the series of time dummies and $\epsilon_{i,t}$ is the household-specific shock to wealth at time t.

The interpretation of this specification is that wealth now is related to wealth two years ago, and the nature of this association can vary over time and can depend on household characteristics. This is a first-order autoregressive process for wealth where the autoregression coefficient depends on household characteristics and time effects. We include covariates that economic theory and evidence lead us to expect will be associated with the rate of growth or decline in wealth. For example, Crawford (2018a and 2018b) finds that the rate at which financial wealth is drawn down in retirement varies by age, the initial level of wealth, whether the household is a homeowner and other characteristics. The time effects are constrained to sum to zero.[15] The interpretation here is that we allow for macroeconomic conditions (including asset price fluctuations) to impact the rate of accumulation of wealth, but assume that these fluctuations 'even out' over the economic cycle. In so far as any trend in economic conditions (such as long-term increases in earnings or asset prices) impacts the rate of accumulation or decumulation of wealth of households, this is implicitly assumed to have the same impact on wealth accumulation or decumulation in future years in our estimates.

We estimate this regression model by pooling together all observations of ELSA households that have at least one child and where wealth was observed in the previous wave.

We use the estimated model to simulate future household wealth levels, contingent on survival in each future year, in the following way. Starting from the first wealth observation, we calculate the value of the inverse hyperbolic sine of wealth two years later predicted by the model. We then add to this a regression residual drawn from the estimation sample. We draw this residual at random from households that are of the same age group, education level, level of predicted wealth and quartile of the child education propensity score distribution.[16] Intuitively, we draw a residual from observations in the estimation sample that are 'similar' in terms of characteristics to the observation for which we are making a prediction. By performing this procedure iteratively, we obtain a prediction of household wealth in each future year (until the oldest surviving member of the couple would reach age 110), with two-year gaps. We interpolate wealth between these two-year gaps to get a predicted level of wealth in each future year. As one of the characteristics that is included in our prediction is marital status (with separate values for couples and people who are widowed), we make a set of predictions of wealth in each future year for each couple. Each prediction corresponds to one possible age of first death in the couple (for a couple where both are observed at age 60, this implies 101 different predictions for wealth in each future year, for example). We note here that when making

15 See Deaton and Paxson (1994) for details and further discussion of this restriction.

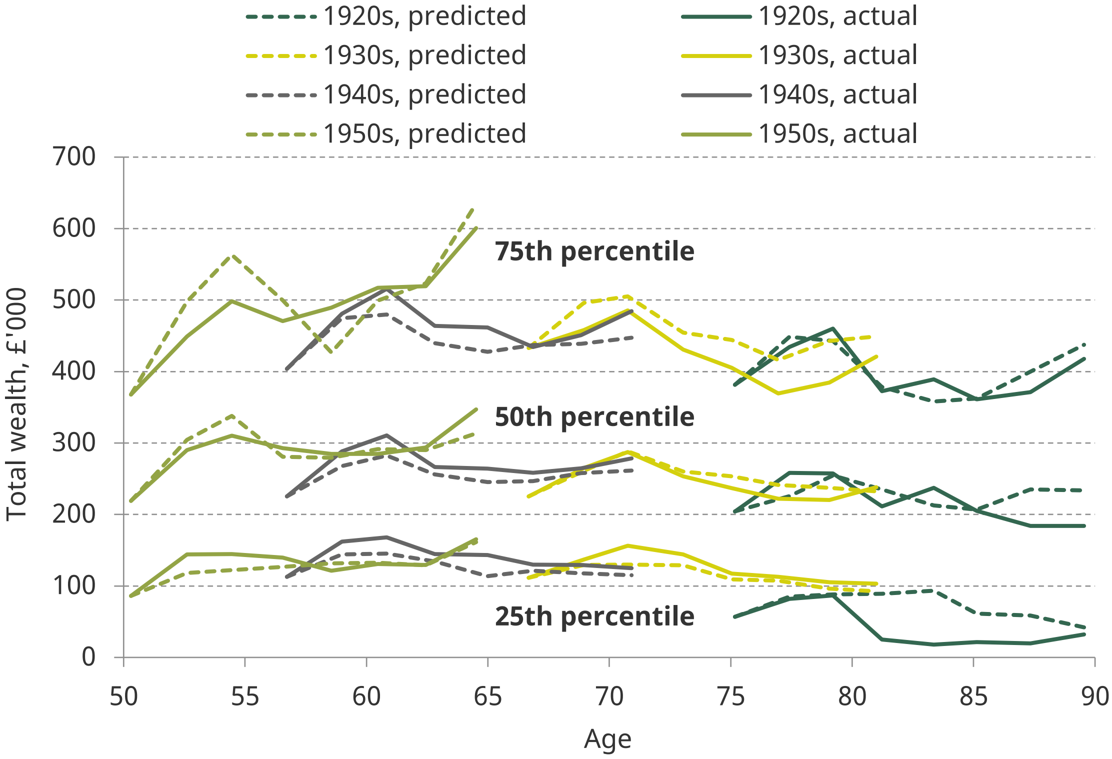
16 The assigning of residuals based on wealth level is achieved by selecting a residual from an individual with predicted wealth level in the same predicted wealth 'bin' as the observation. Bins are created by putting the predicted wealth levels for the relevant groups of observations in the estimation sample into 100 quantiles (within age, education and propensity score groups). The child education propensity score is the value of the predicted latent variable estimated from the ordered probit described in the penultimate subsection.

predictions, we set the time effects to zero. Given the time effects were constrained to sum to zero, this means that our simulations implicitly assume that any overall trend in the rate of wealth accumulation/decumulation between 2002 and 2017 (which is not explained by the other variables in our model) will continue into the future and that there will be no fluctuations around this trend.

Figure A.3 shows the results of a check of the 'in-sample' fit for the decumulation modelling, where we conduct our decumulation simulation process starting with the wave 1 wealth observations and predicting forward until wave 8. We include only those households that were present in all waves, so that we can compare the predictions and the actual data. The figure compares predicted wealth and actual wealth amongst this sample for each cohort of ELSA sample members at the 25th percentile, 50th percentile (i.e. median) and 75th percentile. The fit at other points in the distribution is similarly close (excluding the very top few percentiles, where wealth dynamics are more difficult to model).

The estimated model predicts mild accumulation of wealth up until age 70 and mild decumulation at ages older than 70. Figure A.3 embodies this pattern, although it is somewhat obscured by the cyclical build-up of wealth over the first four waves of ELSA (up until the financial crisis) and the sharp fall from wave 4 to 5 (from 2008–09 to 2010–11), followed by slower growth until a pick-up in the final two waves. Figure A.4 shows an example of the 'out-of-sample-period' prediction of the model. It shows the median wealth levels of selected cohorts for those households that were present in wave 8,

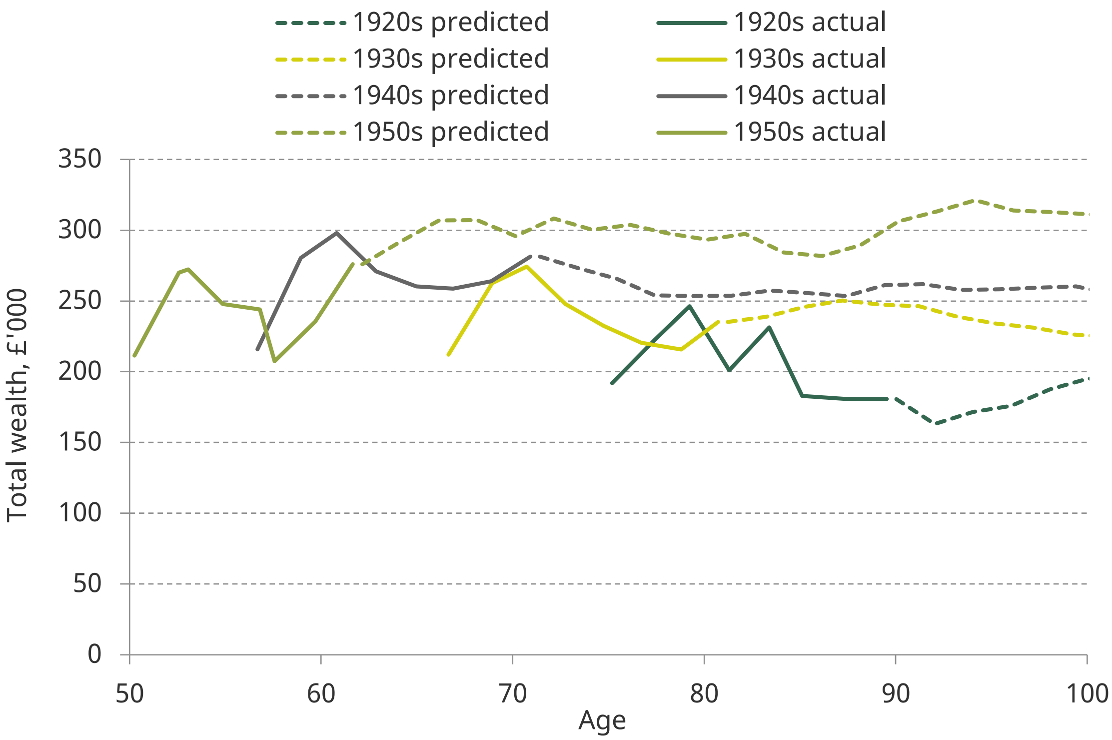
Figure A.3. 25th, 50th and 75th percentiles of predicted and actual wealth, by decade of birth and age



Note: Sample includes all households present in each of waves 1–8 of ELSA.

Source: Authors' calculations using ELSA.

Figure A.4. Median simulated and actual wealth, by decade of birth and age



Note: Sample includes all households present in wave 8 of ELSA.

Source: Authors' calculations using ELSA.

showing both actual wealth over the ELSA period and simulated wealth in future years. This chart shows simulated wealth holdings under the assumption that all individuals survive to past age 100. We see the prediction of mild wealth accumulation for the 1950s-born households up until age 70 and mild decumulation of wealth by the 1940s-born households after age 70, but broadly the pattern is of flat wealth levels. This pattern of flat levels of wealth holds, broadly speaking, across the wealth distribution in our simulations. This pattern of broadly flat wealth holdings is consistent with the findings of previous analysis of the use of wealth at older ages (see Crawford (2018a and 2018b)).

Estimating survival probabilities of parental households

We now describe the method for determining the probability distribution for the timing of death of the final member of each parental household. Our starting point is the ONS cohort 'survival curves'. These are specific to sex and year of birth, for individuals in England and Wales. Our first step is to construct survival curves that are specific to sex and year of birth *and* education level and marital status. We do this for the two-category measure of education used for the parental cohorts and for a two-category measure of marital status, which is couple (including widows and widowers) and single (including those who are divorced or separated). We draw on a link between ELSA and administrative mortality records. For any individual who has been a member of the ELSA sample in any wave, we know, up until April 2018, whether they are alive or dead and the date of their death.[17] We apply the method used in O'Dea and Sturrock (2018). This involves the following steps.

We first calculate the mortality hazard rates at each age for each sex, cohort, education and marital status group. We then run a weighted linear regression of the log of these hazard rates according to the following specification:

$$\log(haz_{a,s,c,e,m}) = \beta_1 age + \beta_2 age^2 + \beta_3 age^3 + \beta_4 educ + \beta_5 mar + \epsilon_{a,s,c,e,m}$$

where $haz_{a,s,c,e,m}$ is the age–sex–cohort–education–marital-status-specific hazard rate, age is the age, $educ$ is a series of dummies for the two education groups, mar is marital status (in dummies), $\epsilon_{a,s,c,e,m}$ is the error term, and the weights are the number of observations underlying each calculated hazard rate. The second step is to predict the hazard rate for each group at each age, using the estimated parameters. For each sex, cohort, education and marital status group, we take the mean ratio between the ONS life table hazard for the corresponding sex and cohort and the predicted hazard rate from the regression. This gives us a mean difference in mortality rates between this group and the ONS mortality rates for the sex and cohort group of which they are a part. Next, we re-scale these sex–cohort–education–marital-status-specific ratios such that their mean is 1 when weighted by the proportions of these groups within the sex-and-cohort group. Finally, we construct survival curves specific to each sex–cohort–education–marital-status group: taking the ONS survival curves for the corresponding sex-and-cohort group and multiplying the hazard rates at each age by the scaling factor for that group, yielding a new survival curve.

Thus far, we have described the method for constructing individual survival curves for different types of individual. To construct a survival curve for a couple that will tell us the distribution of the age of the second death in the couple, we take the relevant individual survival curves, assume independence of the distributions of timing of death within couples and obtain the resulting joint distribution of their timings of death. We thus have, for each household in ELSA, a distribution of the timing of the final death in the parental household.

Distribution of possible bequests

By combining the estimates of wealth at each older age (given every possible age of death for singles and every possible combination of ages of death for couples) with the probability of each possible timing of parental deaths, we obtain the different possible levels of bequest that each ELSA individual or couple may leave as well as the likelihood of each bequest occurring. Note that this method assumes that the level of wealth held at each age depends on the age at which the first member of a couple dies, and on the age of the second member of a couple (or age of an individual), but does not depend directly on the age at which the final member of the household dies. In other words, use of wealth does not directly depend on the time left until death. For a minority of those in our 'receiving generations', their parents have already died, potentially leaving a bequest. To capture these bequests, we include in our predicted bequest distribution the final wealth level observed for those individuals who were observed in ELSA in any wave since wave 1 and have died subsequently.[18] This leaves us with an ELSA data set which contains current

[17] A small proportion of respondents did not consent for their mortality records to be linked to ELSA. But for all of these individuals, we obtain a date of death reported by other members of their household and/or family.

[18] As ELSA wave 1 was in 2002–03, this means that we do not capture bequests made before this point.

wealth, predicted bequests and other characteristics of the parents of our ‘receiving generations’ of interest.

As a final step in terms of data preparation, we convert our parent-level data set into a child-level one using information on the number of children and birth cohort of the children of individuals observed in ELSA. Where not all parents (or just one parent under the ‘only biological children inherit’ scenario) of a child are observed because the parents have separated or do not live in the same household, we assume that the unobserved parent(s) have the same level of wealth as the observed parent and reweight these observations accordingly to avoid double-counting. So, for example, if we observe a separated, single parent with one biological child, that child is assumed to inherit the same amount of wealth from its other (unobserved) biological parent. Its survey weight is then halved to avoid double-counting.

By applying the inheritance tax system to the bequest amounts and splitting the resulting after-tax estate equally between all children (or all biological children under the ‘only

Table A.2. Summary statistics from ELSA, by child cohort

Decade of birth	1960s	1970s	1980s
Mean year of birth	1965	1974	1984
Number of siblings	2.5	2.0	1.8
Mean year of birth, parents	1936	1946	1954
% with at least one parent with a degree	24%	42%	58%
Average age difference from parents	28	28	30
Parental homeownership rate	74%	79%	79%
Mean total wealth of parents (£, 2017–18)	326,264	469,802	493,457
Mean housing wealth of parents (£, 2017–18)	226,727	289,484	304,963
Mean financial wealth of parents (£, 2017–18)	70,570	106,201	103,799
Mean physical wealth of parents (£, 2017–18)	28,910	74,137	84,052
Mean per-child total wealth of parents (£, 2017–18)	160,768	252,663	301,350
Mean per-child age-adjusted total wealth of parents (£, 2017–18)	123,075	194,138	241,609
Number of observations	3,584	3,219	1,722

Note: Unit of observation is the children of ELSA sample members in each wave. Age adjustments to wealth levels are made as described in the final subsection.

Source: Authors’ calculations using ELSA waves 1–8.

biological children inherit' scenario), we obtain a distribution of possible inheritances for each child (and associated probability of occurrence).[19] This child-level data set now contains information on parental education and wealth, as well as the full distribution of expected parental bequests and inheritances, but as yet no characteristics of the children themselves, besides birth cohort and number of siblings. We address this by combining the information from ELSA with the information obtained from the LS, described above. The way we achieve this data combination is described in the next subsection.

Table A.2 presents some summary statistics from ELSA by child cohort under our main scenario where all types of children inherit.

Combining information from the LS and ELSA: getting the distribution of inheritances by characteristics of the 'receiving generations'

The ultimate aim of this research is to study the impact that inheritances will have on inequality within younger generations. In order to do so, we require information on those who are to inherit, the 'receiving generations', which ELSA does not provide (beyond year of birth).

To obtain this information, we first estimate the probability that each child of an ELSA parental household is 'low-', 'mid-' or 'high-'educated. Education is a natural and common differentiator to use, as it is a good proxy for likely lifetime socio-economic position. Using these probabilities, we can then calculate statistics of interest for each cohort and education group by calculating the statistic using observations in the 'derived ELSA data set' (see above), but weighting the observations according to the estimated probability that they are of the education level in question. For example, to calculate mean parental wealth for high-educated individuals born in the 1980s, we take the derived ELSA data set, keep only observations of children born in the 1980s and then calculate the weighted mean of their parental wealth levels where the weight used for child *i* is the estimated probability that the child *i* is high-educated.[20] In what follows, we describe how we construct these weights.

To estimate the probability that a child of an ELSA sample member has a certain level of education, we use the LS, which contains a number of pieces of information about parents and their children (such as birth year, parental education and other parental characteristics) that are contained in ELSA, but crucially also contains the child's level of education. This means that we can estimate the probability that certain types of child have

[19] We assume that inheritance tax rates and thresholds stay constant at their 2020–21 levels (with thresholds uprated in line with inflation in future years). We assume that all estates are passed to a surviving spouse who also inherits the tax-free allowances of their former partner. We model the 40% rate above the £325,000 threshold. We also model the additional £175,000 tax-free allowance for housing. As we only predict levels of total bequests, we assume that those who owned a home during the ELSA period hold 65% of all wealth at death in housing (this is the mean level amongst homeowners in the ELSA data aged between 70 and 90). We assume that all non-housing wealth is potentially taxable. This abstracts from a number of other exemptions and reduced rates, meaning that our estimates of inheritance tax paid are likely an upper bound. We estimate that around 8% of estates will be eligible for some inheritance tax. This compares with the 5% of estates that paid some inheritance tax in 2016–17, according to HMRC data.

[20] When constructing statistics from ELSA, we always use the relevant ELSA cross-sectional weights. When constructing statistics by child education and cohort, we therefore multiply these cross-sectional weights by our constructed probabilities of a child having the relevant education level.

certain education levels using the LS data and then use this to predict probabilities for children in the ELSA data.

Our education probability estimation using the LS data is a two-step procedure. In the first step, we define a set of parental household 'types'. These are the full set of possible combinations of parental decade of birth (defined as decade of mean year of birth for couples), parental education level (defined as the highest level of the two-category education level achieved in a couple) and parental marital status (i.e. whether a single parent or in a couple). For each decade of birth and education group of the 'receiving generations', we then calculate the proportion of parental households that are of each type. We denote these proportions $\alpha_{c_c,ed_c,c_p,ed_p,mar}$.

In a second step, we run a series of ordered probit regressions, one for each combination of decade of birth and parental household 'type'. The unit of observation is a member of the 'receiving generations' and the outcome variable is their education level. The explanatory variables are parental social class (in dummies), dummy for parental homeownership, dummies for geographic region of parents, average age difference between the child and their parents, the interaction of geographic region and homeownership and the interaction of homeownership and social class. We include variables that are both (1) contained in both ELSA and the LS and (2) likely to be correlated with parental wealth and with child education.

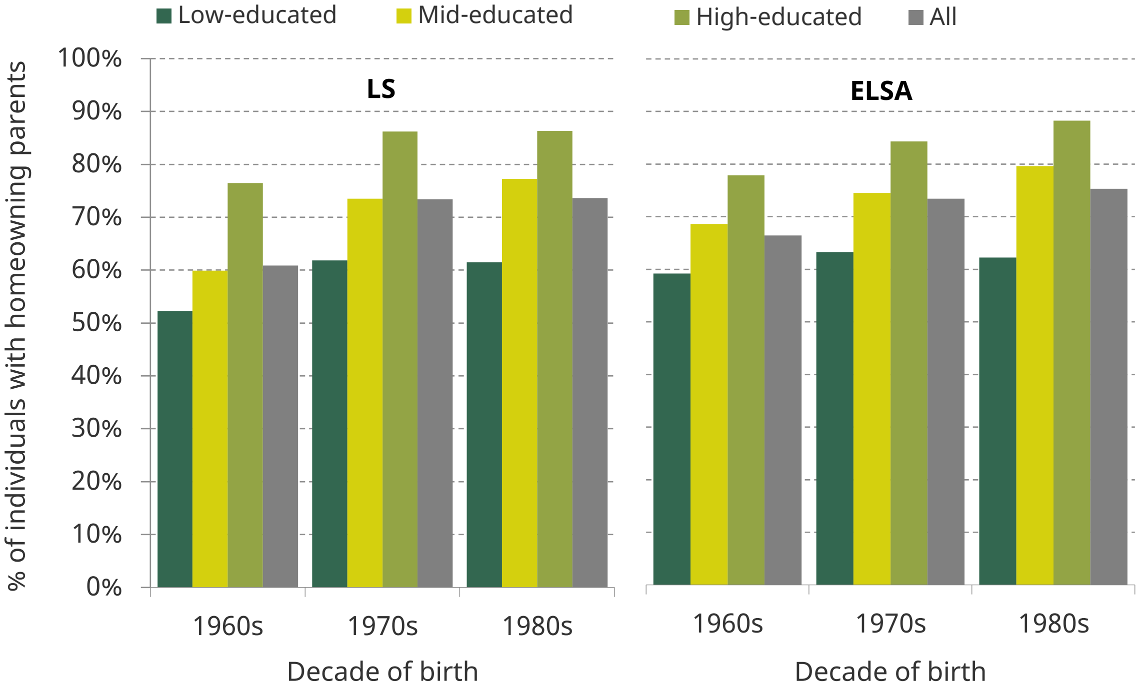
We use our estimates to construct a set of weights for each ELSA child observation in the following way. Consider constructing the weights that are used to calculate statistics for children with decade of birth c_c and education level ed_c. First, we take all observations in the derived ELSA data set that are born in decade c_c. For each observation, we predict the probability that the child has each education level ed_c, using the ordered probit estimates. We denote these estimated probabilities $\widehat{Pr}_{i,ed_c}$ (there is one for each possible education level for each person). We then calculate the weighted proportion of children that have parents of each parental household 'type' (the weights are the ordered probit estimates). We denote these proportions $\tilde{\alpha}_{c_c,ed_c,c_p,ed_p,mar}$. The weight given to observation *i* when calculating statistics for education level ed_c is

$$W_{i,ed_c} = \widehat{Pr}_{i,ed_c,} \frac{\alpha_{c_c,ed_c,c_p,ed_p,mar}}{\tilde{\alpha}_{c_c,ed_c,c_p,ed_p,mar}}$$

The idea behind this method is to take into account the different 'types' of parents that differently educated children have. The reason for conducting the ordered probit step is to account for the fact that, even conditional on parental education, year of birth and marital status, there may be a systematic relationship between child education and parental wealth. The ordered probit method tries to account for this by using other characteristics of parents that may be associated with parental wealth to predict their children's education.

Figure A.5 tests the success of this approach by showing estimated homeownership rates of parents by child cohort and education, once using the LS and once using ELSA, reweighted with our constructed weights as defined above. We use homeownership rates because they are likely to be highly correlated with wealth and bequests and they are available in both the LS and ELSA. Reassuringly, the weighted averages approach based on ELSA gives very similar homeownership rates to those obtained by using the parent–child

Figure A.5. Percentage of individuals with homeowning parents, by decade of birth and education, in the LS and in ELSA



Note: ELSA estimates are constructed using the method set out above. Homeownership includes both owning a home outright and having a mortgage and is measured as the average of all homeownership observations for individuals when aged 30–60.

Source: Authors' calculations using the LS (ONS) and ELSA.

link in LS directly, both in terms of absolute levels and in terms of the relativities between education groups. Note that the 'all' bars in the figure using LS data (left-hand side) have not been reweighted, given we observe each child's cohort directly in the LS. We are not surprised that ELSA gives us slightly higher estimates, as we have not applied an age adjustment to our estimates and individuals in ELSA are, on average, observed at an older age than those in the LS. Where we look at wealth, however, we do apply an age adjustment, as explained in the final subsection of this appendix.

Estimating lifetime earnings

We estimate average earnings for each cohort and education group in the following steps. First, we estimate an ordinary least squares (OLS) regression for log annual earnings using the specification below. Our sample is all observations on individuals born between 1930 and 1989 with positive earnings and whose education level is observed. We control for age as a series of dummies interacted with dummies for education. We include a series of cohort dummies interacted with education dummies. These allow for age profiles in earnings where the 'shape' with age is the same for each education group across cohorts and the level for each cohort and education group is allowed to vary. We control for time as a linear trend (denoted δ_t) plus a series of time dummies constrained to sum to zero (denoted DP^k, following Deaton and Paxson (1994)). This can be thought of as allowing for the general increase in earnings over time and cyclical fluctuations around this trend.

$$log(y_{i,t}) = \sum_{c=30s}^{80s} \sum_{e=1}^{3} \beta_{ce} cohort_{it} \times ed_{it} + \sum_{a=16}^{64} \sum_{e=1}^{3} \gamma_{ae} age_{it} \times ed_{it} + \delta_t + \sum_{k=1}^{45} DP_{it}^{k} + \epsilon_{i,t}$$

With this regression, we can predict a level of log earnings for all combinations of years of birth from 1960 to 1989, levels of education, and years of age. For our sample of observations, we also obtain a regression residual as the difference between actual earnings and that prediction. For years of birth and ages that are not observed in the data period, we take the observed distribution of employment status and regression residuals from individuals with the same age and education level and years of birth in the 10 closest birth years that have been observed in the data period while at that age. We then assume the same distribution of employment status and earnings residuals obtains in predictions as in this observed distribution.

The steps thus far give us a distribution of earnings at each age for each year of birth and education level. To obtain average earnings within 10-year birth cohorts and education groups, we take weighted averages of earnings at each age, weighting by the distribution of years of birth within each cohort, and then sum over all ages. To obtain average earnings for a 10-year birth cohort, we take the weighted average across the education groups within the cohort.

Age adjustment for wealth

In Chapter 3, we show a number of statistics using 'age-adjusted' wealth. The idea is to adjust wealth levels to account for the fact that wealth tends to vary systematically with age and that therefore comparing wealth levels from groups that are observed at different ages is potentially misleading. We here describe how this age adjustment is carried out.

We adjust wealth at the household level by using ratios that capture the average percentage difference in wealth levels between a household of their age and a household of the reference age being adjusted to (we use age 65 in Chapter 3). If a household consists of a couple rather than a single individual, its age is defined as the mean of the ages of the two couple members.

These adjustment ratios are constructed in the following way. We take the pooled sample of observations of households in the Wealth and Assets Survey waves 1–5. We run a linear regression using the following specification:

$$w_{i,t} = \beta_1 age_{i,t} + \beta_2 age_{i,t}^2 + \beta_3 cohort_i + \beta_4 ed_i + \beta_5 ed_i \times age_{i,t} + \beta_6 ed_i \times age_{i,t}^2 + \epsilon_{i,t}$$

where $w_{i,t}$ is total household net wealth at time t, $age_{i,t}$ is age at time t, $cohort_i$ is year of birth, ed_i is the highest education level of the household and $\epsilon_{i,t}$ is the error term. With the estimated parameters, we obtain a predicted level of net wealth as a function of age for each level of household education and year of birth. The predicted functions are increasing with age until around age 70 for each education level and are steeper for higher levels of education. Using the household year of birth of 1980, we can then, for each age and education level, obtain the ratio of predicted wealth at that age and predicted wealth at age 65. To re-scale wealth to age-65 terms, we use the relevant ratio given the household's age and level of education.

References

Atkinson, A. B. (2018), 'Wealth and inheritance in Britain from 1896 to the present', *Journal of Economic Inequality*, vol. 16, pp. 137–69, https://doi.org/10.1007/s10888-018-9382-1.

Brunner, B. and Kuhn, A. (2014), 'The impact of labor market entry conditions on initial job assignment and wages', *Journal of Population Economics*, vol. 27, pp. 705–38, https://doi.org/10.1007/s00148-013-0494-4.

Crawford, R. (2018a), 'The use of financial wealth in retirement', IFS Briefing Note no. BN236, https://www.ifs.org.uk/publications/12957.

— (2018b), 'The use of housing wealth at older ages', IFS Briefing Note no. BN239, https://www.ifs.org.uk/publications/12956.

— and Hood, A. (2016), 'Lifetime receipt of inheritances and the distribution of wealth in England', *Fiscal Studies*, vol. 37, pp. 55–75, https://doi.org/10.1111/j.1475-5890.2016.12087.

— and Mei, P. (2018), *An Overview of the ELSA 'End of Life' Data*, IFS Report no. R144, https://www.ifs.org.uk/publications/12960.

Cribb, J. (2019), 'Intergenerational differences in income and wealth: evidence from Britain', *Fiscal Studies*, vol. 40, pp. 275–99, https://doi.org/10.1111/1475-5890.12202.

Deaton, A. S. and Paxson, C. H. (1994), 'Saving, growth, and aging in Taiwan', in D. A. Wise (ed.), *Studies in the Economics of Aging*, University of Chicago Press.

Gardiner, L. (2017), 'The million dollar be-question', Resolution Foundation, https://www.resolutionfoundation.org/publications/the-million-dollar-be-question-inheritances-gifts-and-their-implications-for-generational-living-standards/.

Hood, A. and Joyce, R. (2017), 'Inheritances and inequality across and within generations', IFS Briefing Note no. BN192, https://www.ifs.org.uk/publications/8831.

Joyce, R. and Xu, X. (2020), 'Sector shutdowns during the coronavirus crisis: which workers are most exposed?', IFS Briefing Note no. BN278, https://www.ifs.org.uk/publications/14791.

Kahn, L. (2010), 'The long-term labor market consequences of graduating from college in a bad economy', *Labour Economics*, vol. 17, pp. 303–16, https://doi.org/10.1016/j.labeco.2009.09.002.

Karagiannaki, E. (2017), 'The impact of inheritance on the distribution of wealth: evidence from Great Britain', *Review of Income and Wealth*, vol. 63, pp. 394–408, https://doi.org/10.1111/roiw.12217.

Menchik, P. L. (1980), 'Primogeniture, equal sharing, and the U.S. distribution of wealth', *Quarterly Journal of Economics*, vol. 94, pp. 299–316, https://doi.org/10.2307/1884542.

Nolan, B., Palomino, J., Van Kerm, P. and Morelli, S. (2020), ‘The wealth of families: the intergenerational transmission of wealth in Britain in comparative perspective’, forthcoming.

O’Dea, C. and Sturrock, D. (2018), ‘Subjective expectations of survival and economic behaviour’, IFS Working Paper no. W18/14, https://www.ifs.org.uk/publications/12904.

Oreopoulos, P., von Wachter, T. and Heisz, A. (2012), ‘The short- and long-term career effects of graduating in a recession’, *American Economic Journal: Applied Economics*, vol. 4, pp. 1–29, https://doi.org/10.1257/app.4.1.1.

Piketty, T. (2014), *Capital in the Twenty-First Century*, Harvard University Press (translated by A. Goldhammer).

Pissarides, C. (1992), ‘Loss of skill during unemployment and the persistence of employment shocks’, *Quarterly Journal of Economics*, vol. 107, pp. 1371–91, https://doi.org/10.2307/2118392.

Social Mobility Commission (2019), *State of the Nation 2018–19: Social Mobility in Great Britain*, https://www.gov.uk/government/publications/social-mobility-in-great-britain-state-of-the-nation-2018-to-2019.

Wilhelm, M. (1996), ‘Bequest behavior and the effect of heirs’ earnings: testing the altruistic model of bequests’, *American Economic Review*, vol. 86, pp. 874–92, https://www.jstor.org/stable/2118309.

Data

Clemens, S., Phelps, A., Oldfield, Z., Blake, M., Oskala, A., Marmot, M., Rogers, N., Banks, J., Steptoe, A. and Nazroo, J. (2019). *English Longitudinal Study of Ageing: Waves 0–8, 1998–2017*. [data collection]. *30th Edition*. UK Data Service. SN: 5050, http://doi.org/10.5255/UKDA-SN-5050-17

Office for National Statistics, Department for Environment, Food and Rural Affairs. (2019). *Living Costs and Food Survey, 2002–2018*. [data collection]. *2nd Edition*. UK Data Service. Retrieved from https://discover.ukdataservice.ac.uk/series/?sn=2000028

Office for National Statistics. (2002). *Family Expenditure Survey, 1968–2001*. [data collection]. UK Data Service. Retreived from https://discover.ukdataservice.ac.uk/series/?sn=200016

Office for National Statistics. Social Survey Division. (2017). *Wealth and Assets Survey, Waves 1–5, 2006–2014*. [data collection]. *5th Edition*. UK Data Service. SN: 7215, http://doi.org/10.5255/UKDA-SN-7215-5