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Inheritances and inequality over the life cycle: what will they mean for younger generations?

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Preface

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The analysis in this report has also drawn on data from the British Household Panel Survey and Understanding Society: The UK Household Longitudinal Study. These data are distributed by the UK Data Service.

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

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Executive summary

This report provides a quantitative illustration of the possible consequences of inheritances for living standards, inequalities and social mobility for those born in the 1960s, 1970s and 1980s in the UK. We build on previous research in a number of ways including, most fundamentally, a focus on understanding impacts on all of consumption, income and wealth in an integrated way, and right across the life course, including in periods before they are actually received. There are clearly many uncertainties when attempting to estimate something so complex, and estimates should be taken in that spirit.

Key findings

The effects of inheritances on lifetime incomes

1 **Inheritances received by households over their lifetimes are set to grow in importance across subsequent generations**: from averaging about £150,000 (in today's terms), or 9% of lifetime household income, for those born in the 1960s to around £320,000, or 16% of lifetime household income, for those born in the 1980s.

2 **In other words, over a 20-year period, inheritances are, on average, set to almost double relative to the other incomes of those receiving them.** Another manifestation of this is that the median inheritance is set to rise from four times average annual earnings for the 1960s generation to eight times for the 1980s generation.

3 **Those with higher incomes are, on average, set to inherit more than twice as much as those with low incomes:** we estimate that the median lifetime inheritance receipt for households in the top lifetime income fifth amongst the 1980s generation will be around £390,000, compared to around £150,000 amongst the bottom fifth.

4 **We project that inheritances will not significantly affect the relative differences in lifetime income between rich and poor (as measured, for example, by the Gini coefficient) in the generations we examine.** While inheritances will widen the gaps in lifetime income between low- and high-income households in *absolute* terms – and will do so more for younger generations, as their inheritances will be larger – inheritances are a similar *proportion* of lifetime income, on average, for low- and high-income households. Whether this is the way in which people think about inheritances and inequality is another matter. They clearly increase absolute differences between rich and poor, and (perhaps most pertinently) they increase the differences between those with rich parents and those with poor parents, as described below.

The effects of inheritances on savings and spending

5 **We estimate that inheritances will increase lifetime consumption by 8%, on average, for the 1960s generation, rising to 14% for those born in the 1980s.** These estimates are made using an empirically grounded economic model of how households change their saving and consumption decisions as a result of inheritances.

6 **The lifetime impact of inheritances on consumption masks different effects at different stages in life and the full effect is not realised until inheritances are actually received:** households that inherited in recent decades increased their spending by an average of around £3,300 per year after that point. This is to be expected given that people are not always willing or able to reduce their saving (or increase borrowing) in anticipation of inheriting in the future, and/or that inheritances themselves can be unanticipated or uncertain in size.

7 Nevertheless, our estimates suggest that expectations of inheritance do have a significant impact in increasing spending (and hence reducing saving) for some households even before they are received – meaning they contribute to living standards within younger generations quite early in their lives. **We estimate that for those born in the 1960s, households who inherit will, on average, have spent an additional £250 per year *before* they have received their**

inheritance, as a result of anticipating an inheritance. This means that around one-fifth of their inheritance is effectively spent in advance of receiving it. **For those born in the 1980s, we estimate that this will rise to around one-quarter, or an extra £400 per year, in advance of receipt.**

8 But because our model suggests spending is increased by more once the inheritance is actually received, overall, we expect annual equivalised consumption among those born in the 1980s to be around 1% higher at the age of 30, 7% higher at the age of 50 and 25% higher at the age of 80, than it would be in the absence of any inheritances.

9 **Inheritances naturally increase wealth held at older ages, after most inheritances are received. However, inheritances also slightly reduce levels of wealth held at younger ages, as some spend more and save less in anticipation of their inheritance.** For example, inheritances are estimated to reduce the level of assets held at the age of 45 by 9% among the 1980s generation. Hence inheritances are a non-trivial factor to consider when interpreting differences in wealth across different generations.

The effects of inheritances on inequalities in living standards and wealth within generations

10 **Inheritances are likely to have a small impact on typical measures of *overall* inequalities in living standards.** We estimate that the Gini coefficient for lifetime consumption will not be materially changed for any of the generations we examine, as a result of inheritances. This is essentially because, as explained above, inheritances received rise roughly proportionally with lifetime income.

11 **However, better-off households are more likely to benefit from inheritances earlier in life.** This is *not* because they receive them earlier but rather because they are more able and willing to spend more in advance of them being received. Among those born in the 1980s, the share of inheritances spent before they are received is projected to be three times higher for the top fifth of households by

lifetime income than the bottom fifth. This is largely explained by uncertainty about how much will be inherited, and when, holding back lower-income households from spending their inheritance before it actually arrives. Limits on how much households can borrow also play a role and matter more for lower-income households.

12 **Inheritances are estimated to increase inequality in consumption slightly when households are of working age, and slightly decrease it at older ages.** This is because higher-income households spend more of their inheritance in advance than lower-income households do.

13 **Inheritances will tend to be 'worth more' to higher-income households than an equivalent inheritance received by a low-income household**. This is because higher-income households are better able to spread the extra spending from inheritances over their whole lifetimes – rather than having to concentrate it towards the end.

14 Lower-wealth households see a larger *proportional* decrease in their wealth due to inheritances at younger ages than higher-wealth households, increasing wealth inequality when generations are of working age. Although the reduction in the savings of poorer households is smaller than for richer households, they accumulate much less wealth than richer households and therefore their lower saving equates to a larger proportional reduction in their wealth. But poorer households see a larger proportional increase in their wealth upon inheritance receipt. Consequently, inheritances slightly increase wealth inequality at working ages and decrease it at older ages. For example, as a result of inheritances, the inter-quartile ratio of wealth increases by 1% when those born in the 1980s are aged 35, and decreases by 22% when they are aged 75.

15 The growing size of inheritances means that any policies that would redistribute inheritance income from those who received large inheritances to those who received smaller inheritances could have increasingly significant effects.

The effects of inheritances on social mobility

16 **The increasing size of inheritances means that they will contribute to greater inequality in lifetime income according to parental background – a metric of *social immobility*.** That is, while inheritances may make little difference to the overall (relative) gap between top and bottom, they will substantially affect *who* is at the top and bottom – making these people increasingly likely to be those with relatively rich or poor parents. For those born in the 1960s, inheritances increase lifetime incomes by 2% for those with parents in the bottom fifth of the wealth distribution, and by 17% for those with parents in the top fifth. This gap by parental background is set to grow, with equivalent figures for the 1980s generation being 5% and 29%.

17 **Inheritances look set to play a particular role in reducing upwards mobility in lifetime income for those from poorer backgrounds, in the sense that they will find it increasingly hard to climb further up the distribution than their parents did.** We estimate that, for those born in the 1960s, inheritances increase the proportion of those from the poorest fifth of parental backgrounds who end up in the poorest fifth of lifetime incomes themselves, from 38% to 41%. However, amongst those born in the 1980s, the equivalent rise is from 40% to 48%. In other words, for the 1960s generation, inheritances increase by 9% the chance that someone born to the poorest fifth of parents ends up in the poorest fifth of lifetime incomes, whereas for the 1980s generation the impact of inheritances is twice as big.

18 **Our modelling unsurprisingly suggests that this translates into inheritances making an increasing contribution to differences in material living standards by parental background.** For those born in the 1960s, we project that inheritances will increase lifetime consumption by around 4% for those with parents in the least wealthy tenth, compared to 13% for those with parents in the wealthiest tenth. For those born in the 1980s, inheritances increase lifetime consumption by 6% and 20% for those with parents in the bottom

tenth and the wealthiest tenth, respectively.

19 Overall, a decomposition analysis based on our estimates suggests that **while inheritances are projected to account for around a quarter of inequality in lifetime consumption by parental background for those born in the 1960s, this rises to a third for those born in the 1980s.**

20 Consequently, the potential role for redistribution of inheritance income to increase social mobility in incomes and living standards is likely to grow over time.

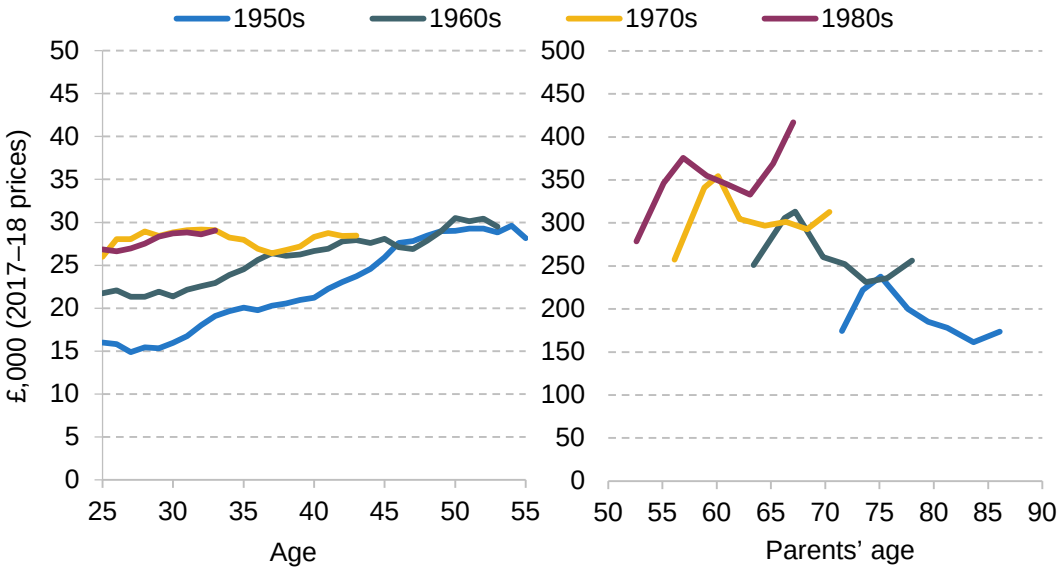
1. Introduction

Recent decades have seen dramatic rises in wealth-to-income ratios across advanced economies. For example, while in the 1970s, the total amount of household wealth held in the UK was around three times annual national income, today it equates to more than seven times annual national income (Bangham and Leslie, 2020). Rising private wealth-to-income ratios have also seen increasing flows of intergenerational wealth transfers in many advanced economies (Alvaredo, Garbinti and Piketty, 2017). In the UK, intergenerational wealth transfers rose from 4.8% of national income in 1977 to 8.2% of national income in 2006 (Atkinson, 2018).

This trend of the growing size of inheritances compared with incomes looks set to continue in the future (Bourquin, Joyce and Sturrock, 2020). While younger generations on average do not have higher income than their predecessors, the parents of successive generations are substantially wealthier than their predecessors' parents were at the same age. Figure 1.1 shows, for example that those born in the 1980s have similar average household income to that of those born in 1970s, but their parents (at the age of 70) hold 40% more wealth than the parents of the 1970s generation. Taking these patterns and projecting them forwards into the future, in our first report of this project, we estimated the average (median) inheritance of the 1980s generation to be equal to 14% of average lifetime earnings for that generation, while the equivalent estimated figure for the 1960s generation is 8% (Bourquin et al., 2020).

Inheritances are also highly unequally distributed across individuals. While just over half of households with members born in the 1930s and 1940s did not inherit anything, 13% of households inherited more than £100,000 per person (Hood and Joyce, 2017). Based on inequalities in the wealth holdings of older generations today, there are likely to be similar inequalities in the inheritances to be received in the coming decades. For example, while a fifth of those born in the 1980s are estimated to inherit less than £10,000, a quarter of them are expected to inherit over £280,000 (Bourquin et al., 2020).

Figure 1.1. Median equivalised household income (left) and median parental wealth (right) by decade of birth



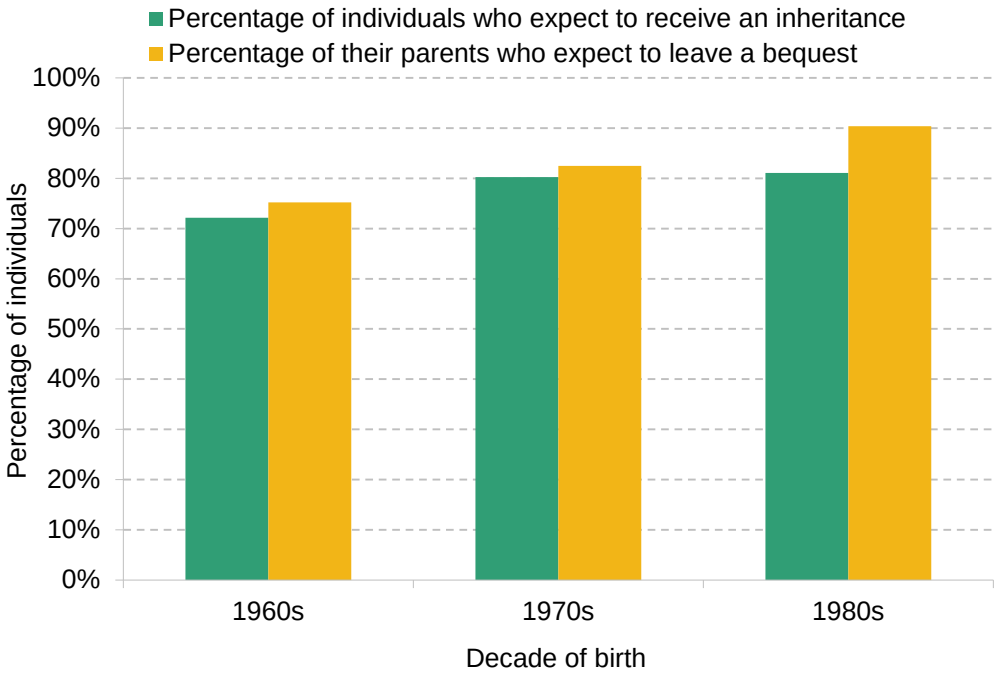
Source: Figures 1.1 and 1.2 of Bourquin et al. (2020).

The increasing importance of inheritances, and the inequality in the size of inheritances, raises the following questions. What are the implications of inheritances for the inequalities in living standards and wealth accumulation and how might these evolve over people's lifetimes? The fact that inheritances are unequally distributed and are becoming larger as a share of lifetime income implies that differences between individuals based on their parental background are also set to grow. Arguably it is this kind of inequality – closely related to 'social mobility' – that gets more directly to the heart of concern about the role of inheritances in driving economic fortunes. A further relevant question therefore is: what are the implications of inheritances for differences in living standards by parental background?

In order to answer these questions, it is important to understand how individuals will react both before and after an (anticipated) inheritance receipt. In general, households will make decisions about whether they should use their income and wealth to spend today or to save, that is build up wealth which they can draw on later, for example, upon retirement. In doing so, they may consider current and future income and spending needs, the extent to which they are able to borrow, as well as the uncertainty of the size and receipt of future income streams (and in future spending needs). Inheritances are one form of such (future) wealth. If

individuals have knowledge of how much wealth their parents hold today and how this may evolve over their parents' lifetimes, a future inheritance receipt may (or may not) be anticipated and feed into people's choices about how much to spend today. Figure 1.2 suggests that many indeed anticipate receiving an inheritance in the future; it shows that more recent generations are increasingly likely to expect to receive inheritances, with their parents increasingly likely to report expecting to leave a bequest.

Figure 1.2. Inheritance and parental bequest expectations by decade of birth



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 who are 'expecting to leave a bequest', we average the stated probabilities that individuals and their partners will leave a bequest.

Source: Figure 1.3 of Bourquin et al. (2020).

In this report, we aim to quantify the implications of inheritances for inequalities in consumption and wealth over the lifetimes of those born in the 1960s, 1970s and 1980s in the UK. This is in contrast to much of the existing literature (see Kotlikoff and Summers, 1981; Kotlikoff, 1988; Modigliani, 1988; Karagiannaki, 2015; Crawford and Hood, 2016; Nolan et al., 2020), which focuses on the relationship between inheritances already received and current wealth or lifetime income, and

thus likely does not capture the full impact that inheritances could have on inequalities.[1] Consider, for example, households that immediately spend all of their inheritance. Merely looking at their current wealth would miss all of the benefits they have gained from that inheritance in the form of higher consumption. Households may also effectively spend (some of) an expected inheritance before it arrives, by saving less than they otherwise would in the expectation of using the inheritance to help fund later-life expenses. Of course, households might vary in their ability and willingness to do this. But for some, both living standards and wealth may be affected before inheritances are actually transferred across generations, which a focus only on past inheritances and current wealth will miss. This means that inheritances may affect inequalities in these outcomes even before the bulk of them have been received. This is particularly relevant for policymakers or others who want to understand the implications of inheritances for today's young.

In a first step, we examine the short-run effect of receiving an inheritance on household consumption, wealth and labour supply. We use two panel datasets – the Wealth and Assets Survey (WAS) and the English Longitudinal Study of Ageing (ELSA) – that contain information on the past receipt of inheritances and various family-level economic outcomes. We implement an 'event-study' analysis where we exploit variation in the timing of the receipt of inheritances across families to study the effects of inheritances in the years just before and just after they are received. This allows us to explore how economic outcomes such as wealth, consumption and labour supply change over this period as a result of (anticipated) inheritances. While informative, the limited time period over which we observe families unfortunately does not allow us to examine longer-term anticipatory behavioural responses or responses many years beyond the receipt of inheritances. Furthermore, as we only observe past inheritance receipts, this does not, by itself, tell us how inheritances will affect inequalities in consumption and wealth over the lifetimes of younger generations.

[1] One exception to this in the UK context is Karagiannaki (2017), which estimates the proportion of inheritances received that are spent down over a 10-year period. That paper therefore considers dynamics over the limited time window for which data are available. Our analysis seeks to look at implications over the whole life cycle. Existing papers that consider the effects of inheritances over the whole life cycle (such as De Nardi, 2004) are in contexts other than the UK.

In a next step, therefore, we draw on an extensive economic literature that has developed methods for empirically estimating how people's spending and saving decisions respond to uncertain inflows of income or wealth; see, for example, Crawford and O'Dea (2020) or Druedahl and Martinello (2020). Specifically, we employ a life-cycle model that allows for behavioural responses to the receipt, and expectation of receipt, of inheritances. It features a realistic parental wealth and inheritance process and is calibrated to match microdata on the distribution of wealth. In the model, households face uncertainty about their own earnings, the future evolution of their parents' wealth and the timing of their parents' deaths. When the last member of a couple dies, their after-tax estate is split between their heirs and received as an inheritance. Households make consumption and savings decisions in the awareness of their parents' level of current wealth and the uncertainty over the future inheritance they may receive. The model makes a variety of simplifying assumptions, such as that parents split their bequests evenly among all children and only bequest upon death. That is, we assume that parents do not transfer wealth to their children at earlier stages in life and households will not receive inheritances from grandparents or other relatives. While these assumptions clearly are not accurate in all cases, they do describe the predominant patterns of behaviour around inheritances and intergenerational wealth transfers (Menchik, 1980; Wilhelm, 1996; Nolan et al., 2020).

The model allows us to estimate the effect of inheritances on consumption and wealth inequality over the life cycle by studying counterfactuals in which inheritances did not exist. We can also examine the different mechanisms through which inheritances can affect these inequalities, for example, by creating counterfactuals in which we vary the timing of, or eliminate uncertainty in, the receipt of inheritance. Creating counterfactuals under which, for example, inheritances are equalised, then allows us to examine the role for potential redistributive policies. Finally, we can calculate the effect of inheritances on the distribution of lifetime consumption, and look at how this varies for households with different levels of parental wealth, in order to examine the implications of inheritances for social mobility.

The remainder of this report proceeds as follows. In Chapter 2, we discuss how inheritances will shape the distribution of lifetime income for receiving generations. In Chapter 3, we lay out a simplified framework for thinking about behavioural responses to inheritance receipt. Furthermore, we provide some empirical evidence on how people react to the receipt of an inheritance immediately around the time of

receipt. In Chapter 4, we set out our life-cycle model of consumption and savings and present our estimates of the effects that inheritances have on consumption and wealth inequality, exploring and quantifying specific mechanisms through which inheritances can affect inequalities. We additionally examine the implications for redistributive policies and equality of opportunity and social mobility. We conclude in Chapter 5. Further information on data sources and methodology is available in the Appendix.

2. How will inheritances shape the distribution of lifetime income?

In this chapter, we set out a projection for how inheritances will shape the distribution of lifetime incomes for those born in the 1960s, 1970s and 1980s. We describe the key assumptions that we make and the results we obtain. We then compare these with individuals' expectations about what they will inherit. We find that those who have higher expected lifetime incomes look set to inherit substantially more than those whose lifetime incomes are expected to be lower. However, inheritances *as a percentage* of lifetime income are likely to be broadly similar, on average, across the income distribution. While their role in driving overall income inequalities may be modest, a potential concern is that inheritances are set to drive larger and larger differences in lifetime income by parental background. Finally, the inheritances that we project are more common and slightly larger than individuals themselves say they expect to receive.

Our method consists of three steps. First, we project the distribution of household earnings and state pension entitlements at each past and future age for our three decade-of-birth cohorts, to yield the distribution of households' lifetime (non-inheritance) income. Second, we project forward the levels of wealth of the parents of these cohorts and, combining this with their projected longevity, produce an estimated distribution of bequests to be left by the parents of these cohorts. By applying the inheritance tax system and splitting the parents' estates between the average number of children that parents of the same cohort and education type have, we obtain a distribution of inheritances to be received. The third step is to link these two distributions, which allows us to analyse how the distribution of inheritances relates to the distribution of other income.

This method relates very closely to the projections made in Bourquin et al. (2020). We briefly describe each step of our method in turn, before turning to the results. It is important to bear in mind that each of these steps involves a set of assumptions, thus the resulting projections are uncertain by nature. Full details of our method and important assumptions it makes can be found in the Appendix.

Projecting household incomes

To project the distribution of household incomes, we use data from the Family Expenditure Survey (FES) and its successor surveys: the Expenditure and Food Survey and the Living Costs and Food Survey,[2] covering the years 1978 to 2018, and the UK Household Longitudinal Study (UKHLS) for the years 1991 to 2018.

Our method is based on techniques from the economic modelling of household earnings and income processes, and more details are given in the Appendix. This method gives us a way of projecting household lifetime incomes, and the uncertainties in these, for households whose members have different education levels and earnings potential, and who start out with different levels of earnings in early adulthood.

Projecting inheritances

In order to project distributions of inheritances that have been, and will be, received by those born in the 1960s, 1970s and 1980s, we use data on the wealth holdings of the parents of those generations from the ELSA. Our approach is to model the evolution of bequeathable parental wealth (the sum of net housing wealth, and financial and other non-pension assets[3]) through older ages in a way that allows for the different ways that different households spend at older ages, for shocks to the price of their housing or other wealth, or for expenditures that consume part of their wealth. More details are given in the Appendix.

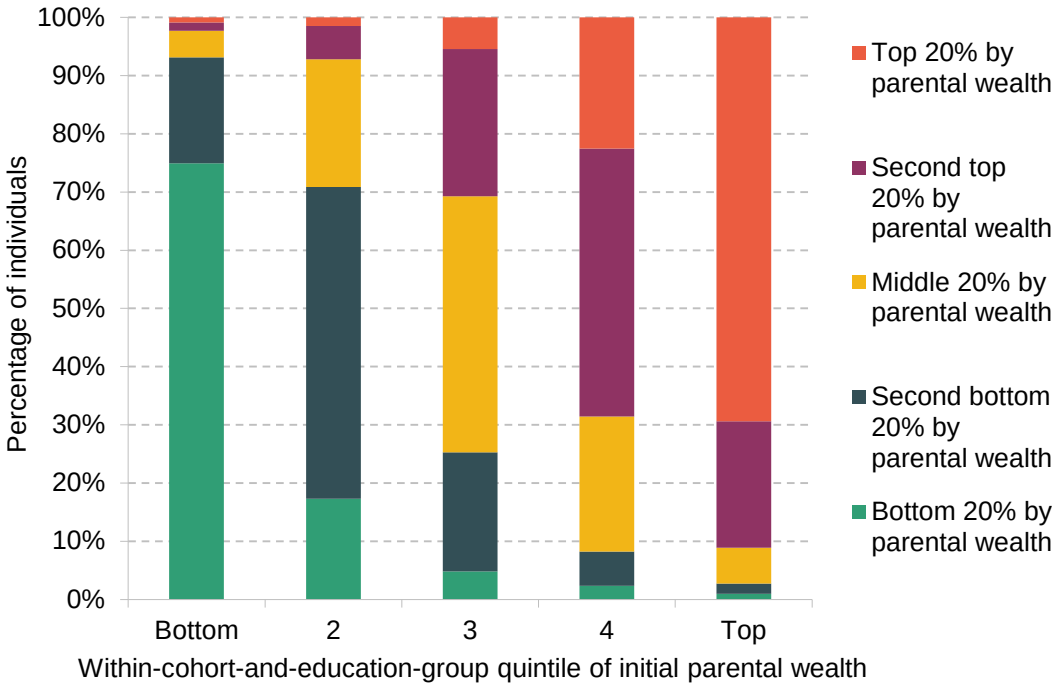
[2] We refer to this collection of surveys as the 'FES' for ease of exposition.

[3] While non-annuitised defined contribution pension wealth is bequeathable (and subject to a generous tax treatment that means this may increasingly represent a favourable vehicle for those seeking to pass on wealth to their heirs), it is only since 2015 that individuals have had substantial flexibility not to use this wealth to buy an annuity and so we do not have sufficient data to make an estimate of how much of this wealth will be bequeathed. The possibility of these pension pots being passed on therefore represents an upside risk to the size of the inheritances we project.

As documented in Bourquin et al. (2020), the bequeathable wealth of older households tends to increase up to around age 70 before declining only modestly with age thereafter. This means that, on average, households' wealth bequeathed at death is close to the wealth held at the beginning of retirement.[4] Figure 2.1 illustrates that parents' position in the wealth distribution tends to stay quite steady over time but that a minority of parents see large changes in their wealth. The figure splits parental households into five equal groups ('quintiles') according to their position in the distribution of wealth, amongst others of the same *parental* five-year birth cohort and '*child'* level of education. For each of these five groups, we examine which quintile households are in 10 years later. Most households are in the same wealth quintile when observed a decade later. Changes in relative fortunes are clearly not uncommon, and this is potentially important for how people form expectations about what they will inherit and whether they feel able to rely on that economic security in advance of the inheritance. But there is a lot of stability overall – more than 90% of parents are within one quintile of where they were a decade ago.

[4] See Bourquin et al. (2020) for further discussion about end-of-life costs and the association of wealth as measured in the final ELSA interview before death and the estate reported in the ELSA end-of-life interview.

Figure 2.1. Distribution of parental wealth quintile 10 years later by initial quintile of parental wealth



Source: ELSA and UKHLS.

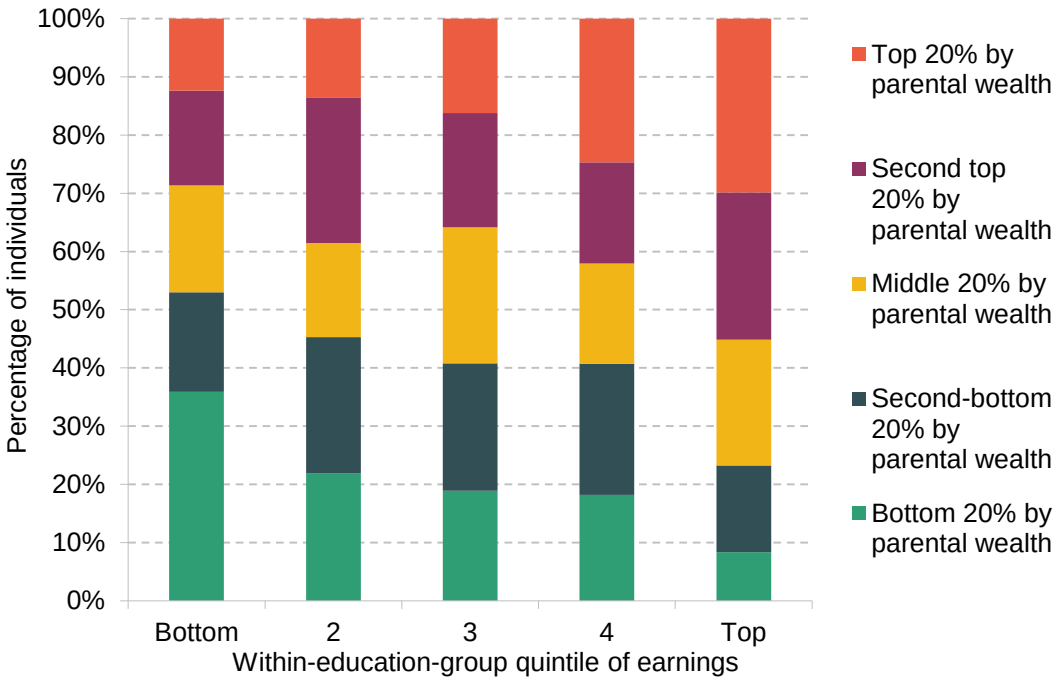
Linking the distributions of inheritances and lifetime incomes

With projections for household incomes and inheritances in hand, the final step of our process is to link the two. In essence, we do this by exploiting a dataset that tells us about households' levels of education and earnings while young *and* their relationship to parental wealth. We use this method because education and the initial levels of earnings and parental wealth are the key variables required to predict lifetime income and inheritances, respectively. The key data source here is the UKHLS, which has a sample of intergenerationally linked families where we observe individuals' earnings in adulthood alongside their parents' level of wealth. Full details are again given in the Appendix.

We use these two sources of data, together with our household income and parental wealth processes, to link the distributions of household incomes and inheritances in a series of steps described in the Appendix.

Figure 2.2 illustrates the correlation of individuals' earnings and their parents' wealth, which is an important input to our linking of household earnings and parental wealth. It shows the proportion of individuals within each quintile of the distribution of earnings within each education level who have parents in each of the five quintiles of the parental wealth distribution. This shows that even once we account for the individuals' levels of education – a key predictor of both earnings and parental wealth – there is a strong relationship between their earnings and their parents' position in the wealth distribution. For example, amongst those in the bottom fifth of earners amongst their birth cohort and education group, 36% of their parents have wealth in the bottom fifth of the wealth distribution and 12% have parents with wealth in the top fifth. Amongst those in the top fifth of earners for their cohort and education group, 8% have parents in the bottom fifth by wealth and 30% are in the top fifth by wealth.

Figure 2.2. Distribution of individuals across quintiles of parental wealth, by individual earnings quintiles



Note: Earnings are defined as the average earnings of individuals during their 20s. Parental wealth uses the observation when the parents' average age is closest to 50.

Source: UKHLS.

Comparison with stated expectations

The WAS elicits information about the amount that individuals expect to inherit. Figure 2.3 shows the distribution of these stated expectations, split into five groups: not likely to inherit, inheritance of less than £25,000, inheritance of £25,000 or more but less than £100,000, inheritance of £100,000 or more, and likely to inherit but do not know how much. We show the distribution of responses split by education group and quartile of earnings. The sample is those born in the 1960s and 1970s.[5]

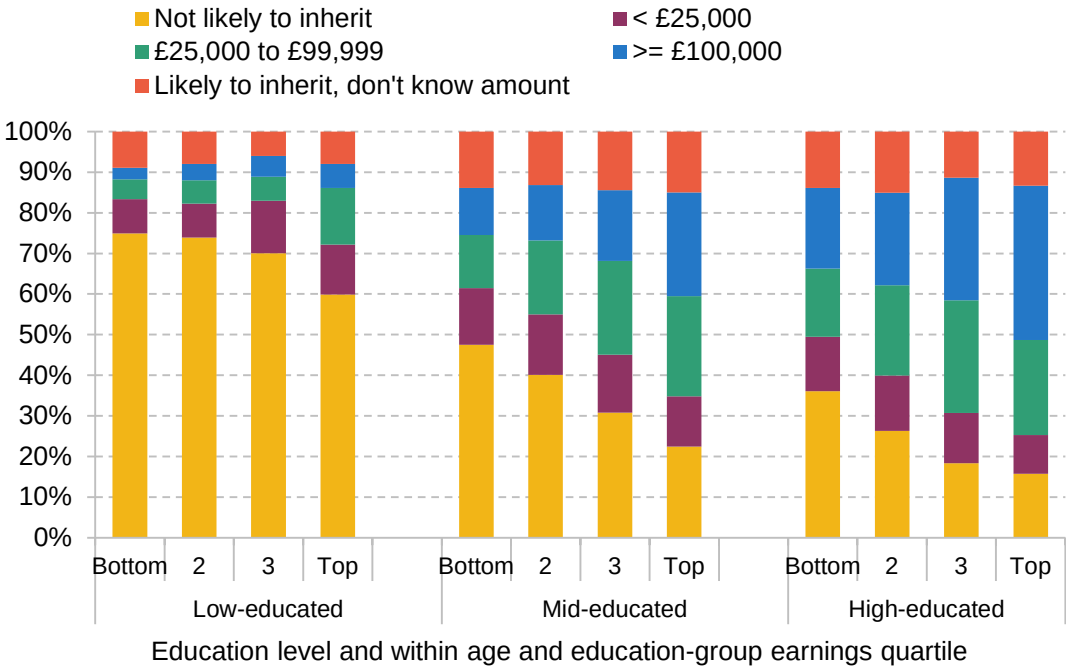
To compare our projected inheritance distribution with individuals' expectations, we create the equivalent graph from our simulations (not including the 'don't know group'). We classify individuals by the size of the inheritance they actually received and look at the distribution split by different education and earnings groups.[6]

The results are shown in Figure 2.4. We see that our simulations have the same qualitative patterns as the expectations data. However, we project a greater proportion of larger inheritances. We also project a more equal distribution of inheritances across earnings and education groups than the expectations questions suggest. There are some assumptions we make that might drive an understatement in the inequality in inheritances. For example, because of a lack of data on the joint evolution of parents' wealth and child's earnings over their later working life, we assume that changes in parents' wealth and their child's earnings over their lifetimes are not correlated with each other, beyond the association that would be expected given the starting levels of each and the education level of the child's household. This might not hold true if, for example, the tendency for parents and children to live in the same area means that they experience the same economic shocks and so see their economic prospects affected – for better or worse – in similar ways.

[5] The WAS collected information from respondents born in the 1980s, who would have been aged between 16 and 28 in the first wave of WAS. However, the younger individuals report much lower expected inheritance amounts than the other cohorts. Our interpretation is that these younger individuals do not yet have a good idea of their parents' level of wealth or possible size of inheritance. We therefore choose not to include these data here.

[6] This comparison is the right one to make if, when answering the inheritance expectations questions, individuals respond by considering the average inheritance they will receive, if they think that the amount is uncertain. Of course, in reality, the way that people form their expectations or respond to these questions may be different.

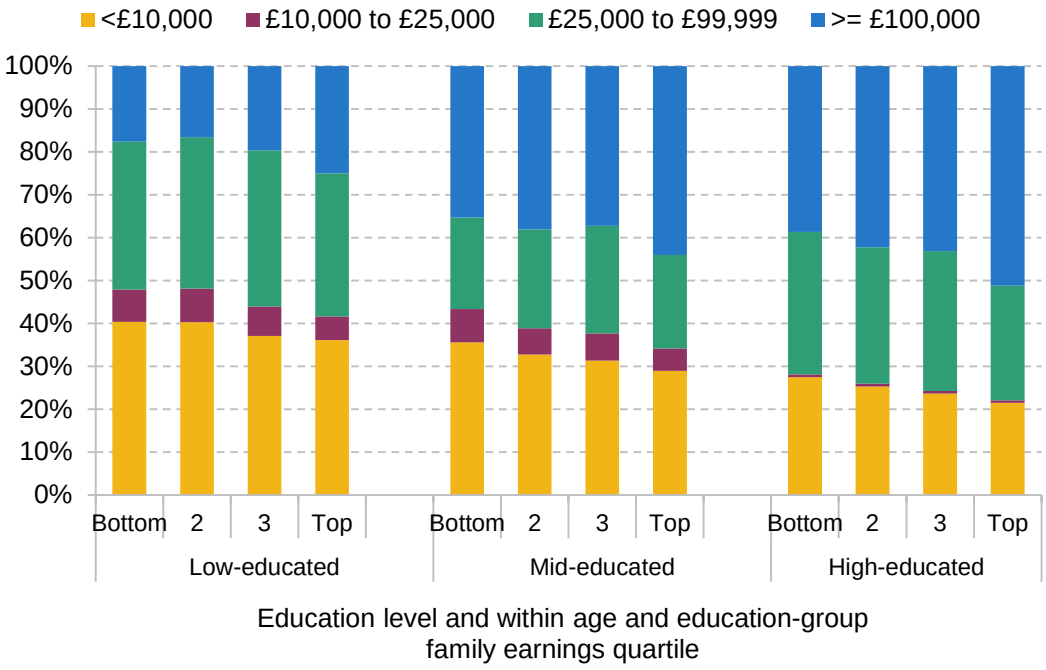
Figure 2.3. Distribution of reported expected inheritance by education and earnings quartile



Note: Sample includes all individuals and couples of the 1960s and 1970s birth cohorts (average in the case of couples). Gross family earnings quartile is calculated within education group (defined as highest level of education within couples) and within three 10-year age groups. More than 25% of the low-educated group have zero earnings and have therefore been randomly assigned to either the bottom or second quartile.

Source: WAS, wave 1.

Figure 2.4. Distribution of simulated inheritances by education and earnings quartile



Note: Sample includes all households born in the 1960s and 1970s and aged 26–46.

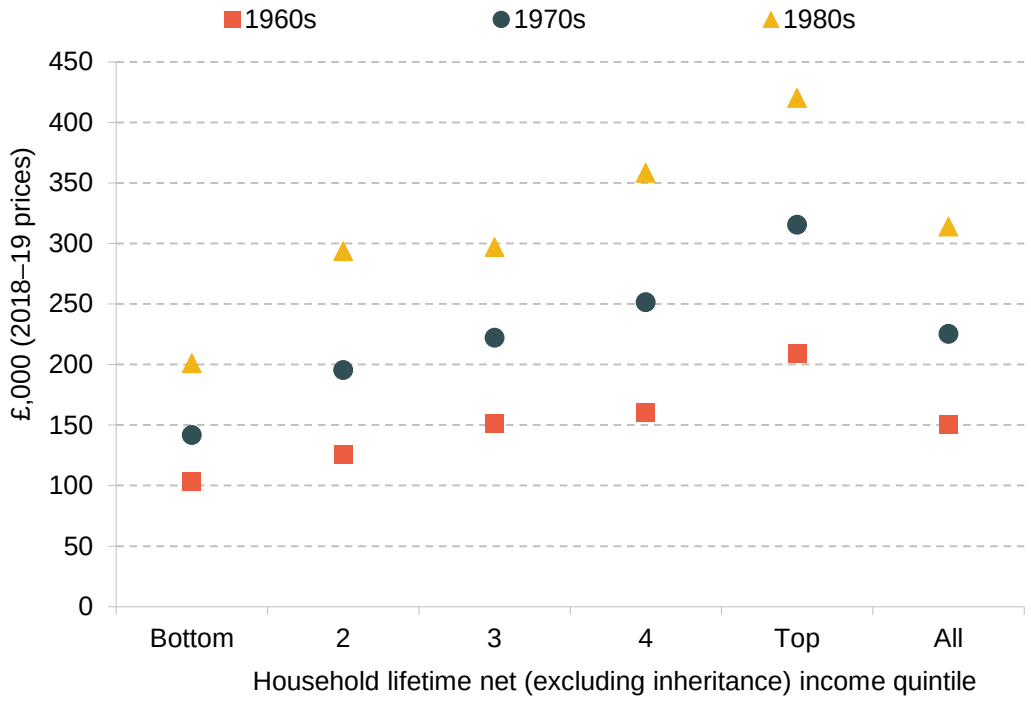
Source: Model simulations.

The contribution of inheritances to lifetime income inequality

Figure 2.5 shows the main results of our projection of inheritances. We split households into quintiles based on their lifetime net income before the addition of inheritances, and we show that the mean total inheritances we project will be received by households in each quintile. This shows two things. First, within each birth cohort, those with higher incomes are expected to inherit more. In each of our decades of birth, those in the top fifth of the lifetime income distribution are projected to inherit around twice as much as those in the bottom fifth. For example, a household born in the 1970s in the top fifth of the within-cohort lifetime net income distribution is projected to inherit £315,000 on average, while a household of the same birth cohort in the bottom fifth of the lifetime net income distribution is projected to inherit £140,000. Second, inheritances are projected to grow across birth cohorts right across the distribution of lifetime earnings. For example, the

middle fifth of households by lifetime earnings born in the 1960s is projected to inherit £150,000 on average. For those born in the 1980s, this is just under £300,000. It is worth noting that, while illustrative, given the many assumptions made, these estimates are uncertain.

Figure 2.5. Mean lifetime inheritances by household lifetime (excluding inheritance) net income quintile and decade of birth

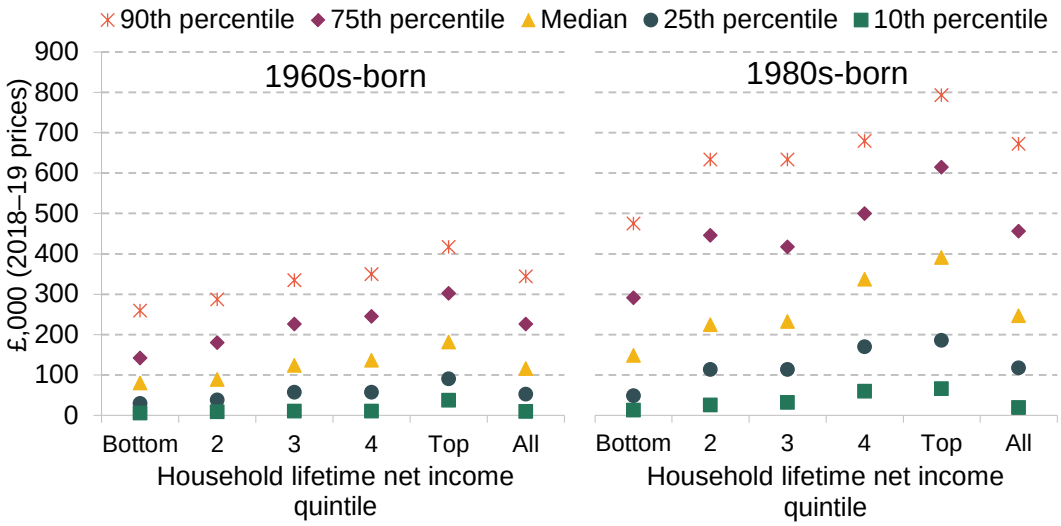


Source: Simulations using the ELSA and UKHLS.

Figure 2.6 shows selected points of the distribution of inheritances within each lifetime net income quintile for each decade of birth. We can see that the main pattern – whereby those born in later decades, and those with higher earnings within each birth cohort, are projected to inherit larger amounts – also holds when looking at the median. It is worth noting that we project substantial differences within each quintile of the household lifetime net income distribution.

A comparison across birth cohorts reveals the immense scale of the increase in inheritances that is expected in future. Around half of households born in the 1980s are projected to inherit more than a quarter of a million, compared to a quarter of households born in the 1960s inheriting such a sum.

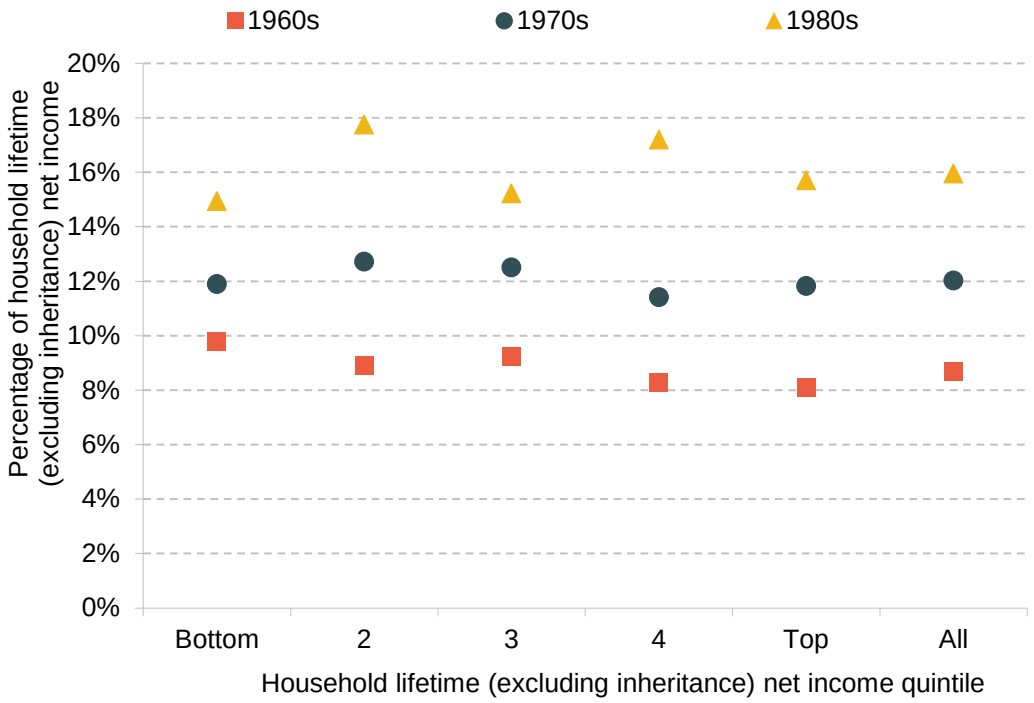
Figure 2.6. Distribution of household lifetime inheritances by household lifetime (excluding inheritance) net income quintile and decade of birth



Source: Simulations using the ELSA and UKHLS.

Figure 2.7 shows the median value of total inheritance income as a percentage of lifetime net income, for each quintile of the net income distribution. This shows that across the distribution of household income, inheritances are on average a larger share of income for those born in later cohorts. This also shows that, while inheritances are larger for those who have higher incomes, as a percentage of total lifetime net income, inheritances are of a similar magnitude across the distribution of incomes. Amongst the 1960s-born cohort, inheritances are in fact a slightly larger proportion of lifetime income amongst those with lower incomes, falling from 10% of lifetime income for the bottom fifth to 8% for the top fifth. However, given all of the uncertainties involved in these projections, we should not place substantial weight on this modest difference.

Figure 2.7. Median of inheritance as a percentage of lifetime net income by household lifetime (excluding inheritance) net income quintile and decade of birth

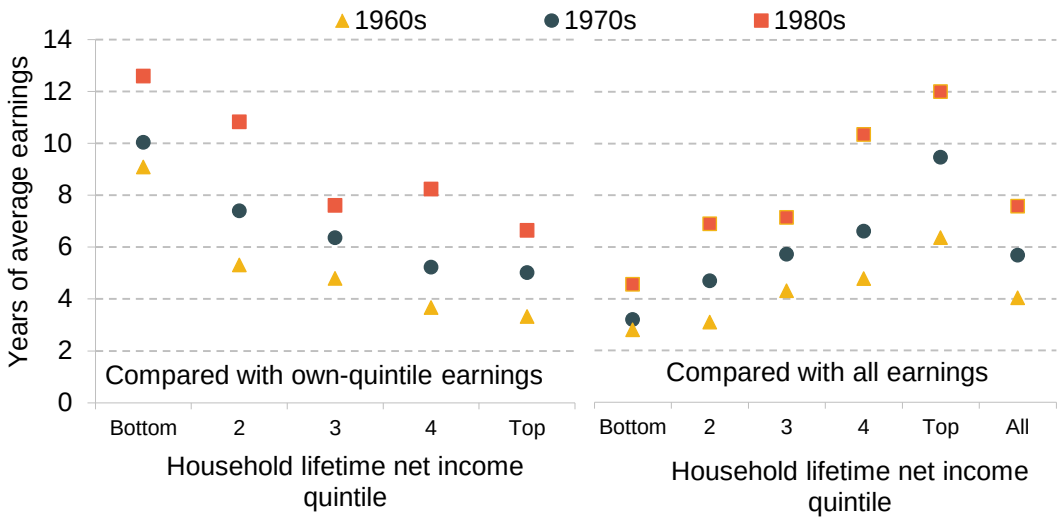


Source: Simulations using the ELSA and UKHLS.

Another way of showing the change in the scale and distribution of inheritances is to compare the amounts we project will be inherited with average annual earnings from paid work. In Figure 2.8, we show the median inheritance expressed as a multiple of average annual earnings. In the left panel, we compare with average annual earnings within each income quintile – a measure of how that group's inheritances compare with their own earnings. In the right panel, we compare with average annual earnings for the whole generation. Overall – as shown in the 'All' category in the right panel – the median level of lifetime inheritances for the 1960s-born is worth four years of that generation's average earnings, doubling to eight years for the 1980s-born. In the left panel, we see that, for those with lower incomes, inheritances are a greater multiple of that group's average earnings. For example, the median inheritance received by those in the bottom income quintile is worth over 12 years of average earnings for those born in the 1980s, compared to 7 years for the top income quintile. The reason why inheritances are larger compared with average annual earnings for lower-income households, while they are not larger compared with average lifetime income, is that lower-income households

receive larger amounts of their lifetime income from social security and state pension income. The right panel shows that if we express these median projected inheritances in terms of average annual earnings across the whole generation, there is an increasing pattern across the income distribution. Strikingly, while those in the top fifth by lifetime income in the 1960s are expected to inherit, on average, six times average annual earnings for their generation, this rises to 12 times amongst those born in the 1980s.

Figure 2.8. Median household inheritances expressed as a multiple of average annual earnings, by lifetime net income (excluding inheritance) quintile and decade of birth

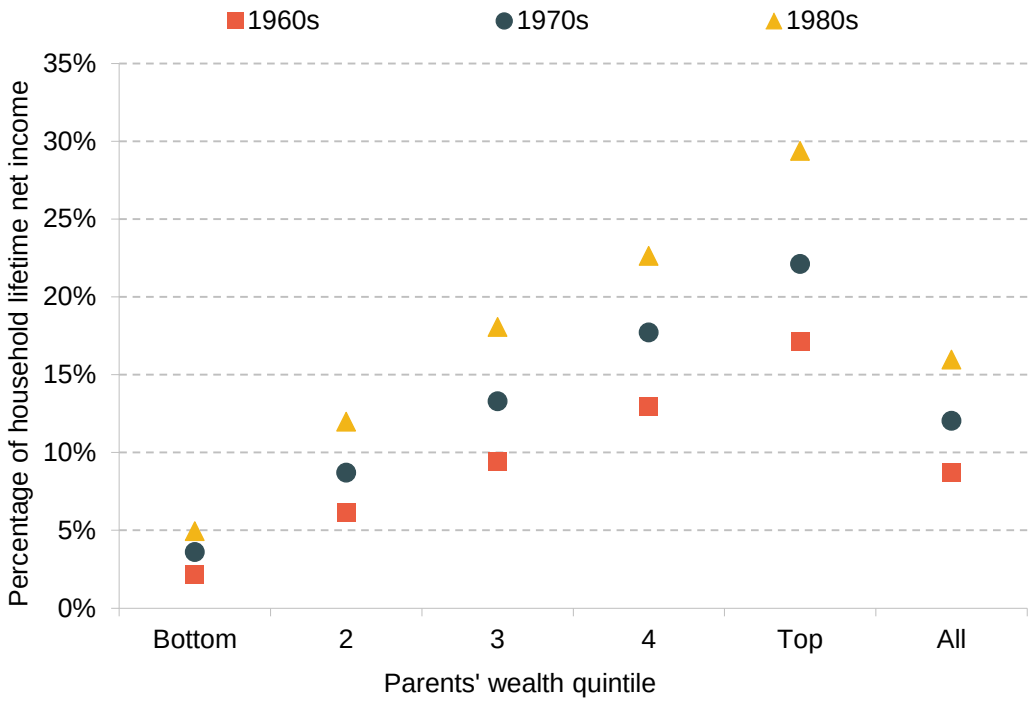


Source: Simulations using the ELSA and UKHLS.

It is important to understand that while inheritances look similar compared with lifetime income *on average* when comparing those with low incomes and those with high incomes, this masks significant variation *within* different income groups. For example, while, at the median, inheritances compare similarly with incomes across income groups, we can also ask about the share in each income group who receive very small or very large inheritances compared with their other income. Among those in the bottom fifth by lifetime income in the 1980s cohort, 11% inherit amounts worth less than their average annual income, while 10% inherit amounts worth over half their lifetime income. In the top income quintile, the equivalent numbers are just 6% and less than 1%.

While inheritances do not look likely to play a large role in defining overall income inequality in any of these birth cohorts, the fact that inheritances are becoming larger as a share of lifetime income means that differences between individuals based on their parental background are set to grow. Arguably, it is this kind of inequality – closely related to 'social mobility' – that gets more directly to the heart of concern about the role of inheritance in driving economic fortunes. Figure 2.9 shows the median value of inheritance as a share of total lifetime net income, split by the quintile of the household's parents' wealth when the household members were in their 20s. Inheritances are much larger relative to other lifetime income for those with wealthier parents. Taking the 1960s-born cohort, we estimate that the median level of inheritances compared with lifetime net income is 2% for those with parents in the poorest fifth, and 17% for those with parents in the top fifth. This gap by parental background is set to grow quite substantially with equivalent figures for the 1980s cohort being 5% and 29%.

Figure 2.9. Median inheritance as a percentage of lifetime (excluding inheritance) net income, by parental wealth quintile and decade of birth



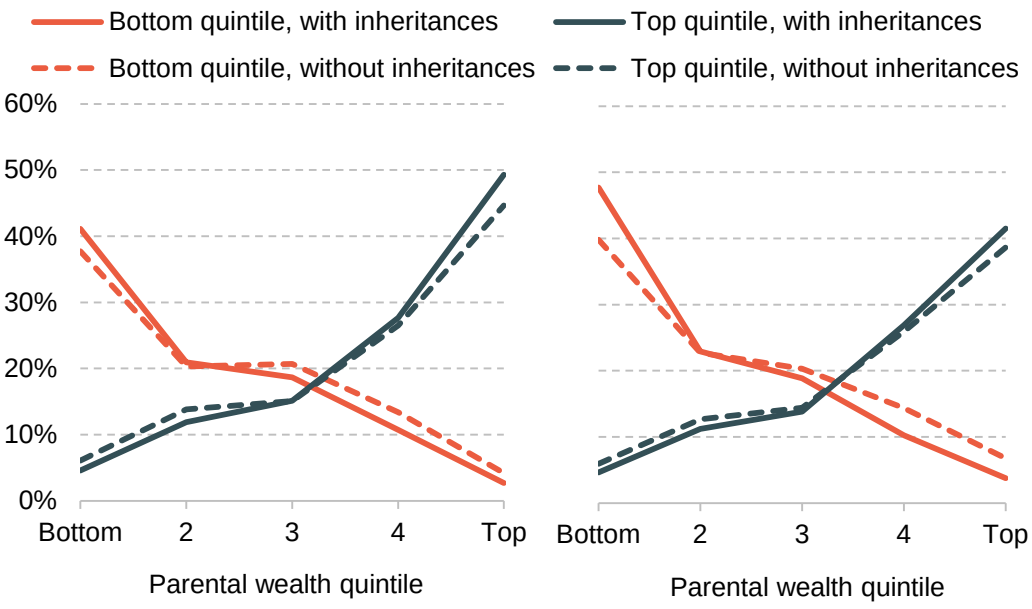
Source: Simulations using the ELSA and UKHLS.

Another way of summarising the extent of social mobility is the proportion of households with parents in the bottom or top fifth by wealth who themselves end up in the various quintiles of lifetime income. Those with wealthy parents are more likely to have high lifetime incomes, even without inheritances, as they tend to earn more. But we can ask how big a role inheritances are set to play in strengthening this tendency.

Figure 2.10 shows that we estimate that, for those born in the 1960s, in the absence of inheritances, 38% of households with parents in the bottom fifth by wealth will be in the bottom fifth by lifetime incomes themselves, but that this proportion rises to 41% as the result of inheritances. However, amongst those born in the 1980s, those figures are 40% and 48%, respectively. This means a doubling in the size of the effect of inheritances (or lack thereof) in entrenching a lack of economic status for those born in the bottom fifth. The effect on the likelihood of those with the poorest parents rising to the top quintile of lifetime incomes is affected similarly by inheritances for both decades of birth.

Inheritances also mean that those born to wealthy parents have a lower chance of 'falling' down to the bottom quintile of the lifetime income distribution. Without inheritances, we project that 4.2% or 1-in-24 of households with parents in the wealthiest fifth will end up in the bottom fifth by lifetime income. This falls to 2.6% or 1-in-38 as a result of inheritances. Amongst the 1980s-born, the likelihood of such a fall is 1-in-15 without inheritances and 1-in-26 once inheritances are included. While this suggests a role for inheritances in reducing both upwards and downwards mobility, it seems that the biggest change across generations will be that an increasing share of those with low-wealth parents will themselves have low lifetime incomes (including inheritances), compared with their peers, because of the increasing role played by inherited wealth.

Figure 2.10. Probability of ending up in bottom or top quintiles of household lifetime income, with and without inheritances, by parental wealth quintile, for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

3. How might (expected) inheritances affect economic well-being over the course of life?

We now turn from relating inheritances to lifetime income towards trying to understand more directly how these inheritances are actually affecting economic well-being over the life cycle (including before, as well as after, they are received). This entails the crucial move of trying to understand how people's economic behaviour – in particular their spending and saving, and hence wealth – is affected by the inheritances that they (expect to) receive. For this, we need to employ an empirically estimated model of how people behave, which we do in Chapter 4. But as background to this, here we set out how we might expect inheritances to affect economic well-being over the life cycle, alongside some simple descriptive information to illuminate this.

In a first step, we look at what past recipients of inheritances did upon receiving their inheritance(s). When individuals receive income or wealth they are (implicitly at least) choosing whether to spend it now or save it for later (a choice that can of course be constrained by their circumstances). An inheritance – a form of (future) wealth – is no exception to this: upon receiving an inheritance, individuals will decide whether to save or spend their inheritance, or a combination of the two.

According to the WAS, the majority (88%) of individuals who received at least one inheritance between 2006 and 2016 received it/them in a very liquid form – money

or savings, whereas 19% received a (share in a) property, 13% received personal items such as a car or jewellery, 6% received financial investments (e.g. shares) and 1% received the inheritance in another form (e.g. a business).

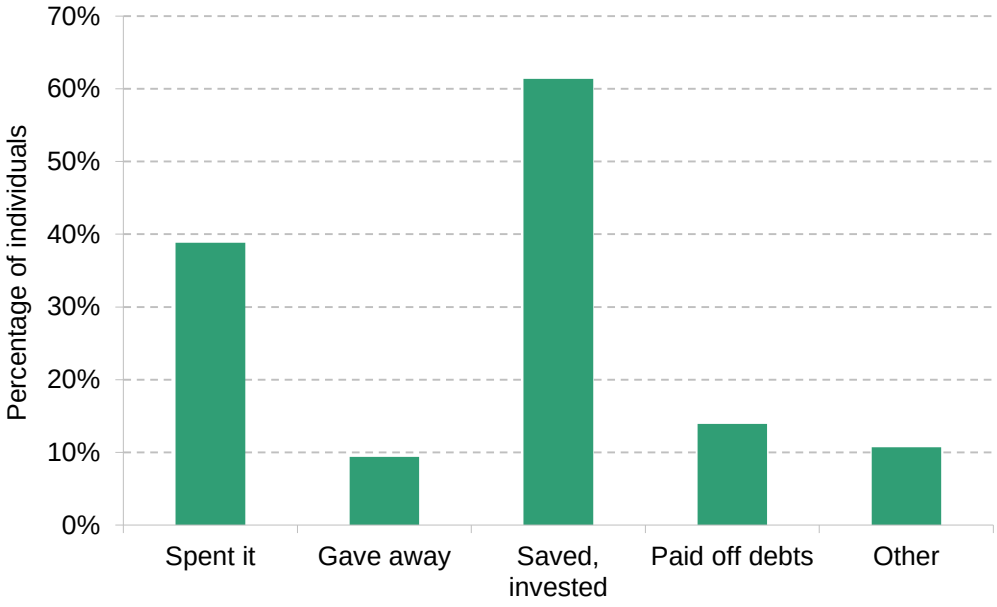
Figure 3.1 shows what individuals who received a non-property inheritance state that they did with it upon receipt. It shows that 61% (partially) saved or invested their inheritance, 39% spent it and 14% used it to pay off debts. For individuals who inherited a (share) in a property, 51% stated that they sold it, while others stated living in it, renting it out or having a family member living in it. So broadly, individuals indeed both save and consume some (or all) of their inheritance receipt(s).[7] This underlines the importance of examining the effects of inheritances not only on current wealth – as most existing studies do – but also on wealth and consumption across the full life cycle. For example, if individuals anticipate an inheritance, they can decide to take up debt and consume more in earlier years, and then pay off that debt when they receive the inheritance.

Figure 3.2 shows the proportion of non-retired individuals who expect to use a future inheritance as a source of retirement funding, by age and birth cohort. A significant minority expect to fund at least some of their retirement through a future inheritance, with the proportion slightly increasing across successive birth cohorts and reaching more than one-quarter for those born in the 1970s. The proportion decreases across ages, as older individuals are more likely to have already received their 'main' (stemming, for example, from their parents) inheritance.[8]

[7] What people state they do with their inheritance upon receipt differs along various characteristics. For example, individuals who received a non-property inheritance at the age of at least 60 were less likely to spend their inheritance and more likely to save it than younger inheritance recipients. Individuals who received a small non-property inheritance were also less likely to spend and more likely to save their inheritance than those receiving a large inheritance. Finally, individuals in the bottom half of the within-age pre-inheritance wealth distribution were more likely to spend the inheritance or use it to pay off debts than those in the top half.

[8] The survey also asks individuals what they expect their *largest* source of retirement funding to be. Between 2% and 7% of individuals expect to fund their retirement primarily through a future inheritance, with the proportion again slightly increasing across successive birth cohorts. For example, 5% of individuals born in the 1960s and 7% of those born in the 1970s aged 41–45 expect to fund their retirement mostly through a future inheritance.

Figure 3.1. Stated use of non-property inheritance receipts

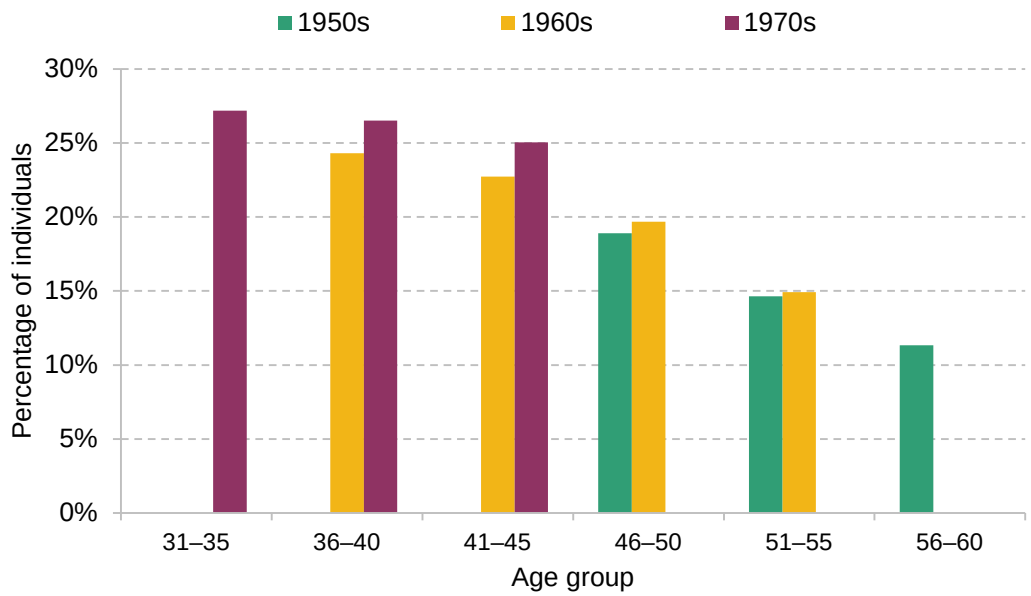


Note: Sample consists of individuals who have inherited since the last wave of WAS. 'Other' includes those who inherited money or savings, personal items, investments or a business.

Source: WAS, waves 1–5.

This suggests that not only a substantial proportion of individuals indeed expect to receive an inheritance, but also that many of them think about what to do with the inheritance before they even receive it. This provides reason to take seriously the possibility that future inheritances affect consumption and savings decisions earlier on in life, as our modelling in Chapter 4 is designed to do. For example, it is possible that individuals save less at younger ages than they otherwise would in the expectation of using their inheritance to help fund retirement expenses. Hence, they are able to consume more or save more elsewhere earlier on in life than individuals who do not expect to receive an inheritance.

Figure 3.2. Percentage of individuals reporting that they expect to use a future inheritance as a source of retirement funding, by age group and decade of birth



Note: Sample consists of individuals without a proxy respondent who are not retired by the time of the survey.

Source: WAS, waves 1–5.

How might inheritances affect spending and saving choices?

So how exactly might we expect inheritances to affect consumption, savings and wealth at different points in life? What will this depend on, and how might it therefore differ for different people? Before trying to estimate all this empirically as we do in Chapter 4, let us consider a simple example to highlight some of the key things to be thinking about. To do this usefully and transparently, we abstract from several details of reality – many of which will be treated much more carefully when we come to the actual empirical modelling in Chapter 4.

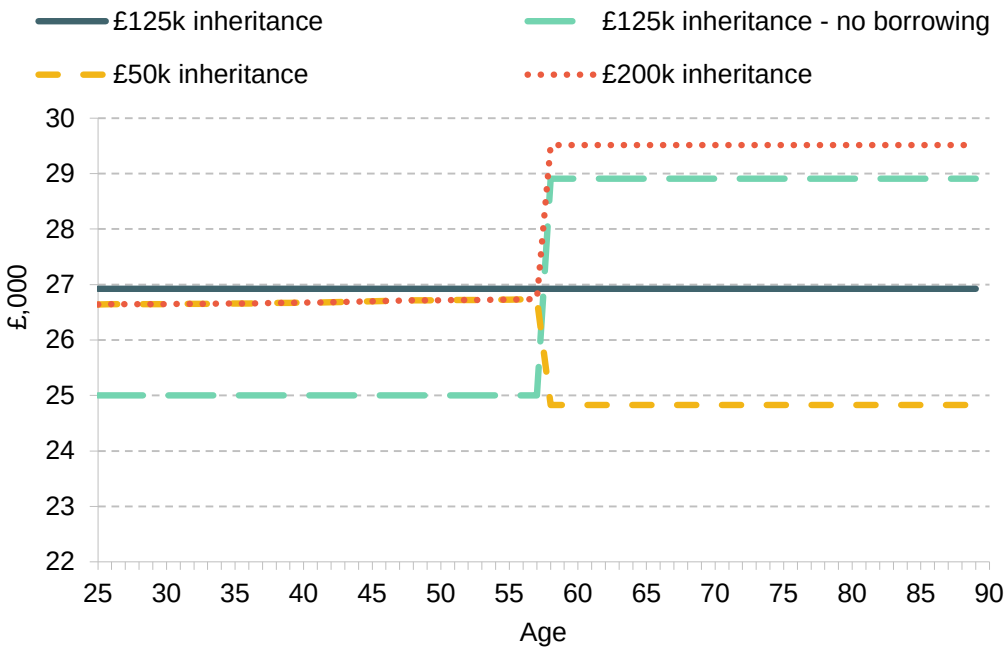
Consider, as our running example, an individual with a fixed regular income of £25,000 per year from the start of adulthood until they die at age 90. Each year, they can either save their income or spend it. They can also borrow, but must repay any borrowing by the end of their life. To keep the arithmetic simple, let us further

assume the following: they value consumption in all periods of their life in the same way; they do not value wealth that they leave after death; there is no inflation, no interest accrued on accumulated wealth and no interest paid on debts. Let us also make the standard assumption of 'diminishing marginal utility of consumption'; that is, each extra pound of spending on goods and services in a given year is of less value to the individual than the last. This has the implication that the individual would, all else equal, prefer to consume smoothly over their life course rather than in a lumpier fashion. If they received only their regular income, they would therefore simply spend exactly this amount in each year.

Within this simple framework, we consider four inheritance scenarios. Figures 3.3 and 3.4 show the levels of inheritance, consumption and net wealth that result in each case. In the first scenario ('£125k inheritance'), the individual receives an inheritance of £125,000 at age 58. Both the amount and the timing of receipt of the inheritance are known with certainty from age 25. The inheritance raises the total possible lifetime consumption of the individual by £125,000. In such a situation, our stylised model would predict that the individual would choose to 'spread' this extra consumption evenly across their whole life, consuming just under £2,000 extra in each year. Hence, we see in Figure 3.3 that they spend just under £27,000 in each year in this scenario. They would do this by borrowing an extra £2,000 in each year before the inheritance arrives, repaying this debt with part of the inheritance when it is received, and spending down the rest of the inheritance at the rate of £2,000 per year thereafter.

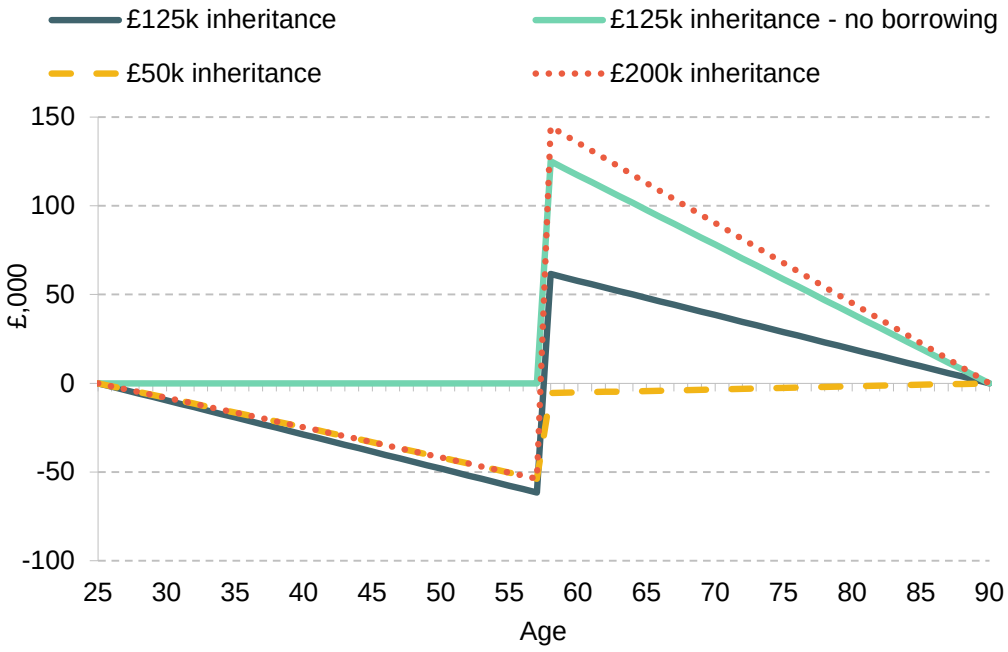
There are perhaps two important basic insights from this. First, inheritances can clearly affect living standards – and hence potentially economic inequalities – well before they are actually received. Second, the association, at any point in time, between wealth and inheritances is not going to give a complete picture of the effects of inheritances on living standards or economic inequality. Wealth early in life may actually be lower as a result of anticipated future inheritances. And wealth later in life will not include the full effect of inheritances, as some of the inheritance may already have been spent.

Figure 3.3. Example spending levels



Source: Authors' calculations.

Figure 3.4. Example net wealth levels



Source: Authors' calculations.

The role of borrowing constraints

The initial scenario depicted above abstracts from many key aspects of the economic environment that are important when considering the effects of inheritances. One example is that people often cannot borrow large sums on the basis that they will repay this from an inheritance to be received in future. They may be in a situation where they would like to spend more on their current consumption because they anticipate receiving an inheritance, but cannot access the credit to allow them do so. Of course, many people will be able to reduce their savings in expectation of an inheritance without needing to borrow. This can happen if they would have anyway saved for retirement (for example, in a pension) but can choose to reduce their level of savings because they anticipate using a future inheritance to fund their retirement spending.

The second scenario is identical to the first but for the fact that the individual is not allowed to borrow ('no borrowing'). That is, they must always have positive net wealth. This illustrates the implications of an extreme form of borrowing constraint. In this scenario, the individual consumes £25,000 in each year until their inheritance arrives. This means that the spending of the inheritance is concentrated in the years after they receive it so consumption jumps up from £25,000 to just under £29,000 at the point of receipt, and stays there thereafter.

The implication of this is that individuals without much pre-existing wealth, and who were not otherwise planning to save, may be less able to 'spend' their inheritance before they get it – their living standards may not materially increase until later in life when they actually receive the inheritance. Because people generally prefer to be able to spend their income smoothly over time rather than concentrated in particular periods, the overall lifetime gain to the economic well-being of these individuals may be lower, even for a given level of inheritance.

The role of uncertainty about inheritances

In the first two examples, the individual knew exactly when they would receive their inheritance and how much it would be. In reality, there is uncertainty over both of these factors. The third and fourth scenarios illustrate the effects of uncertainty over the size of an inheritance. In both of these examples, individuals know that they will receive an inheritance at age 58 for certain but also know that one of them will inherit £50,000 while the other will inherit £200,000, but they don't know who will get each amount. The average of these two amounts is

£125,000, equal to the inheritance in the first two examples. Before receiving their inheritance, both individuals are in the same position and so make the same choice, which is to borrow to spend in anticipation of the inheritance. In the years after the receipt of the inheritance, the 'unlucky' individual who receives the lower £50,000 inheritance ('£50k inheritance') must use this to repay some of their debts and also reduce their subsequent spending in order to repay the remainder of their debts. The 'lucky' individual ('£200k inheritance') repays their debts with the inheritance and has money left over to spend over the remainder of their life.

Importantly, in both these scenarios, the individuals do not spend the full £2,000 extra per year (which is the average of their two inheritance amounts if spread across their whole life) in the years before they inherit, even though they could do so. Their consumption is around £26,700 in the years before receiving the inheritance. This is because the agents are 'risk averse' and so cutting back on spending hurts them more than increasing spending by the same amount benefits them. They therefore choose to hold back on their spending somewhat to cushion the fall in their consumption if they receive the £50,000 inheritance. The rise in consumption upon receipt for the 'lucky' person is thus larger than the decrease in consumption for the 'unlucky' person. So overall uncertainty over the amount inherited leads to average spending rising when inheritances are received (as spending rises for 'lucky' people by more than it falls for 'unlucky' people). This means that, if people tend to be risk averse, uncertainty over the receipt of inheritances would be enough to ensure that, on average, consumption rises when inheritances are received, even in the absence of borrowing constraints.

It is notable that in this simple set-up, uncertainty over the timing of the inheritance would not, by itself, make a difference to the individual's consumption choices. It would simply shift when in life they borrow and when they save. However, when combined with other factors such as borrowing constraints or uncertainty over the size of the inheritance (which could occur even if there was a known relationship between the size of an inheritance and when it is received), timing can matter. For example, with borrowing constraints and a known size of inheritance, the earlier an inheritance is received, the smaller the change in consumption at the time of receipt.

We have seen using these very simple examples that inheritances can have varying effects on consumption, savings and wealth levels over the life cycle depending on the size and timing of inheritances, uncertainty over these, and also the borrowing constraints faced by individuals. We summarise the key points as follows.

- **Borrowing constraints**. Where borrowing constraints prevail, we would expect, on average, to see an *increase* in spending at the point of inheritance receipt. With no borrowing constraints (and no uncertainty), we would expect, on average, consumption to be unchanged after the receipt of an inheritance.
- **Uncertainty over size**. Where there is uncertainty over the size of inheritance receipts, we would expect, on average, to see an *increase* in consumption at the point of inheritance receipt. With no uncertainty (and no borrowing constraints), we would expect, on average, consumption to be unchanged after the receipt of an inheritance. With diminishing uncertainty – that is, people become more certain about the size of their inheritance as the time of receipt gets closer – consumption would start to rise, on average, as the time of receipt nears.
- **Uncertainty over timing**. Uncertainty over timing of the inheritance receipt would on its own merely shift when in life people borrow or save. However, interacted with borrowing constraints and uncertainty over size, uncertainty over timing can also affect the magnitude of response.

Effects of inheritance receipt on consumption, wealth and labour supply

To shed some preliminary evidence on how some of the above issues play out in practice, we now empirically examine whether and how inheritances affect economic decisions at around the time that they are received, looking at households that have received inheritances in the recent past.

We use two datasets – WAS and ELSA – that follow individuals and their partners over time to investigate how various economic indicators, such as household wealth, consumption and labour supply, change when inheritances are received. Our unit of analysis is an individual, or a couple if individuals have a partner. We refer to these individuals or couples as ‘households’. The individuals in the households that we examine are mostly born in the 1940s and 1950s (the median year of birth in our main sample is 1954) and their median age at the time of receipt is 58. These individuals are therefore mostly from generations born before those we are ultimately examining. While these households faced somewhat different economic conditions, including with regards to inheritances, to those born later,

they are likely sufficiently similar for their decisions to be informative about how later-born generations will behave when they come to inherit.

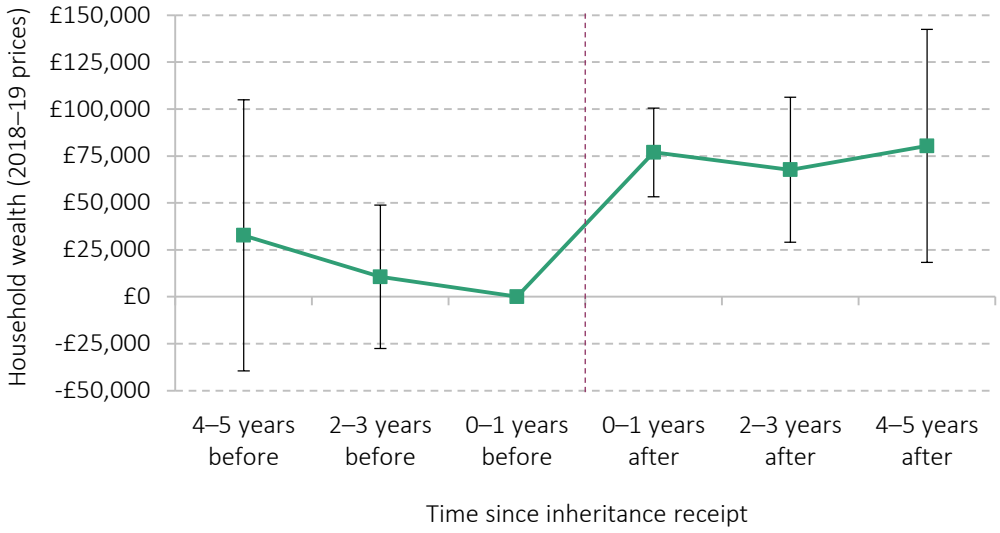
To examine the effects of inheritances, we use an 'event-study' design exploiting the variation in the timing of the receipt of inheritances, controlling for household characteristics (see Appendix A.2 for more information on the data and methodology). This allows us to investigate the change in household outcomes relative to the period prior to inheritance receipt, compared with the change that would have occurred, on average, over time (e.g., due to ageing) independent of the inheritance receipt. Unfortunately, given the limited period over which we observe individuals in the data, we are unable to provide empirical evidence of longer-term anticipatory behavioural responses or responses many years beyond receipt of inheritances. These are things that we attempt to capture in our main results in Chapter 4.

Figure 3.5 shows the impact of an inheritance receipt on household net wealth relative to the period prior to the inheritance receipt around the time of receipt. Effects are shown relative to the period immediately prior to the inheritance receipt, with the horizontal axis demonstrating the time since inheritance receipt in two-year steps and the vertical purple line indicating the rough time of inheritance receipt.

Naturally, wealth increases when households inherit. In the first period after receipt, wealth is on average £77,000 higher – roughly the size of the average inheritance.[9] This wealth increase persists over time, though there is uncertainty about to what extent. That is, inheritance recipients do not immediately spend a substantial fraction of their inheritance, but carry some, and possibly all of it, forward to potentially spend in later years. Our central estimate is that wealth is still increased by the same amount five years after the inheritance was received, though we cannot rule out that a substantial proportion would have been spent by that point. These effects are consistent with Karagiannaki (2017) who, examining household wealth responses to inheritance receipt using data from the British Household Panel Survey, found that households spent down 30% of inherited wealth on average.

[9] Unfortunately, we are unable to express this wealth increase as a proportion of the inheritance receipt, as we do not know the exact size of inheritance receipt in the WAS. However, conducting the same analysis using the ELSA only (where we have the exact inheritance amount) reveals that the average increase in wealth in the period following the receipt is around 100% of the average inheritance receipt.

Figure 3.5. Impact of inheritance receipt on household wealth by time since receipt of inheritance



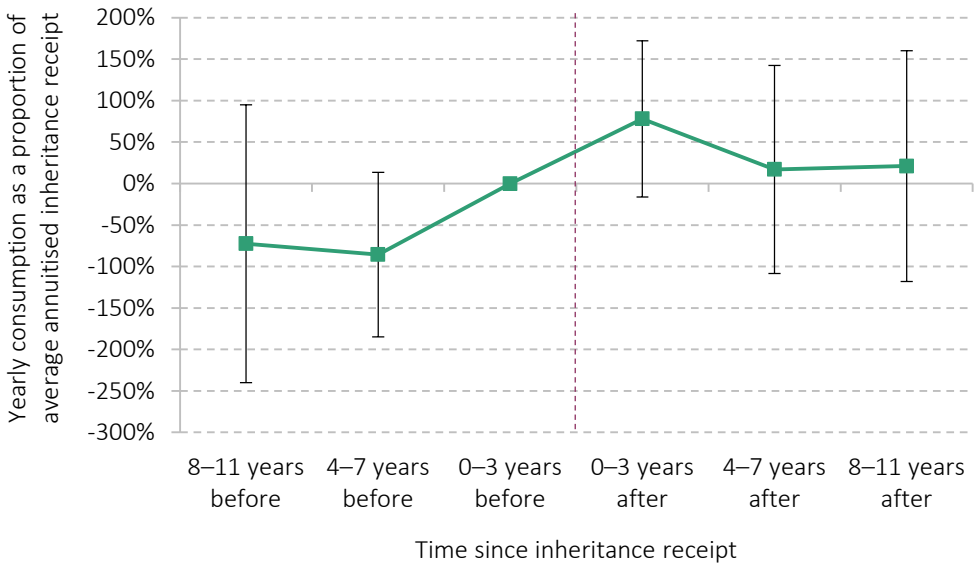
Note: Includes household fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude households that inherit more than once in the observed time period and households where one member of a couple dies in the sample period, and we only keep households that are observed at least once before and once after they have inherited. The black bars depict the 95% confidence intervals.

Source: ELSA, waves 1–9, and WAS, waves 1–5.

Figure 3.6 shows the impact of an inheritance receipt on annualised household consumption as a proportion of the average 'annuity' value of the inheritance.[10] The annuity value of the inheritance is a measure of how much spending would increase if the household spent the inheritance down evenly over their remaining years of life *after* it was received. Here, as with wealth, the effect of receiving an inheritance is shown relative to the period immediately prior to receipt. The effects are grouped into four-year steps (necessary because consumption data are only available in the ELSA, not the WAS, and so the sample size is smaller). The average size of inheritance among this group is £66,000, with the size varying substantially across households.

[10] Expenditure data in ELSA do not cover all categories of spending and so the true effects of inheritances may be higher than estimated here.

Figure 3.6. Impact of inheritance receipt on household consumption (as a proportion of average annuitised inheritance receipt) by time since receipt of inheritance



Note: Includes couple fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude couples who inherit more than once in the observed time period and only keep "constant" couples who are observed at least once before and once after they have inherited. The black bars depict the 95% confidence intervals.

Source: ELSA, waves 1–9.

One benchmark case to bear in mind is that if households were to spread their inheritance evenly across their remaining years from the point it was received, consumption would increase by 100% of the annuity value of the inheritance. However, if inheritances were spent evenly across ages from before and after receipt (that is, the inheritance is anticipated and begins to be spent before it is received), consumption would not increase at all at the moment the inheritance is received. If there are borrowing constraints or uncertainty over receipt that affect decisions, consumption would increase by less than 100%, but by more than 0% of average annuitised inheritance.[11] Comparing the average consumption change with

[11] It is, of course, also possible that households do not consume the full (or any of the) inheritance, as they may wish to bequeath some upon death. We are unable to observe whether this happens in our data.

the average annuitised value of inheritances received therefore gives us a way of comparing against these benchmark predictions.

We provide suggestive evidence that consumption rises upon receipt of an inheritance but by less than the average annuitised inheritance receipt. For example, annual consumption increases by around £2,600 or 78% of annuitised inheritance receipt in the first period after receipt (not statistically significantly different from 0% or 100% at conventional levels). Aggregating all periods after receipt of inheritance, annualised consumption among this group increases by around £2,800, or 87% of annuitised inheritance receipt, after receipt of an inheritance (this is statistically significantly different from 0% at the 10% level, but not significantly different from 100% at conventional levels). Under the assumption of consumption smoothing described earlier, this increase in consumption after inheritances are received suggests that households are affected by borrowing constraints or are risk averse and uncertain about the size of the inheritance prior to its receipt. Our central estimate is consistent with households effectively consuming *some* of their inheritance before it arrives, with most of the additional consumption occurring after receipt. However, because of the lack of precision of our estimates, we cannot reject that consumption increases by the full annuitised value of the inheritance upon receipt. Though this is not our central estimate, this means the evidence does leave open the possibility that there is no increase in consumption in anticipation of inheritances. Given that, as shown in the introduction and earlier in this chapter, individuals do report expecting to inherit, the implication of these findings is that borrowing constraints or uncertainty play a significant role in determining households' responses to this expectation. It is therefore important to incorporate these features of the world into our empirical model, as we shall do.

Splitting the sample into the bottom and top halves of the pre-inheritance-receipt wealth distribution reveals that the increase in consumption only occurs among households in the bottom half of the wealth distribution.[12] Being in the bottom half of the wealth distribution is a proxy for how credit-constrained households may be, and for those who might be more cautious about spending in the face of uncertain inheritance income because they have lower wealth to fall back on. We find that when aggregating all periods after receipt of inheritance, annualised consumption

[12] The split into two groups by household wealth is made within age groups so these differences are not driven by the fact that wealth changes with age.

among those in the bottom half of the wealth distribution increases by around £3,600 (statistically significant at the 5% level). We see no significant change in consumption at the point of inheritance receipt for those in the top half of the wealth distribution. This suggests that, as described above, households that are more credit-constrained, or for whom uncertainty is more of a pressing concern, are less able or willing to start to consume their inheritance prior to receipt.[13] Clearly this is potentially important when trying to understand the actual implications of inheritances for inequality in living standards; it is more than simply the amount that people will end up receiving that matters.

Thus far, we have focused on the effects of inheritances on savings and consumption. However, an inheritance – or anticipated inheritance – might also affect households' decisions over paid work. They may, for example, choose to retire earlier in anticipation of, or upon receiving, an inheritance. To explore this, Figure 3.7 plots the impact of an inheritance receipt on the proportion of households that have at least one member in work relative to the period immediately prior to receipt, while Figure 3.8 plots the impact on household earnings. Both provide indicative evidence of a small effect on labour supply. For example, in the years immediately following an inheritance receipt, households on average are around 2 percentage points (ppt) less likely to have a member in work and their weekly earnings have decreased by around £25. However, the small effect on earnings is only seen in the period immediately after the inheritance receipt.

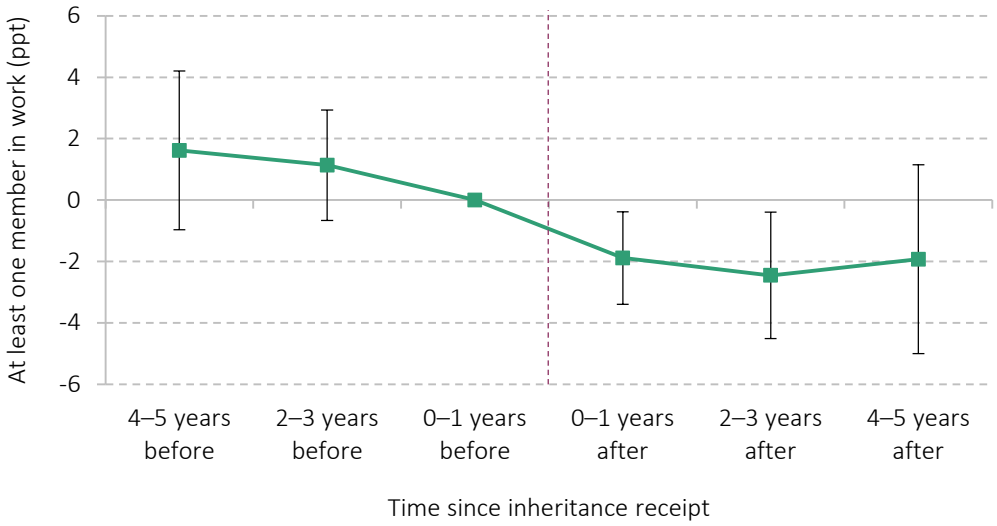
Further splitting the sample into households that, on average, are aged at least 60 and those that are, on average, younger than 60, reveals that the small effect on labour supply is only found for the older age group. This suggests that these effects are driven by early retirement and that inheritance receipt merely affects labour supply at the margin. In turn, this suggests that the effect on lifetime incomes of this response – which is key, given our research questions – is quite small.

Given that the labour supply effects found around the time of inheritance receipt are weak, and modelling labour supply choices is complex, we abstract from labour supply effects in the subsequent work. That is, we assume that household earnings

[13] Note that we additionally split the sample into a group that did expect to inherit and a group that did not expect to inherit in the period prior to receipt. However, we did not find any significant results. This may be due to our modest sample size.

are not affected by the receipt of inheritances, and we concentrate on households' consumption and savings responses. It is worth noting, however, that we are not able to examine whether individuals' labour supply responds many years before inheritance receipt. It is possible that the prospect of future inheritances has longer-term effects on career choices, but these are outside the scope of what we examine.

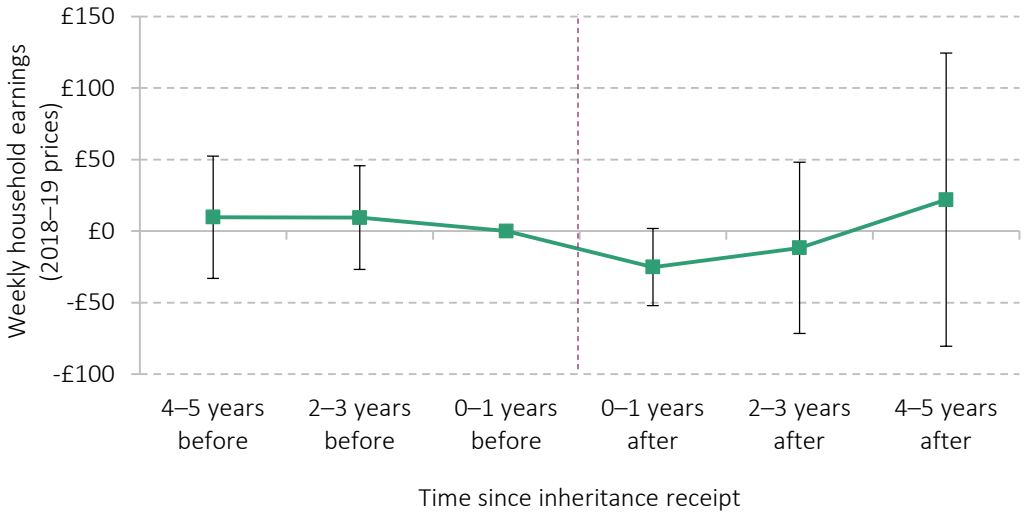
Figure 3.7. Impact of inheritance receipt on labour supply by time since receipt of inheritance



Note: Includes couple fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude couples who inherit more than once in the observed time period and only keep "constant" couples who are observed at least once before and once after they have inherited. The black bars depict the 95% confidence intervals.

Source: ELSA, waves 1–9, and WAS, waves 1–5.

Figure 3.8. Impact of inheritance receipt on family earnings by time since receipt of inheritance



Note: Includes couple fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude couples who inherit more than once in the observed time period and only keep "constant" couples who are observed at least once before and once after they have inherited.

Source: ELSA, waves 1–9, and WAS, waves 1–5.

4. The effects of inheritances on consumption and wealth inequality

In this chapter, we turn to examine the effects of inheritances on inequalities in wealth and consumption over households' lifetimes. Our primary focus is how inheritances affect the levels and inequalities in households' consumption, as this will play a major and direct role in determining their living standards and well-being. As we have seen, different households will inherit different amounts and may choose to, or be able to, spend their inheritance at different points in their life. The overall effects of inheritances on inequalities in wealth and consumption could therefore vary across different stages in the life cycle, and the effects on lifetime economic well-being could vary across people (even if they end up receiving the same inheritance).

We examine the effects of inheritances on wealth inequality as well as consumption inequality. Wealth is of potential interest in its own right as a marker of economic security and power; a number of previous studies have focused on the relationship between inheritance and wealth, so this allows us to situate our contribution in the context of this previous research.

In order to assess the effects of inheritances on wealth and consumption inequality, we bring together the evidence presented in Chapters 2 and 3, and combine this with an economic model of how households make decisions about their savings and consumption. The reason for using such a model is threefold:

- even for those generations that have already reached an age where they have received inheritances, we lack data on inheritances, consumption and wealth

over households' whole lifetimes that would be required to examine the relationships between these outcomes directly;

- the generations we are examining are mostly still to receive any inheritance, so we need a way of extrapolating behaviour into the future;
- a model allows us to disentangle the various economic drivers of our outcomes of interest and to make predictions about what would happen under alternative possible scenarios for the future.

The parameters of this model come from empirical observations about how people behave in the real world; but, as with any model, it still has to make simplifying assumptions about the decision-making process and the economic environment. The model that we use builds on widely used, empirically estimated models of consumption and savings over the life cycle; for examples, see De Nardi (2004), French (2005), Crawford and O'Dea (2020) and Druedahl and Martinello (2020). In essence, these models try to capture in a quantitative way the circumstances and constraints households face, such as their earnings and state pension income, how their household size (and therefore costs) vary over their lifetime, how long they might expect to live in retirement, and the returns to saving and limits to borrowing. They also capture important uncertainties over these, such as risks from unemployment or falls in earnings. Receipt of inheritances is one such (uncertain) source of income that features in our model.[14]

The model shows how households would optimally choose their savings and consumption to maximise their expected welfare over their lifetime in the face of these constraints and uncertainties. In essence, this comes down to households balancing the benefits and costs of consuming income now versus saving it for later years or leaving it as a bequest. The way that households weigh up costs and benefits depends on the model parameters that specify how risk-averse households are, how they weigh the future versus today and how much they value leaving bequests when they die. We select these model parameters by calibrating the model such that it can generate reasonably closely the patterns seen in actual household wealth data from the WAS – we use this criterion to choose from within the range

[14] This means that – differences in uncertainty and tax treatment aside – receiving one extra pound in inheritance is assumed to have the same impact on households' decisions as receiving one extra pound of earnings or social security income at the same age. This assumption might be violated if households were more likely to bequeath inherited wealth than other income, for example.

of parameter estimates from existing life-cycle models estimated using UK and US data (Lockwood, 2018; Crawford and O'Dea, 2020).

Any model of this kind makes many assumptions about how households make decisions, and the environment they face. Many of these assumptions are a simplified version of reality. This is necessary in order to make the model workable in practice, and the key challenge is to simplify the model along the right dimensions so that it remains able to capture the aspects of the world that are most pertinent to the question at hand, while abstracting from other aspects.

In Box 1.1, we give a non-technical overview of the features of the model that we use. Readers wishing to understand the model in more detail are referred to the supplementary appendix, available online. The subsequent results subsections can be understood without reference to the model description so readers who wish to do so can proceed directly to those subsections.

Box 1.1. Model of savings and consumption

We use a heterogeneous-agents life-cycle model – models similar in approach to ours are found in, for example, Crawford and O'Dea (2020) and Druedahl and Martinello (2020). The agent in this model is a household. Each household lives from age 26 to a maximum possible age of 110. The time period of the model is one year.

Household types. Each household is endowed with one level of the following characteristics:

- decade of birth (1960s, 1970s or 1980s);
- education level (low, mid or high);
- earnings level (low, mid or high).

Household earnings and state pension income.

- Households are either in or out of paid work in each period.
- Households face a probability of entry or exit from work each period, which varies by household type.
- If a household is in work, its earnings are the sum of a certain component, which varies by age and household type, and an uncertain component that is described below.

- State pension income is paid from the state pension age and depends on household type and earnings in the period before the state pension age.
- No households work beyond their state pension age.

Parental households. Each household starts life with either one or two parental households, who each:

- have an age gap to the household that depends on the household's decade of birth and education level;
- have a level of wealth that is the sum of a deterministic component, which varies by age and the main household's decade of birth and education level, and a stochastic component that is described below;
- face some probability of death each year;
- leave their wealth as a bequest to their children when they die.

Inheritances.

- If one of a household's parental households dies, their bequest is subject to inheritance tax and then divided by the assumed number of children (i.e. the household and its siblings), which varies by decade of birth and education group, to yield the household's inheritance.
- Inheritances are added to a household's assets at the start of the period in which the parental household dies.

Taxes and benefits are levied on a household's income, net of any savings made, each period. The tax and benefit system is progressive and provides a minimum level of consumption.

Household choices.

- A household's total pre-tax income is equal to its earnings from work, plus any state pension income plus any inheritances it has received.
- Each period, the household must choose how much of its pre-tax income to save (or if it has accumulated assets from previous saving, how much of this to dissave).
- Household savings increase the household's holdings in an asset, which accrues a rate of return that varies by age and by decade of birth.
- Households can borrow (i.e. have negative holdings of the asset) at most twice the average annual earnings for a household of their type and must repay all borrowing by age 75 at the latest.

- Given the risk of death, households' wealth choice each period also implies a chosen level of bequest if they die.

Sources of uncertainty for the household are as follows. The households have rational expectations about all of these sources of uncertainty.

- They face some probability of death at each age from age 65 onwards, which varies by age, and the household's decade of birth and education level.
- The stochastic component of their earnings evolves in a way that depends on the household's type, age and the level of the stochastic component of earnings in the previous period.
- The stochastic component of their parents' wealth evolves in a way that depends on the household's decade of birth and education level, age and the level of the stochastic component of parents' wealth in the previous period.
- Parental households face some probability of death at each age, which varies by the parental household's age, and the household's decade of birth and education level. The realisations of the timing of death are independent across the two parental households (if the household has two).

The estimation of the earnings and parental wealth processes, and the way in which parental wealth is related to household earnings were described in Chapter 2. Further details of estimation and calibration of the model inputs and preference parameters and the method of solving the model are given in the appendix.[15]

Effects of inheritances on average consumption and wealth

We now turn to the results. The model gives us a set of predictions about how households would choose their levels of savings and consumption when faced with different circumstances. This means we can feed in the many different circumstances that we expect households to face, creating simulated cohorts of households who vary in their characteristics and the levels of earnings, inheritances

[15] The model is solved by backwards recursion, where optimal decision rules are found at the points of a grid of the model's state variables, starting in the terminal period and working backwards. To generate the results in the following subsection, we use these decision rules and the model's exogenous processes to simulate the model 1,000 times for every household type.

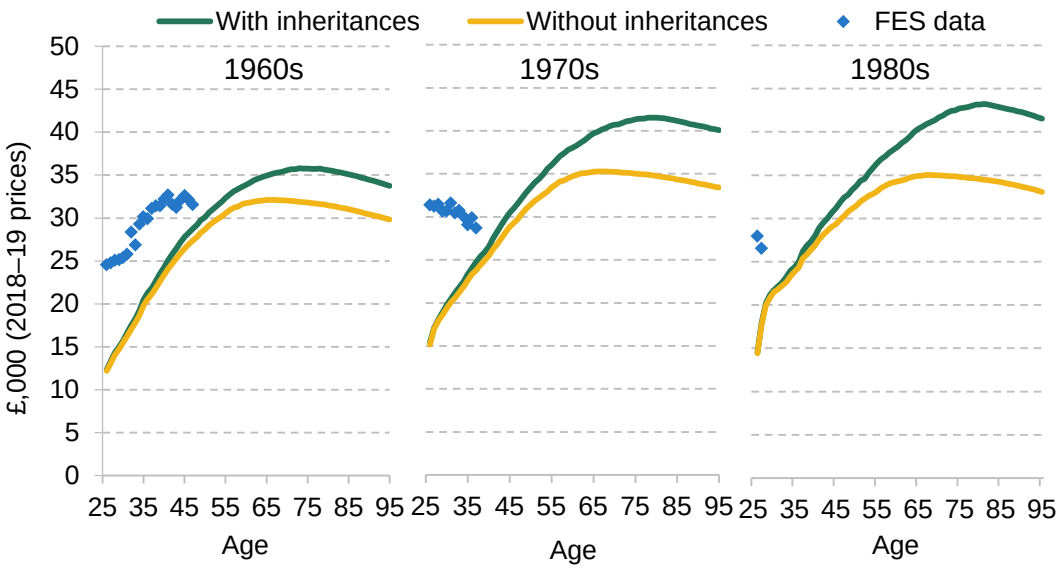
etc., that they receive. We can then analyse the distribution of consumption and wealth within that simulated cohort. We look first at the average effects of inheritances before turning to their effect on inequality and subsequently disentangling the drivers of their effects.

We note that consumption should be understood as representing the consumption from all goods and services that households purchase. In the model, there is just one consumption good representing all of these things together. Economists normally think of consumption as distinct from expenditure, as the good or service bought might be consumed at a different point in time to when it was purchased. This happens with durable goods or properties, which can be purchased at one point in time but are enjoyed for some time thereafter. In our model, it is as if the household buys all goods and services, including durable goods, at the time they consume them. We could think of them renting the use of their durable good or housing. The consumption that we model should therefore be compared with expenditure on non-durables (those things essentially consumed when purchased) and the implicit flow of consumption value from any durables and housing owned. When people buy a house, this is of course purchased both as something to be 'consumed' and, potentially, also as a form of saving. This role of housing as saving is captured by the asset in the model. Mortgage repayments that add to households' wealth in reality are here captured by saving and building up assets.

In Figures 4.1 and 4.2, we show the paths of median equivalised consumption and median wealth, simulated by our model, for households surviving to each of the ages shown. We show the model predictions from two scenarios: one with inheritances and one without, where households never expect to receive and do not actually receive any inheritances (i.e. it is as if that wealth never existed). We show this for each of our three decades of birth and also compare the model predictions with the measured levels of median consumption and median wealth, from the FES and WAS, respectively.[16]

[16] While the model predictions match the actual wealth data closely, the consumption profile that we model is at a lower level and is steeper than found in actual consumption data. The difficulty of jointly matching consumption and wealth profiles in early working life has been documented in other contexts (Gourinchas and Parker, 2002). The difficulty in jointly matching the consumption and wealth levels is driven in part by the fact that the median household reports consumption substantially higher than its income, while there is still substantial wealth accumulation at the median.

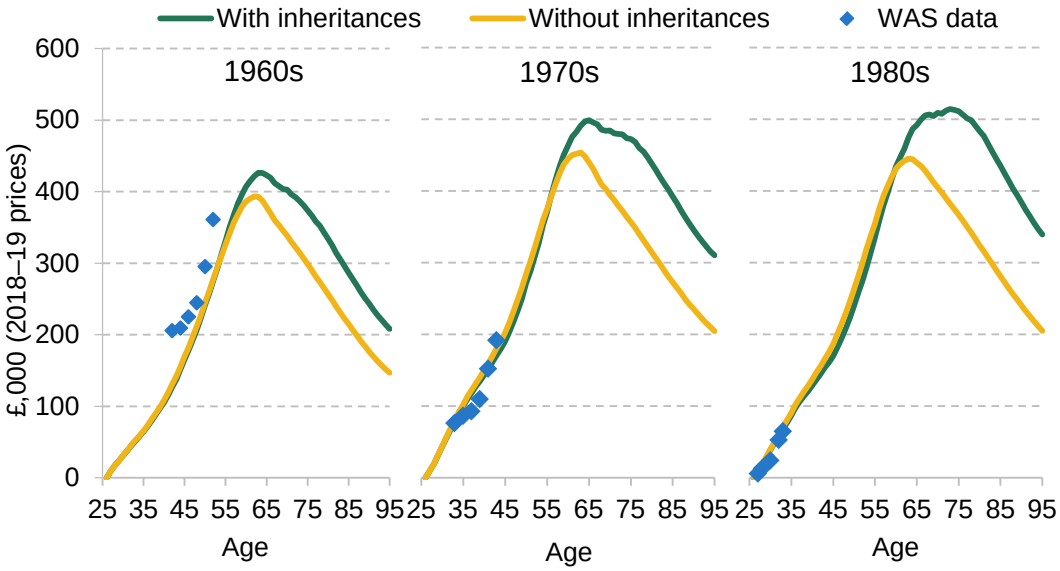
Figure 4.1. Simulated median equivalised household consumption by birth decade, with and without inheritances, and median equivalised consumption as measured in the FES



Note: Equivalised consumption expressed on the basis of a childless couple.

Source: Model simulations.

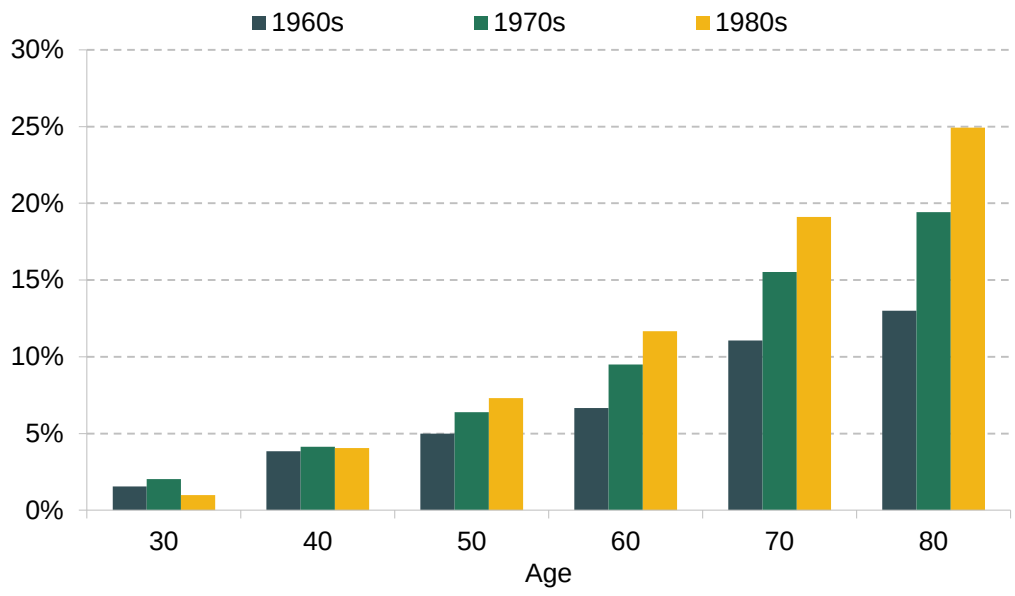
Figure 4.2. Simulated median household wealth by birth decade, with and without inheritances, and median household wealth as measured in the WAS



Source: Model simulations

The paths of median consumption show that, without inheritances, equivalised consumption increases with age, peaking at around age 60 for each cohort before declining slightly in the retirement years. The levels of consumption are slightly higher for the 1970s cohort than the 1960s cohort, reflecting the slightly higher incomes of the former group. The 1980s and 1970s cohorts have similar consumption profiles, which is in line with the similar incomes they are expected to have over their lifetimes. The addition of inheritances causes higher consumption at all ages, but particularly in later life. This is shown explicitly in Figure 4.3. For example, for those born in the 1960s, equivalised consumption each year is 2% higher at age 30 due to the addition of inheritances, 4% higher at age 40, 5% higher at age 50, 7% higher at age 60, 11% higher at age 70 and 13% higher at age 80. Consumption is increased only marginally more at age 80 than at age 70 because almost all inheritances have been received by age 70 for this generation. The effect of inheritances on median consumption is larger at older ages for later-born cohorts, in line with the increasing size of inheritances compared with lifetime income, which was documented in Chapter 2. For the 1980s-born households, inheritances

Figure 4.3. Estimated percentage increase in households' equivalised consumption at selected ages as a result of inheritances, by decade of birth



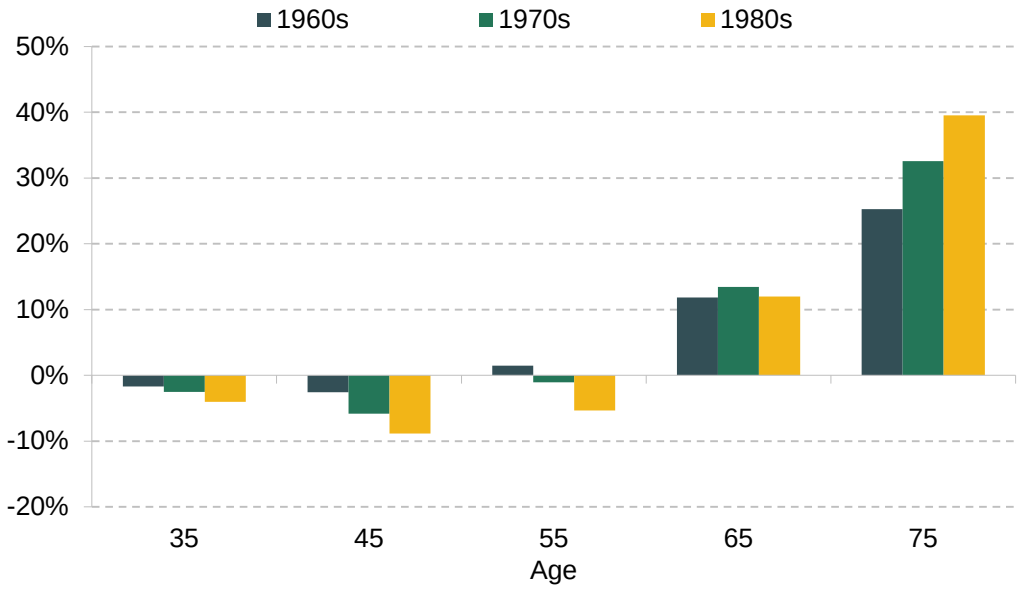
Source: Model simulations.

result in a similar percentage increase in consumption, compared with the 1960s cohort before age 50, but at age 70 they increase consumption by 19% and at age 80 they increase consumption by 25%. The effect for this generation grows even through their 70s as a substantial minority are projected to inherit only at these late ages

Turning to assets, we see, in all scenarios for all cohorts, a 'life-cycle' profile, whereby assets are built up during working life and partially drawn down in retirement.[17] The relatively higher wealth of the 1970s and 1980s cohorts, even in the absence of inheritances, again reflects their slightly higher lifetime incomes relative to the 1960s cohort. Figure 4.4 shows the percentage increase in wealth at selected ages, as a result of inheritances. The most substantial effect of inheritances is to increase assets held in later life, once the bulk of inheritances are received. For example, for those born in the 1980s, at age 75, assets are 40% higher as a result of inheritances. However, we can also see they reduce levels of wealth held at younger ages. For the 1980s-born, inheritances reduce the level of assets held at age 45 by 9%. This decrease comes despite the fact that some households will have inherited already by that age. This represents households responding to expected inheritances by saving less, and it will be explored further below. Comparing different generations, we see that the effects, both early and late in life, are larger for those born later. This is because inheritances are a larger share of their lifetime resources. The 'switch' from inheritances depressing levels of wealth to inheritances increasing wealth comes later in life for later-born cohorts. For example, for those born in the 1960s, inheritances slightly increase wealth held at age 55 but for those born in the 1980s they decrease it. This is because those born later are projected to inherit at older ages.

[17] The substantial drawdown of wealth in retirement might appear to be at odds with the very mild decumulation of assets documented for earlier cohorts. However, as our model has one asset type, the wealth measure here is comparable to total wealth *including* private pension wealth, which does tend to decline with age (Blundell et al., 2016), whereas we examine parents' assets *excluding* pension wealth.

Figure 4.4. Estimated effect of inheritances on households' wealth at selected ages, by decade of birth



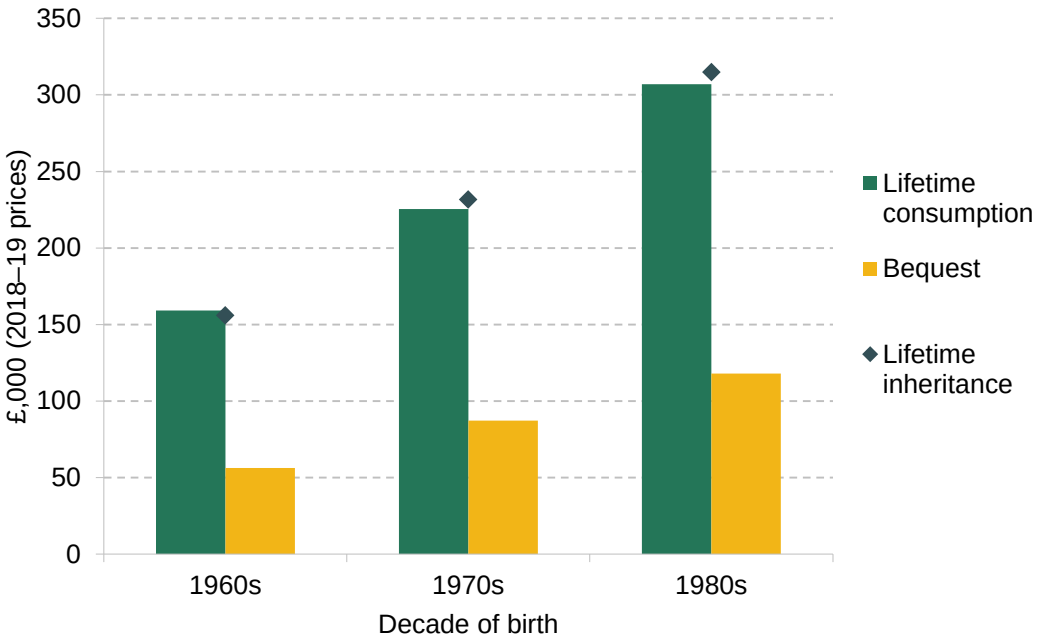
Source: Model simulations.

The fact that households hold higher wealth at older ages due to inheritances also means that they will leave larger bequests, as at each older age, some people will die without a surviving spouse and we assume their household's wealth is then passed on as a bequest. Figure 4.5 shows the average lifetime inheritance projected for each birth decade, and compares it with the average extra lifetime consumption and extra bequests that we project households will leave. The average extra consumption is approximately equal to the value of the average inheritance, rising from £159,000 to £225,000 to £306,000 from the 1960s to the 1970s to the 1980s cohorts. As percentage increases in consumption, compared with the scenario without inheritances, these figures are 8%, 10% and 14%, respectively. The extra expected bequests to be left to the next generation are slightly over a third of the value of the extra consumption brought about by inheritances, equal to £56,000 for the 1960s-born, £87,000 for the 1970s-born and £118,000 for the 1980s-born. These represent percentage increases in bequests of 21%, 35% and 47% for the three cohorts, respectively.[18] The total of the extra consumption and extra bequests

[18] This increase in the size of bequests relative to inheritances received is in line with the literature, which we follow, which models these as luxury good i.e. households spend an increasing share of their resources on bequests as their lifetime income increases (see De Nardi, 2004; Lockwood, 2018).

is more than the inheritances received because the households also receive a return on the inheritances while they are held as extra wealth. This effect compounds over time to become substantial.

Figure 4.5. Estimated increase in households' lifetime consumption and bequests to next generation as a result of inheritances received, by decade of birth



Source: Model simulations.

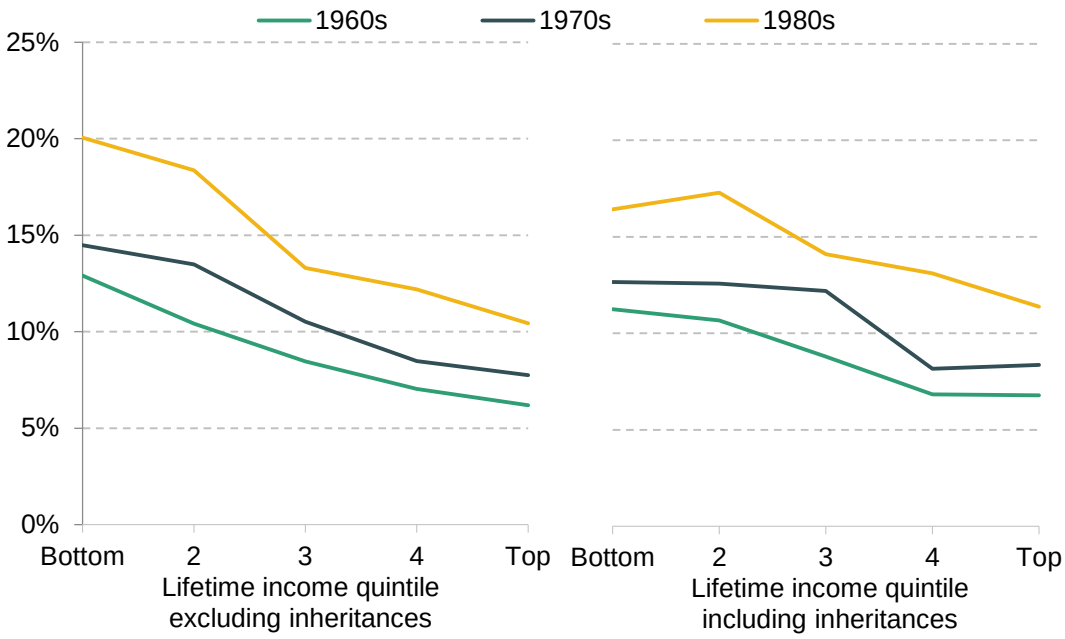
Implications for consumption inequality

We now turn to consider how the consumption effects of inheritances vary by lifetime income groups and then we examine the effects of inheritances on inequalities in the overall distribution of consumption.

Figure 4.6 shows the percentage increase in lifetime equivalised consumption for each quintile of the lifetime income distribution within each decade of birth. The left panel shows the effects when households are classified into quintiles according to their lifetime income *excluding* inheritances and the right panel shows households classified according to their lifetime income *including* inheritances. This shows that we estimate inheritances will have a larger *proportional* effect on

lifetime consumption for those at the bottom of the lifetime income distribution than those at the top in each cohort. For example, amongst those born in the 1980s, we estimate that inheritances will increase lifetime consumption amongst the bottom fifth by lifetime income *excluding inheritances* by 20%, compared to an increase of 10% for the top fifth. However, the gradient by income is smaller if we look across quintiles of the lifetime income distribution *including* inheritances. This is because inheritances have the dual role of increasing some people's levels of consumption but also changing where they are in the distribution of lifetime income and consumption. This relates to an important fact that we will examine directly later in this chapter: that even in the absence of a profound effect on overall levels of inequality, inheritances are set to play a significant role by changing who is further up and further down the distributions of lifetime income and, crucially, moving those with wealthier parents towards the top.

Figure 4.6. Percentage increase in households' lifetime equivalised consumption due to inheritances, by decade of birth and lifetime income quintile



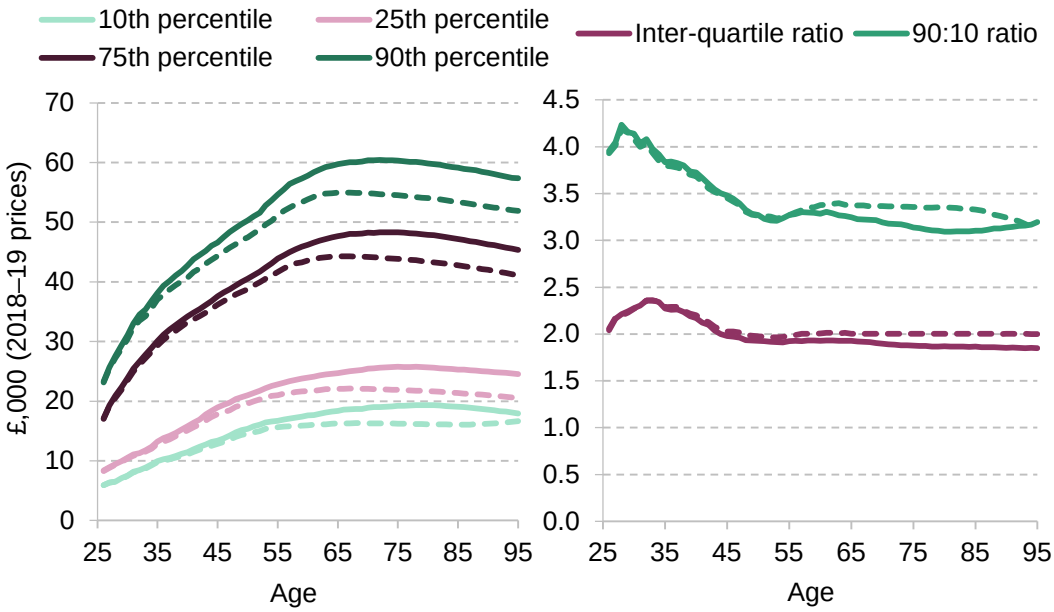
Source: Model simulations.

We now assess how these effects translate into effects across the whole distribution of consumption and wealth at different points in the life cycle. First, we show the effect of inheritances on different points of the distribution of equivalised

consumption and the consequent impact on measures of consumption inequality. The left panel of Figure 4.7 shows the 10th, 25th, 75th and 90th percentiles of consumption for the 1960s-born generation for the scenarios with inheritances (solid lines) and without inheritances (dashed lines). The right panel shows two measures of inequality calculated using the data in the left panel: the 90:10 ratio and the 75:25, or 'inter-quartile', ratio. It is important to note that those households at a particular point in the distribution may not be the same in the scenarios with and without inheritances due to the re-ranking effect of inheritances mentioned above.

Figure 4.7 shows that the effect of inheritances is larger in *absolute* terms for the higher parts of the consumption distribution. However, the effect in *proportional* terms is relatively similar across the distribution. At ages up until age 50, inheritances have a larger proportional effect on the 90th percentile than the 10th percentile, meaning that they increase the 90:10 measure of inequality at younger ages, although the effect is very small. But at ages above 50, there is a larger effect of inheritances – in proportional terms – on the lower parts of the consumption distribution. This means that consumption inequality as measured by our two metrics declines slightly at older ages due to inheritances. We can see this shown by the difference that opens up between the solid and dashed lines in the right panel. This effect is larger for the 90:10 ratio than the inter-quartile ratio. The reason for this – explored further below – is that households further down the distributions of lifetime income and consumption are less able and/or willing to react to inheritances by spending more in advance of receiving them, as they are more influenced by both credit constraints and uncertainty over the size and timing of inheritance receipt. Those lower down the lifetime income distribution, who have lower consumption levels, therefore spend a greater share of their inheritance later in life, compared with higher-income households.

Figure 4.7. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without inheritances (1960s-born)

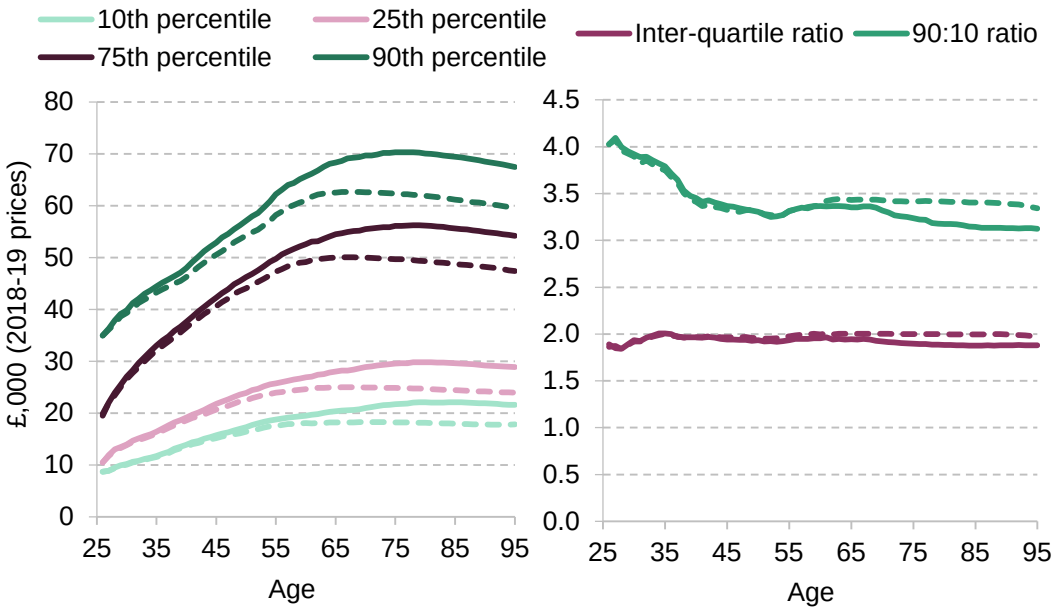


Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figures 4.8 and 4.9 show the equivalent consumption profiles for the 1970s-born and 1980s-born generations. While the effects of inheritances grow in size for later-born cohorts, they do so in a broadly similar way across the consumption distribution. The effects of inheritances on inequality are consequently similar across cohorts in terms of overall patterns: there is, if anything, a very small dis-equalising effect of inheritances at younger ages, which turns to a moderate equalising effect at older ages. Again, this is because lower lifetime income households 'spend' more of their inheritance after they receive it than higher-income households do, as the latter are more willing and able to spend in advance of receiving an inheritance. However, there are quantitative differences: for later-born cohorts, the equalising effect of inheritances is somewhat smaller and the starts later in life. For the 1980s-born, for example, inheritances increase the 90:10 ratio up until age 70 before decreasing it at older ages.

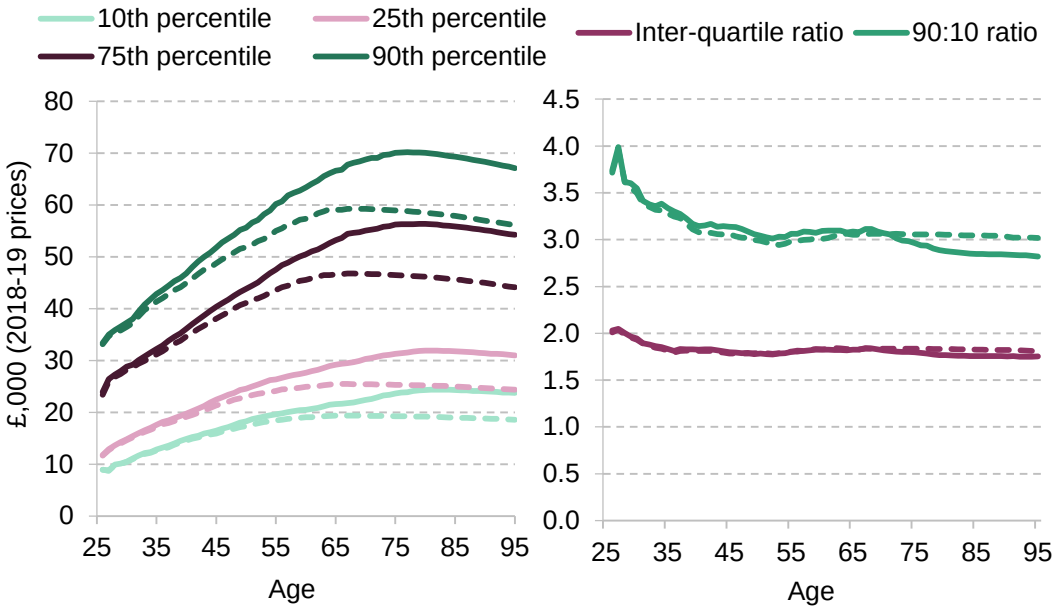
Figure 4.8. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without inheritances (1970s-born)



Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figure 4.9. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without inheritances (1980s-born)

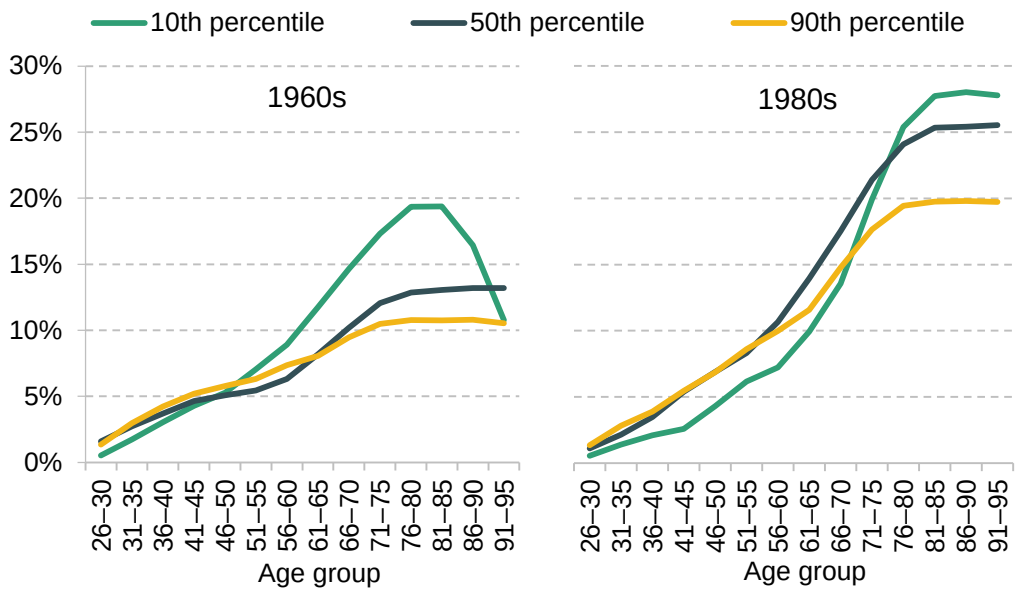


Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figure 4.10 summarises the effects of inheritances across the distribution of consumption for the 1960s-born and 1980s-born cohorts. Here, the effect is expressed in percentage terms. We clearly see the larger and later effects of inheritances for those born in the 1980s, compared with the 1960s-born cohort. We also note that for both cohorts the effect of inheritances grows more with age for the 10th percentile than for the 50th, which in turn sees a stronger age profile than the 90th percentile. In the next subsection, we explore the drivers of these patterns by examining the mechanisms that might generate different age patterns of responses at different parts of the consumption distribution, such as responses to credit constraints and uncertainty.

Figure 4.10. Percentage increase in selected percentiles of equivalised household consumption due to inheritances, for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

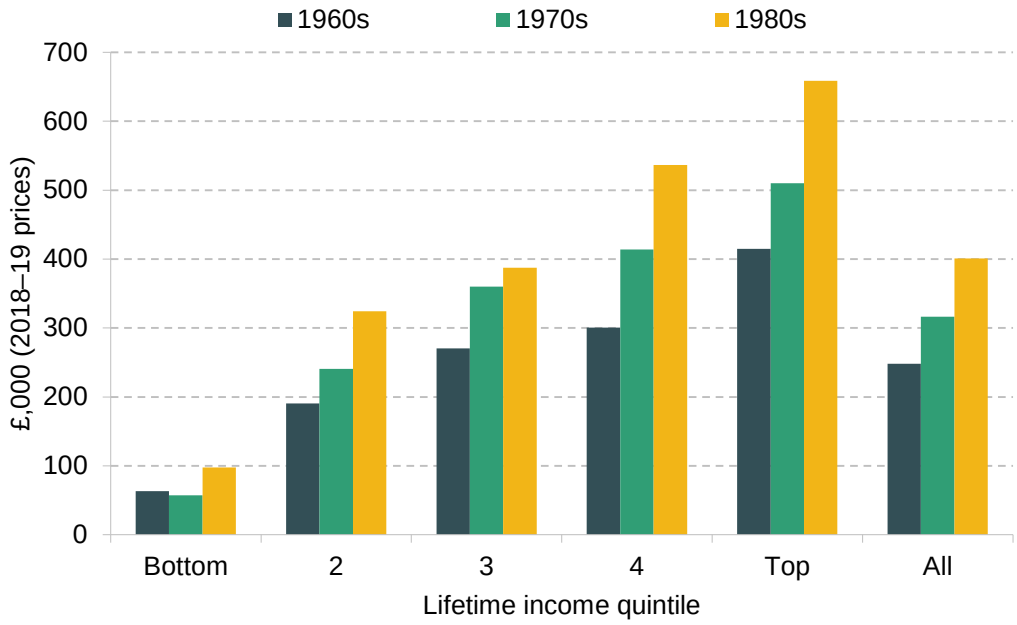
The role of anticipation, credit constraints and uncertainty

The larger effects of inheritances on the upper part of the distribution of consumption at younger ages, before most inheritances are received, suggests that higher percentiles are affected more by anticipatory behaviour; that is, people increasing their consumption in anticipation of a future inheritances. These differences are not driven by differences in the timing of receipt of inheritances as

we do not project substantial differences in the age of inheritance receipt by lifetime income, within birth cohorts. To quantify the effect of inheritances on anticipatory behaviour, we calculate for each household how much additional consumption they have in the scenario with inheritances than without, in the years before they receive any inheritance. We can express this total extra consumption before inheritance receipt as a percentage of the inheritance subsequently received to give a measure of the percentage of the inheritance that has been spent 'in anticipation' of its receipt.

Figure 4.11 shows our estimates of the increase in households' annual equivalised consumption, as a result of anticipated inheritances, in the years before they receive their inheritance. This shows that amongst those born in the 1980s, we estimate that households in the bottom fifth of lifetime income spend, on average, just under £100 extra per year as a result of the anticipation of future inheritance receipt. This additional spending is funded by either lower saving or higher borrowing. For those in the top fifth of lifetime income, the equivalent figure is £660 per year. These figures are higher for those born later due to the growing size of inheritances.

Figure 4.11. Estimated effect of inheritances on households' average annual equivalised consumption before they receive their inheritances, by decade of birth and lifetime income quintile



Source: Model simulations.

Figure 4.12 shows our estimates of the percentage of inheritances spent in advance, split by quintile of the lifetime income distribution. We see that those further up the income distribution spend more of their inheritance in advance. Amongst those born in the 1980s, the bottom fifth of households by lifetime income consume 11% of their inheritance in advance – a third as much as the 33% spent in advance by the top fifth by lifetime income. The patterns across different decades of birth are quite similar. This pattern is consistent with the findings of Chapter 3, which showed a larger increase in consumption, as a fraction of the annuitised value of the inheritance, following inheritance receipt for households with lower levels of wealth.

Figure 4.12. Effect of inheritances on households' consumption before they receive their inheritances, as a percentage of inheritance received, by decade of birth and lifetime income quintile

Note: Both additional consumption and inheritances are expressed in present discounted value terms, using the model interest rate.

Source: Model simulations.

These increases in consumption in advance of inheritance receipt are certainly consequential amounts but are lower than one might expect if we thought that households would spread the extra spending that they can afford as a result of an inheritance over their whole lives. One very approximate benchmark is that

inheritances are projected to be received, on average, 60% of the way through adult life, so if there were no uncertainty and no borrowing constraints then we might expect around 60% to be spent in advance. Anticipatory effects are particularly small for households with lower lifetime income. In the Appendix, we analyse the drivers of the amounts of inheritances spent in advance of their receipt. This analysis shows that while credit constraints are somewhat important for households in the bottom quintile of lifetime income, the effect of uncertainty over the inheritance is most important, having a substantive effect on households across the income distribution. This is not because the inheritances that will be received are more uncertain for those with low incomes – it is because they are less likely to spend uncertain amounts of money before they arrive. Intuitively, the reason is that, if a household with low lifetime income receives less inheritance than they had planned (i.e. saved) and has to cut back on spending, this is relatively more painful for them to do than it is for a household with higher lifetime income.

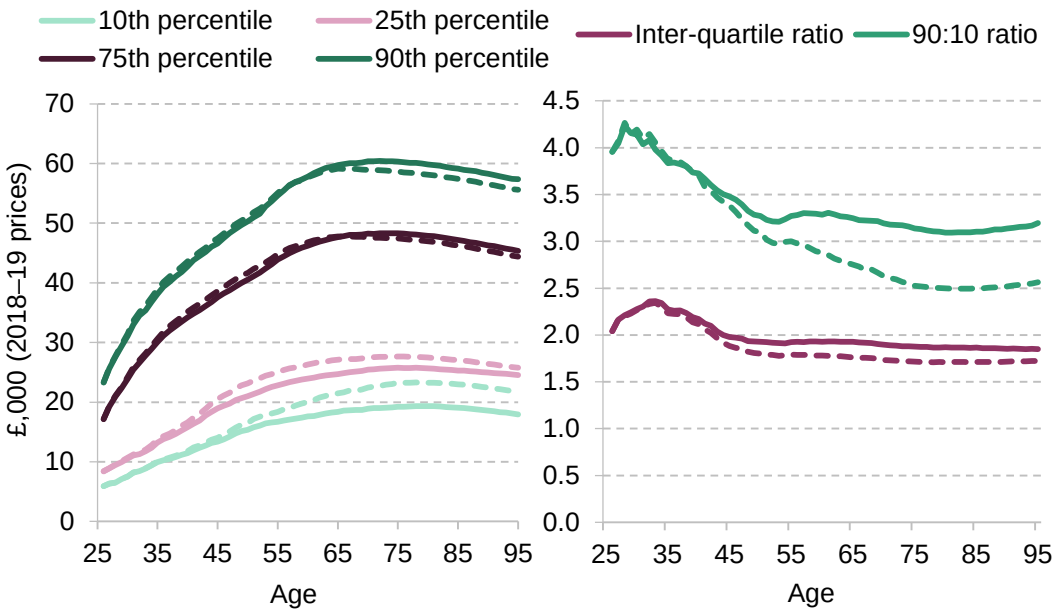
The fact that households are not able and/or willing to spread their inheritance across their whole lifetimes – as they tend to want to do in the absence of borrowing constraints or uncertainty – means that the prospect of receiving an uncertain inheritance later in life is worth less than receiving the same amount of money with certainty at the start of life. Another way of saying this is that the amount of money received at the start of life that households would value equally to their potential inheritance is less than the amount of inheritance expected.

Implications for redistributive policies

So far, we have assessed the role of inheritances by considering counterfactuals where households do not receive any inheritance. While this is useful for thinking through how inheritances have their effects, it can be instructive to consider alternative counterfactuals when evaluating the role of redistributive policies. One benchmark counterfactual to consider is where inheritances were equalised over all households at their average level. We are not able to model the effect that changes to policies would have on parents' behaviour – such as an increase in giving while alive or increasing other forms of investment into their children. Any policies aiming to substantially redistribute inheritance income would likely lead to responses by parents and so this analysis is therefore very much illustrative. The intention is to illustrate how much is 'at stake' and how this is set to change across generations as inheritances grow in size.

Figures 4.13 and 4.14 show, for the 1960s and 1980s cohorts, the effect of inheritances compared with a counterfactual where all households receive the same inheritance, equal to the mean of the inheritances we project in the main scenario. The growing size of inheritances compared with other sources of income means that the redistribution of inheritance income has a greater equalising effect for later-born cohorts. The substantive effects are on levels of consumption at older ages, after inheritances are received.[19] The largest effects are on the 90:10 ratio because these households are more likely to receive very large or very small inheritances, in the absence of redistribution, and so are more affected by the equalisation at the mean level.

Figure 4.13. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without equalising at mean inheritance (1960s-born)

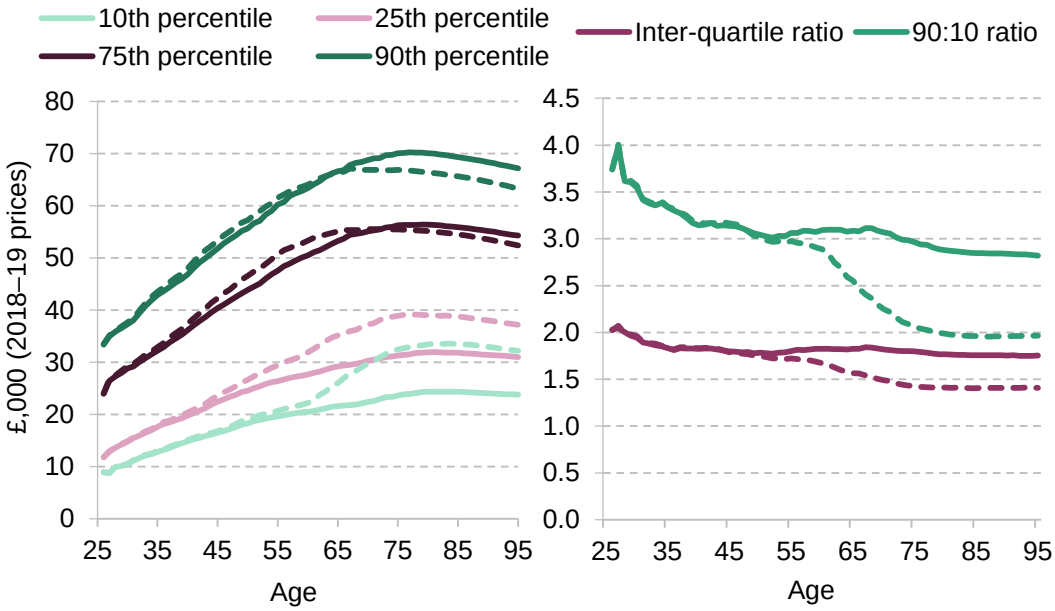


Note: Dashed lines indicate equalisation at median inheritance.

Source: Model simulations

[19] We note that the 75th and 90th percentiles of consumption actually rise slightly at younger ages in both cohorts, even though inheritances have, on average, been reduced for higher-income households. This is because the equalisation of inheritances at a given level eliminates any uncertainty over the inheritance amount and, as discussed earlier in this chapter, uncertainty is one major factor holding households back from anticipatory spending of their inheritance.

Figure 4.14. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without equalising at mean inheritance (1980s-born)



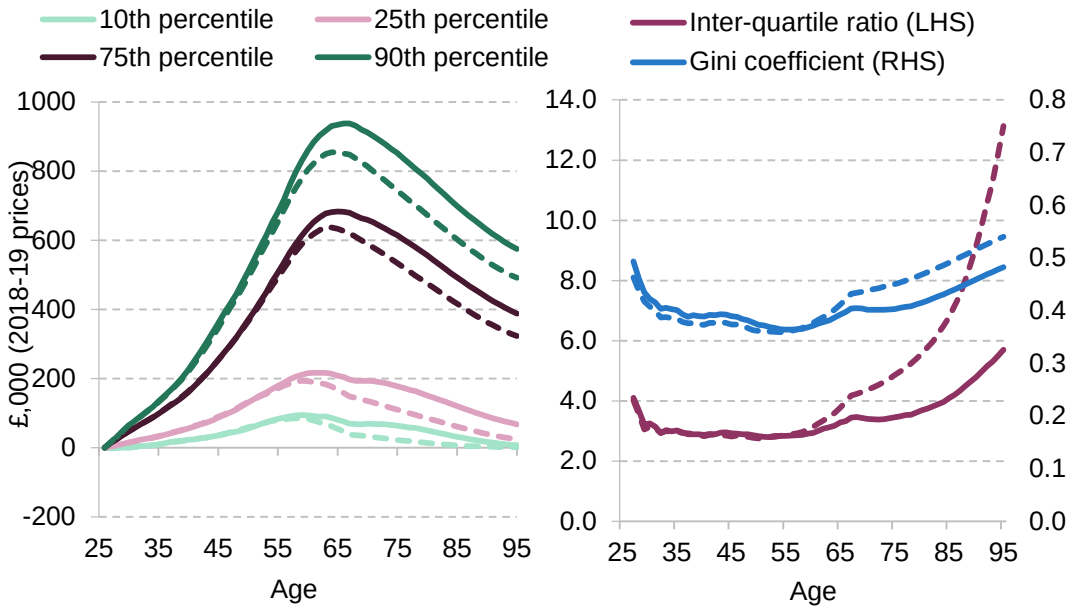
Note: Dashed lines indicate equalisation at median inheritance.

Source: Model simulations

Implications for wealth inequality

We now examine the predicted implications of inheritances for wealth inequality. Figures 4.15 and 4.16 show selected points of the distribution of wealth across the life cycle for the 1960s and 1980s cohorts, under our main scenario with inheritances and counterfactual without inheritances. At each age, the total effect of inheritances on wealth can be thought of as the sum of two factors: the direct effect of inheritances received by that age (and the returns to these if saved) and the indirect effect of the change in behaviour induced by the expectation and receipt of inheritances. Across the distribution, the effect of inheritances before around age 40 is too small to be seen but it does decrease the 10th, 25th and 75th percentiles. This suggests that anticipatory effects dominate at these ages. At older ages, once the bulk of inheritances are received, wealth is substantially higher as a result of inheritances.

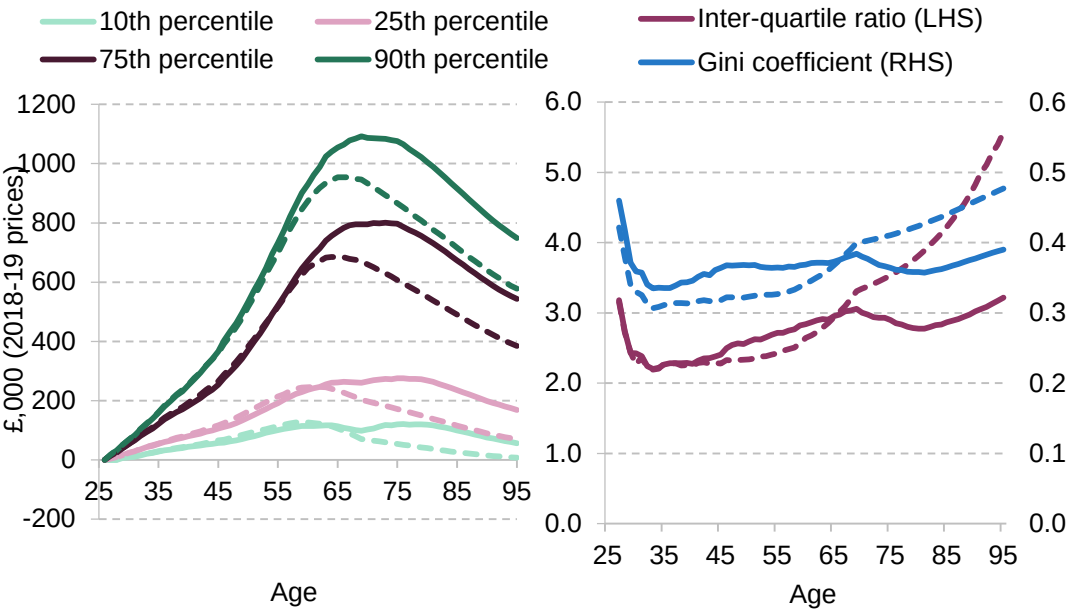
Figure 4.15. Selected percentiles (left) and inequality measures (right) for household wealth, with and without inheritances (1960s-born)



Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figure 4.16. Selected percentiles (left) and inequality measures (right) for household wealth, with and without inheritances (1980s-born)



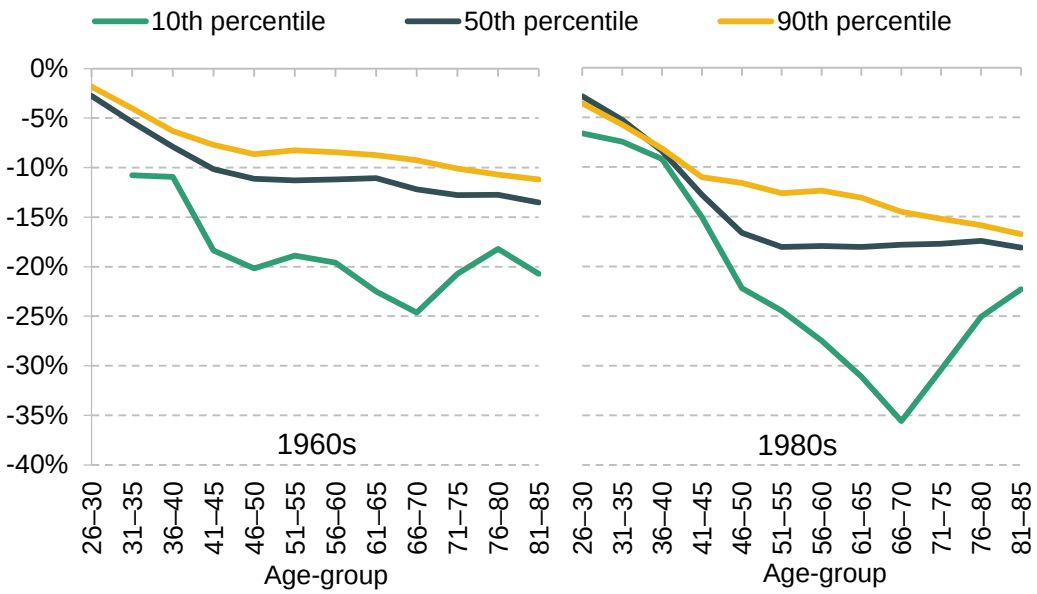
Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

The effects on wealth inequality that we project are shown in the right panels of Figures 4.15 and 4.16. We show the inter-quartile ratio and Gini coefficient, the latter being a commonly used measure of wealth inequality. We do not show the 90:10 ratio as the 10th percentile of wealth is very low or negative at a number of ages, making that measure difficult to interpret. We see similar qualitative patterns across measures and across decades of birth. Inheritances slightly increase wealth inequality at younger ages before slightly decreasing it at older ages, after most inheritances are received.

What is driving these inequality patterns? The effects of inheritances on wealth levels early in life are larger in absolute terms for those higher up the distribution. This is the result of the larger anticipatory consumption response to inheritances that we saw for households with higher lifetime income, who are also the households that tend to be higher up in the wealth distribution. But while these anticipatory effects, where households save less in order to consume, and so build up less wealth, are larger in *absolute* terms further up the distribution – and indeed larger as a percentage of the inheritance received – they are smaller *as a percentage of wealth* than the effects further down the wealth distribution. This is shown clearly in Figure 4.17, which isolates the anticipatory effect of inheritances on wealth by calculating wealth levels in a case where no inheritances were expected. The figure shows that the anticipatory effects are larger in percentage of wealth terms at lower points of the wealth distribution. At ages 41–45, the 10th percentile of wealth is 18% lower as a result of the anticipation of inheritances. This compares to a reduction of 10% at the median and 8% for the 90th percentile.

Figure 4.17. Percentage change in wealth due to the 'anticipation' effect of inheritances, for selected percentiles of household wealth, for 1960s-born (left) and 1980s-born (right)



Note: The anticipation effect is calculated by running a version of the model in which households do not expect to receive inheritances but then do in fact receive them in the same way as in the main scenario. The percentage difference between wealth as simulated in the main scenario and wealth in this additional 'no anticipation' scenario is the anticipation effect shown here. Note that age 26–30 is not shown for the 1960s cohort as very low wealth levels drive a spurious large percentage change.

Source: Model simulations

Why is the percentage decrease in wealth due to anticipation larger for low-wealth households even though we saw that the anticipatory *consumption* response to inheritances was smaller in *percentage* terms for households with lower lifetime income? This is because households with lower lifetime income tend to have much lower wealth *compared with their income* (and consumption) than households with high lifetime income. This is a well-documented empirical phenomenon (Dynan, Skinner and Zeldes, 2004) that also holds in our model.[20] This means that inheritances are able to increase both consumption and wealth inequality at the

[20] Households with higher lifetime income are generally found to hold higher levels of wealth compared with their lifetime incomes because of a combination of a greater need to save in order to smooth consumption into retirement due to progressive public pension systems, and a higher need to self-insure in working life due to progressive social security systems. A further reason is that bequests are often found to be luxury goods. All these dynamics are present in our model.

same time. These effects then reverse at older ages, when inheritances are received. These inheritances are much larger compared with the other wealth that lower-wealth household have at older ages (where the anticipatory behaviour effects now compound the other reasons for wealth being lower compared with lifetime income for households with low lifetime income).

A significant amount of previous research has examined the contribution of past inheritances to current wealth inequality in the UK (Crawford and Hood, 2016; Karagiannaki, 2017; Nolan et al., 2020). In crude terms, these investigations have compared inheritances reported as received over some fixed period (indexed with inflation or an assumed rate of return) with wealth held at the end of that period. The effect of inheritances on wealth inequality is assessed by computing measures of inequality with and without subtracting the present value of inheritances received. This would be equivalent to our method of assessing the effect of inheritances on inequality only in the case where households did not change their behaviour as a result of expecting to receive and receiving an inheritance. Our analysis suggests that behavioural effects could have a substantive impact on levels of wealth held, and that these anticipatory effects differ across the distribution of lifetime income and therefore wealth. As these anticipatory effects are larger for the lower parts of the distribution, this suggests that an analysis of wealth inequality that does not account for them will tend to overstate how much inheritances reduce wealth inequality (or understate how they increase it).

Implications for inequality in lifetime consumption, equality of opportunity and social mobility

We combine the effects of inheritances at different ages (weighting by the probability that individuals survive to each older age) to calculate the effect on the distribution of lifetime equivalised consumption. The effects are small (see Table 4.1): inequality in lifetime consumption as measured by the Gini coefficient is decreased by 2.7% for the 1960s cohort, falling to 2.4% for the 1980s cohort. The main finding is that we do not expect inheritances to have a substantial effect on overall lifetime consumption inequality in any of these cohorts. Arguably though, it is not so much overall inequality of this kind that is of most interest or concern when it comes to inheritances – rather it is social mobility or, loosely, inequality by family background.

Table 4.1. Effect of inheritances on lifetime equivalised consumption inequality

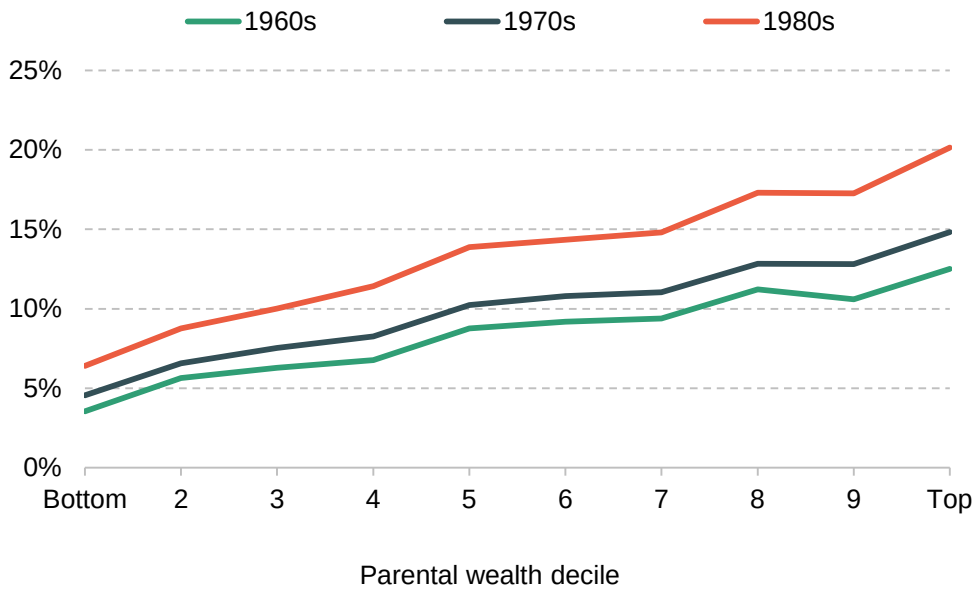
Decade of birth	Gini coefficient		Difference	% change
	No inheritance	Yes inheritance		
1960s	0.253	0.247	–0.007	–2.7
1970s	0.249	0.243	–0.006	–2.6
1980s	0.235	0.229	–0.006	–2.4

Source: Model simulations

The growing size of inheritances means that there is the potential for them to increase inequalities by parental background even if they do not increase inequality overall. Inequalities by parental background are often cited as those particularly worthy of attention or concern (Corack, 2013). One way of seeing the growing effect of inheritances in this dimension is to look at the percentage increase in lifetime consumption as a result of inheritances, for households with different levels of parental wealth. In Figure 4.18, we assign households to deciles according to the level of their parents' wealth when they are aged 26. We then show the percentage increase in average equivalised lifetime consumption that results from inheritances for each decile.

For the 1960s cohort, we project that inheritances will increase lifetime consumption by 4% for those with parents in the least wealthy tenth, compared to 13% for those with parents in the wealthiest tenth. This differential effect becomes bigger for later-born cohorts. For those born in the 1980s, inheritances increase lifetime consumption by 6% for those with parents in the bottom tenth and increase lifetime consumption by 20% for those with parents in the wealthiest tenth.

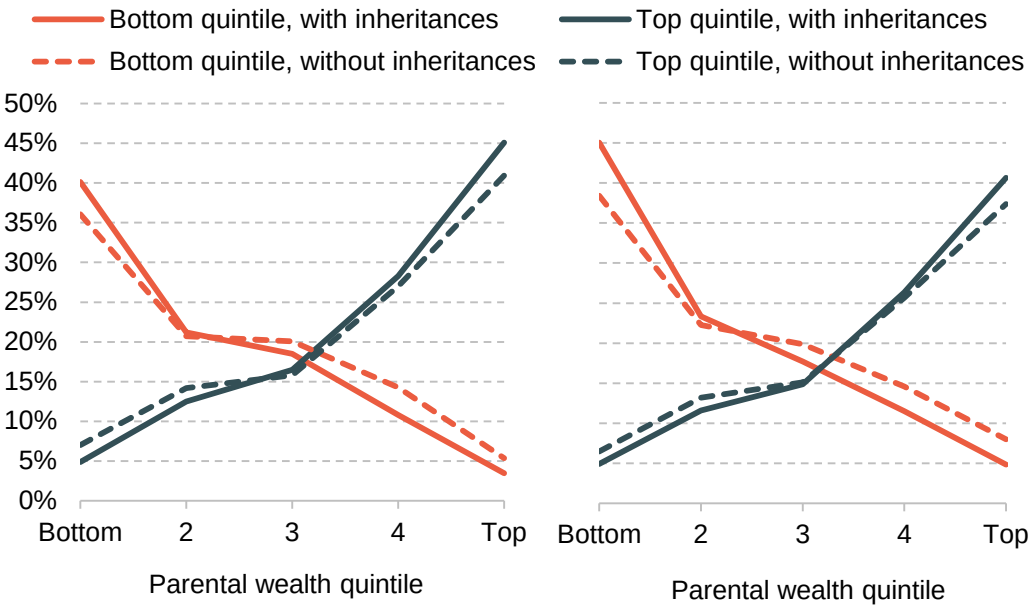
Figure 4.18. Percentage increase in mean equivalised household consumption due to inheritances, by parental wealth decile and decade of birth



Source: Model simulations

In Figure 4.19, we show the proportion of households that have parents in different parts of the wealth distribution who themselves end up in either the top or bottom quintiles of the lifetime equivalised consumption distribution. We compare these outcomes for the scenarios with and without inheritances to gauge the effect of inheritances on these measures of upwards and downwards social mobility. Analogous to the case of incomes, examined in Chapter 2, we estimate that inheritances (or lack thereof) are set to play a growing role in making the living standards of those with low-wealth parents more closely determined by that parental background. For those born in the 1960s with parents in the lowest fifth by wealth, we project that 36% would themselves be in the bottom lifetime equivalised consumption quintile without inheritances, but the addition of inheritances increases this to 40%. The difference in these proportions is even greater for those born in the 1980s, rising from 38% to 45%.

Figure 4.19. Probability of ending up in bottom or top quintiles of lifetime equivalised household consumption, with and without inheritances, by parental wealth quintile for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

A way of seeing concretely how parental wealth background is set to become a more important driver of differences between people is to decompose inequality into a component measuring inequality within groups of people who have parents with the same level of wealth and that between groups of people with different levels of parental wealth. We can examine how much of inequality is accounted for by this *between* parental wealth groups component versus that within *parental* wealth groups. Lee and Seshadri (2019) suggest that the extent to which inequality is driven by differences between individuals with different 'background characteristics' (of which parental background can be seen as one), as opposed to differences between individuals with similar background characteristics, is a measure of the degree of inequality of opportunity. We can also ask what contribution inheritances make to the share of inequality that is between parental wealth groups, and how this is set to change across cohorts. This can be interpreted as a measure of the contribution of inheritances to inequality in opportunity by parental background and how this may be expected to change across cohorts.

Table 4.2 shows the results of such an analysis for the Theil index of inequality, which is used because it can be decomposed in the way required. This shows that

the share of inequality in lifetime consumption that is *between* parental wealth deciles is 16% for the 1960s cohort when there are no inheritances and rises to 22% as a result of including inheritances. This means that 6 percentage points, or 24% of the within-group share can be attributed to the effect of inheritances. This effect grows as inheritances become a more important part of lifetime income. For the 1980s cohort, inheritances are responsible for 8 percentage points, or 33% of the within-group share of inequality. We can describe this as meaning that inheritances are projected to grow from accounting for about a quarter of inequality in living standards by parental background for those born in the 1960s to accounting for about a third of inequality of living standards by parental background for those born in the 1980s.

Table 4.2. Effect of inheritances on the between versus within parental-wealth-decile share of inequality

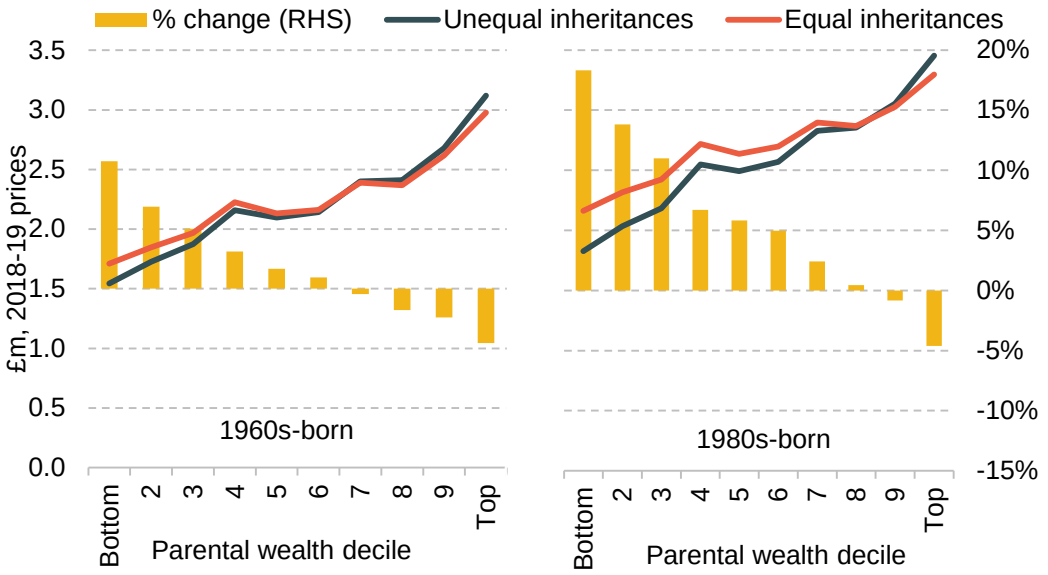
Decade of birth	No inheritances			Inheritances			Inheritance contribution
	Btwn	Wthn	Btwn share	Btwn	Wthn	Btwn share	
1960s	0.084	0.016	16%	0.074	0.020	22%	24%
1970s	0.082	0.015	15%	0.073	0.019	21%	27%
1980s	0.074	0.012	14%	0.065	0.018	22%	33%

Source: Model simulations

This growing role for inheritances in driving inequalities in living standards by parental background would also mean that any policies that substantially redistributed inheritances would play a larger role in increasing social mobility (as measured by the association of living standards with parental wealth background) amongst later-born cohorts. Figure 4.20 demonstrates this by showing average lifetime consumption by parental wealth decile under two scenarios: our baseline simulation with inheritances as projected, and another in which inheritances are equalised at their mean value. We see that the difference between these two scenarios is larger for the 1980s-born generation than for the 1960s-born generation. For those born in the 1960s, those with the wealthiest tenth of parents are projected to have lifetime consumption twice as high as those with parents in

the least wealthy tenth. Equalising inheritances at their median increases lifetime consumption of the bottom tenth by over 10% and decreases it for the top tenth by just under 5%, and consequently reduces the gap between the two by just over a quarter. For those born in the 1980s, equalising inheritances at their mean value is projected to increase lifetime consumption for the bottom tenth by 18% and decrease it by just under 5% for the top tenth. This reduces the same gap in lifetime consumption between those with the richest and poorest parents by over 40%.

Figure 4.20. Mean lifetime equivalised household consumption, by parental wealth decile, with and without equalising inheritances at their mean value, for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

5. Conclusion

Recent increases in wealth among older generations, combined with sluggish working-income growth over an extended period, mean that the growing magnitude of inheritances – not just in absolute terms but in proportion to young people's other economic resources – is set to continue.

Our work supports previous research suggesting that the implications of inheritance for standard measures of inequality between rich and poor are, perhaps counterintuitively, small. But the implications for what is happening to inequality between people from different family backgrounds – that is, loosely, social mobility – are much starker. This is a profound social and economic change over a relatively short period of time. People's own earnings are, proportionally, becoming a less important determinant of their lifetime living standards. About 90% of people born in the 1980s will inherit a fraction of their lifetime earnings that only half of people born 20 years earlier inherited. Inheritances are large enough to be having significant consequences for other economic phenomena; we estimate, for example, that the accumulated savings of those born in the 1980s may be around 9% lower at the age of 45 due to the fact that they have saved less in anticipation of future inheritance.

Our new research suggests that, in order to understand properly the effects of inheritance on living standards over the life cycle, it is important to make a serious attempt to understand how people's economic behaviour is affected by inheritances – not just after they are received, but in advance of that as well. A significant fraction of inheritances are effectively spent before they are received (through lower saving or increased borrowing) in anticipation of their arrival – and it is higher-income households who are best able to do this, in part because they are less constrained by an inability to borrow early in life, and instead can draw on existing wealth to finance higher consumption in anticipation of a future inheritance. In this sense, it really is those with both high incomes themselves *and* wealthy parents who are best able to take advantage of inheritances. These findings are also important for the wider research literature on the relationship between wealth and inheritances; one will not generally capture the full benefit of a past inheritance by observing a

household's wealth because, for many, some of the benefits of the inheritance have already been realised through higher spending.

Overall, the findings of this report add further weight to the realisation that growing wealth-to-income ratios are a key – and, in some ways, worrying – phenomenon in modern Britain, with far-reaching economic and social consequences. They will require a careful and broad policy response.

While inheritance tax is a minor part of the UK tax system (for example, only 1-in-25 deaths resulted in inheritance tax being paid in 2017–18), it is in need of reform. The reliefs and exemptions built into the system create distortions and opportunities for avoidance and lead to inequities between those who are able to plan their estate in a tax-efficient way and those who are not. These problems may become only starker as inheritances grow in significance. Removing or reducing the reliefs for agricultural land, business assets and pension pots would be a good start. Relatedly, the capital gains uplift that happens at death (whereby inheritors of an asset are deemed to have acquired it at its value at death, rather than its purchase price) is another distortion that would best be eliminated.

More radical reforms of inheritance tax are more controversial, and the right way forward here depends on more than just economic arguments. Some have argued that if inheritances are taxed in order to reduce 'inequalities of opportunity', then the tax should be levied on the recipient and depend on the total gifts and inheritances they receive over their lifetime. This would reduce the scope to avoid tax by making transfers earlier in life. Others see inheritance taxation as double taxation in the cases when bequests were funded by earnings that were taxed earlier in life, and argue for it to be abolished altogether.

Improving the outlook for earnings growth, particularly for younger people, is of course a main aim of the government for a host of reasons. Making recommendations here is beyond our scope, but we note that while earnings growth remains poor – and asset prices remain high – parental resources will be of great importance in determining living standards. Policies that improve the outlook for the earnings of young people will therefore not only benefit them through the direct channel of raising incomes but could make an important contribution to improving social mobility too.

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Appendix

This appendix contains a comprehensive but non-formal description of the modelling of household incomes, inheritances and household decisions in the life-cycle model. Readers seeking a formal statement of each of these should consult the technical modelling appendix available on the IFS website.

A.1. Appendix material from Chapter 2: projecting the joint distribution of inheritances and lifetime incomes

Projecting household incomes

To project the distribution of household incomes, we use data from the Family Expenditure Survey (FES) and its successor surveys, the Expenditure and Food Survey and the Living Costs and Food Survey,[21] covering the years 1978–2018, and the UK Household Longitudinal Study (UKHLS) from the years 1991 to 2018. Our method is based on techniques from the economic modelling of household earnings and income processes and consists of the following steps.

- **Estimating average household earnings**. We estimate age profiles of average household earnings and employment rates for each of our three education groups in each of our three cohorts using the FES. As our three cohorts are still of working age, we include data from earlier cohorts in order to estimate an age profile for ages up until the late 1960s. The key assumption that we make here is that the change in earnings with age follows the same pattern with age as it has done for earlier cohorts.[22] This allows us to extrapolate the earnings of younger cohorts out into the future, given their earnings levels to date.

[21] We refer to this collection of surveys as the 'FES' for ease of exposition.

[22] As discussed further in this appendix, we assume higher employment rates at older ages for younger cohorts than for their predecessors, in line with the trend of longer working at older ages. It is the change in earnings with age conditional on employment that is assumed to be the same across cohorts.

- **Estimating the full distribution of household earnings over the life cycle**. In order to estimate (1) the full distribution of earnings outcomes around the average level estimated in the first step, and (2) how individual households tend to move up and down the earnings distribution over time, we estimate an earnings process using the method of Arellano, Blundell and Bonhomme (2017) and the profiles from the first step as an input. To estimate this model, we use data on household earnings for the UKHLS. The appendix presents evidence that this model does a good job of recreating the patterns seen in the data.
- **Going from gross household earning to net household income**. In a final step, we first estimate the state pension entitlements of households given their history of earnings.[23] This gives us households' pre-tax income at each age (we consider in later subsections how this changes if households build up and draw down savings). We can then calculate households' net income at each age by applying a tax and benefit system to their earnings and state pension entitlements.[24]

Projecting inheritances

In order to project distributions of inheritances that have been, and will be, received by those born in the 1960s, 1970s and 1980s, we use data on the wealth holdings of the parents of those generations from the English Longitudinal Study of Ageing (ELSA). As ELSA contains information about the year of birth of children of the sample members, we can use ELSA as a dataset at the 'child' level (see Bourquin et al., 2020, for further details). We assign a level of education to each 'child' observation in the ELSA dataset using a method described below. Our approach is as follows.

[23] Our model is of household earnings but the state pension system is essentially one of entitlements based on individuals' earnings histories. We therefore estimate a function that captures the state pension system for these cohorts as a function of household earnings. To do this, we simulate our household earnings process 10,000 times, and assume a split of household earnings into individual earnings (based on the average share of household earnings going to the first earner in two-earner couples as recorded in the FES). We then use a state pension calculator to calculate the total household state pension entitlements that would be accrued under the past and current state pension systems, assuming that in future years the state pension is uprated with the growth in average earnings. Using the household earnings histories and state pension entitlements, we estimate a state pension function that is a linear function of household's pre-retirement earnings, allowing this function to vary by each cohort and education group.

[24] As the UK tax and benefit system is a complex function of households' income sources and characteristics, we estimate a simplified function to capture this system using households' reported gross and net incomes from the FES, following the method of Heathcote, Storesletten and Violante (2014).

- **Estimating average parental wealth**. We first estimate age profiles for parental wealth for each of our cohort and education groups. In the estimation, we also include data from earlier cohorts, where we can observe parental wealth at the oldest ages. The assumption that we make is that the *rate* at which wealth is drawn down at older ages is the same for given education groups across cohorts, though levels of wealth will of course differ between these groups.[25]
- **Estimating the full distribution of parental wealth over the life cycle**. In a next step, as with earnings, we simulate the full distribution of parental wealth and model its evolution over time at the level of individual households. To do so, we estimate a parental wealth process in an analogous manner to that for earnings, using the estimates from the previous step as an input. In short, this process captures the probability that a parental household that is at a certain part of the distribution of wealth will be at a different point of the distribution in future years.
- The estimated parental wealth process allows us to project forwards the distribution of parental wealth to all future ages of parental households for our cohorts. The final step in creating an inheritance distribution is to combine our projections of parental wealth with estimated probabilities of the timing of parents' death and to give a distribution of bequests, following the method used in Bourquin et al. (2020). In a final step, we apply the inheritance tax system to bequeathed wealth and divide the post-tax estate by the number of heirs, to yield the projected inheritances.[26]

Linking the distributions of lifetime income and inheritances

In this step, we use the following two sources of data.

1. **The distribution of education levels within couples, from the FES**. Specifically, we use these data to calculate for an individual in each of our

[25] This approach does allow for changing decumulation of wealth across cohorts in so far as this can be captured by the changing educational composition across cohorts. This might be thought to be relevant due to increasing life expectancy at older ages amongst later-born cohorts of parents. In practice, decumulation of wealth at older ages is found to be slow, and systematic cross-cohort differences in decumulation rates are small. Further discussion of these and related issues can be found in Bourquin et al. (2020).

[26] We assume a number of heirs equal to the average number of children for parents of those in each cohort and education group, as reported in ELSA.

cohorts and with each level of education, the proportion that are in a household where the highest level of education (i.e. the highest of their level of education or that of their partner, if they have one) is low-educated, mid-educated or high-educated. Table A.1 shows the distribution for each birth cohort. Individuals are highly likely to be in a household where the highest level of education is the same as their own.

Table A.1. Distribution of household education levels by individual education level and decade of birth

Individual birth decade and education level		Education level of highest-educated household member		
		Low-educated	Mid-educated	High-educated
1960s	Low	80%	15%	6%
	Mid	n/a	85%	15%
	High	n/a	n/a	100%
1970s	Low	76%	14%	10%
	Mid	n/a	81%	19%
	High	n/a	n/a	100%
1980s	Low	78%	11%	10%
	Mid	n/a	80%	20%
	High	n/a	n/a	100%

Note: Education of individuals is defined by the age at which they completed full-time education. Low/mid/high-educated are defined by an age of completion of up to 16/17–18/19 or older. Education level of a household is defined as the higher level of education of members of a couple. The sample includes all individuals and couples with an age (or average age for couples) of 26 or older.

Source: FES, 1978–2018.

2. **Intergenerationally linked data on parents' wealth and their child's level of education and earnings, from the UKHLS**. The UKHLS contains measurements of housing wealth in all waves and periodic measurements of financial wealth and debts. The design of the UKHLS is such that sample members, including the children of those recruited to the UKHLS, continue to be followed if they move to a new household. We can therefore observe the education level and earnings in adulthood of a sample of young adults (who were in surveyed households as children) in a dataset that also contains measurement of their parents' wealth.

We use the sources of data described above, together with our household income and parental wealth processes, to link the distributions of household incomes and inheritances in the following series of steps.

- **For each decade of birth and education level, use the UKHLS to obtain the distribution of individuals across percentiles of the parental wealth distribution**. Specifically, we split parental households into 100 percentiles and, for each education level in each cohort, we obtain the percentage of individuals whose parents belong to each parental wealth percentile.
- **Assign a level of education to each 'child' in the ELSA dataset**. For each cohort of 'children' in ELSA, we assign these 'children' a level of education using the estimates from the UKHLS and the percentile of the ELSA parental wealth distribution to which their parents belong.
- **Assign a household education level to each 'child' in the ELSA dataset**. Using the estimates from the FES shown in Table A.1, we randomly assign individuals to household levels of education given their own level of education assigned in the second step and the implied distribution of household education level. This assignment of individuals to household levels of education allows us to estimate a parental wealth process for each cohort and education group.
- **Obtain the distribution of parental wealth levels by level of initial earnings and education level of the household**. The final step is to again use the UKHLS to estimate the distribution of parental wealth levels for households with different levels of earnings. In essence, we assign individuals to parts of the earnings distribution within their education group and cohort. We then calculate the proportion of parents in each part of the parental wealth distribution.

The first three steps link the distribution of parental wealth to household education within each cohort. The final step gives the link between household earnings and parental wealth, within each education group in each cohort. As our inheritance and household earnings processes project forward given the household's level of education and the initial levels of their earnings and parental wealth, this means we have linked together the distribution of household incomes and inheritances.

Key assumptions

To complete the description of our method, we note some key assumptions made in the process of linking the inheritance and household income distributions.

- We assume that the relationship between an individual's position in the earnings distribution (conditional on their education level and cohort) and their parents' position in the wealth distribution is the same as the relationship between household earnings and parental wealth.
- Households that are couples are assumed to receive an inheritance from two parental households. Our method assumes that **correlation in parental wealth level between two members of a couple is driven only by correlation in their levels of education and the fact that they share the same level of household earnings**. This can be described as no 'assortative mating' on parental wealth, conditional on individual education and household earnings.
- The relationship between a household's lifetime earnings and their parents' wealth and inheritance is captured through the household's education level and the levels of household earnings and parental wealth when the household is in early adulthood. This means that we assume that changes in earnings and parental wealth are not correlated in the way they subsequently evolve, beyond that predicted by their initial levels and the household's education level. This would rule out parents and children being likely to be hit by the same economic shocks (for example, they may live in the same area and so the household's earnings and the level of their parents' wealth will both be affected by local economic conditions) or parents and children having some underlying driver of the evolution of their earnings or wealth – such as good or bad health – which is correlated across generations and has not shown its full impact by the time the 'child' is in early adulthood. We also rule out parents deciding to leave larger or smaller inheritances to their children because of the level of income they have or the households choosing to work more or less because of the inheritance they anticipate. We discuss this final assumption further in Chapter 3.

These assumptions are each necessary because there are no data available that could guide an alternative assumption, or because modelling their implications would be prohibitively complex.

A.2. Appendix material from Chapter 3: reduced-form evidence

In the following, we set out the reduced-form analysis of the past receipt of inheritances that both motivates our life-cycle model analysis and is used to validate the predictions of the model. The results of this analysis can be found in Chapter 3. Our aim is to examine the short-run effect of receiving an inheritance on household consumption, wealth and labour supply. We implement an event-study type research design where we exploit variation in the timing of the receipt of inheritances, conditional on covariates, to identify the effect of inheritance receipt.

We draw on two datasets. The first is the Wealth and Assets Survey (WAS), a biennial panel survey by the UK Office for National Statistics that has run over two-year periods from 2006–08 onwards. This survey elicits information about individuals' and households' levels of wealth and earnings. In each wave from the second wave of the data onwards, WAS asks individuals if they have received an inheritance over the past two years. The second dataset is the ELSA, which is a household panel study that collects information on a representative sample of individuals living in England and aged 50 and above. There are nine waves, conducted biennially from 2002–03 to 2018–19. Importantly, ELSA collects detailed information about individuals' and households' levels of consumption, wealth and earnings.[27] In each wave, ELSA asks individuals if they have received an inheritance over the past two years and, if so, the value of the inheritance that they received.

We use ELSA only to investigate the short-run effect of receiving an inheritance on household consumption and we pool the two datasets when investigating the effect on wealth and labour supply. This is because WAS does not collect information on

[27] Consumption in ELSA covers a number of categories including food expenditure, leisure expenditure, clothing expenditure and housing expenditure.

consumption and we prefer to use the maximum sample size possible for the other outcomes to increase the precision of our estimates.

We treat the reporting of the receipt of an inheritance over the previous two years as an event. The sample we use is all observations of individuals or couples where both members are aged between 25 and 74. We exclude individuals or couples who have inherited multiple times over the observed period or those who have no living parents. For each household, we can construct a series of indicator variables for whether they reported receiving an inheritance at a certain number of leads or lags. The outcomes that we examine are total household consumption (includes food, housing, clothes, transfers, leisure, transport and fuel spending), total household earnings, household labour supply (measured as an indicator for at least one person being in work) and wealth (the sum of net housing wealth, household private pension wealth and household net financial assets).

The relationship that we estimate is set out in the following equation:

$$y_{i,t} = \sum_{\tau=-3}^{\tau=+3} \beta_\tau I_{i,t-\tau} + \gamma_i + X_{i,t} + \epsilon_{it}.$$

Our outcome is denoted $y_{i,t}$. The variables of the form $I_{i,t-\tau}$ are a series of indicator variables for having received an inheritance τ periods ago. Our coefficients of interest are β_τ, the effect of receiving an inheritance τ waves ago. We exclude the first lead (i.e. β_{-1} is set to zero) such that the interpretation is the effect of inheritance receipt relative to the period before receipt. We include a vector of controls $X_{i,t}$ consisting of time-variant characteristics of households such as interview date and wave observed indicators, age (average age for couples) in 10-year categories, age, age squared and (where applicable) partner's age and partner's age squared. We also include household-level fixed effects γ_i, which control for all time-invariant characteristics of households, including for example, whether a household has ever reported an inheritance. In this sense, our set-up is non-standard because we include households that have never received an inheritance. We do this because of the gain in precision in our estimates, given the modest sample of households that receive an inheritance. Clearly, the inclusion of these households has the potential to bias our results if there is a different relationship between our outcomes and the control variables amongst those who do not inherit compared with those who do inherit. These covariates are systematically correlated with both inheritance receipt and our outcomes of interest within the inheriting group. Finally,

ϵ_{it} is the idiosyncratic error term. We cluster standard errors at the household level and weight observations using the given sample weights.

A.3. Appendix material from Chapter 4: the role of credit constraints and uncertainty in the life-cycle model

Here, we set out the analysis of the role of credit constraints and uncertainty in inheritance receipt in driving the levels of anticipatory increases in consumption seen overall and for households with different levels of lifetime income.

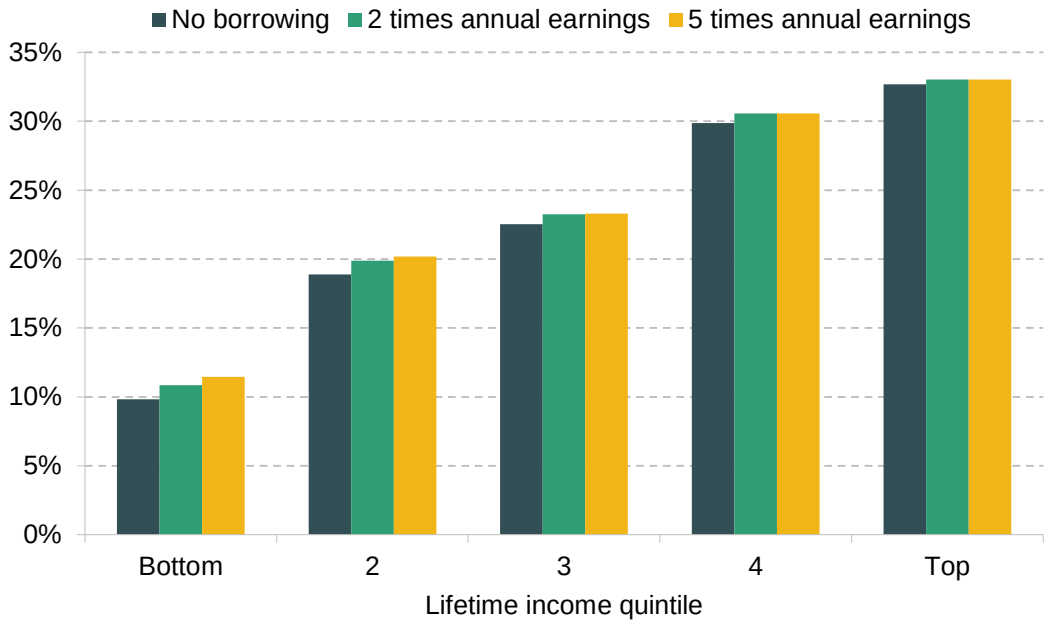
One possible explanation for the differential response to anticipated inheritances at different points of the distribution of lifetime income and consumption is that the limits to borrowing that households face are more of a constraint further down these distributions. This could because the borrowing constraints that we impose are defined as a multiple of average earnings and so are more restrictive for lower-earnings households. Even if they face similar limits to what they could borrow, these limits might be more consequential for poorer households than for those with higher lifetime income. This is because households with higher lifetime income need to accumulate wealth to smooth their consumption into retirement (as the state pension gives them only a low replacement of their earnings), and so their response to an expected inheritance might be to save less rather than to actively borrow. Households with lower lifetime income are less likely to need to accumulate wealth to smooth their consumption and so are not able to cut back on savings in the same way in response to an inheritance.

Figure A.1 illustrates the effects that borrowing limits have on the amount of their inheritance that households choose to spend in advance, for the 1980s cohort. We do this by showing our estimate of how much of their inheritance households would spend in advance if they were not able to borrow at all, or able to borrow up to five times annual average earnings for their type of household, rather than being able to borrow up to twice annual earnings as we assume in our main scenario.[28] Increasing

[28] Note that this limit on borrowing is a limit on the *net* debt that households can take on. We find that in the WAS only around 5% of households that are in net debt have net debt exceeding twice their earnings.

this borrowing limit from zero to five times annual average earnings leads households in the bottom fifth by income to spend 12% of their inheritance in advance, rather than 10%. There is very little effect of borrowing constraints for those in the highest income quintiles, as shown by the small differences between these scenarios.

Figure A.1. Percentage of the additional consumption due to inheritances that takes place before inheritance receipt, by decade of birth and lifetime income quintile, for different borrowing constraints



Note: Both additional consumption and inheritances are expressed in present discounted value terms, using the model interest rate.

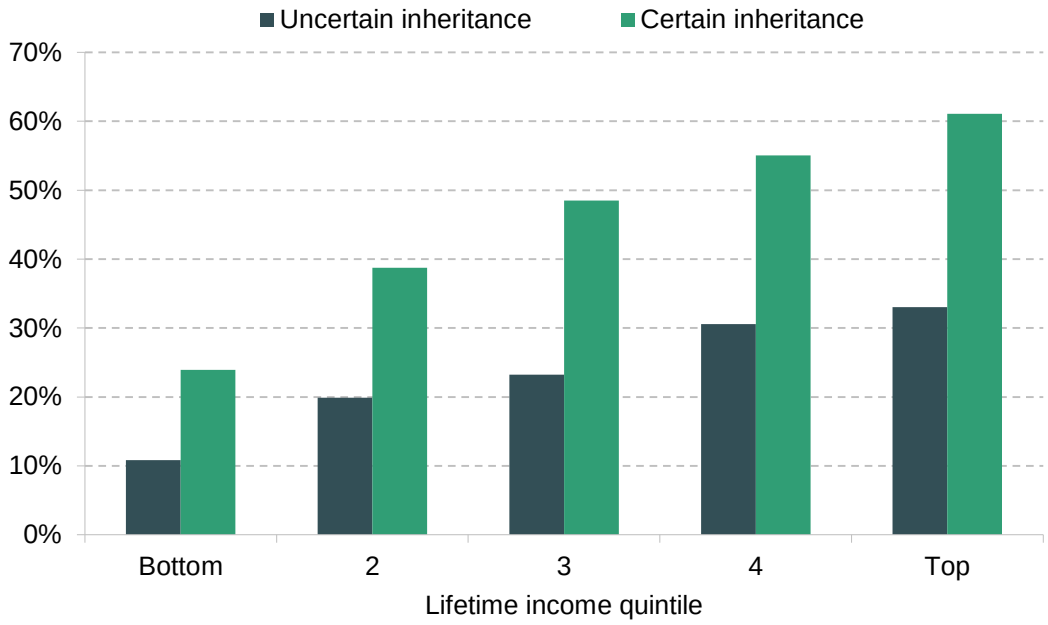
Source: Model simulations.

We now turn to a second possible explanation for the way in which inheritances feed through to consumption: inheritance amounts are uncertain before they are received and this might have differential effects across households. For example, if inheritances are more uncertain for households with lower lifetime income, or if these households would be hurt to a greater extent if they had to cut back on consumption following an unexpectedly small inheritance, then they might be less willing to spend their expected inheritance in advance. To assess this, we run a version of the model where households know how much they will inherit, and at what age they will inherit it, from the start of their lives. The value of that

inheritance is set equal to the average inheritance for someone who has the level of parental wealth that they have at the start of life.

Figure A.2 shows the effect of uncertainty on household choices. When inheritances are known in advance with certainty, this makes a large difference to consumption choices. In this scenario, households in the bottom quintile of lifetime income spend 24% of their inheritance in advance, and those in the top quintile spend 61% of their inheritance in advance. Uncertainty clearly matters for the response of households at all points of the income distribution.

Figure A.2. Percentage increase in households' average annual equivalised consumption before inheritance receipt, due to inheritances, by lifetime income quintile, and for uncertain and certain inheritances



Note: Both additional consumption and inheritances are expressed in present discounted value terms, using the model interest rate.

Source: Model simulations.

Inheritances and inequality over the life cycle: what will they mean for younger generations?

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Preface

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Data from the Family Resources Survey were made available by the Department for Work and Pensions, which bears no responsibility for the interpretation of the data in this report. The Households Below Average Income data prior to 1994–95 were constructed from the Family Expenditure Survey. These data are available from the UK Data Service.

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consortium of UK government departments coordinated by the National Institute for Health Research.

The Wealth and Assets Survey is collected by the Office for National Statistics, is provided by the UK Data Service (http://www.ukdataservice.ac.uk), is Crown Copyright and is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

The analysis in this report has also drawn on data from the British Household Panel Survey and Understanding Society: The UK Household Longitudinal Study. These data are distributed by the UK Data Service.

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

Nuffield Foundation

Contents

Executive summary

This report provides a quantitative illustration of the possible consequences of inheritances for living standards, inequalities and social mobility for those born in the 1960s, 1970s and 1980s in the UK. We build on previous research in a number of ways including, most fundamentally, a focus on understanding impacts on all of consumption, income and wealth in an integrated way, and right across the life course, including in periods before they are actually received. There are clearly many uncertainties when attempting to estimate something so complex, and estimates should be taken in that spirit.

Key findings

The effects of inheritances on lifetime incomes

1 **Inheritances received by households over their lifetimes are set to grow in importance across subsequent generations**: from averaging about £150,000 (in today's terms), or 9% of lifetime household income, for those born in the 1960s to around £320,000, or 16% of lifetime household income, for those born in the 1980s.

2 **In other words, over a 20-year period, inheritances are, on average, set to almost double relative to the other incomes of those receiving them.** Another manifestation of this is that the median inheritance is set to rise from four times average annual earnings for the 1960s generation to eight times for the 1980s generation.

3 **Those with higher incomes are, on average, set to inherit more than twice as much as those with low incomes:** we estimate that the median lifetime inheritance receipt for households in the top lifetime income fifth amongst the 1980s generation will be around £390,000, compared to around £150,000 amongst the bottom fifth.

4 **We project that inheritances will not significantly affect the relative differences in lifetime income between rich and poor (as measured, for example, by the Gini coefficient) in the generations we examine.** While inheritances will widen the gaps in lifetime income between low- and high-income households in *absolute* terms – and will do so more for younger generations, as their inheritances will be larger – inheritances are a similar *proportion* of lifetime income, on average, for low- and high-income households. Whether this is the way in which people think about inheritances and inequality is another matter. They clearly increase absolute differences between rich and poor, and (perhaps most pertinently) they increase the differences between those with rich parents and those with poor parents, as described below.

The effects of inheritances on savings and spending

5 **We estimate that inheritances will increase lifetime consumption by 8%, on average, for the 1960s generation, rising to 14% for those born in the 1980s.** These estimates are made using an empirically grounded economic model of how households change their saving and consumption decisions as a result of inheritances.

6 **The lifetime impact of inheritances on consumption masks different effects at different stages in life and the full effect is not realised until inheritances are actually received:** households that inherited in recent decades increased their spending by an average of around £3,300 per year after that point. This is to be expected given that people are not always willing or able to reduce their saving (or increase borrowing) in anticipation of inheriting in the future, and/or that inheritances themselves can be unanticipated or uncertain in size.

7 Nevertheless, our estimates suggest that expectations of inheritance do have a significant impact in increasing spending (and hence reducing saving) for some households even before they are received – meaning they contribute to living standards within younger generations quite early in their lives. **We estimate that for those born in the 1960s, households who inherit will, on average, have spent an additional £250 per year *before* they have received their**

inheritance, as a result of anticipating an inheritance. This means that around one-fifth of their inheritance is effectively spent in advance of receiving it. **For those born in the 1980s, we estimate that this will rise to around one-quarter, or an extra £400 per year, in advance of receipt.**

8 But because our model suggests spending is increased by more once the inheritance is actually received, overall, we expect annual equivalised consumption among those born in the 1980s to be around 1% higher at the age of 30, 7% higher at the age of 50 and 25% higher at the age of 80, than it would be in the absence of any inheritances.

9 **Inheritances naturally increase wealth held at older ages, after most inheritances are received. However, inheritances also slightly reduce levels of wealth held at younger ages, as some spend more and save less in anticipation of their inheritance.** For example, inheritances are estimated to reduce the level of assets held at the age of 45 by 9% among the 1980s generation. Hence inheritances are a non-trivial factor to consider when interpreting differences in wealth across different generations.

The effects of inheritances on inequalities in living standards and wealth within generations

10 **Inheritances are likely to have a small impact on typical measures of *overall* inequalities in living standards.** We estimate that the Gini coefficient for lifetime consumption will not be materially changed for any of the generations we examine, as a result of inheritances. This is essentially because, as explained above, inheritances received rise roughly proportionally with lifetime income.

11 **However, better-off households are more likely to benefit from inheritances earlier in life.** This is *not* because they receive them earlier but rather because they are more able and willing to spend more in advance of them being received. Among those born in the 1980s, the share of inheritances spent before they are received is projected to be three times higher for the top fifth of households by

lifetime income than the bottom fifth. This is largely explained by uncertainty about how much will be inherited, and when, holding back lower-income households from spending their inheritance before it actually arrives. Limits on how much households can borrow also play a role and matter more for lower-income households.

12 **Inheritances are estimated to increase inequality in consumption slightly when households are of working age, and slightly decrease it at older ages.** This is because higher-income households spend more of their inheritance in advance than lower-income households do.

13 **Inheritances will tend to be 'worth more' to higher-income households than an equivalent inheritance received by a low-income household**. This is because higher-income households are better able to spread the extra spending from inheritances over their whole lifetimes – rather than having to concentrate it towards the end.

14 Lower-wealth households see a larger *proportional* decrease in their wealth due to inheritances at younger ages than higher-wealth households, increasing wealth inequality when generations are of working age. Although the reduction in the savings of poorer households is smaller than for richer households, they accumulate much less wealth than richer households and therefore their lower saving equates to a larger proportional reduction in their wealth. But poorer households see a larger proportional increase in their wealth upon inheritance receipt. Consequently, inheritances slightly increase wealth inequality at working ages and decrease it at older ages. For example, as a result of inheritances, the inter-quartile ratio of wealth increases by 1% when those born in the 1980s are aged 35, and decreases by 22% when they are aged 75.

15 The growing size of inheritances means that any policies that would redistribute inheritance income from those who received large inheritances to those who received smaller inheritances could have increasingly significant effects.

The effects of inheritances on social mobility

16 **The increasing size of inheritances means that they will contribute to greater inequality in lifetime income according to parental background – a metric of *social immobility*.** That is, while inheritances may make little difference to the overall (relative) gap between top and bottom, they will substantially affect *who* is at the top and bottom – making these people increasingly likely to be those with relatively rich or poor parents. For those born in the 1960s, inheritances increase lifetime incomes by 2% for those with parents in the bottom fifth of the wealth distribution, and by 17% for those with parents in the top fifth. This gap by parental background is set to grow, with equivalent figures for the 1980s generation being 5% and 29%.

17 **Inheritances look set to play a particular role in reducing upwards mobility in lifetime income for those from poorer backgrounds, in the sense that they will find it increasingly hard to climb further up the distribution than their parents did.** We estimate that, for those born in the 1960s, inheritances increase the proportion of those from the poorest fifth of parental backgrounds who end up in the poorest fifth of lifetime incomes themselves, from 38% to 41%. However, amongst those born in the 1980s, the equivalent rise is from 40% to 48%. In other words, for the 1960s generation, inheritances increase by 9% the chance that someone born to the poorest fifth of parents ends up in the poorest fifth of lifetime incomes, whereas for the 1980s generation the impact of inheritances is twice as big.

18 **Our modelling unsurprisingly suggests that this translates into inheritances making an increasing contribution to differences in material living standards by parental background.** For those born in the 1960s, we project that inheritances will increase lifetime consumption by around 4% for those with parents in the least wealthy tenth, compared to 13% for those with parents in the wealthiest tenth. For those born in the 1980s, inheritances increase lifetime consumption by 6% and 20% for those with parents in the bottom

tenth and the wealthiest tenth, respectively.

19 Overall, a decomposition analysis based on our estimates suggests that **while inheritances are projected to account for around a quarter of inequality in lifetime consumption by parental background for those born in the 1960s, this rises to a third for those born in the 1980s.**

20 Consequently, the potential role for redistribution of inheritance income to increase social mobility in incomes and living standards is likely to grow over time.

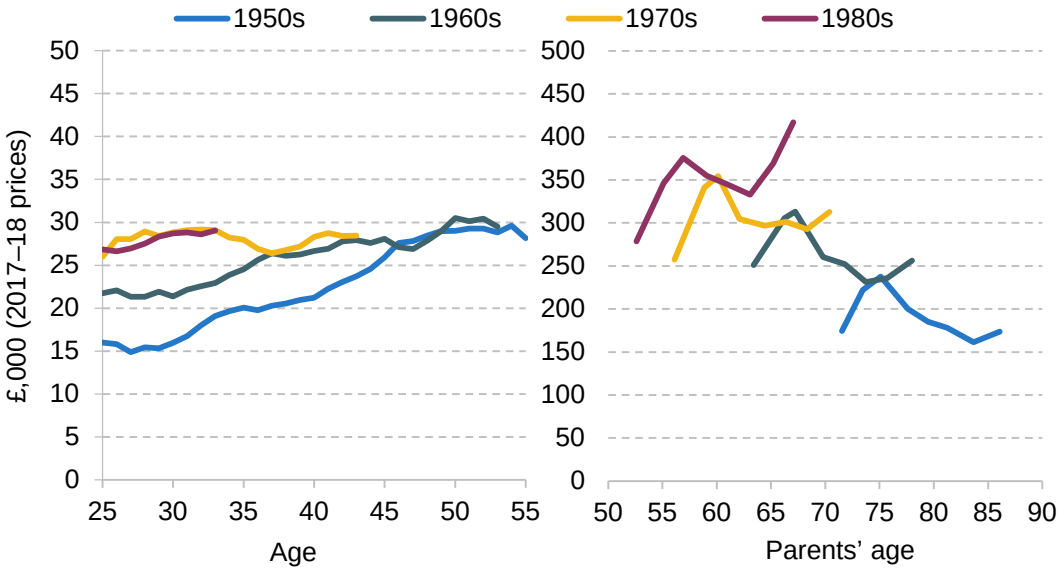
1. Introduction

Recent decades have seen dramatic rises in wealth-to-income ratios across advanced economies. For example, while in the 1970s, the total amount of household wealth held in the UK was around three times annual national income, today it equates to more than seven times annual national income (Bangham and Leslie, 2020). Rising private wealth-to-income ratios have also seen increasing flows of intergenerational wealth transfers in many advanced economies (Alvaredo, Garbinti and Piketty, 2017). In the UK, intergenerational wealth transfers rose from 4.8% of national income in 1977 to 8.2% of national income in 2006 (Atkinson, 2018).

This trend of the growing size of inheritances compared with incomes looks set to continue in the future (Bourquin, Joyce and Sturrock, 2020). While younger generations on average do not have higher income than their predecessors, the parents of successive generations are substantially wealthier than their predecessors' parents were at the same age. Figure 1.1 shows, for example that those born in the 1980s have similar average household income to that of those born in 1970s, but their parents (at the age of 70) hold 40% more wealth than the parents of the 1970s generation. Taking these patterns and projecting them forwards into the future, in our first report of this project, we estimated the average (median) inheritance of the 1980s generation to be equal to 14% of average lifetime earnings for that generation, while the equivalent estimated figure for the 1960s generation is 8% (Bourquin et al., 2020).

Inheritances are also highly unequally distributed across individuals. While just over half of households with members born in the 1930s and 1940s did not inherit anything, 13% of households inherited more than £100,000 per person (Hood and Joyce, 2017). Based on inequalities in the wealth holdings of older generations today, there are likely to be similar inequalities in the inheritances to be received in the coming decades. For example, while a fifth of those born in the 1980s are estimated to inherit less than £10,000, a quarter of them are expected to inherit over £280,000 (Bourquin et al., 2020).

Figure 1.1. Median equivalised household income (left) and median parental wealth (right) by decade of birth



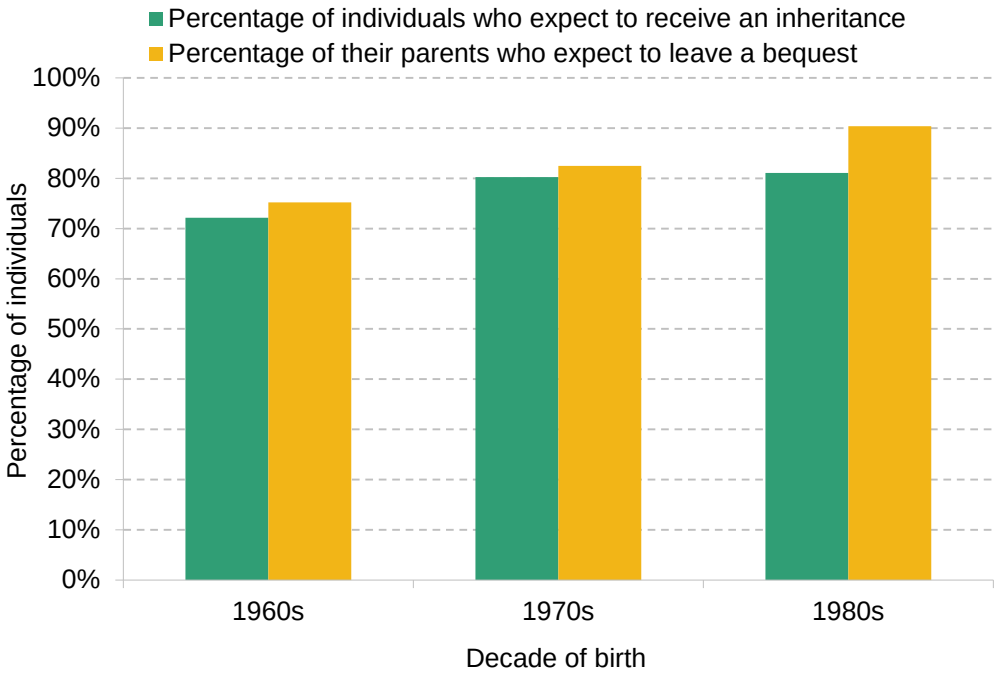
Source: Figures 1.1 and 1.2 of Bourquin et al. (2020).

The increasing importance of inheritances, and the inequality in the size of inheritances, raises the following questions. What are the implications of inheritances for the inequalities in living standards and wealth accumulation and how might these evolve over people's lifetimes? The fact that inheritances are unequally distributed and are becoming larger as a share of lifetime income implies that differences between individuals based on their parental background are also set to grow. Arguably it is this kind of inequality – closely related to 'social mobility' – that gets more directly to the heart of concern about the role of inheritances in driving economic fortunes. A further relevant question therefore is: what are the implications of inheritances for differences in living standards by parental background?

In order to answer these questions, it is important to understand how individuals will react both before and after an (anticipated) inheritance receipt. In general, households will make decisions about whether they should use their income and wealth to spend today or to save, that is build up wealth which they can draw on later, for example, upon retirement. In doing so, they may consider current and future income and spending needs, the extent to which they are able to borrow, as well as the uncertainty of the size and receipt of future income streams (and in future spending needs). Inheritances are one form of such (future) wealth. If

individuals have knowledge of how much wealth their parents hold today and how this may evolve over their parents' lifetimes, a future inheritance receipt may (or may not) be anticipated and feed into people's choices about how much to spend today. Figure 1.2 suggests that many indeed anticipate receiving an inheritance in the future; it shows that more recent generations are increasingly likely to expect to receive inheritances, with their parents increasingly likely to report expecting to leave a bequest.

Figure 1.2. Inheritance and parental bequest expectations by decade of birth



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 who are 'expecting to leave a bequest', we average the stated probabilities that individuals and their partners will leave a bequest.

Source: Figure 1.3 of Bourquin et al. (2020).

In this report, we aim to quantify the implications of inheritances for inequalities in consumption and wealth over the lifetimes of those born in the 1960s, 1970s and 1980s in the UK. This is in contrast to much of the existing literature (see Kotlikoff and Summers, 1981; Kotlikoff, 1988; Modigliani, 1988; Karagiannaki, 2015; Crawford and Hood, 2016; Nolan et al., 2020), which focuses on the relationship between inheritances already received and current wealth or lifetime income, and

thus likely does not capture the full impact that inheritances could have on inequalities.[1] Consider, for example, households that immediately spend all of their inheritance. Merely looking at their current wealth would miss all of the benefits they have gained from that inheritance in the form of higher consumption. Households may also effectively spend (some of) an expected inheritance before it arrives, by saving less than they otherwise would in the expectation of using the inheritance to help fund later-life expenses. Of course, households might vary in their ability and willingness to do this. But for some, both living standards and wealth may be affected before inheritances are actually transferred across generations, which a focus only on past inheritances and current wealth will miss. This means that inheritances may affect inequalities in these outcomes even before the bulk of them have been received. This is particularly relevant for policymakers or others who want to understand the implications of inheritances for today's young.

In a first step, we examine the short-run effect of receiving an inheritance on household consumption, wealth and labour supply. We use two panel datasets – the Wealth and Assets Survey (WAS) and the English Longitudinal Study of Ageing (ELSA) – that contain information on the past receipt of inheritances and various family-level economic outcomes. We implement an 'event-study' analysis where we exploit variation in the timing of the receipt of inheritances across families to study the effects of inheritances in the years just before and just after they are received. This allows us to explore how economic outcomes such as wealth, consumption and labour supply change over this period as a result of (anticipated) inheritances. While informative, the limited time period over which we observe families unfortunately does not allow us to examine longer-term anticipatory behavioural responses or responses many years beyond the receipt of inheritances. Furthermore, as we only observe past inheritance receipts, this does not, by itself, tell us how inheritances will affect inequalities in consumption and wealth over the lifetimes of younger generations.

[1] One exception to this in the UK context is Karagiannaki (2017), which estimates the proportion of inheritances received that are spent down over a 10-year period. That paper therefore considers dynamics over the limited time window for which data are available. Our analysis seeks to look at implications over the whole life cycle. Existing papers that consider the effects of inheritances over the whole life cycle (such as De Nardi, 2004) are in contexts other than the UK.

In a next step, therefore, we draw on an extensive economic literature that has developed methods for empirically estimating how people's spending and saving decisions respond to uncertain inflows of income or wealth; see, for example, Crawford and O'Dea (2020) or Druedahl and Martinello (2020). Specifically, we employ a life-cycle model that allows for behavioural responses to the receipt, and expectation of receipt, of inheritances. It features a realistic parental wealth and inheritance process and is calibrated to match microdata on the distribution of wealth. In the model, households face uncertainty about their own earnings, the future evolution of their parents' wealth and the timing of their parents' deaths. When the last member of a couple dies, their after-tax estate is split between their heirs and received as an inheritance. Households make consumption and savings decisions in the awareness of their parents' level of current wealth and the uncertainty over the future inheritance they may receive. The model makes a variety of simplifying assumptions, such as that parents split their bequests evenly among all children and only bequest upon death. That is, we assume that parents do not transfer wealth to their children at earlier stages in life and households will not receive inheritances from grandparents or other relatives. While these assumptions clearly are not accurate in all cases, they do describe the predominant patterns of behaviour around inheritances and intergenerational wealth transfers (Menchik, 1980; Wilhelm, 1996; Nolan et al., 2020).

The model allows us to estimate the effect of inheritances on consumption and wealth inequality over the life cycle by studying counterfactuals in which inheritances did not exist. We can also examine the different mechanisms through which inheritances can affect these inequalities, for example, by creating counterfactuals in which we vary the timing of, or eliminate uncertainty in, the receipt of inheritance. Creating counterfactuals under which, for example, inheritances are equalised, then allows us to examine the role for potential redistributive policies. Finally, we can calculate the effect of inheritances on the distribution of lifetime consumption, and look at how this varies for households with different levels of parental wealth, in order to examine the implications of inheritances for social mobility.

The remainder of this report proceeds as follows. In Chapter 2, we discuss how inheritances will shape the distribution of lifetime income for receiving generations. In Chapter 3, we lay out a simplified framework for thinking about behavioural responses to inheritance receipt. Furthermore, we provide some empirical evidence on how people react to the receipt of an inheritance immediately around the time of

receipt. In Chapter 4, we set out our life-cycle model of consumption and savings and present our estimates of the effects that inheritances have on consumption and wealth inequality, exploring and quantifying specific mechanisms through which inheritances can affect inequalities. We additionally examine the implications for redistributive policies and equality of opportunity and social mobility. We conclude in Chapter 5. Further information on data sources and methodology is available in the Appendix.

2. How will inheritances shape the distribution of lifetime income?

In this chapter, we set out a projection for how inheritances will shape the distribution of lifetime incomes for those born in the 1960s, 1970s and 1980s. We describe the key assumptions that we make and the results we obtain. We then compare these with individuals' expectations about what they will inherit. We find that those who have higher expected lifetime incomes look set to inherit substantially more than those whose lifetime incomes are expected to be lower. However, inheritances *as a percentage* of lifetime income are likely to be broadly similar, on average, across the income distribution. While their role in driving overall income inequalities may be modest, a potential concern is that inheritances are set to drive larger and larger differences in lifetime income by parental background. Finally, the inheritances that we project are more common and slightly larger than individuals themselves say they expect to receive.

Our method consists of three steps. First, we project the distribution of household earnings and state pension entitlements at each past and future age for our three decade-of-birth cohorts, to yield the distribution of households' lifetime (non-inheritance) income. Second, we project forward the levels of wealth of the parents of these cohorts and, combining this with their projected longevity, produce an estimated distribution of bequests to be left by the parents of these cohorts. By applying the inheritance tax system and splitting the parents' estates between the average number of children that parents of the same cohort and education type have, we obtain a distribution of inheritances to be received. The third step is to link these two distributions, which allows us to analyse how the distribution of inheritances relates to the distribution of other income.

This method relates very closely to the projections made in Bourquin et al. (2020). We briefly describe each step of our method in turn, before turning to the results. It is important to bear in mind that each of these steps involves a set of assumptions, thus the resulting projections are uncertain by nature. Full details of our method and important assumptions it makes can be found in the Appendix.

Projecting household incomes

To project the distribution of household incomes, we use data from the Family Expenditure Survey (FES) and its successor surveys: the Expenditure and Food Survey and the Living Costs and Food Survey,[2] covering the years 1978 to 2018, and the UK Household Longitudinal Study (UKHLS) for the years 1991 to 2018.

Our method is based on techniques from the economic modelling of household earnings and income processes, and more details are given in the Appendix. This method gives us a way of projecting household lifetime incomes, and the uncertainties in these, for households whose members have different education levels and earnings potential, and who start out with different levels of earnings in early adulthood.

Projecting inheritances

In order to project distributions of inheritances that have been, and will be, received by those born in the 1960s, 1970s and 1980s, we use data on the wealth holdings of the parents of those generations from the ELSA. Our approach is to model the evolution of bequeathable parental wealth (the sum of net housing wealth, and financial and other non-pension assets[3]) through older ages in a way that allows for the different ways that different households spend at older ages, for shocks to the price of their housing or other wealth, or for expenditures that consume part of their wealth. More details are given in the Appendix.

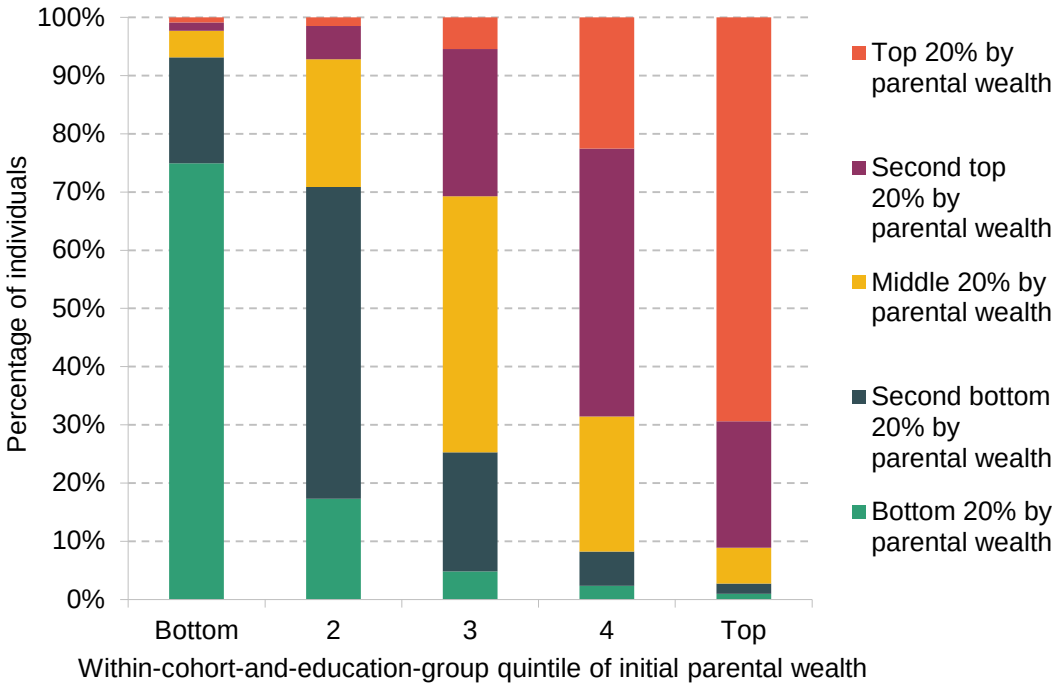
[2] We refer to this collection of surveys as the 'FES' for ease of exposition.

[3] While non-annuitised defined contribution pension wealth is bequeathable (and subject to a generous tax treatment that means this may increasingly represent a favourable vehicle for those seeking to pass on wealth to their heirs), it is only since 2015 that individuals have had substantial flexibility not to use this wealth to buy an annuity and so we do not have sufficient data to make an estimate of how much of this wealth will be bequeathed. The possibility of these pension pots being passed on therefore represents an upside risk to the size of the inheritances we project.

As documented in Bourquin et al. (2020), the bequeathable wealth of older households tends to increase up to around age 70 before declining only modestly with age thereafter. This means that, on average, households' wealth bequeathed at death is close to the wealth held at the beginning of retirement.[4] Figure 2.1 illustrates that parents' position in the wealth distribution tends to stay quite steady over time but that a minority of parents see large changes in their wealth. The figure splits parental households into five equal groups ('quintiles') according to their position in the distribution of wealth, amongst others of the same *parental* five-year birth cohort and '*child'* level of education. For each of these five groups, we examine which quintile households are in 10 years later. Most households are in the same wealth quintile when observed a decade later. Changes in relative fortunes are clearly not uncommon, and this is potentially important for how people form expectations about what they will inherit and whether they feel able to rely on that economic security in advance of the inheritance. But there is a lot of stability overall – more than 90% of parents are within one quintile of where they were a decade ago.

[4] See Bourquin et al. (2020) for further discussion about end-of-life costs and the association of wealth as measured in the final ELSA interview before death and the estate reported in the ELSA end-of-life interview.

Figure 2.1. Distribution of parental wealth quintile 10 years later by initial quintile of parental wealth



Source: ELSA and UKHLS.

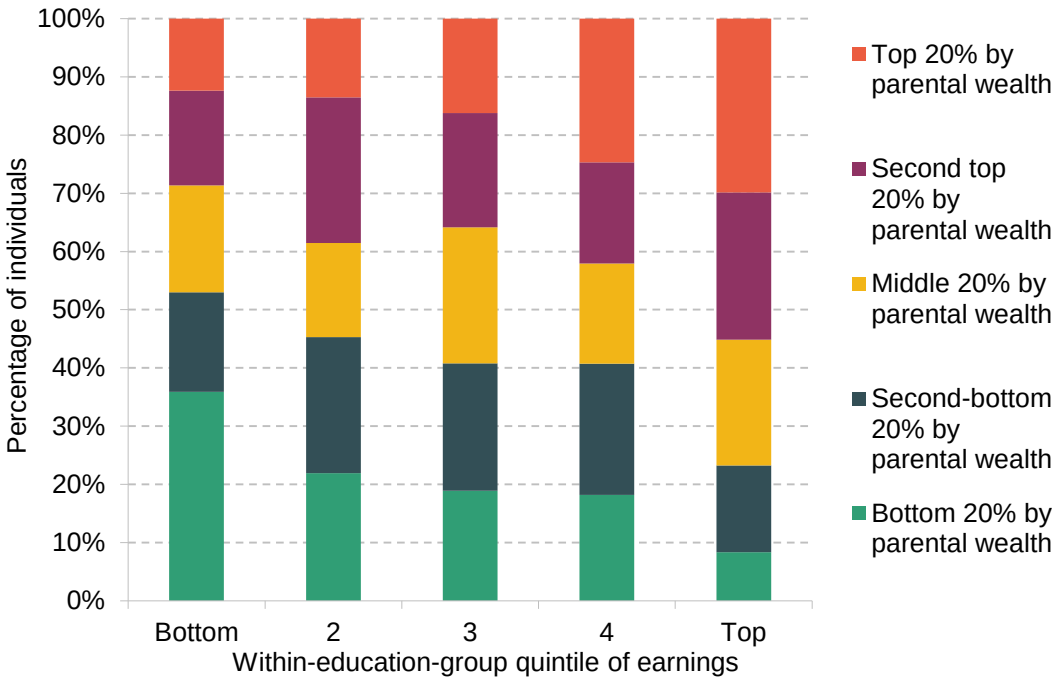
Linking the distributions of inheritances and lifetime incomes

With projections for household incomes and inheritances in hand, the final step of our process is to link the two. In essence, we do this by exploiting a dataset that tells us about households' levels of education and earnings while young *and* their relationship to parental wealth. We use this method because education and the initial levels of earnings and parental wealth are the key variables required to predict lifetime income and inheritances, respectively. The key data source here is the UKHLS, which has a sample of intergenerationally linked families where we observe individuals' earnings in adulthood alongside their parents' level of wealth. Full details are again given in the Appendix.

We use these two sources of data, together with our household income and parental wealth processes, to link the distributions of household incomes and inheritances in a series of steps described in the Appendix.

Figure 2.2 illustrates the correlation of individuals' earnings and their parents' wealth, which is an important input to our linking of household earnings and parental wealth. It shows the proportion of individuals within each quintile of the distribution of earnings within each education level who have parents in each of the five quintiles of the parental wealth distribution. This shows that even once we account for the individuals' levels of education – a key predictor of both earnings and parental wealth – there is a strong relationship between their earnings and their parents' position in the wealth distribution. For example, amongst those in the bottom fifth of earners amongst their birth cohort and education group, 36% of their parents have wealth in the bottom fifth of the wealth distribution and 12% have parents with wealth in the top fifth. Amongst those in the top fifth of earners for their cohort and education group, 8% have parents in the bottom fifth by wealth and 30% are in the top fifth by wealth.

Figure 2.2. Distribution of individuals across quintiles of parental wealth, by individual earnings quintiles



Note: Earnings are defined as the average earnings of individuals during their 20s. Parental wealth uses the observation when the parents' average age is closest to 50.

Source: UKHLS.

Comparison with stated expectations

The WAS elicits information about the amount that individuals expect to inherit. Figure 2.3 shows the distribution of these stated expectations, split into five groups: not likely to inherit, inheritance of less than £25,000, inheritance of £25,000 or more but less than £100,000, inheritance of £100,000 or more, and likely to inherit but do not know how much. We show the distribution of responses split by education group and quartile of earnings. The sample is those born in the 1960s and 1970s.[5]

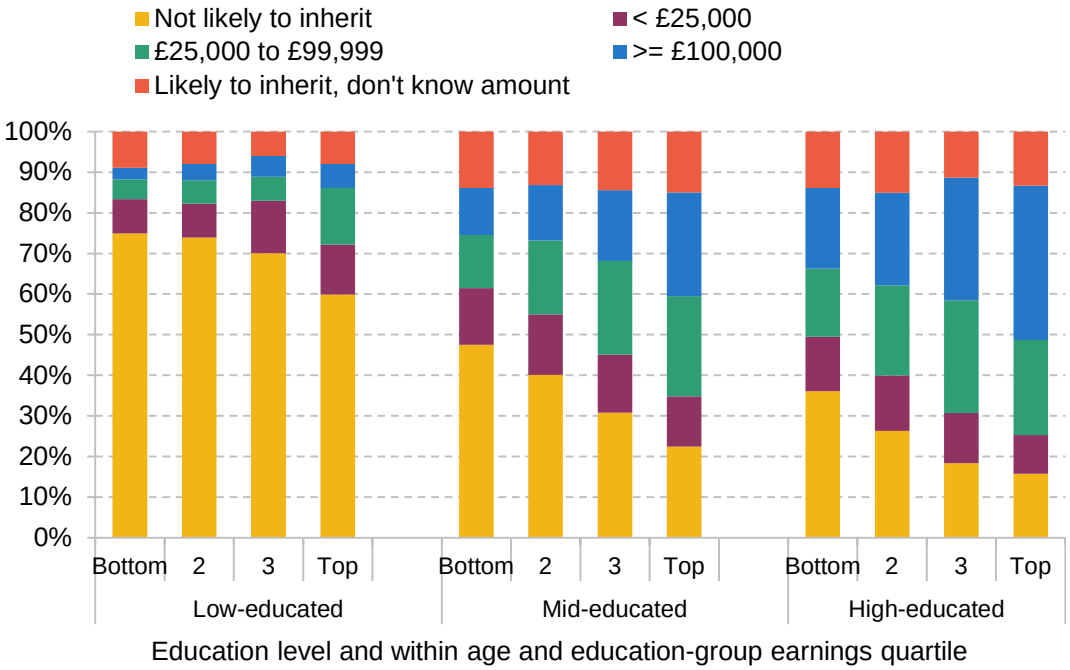
To compare our projected inheritance distribution with individuals' expectations, we create the equivalent graph from our simulations (not including the 'don't know group'). We classify individuals by the size of the inheritance they actually received and look at the distribution split by different education and earnings groups.[6]

The results are shown in Figure 2.4. We see that our simulations have the same qualitative patterns as the expectations data. However, we project a greater proportion of larger inheritances. We also project a more equal distribution of inheritances across earnings and education groups than the expectations questions suggest. There are some assumptions we make that might drive an understatement in the inequality in inheritances. For example, because of a lack of data on the joint evolution of parents' wealth and child's earnings over their later working life, we assume that changes in parents' wealth and their child's earnings over their lifetimes are not correlated with each other, beyond the association that would be expected given the starting levels of each and the education level of the child's household. This might not hold true if, for example, the tendency for parents and children to live in the same area means that they experience the same economic shocks and so see their economic prospects affected – for better or worse – in similar ways.

[5] The WAS collected information from respondents born in the 1980s, who would have been aged between 16 and 28 in the first wave of WAS. However, the younger individuals report much lower expected inheritance amounts than the other cohorts. Our interpretation is that these younger individuals do not yet have a good idea of their parents' level of wealth or possible size of inheritance. We therefore choose not to include these data here.

[6] This comparison is the right one to make if, when answering the inheritance expectations questions, individuals respond by considering the average inheritance they will receive, if they think that the amount is uncertain. Of course, in reality, the way that people form their expectations or respond to these questions may be different.

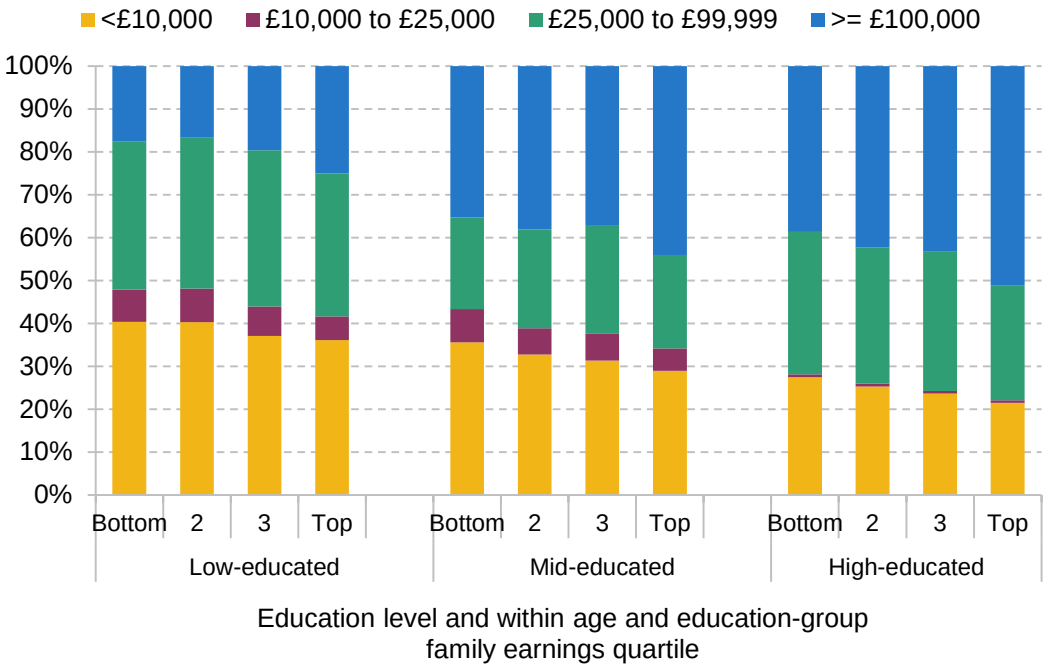
Figure 2.3. Distribution of reported expected inheritance by education and earnings quartile



Note: Sample includes all individuals and couples of the 1960s and 1970s birth cohorts (average in the case of couples). Gross family earnings quartile is calculated within education group (defined as highest level of education within couples) and within three 10-year age groups. More than 25% of the low-educated group have zero earnings and have therefore been randomly assigned to either the bottom or second quartile.

Source: WAS, wave 1.

Figure 2.4. Distribution of simulated inheritances by education and earnings quartile



Note: Sample includes all households born in the 1960s and 1970s and aged 26–46.

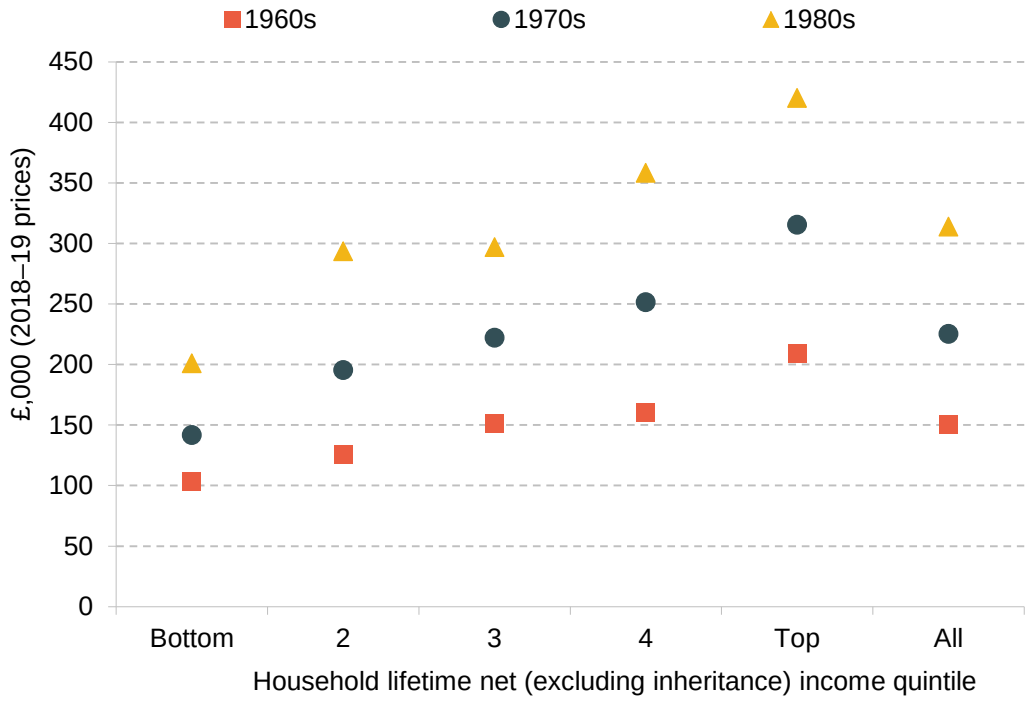
Source: Model simulations.

The contribution of inheritances to lifetime income inequality

Figure 2.5 shows the main results of our projection of inheritances. We split households into quintiles based on their lifetime net income before the addition of inheritances, and we show that the mean total inheritances we project will be received by households in each quintile. This shows two things. First, within each birth cohort, those with higher incomes are expected to inherit more. In each of our decades of birth, those in the top fifth of the lifetime income distribution are projected to inherit around twice as much as those in the bottom fifth. For example, a household born in the 1970s in the top fifth of the within-cohort lifetime net income distribution is projected to inherit £315,000 on average, while a household of the same birth cohort in the bottom fifth of the lifetime net income distribution is projected to inherit £140,000. Second, inheritances are projected to grow across birth cohorts right across the distribution of lifetime earnings. For example, the

middle fifth of households by lifetime earnings born in the 1960s is projected to inherit £150,000 on average. For those born in the 1980s, this is just under £300,000. It is worth noting that, while illustrative, given the many assumptions made, these estimates are uncertain.

Figure 2.5. Mean lifetime inheritances by household lifetime (excluding inheritance) net income quintile and decade of birth

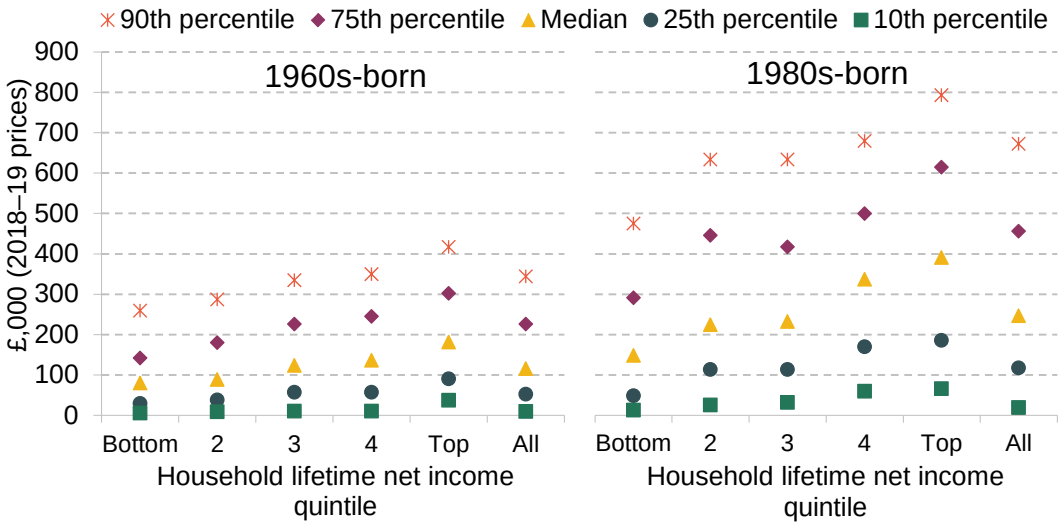


Source: Simulations using the ELSA and UKHLS.

Figure 2.6 shows selected points of the distribution of inheritances within each lifetime net income quintile for each decade of birth. We can see that the main pattern – whereby those born in later decades, and those with higher earnings within each birth cohort, are projected to inherit larger amounts – also holds when looking at the median. It is worth noting that we project substantial differences within each quintile of the household lifetime net income distribution.

A comparison across birth cohorts reveals the immense scale of the increase in inheritances that is expected in future. Around half of households born in the 1980s are projected to inherit more than a quarter of a million, compared to a quarter of households born in the 1960s inheriting such a sum.

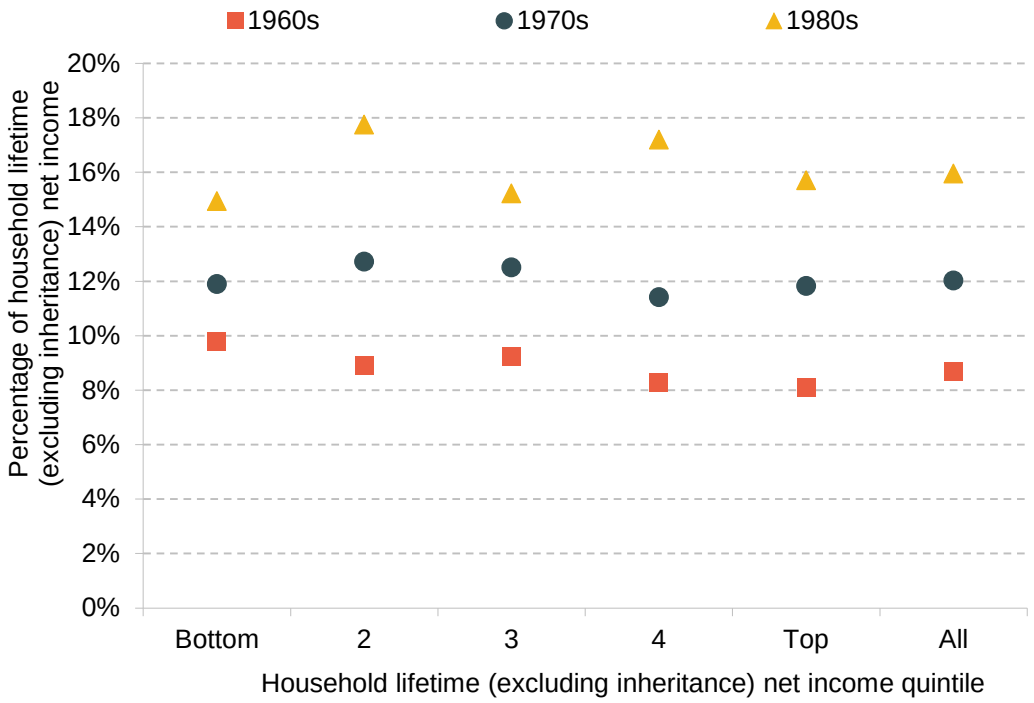
Figure 2.6. Distribution of household lifetime inheritances by household lifetime (excluding inheritance) net income quintile and decade of birth



Source: Simulations using the ELSA and UKHLS.

Figure 2.7 shows the median value of total inheritance income as a percentage of lifetime net income, for each quintile of the net income distribution. This shows that across the distribution of household income, inheritances are on average a larger share of income for those born in later cohorts. This also shows that, while inheritances are larger for those who have higher incomes, as a percentage of total lifetime net income, inheritances are of a similar magnitude across the distribution of incomes. Amongst the 1960s-born cohort, inheritances are in fact a slightly larger proportion of lifetime income amongst those with lower incomes, falling from 10% of lifetime income for the bottom fifth to 8% for the top fifth. However, given all of the uncertainties involved in these projections, we should not place substantial weight on this modest difference.

Figure 2.7. Median of inheritance as a percentage of lifetime net income by household lifetime (excluding inheritance) net income quintile and decade of birth

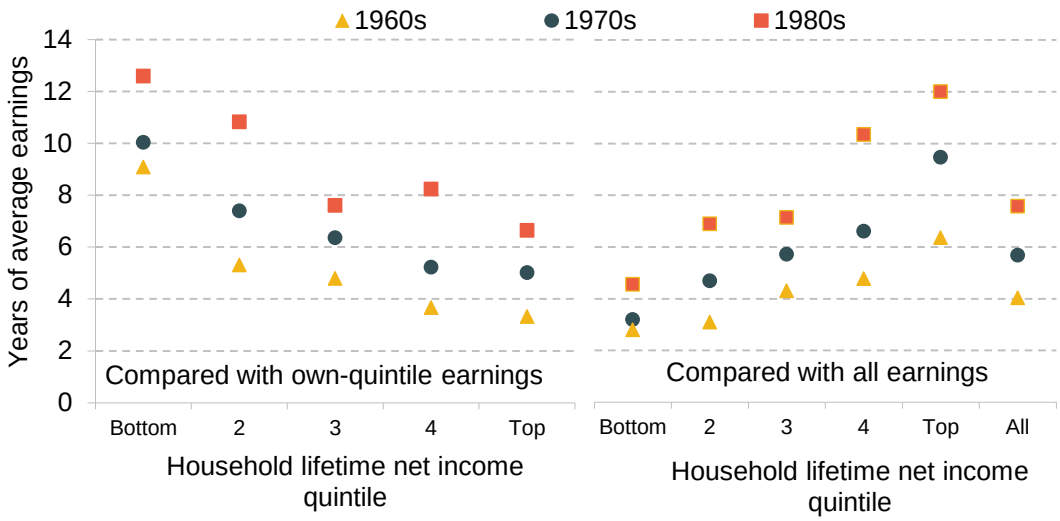


Source: Simulations using the ELSA and UKHLS.

Another way of showing the change in the scale and distribution of inheritances is to compare the amounts we project will be inherited with average annual earnings from paid work. In Figure 2.8, we show the median inheritance expressed as a multiple of average annual earnings. In the left panel, we compare with average annual earnings within each income quintile – a measure of how that group's inheritances compare with their own earnings. In the right panel, we compare with average annual earnings for the whole generation. Overall – as shown in the 'All' category in the right panel – the median level of lifetime inheritances for the 1960s-born is worth four years of that generation's average earnings, doubling to eight years for the 1980s-born. In the left panel, we see that, for those with lower incomes, inheritances are a greater multiple of that group's average earnings. For example, the median inheritance received by those in the bottom income quintile is worth over 12 years of average earnings for those born in the 1980s, compared to 7 years for the top income quintile. The reason why inheritances are larger compared with average annual earnings for lower-income households, while they are not larger compared with average lifetime income, is that lower-income households

receive larger amounts of their lifetime income from social security and state pension income. The right panel shows that if we express these median projected inheritances in terms of average annual earnings across the whole generation, there is an increasing pattern across the income distribution. Strikingly, while those in the top fifth by lifetime income in the 1960s are expected to inherit, on average, six times average annual earnings for their generation, this rises to 12 times amongst those born in the 1980s.

Figure 2.8. Median household inheritances expressed as a multiple of average annual earnings, by lifetime net income (excluding inheritance) quintile and decade of birth

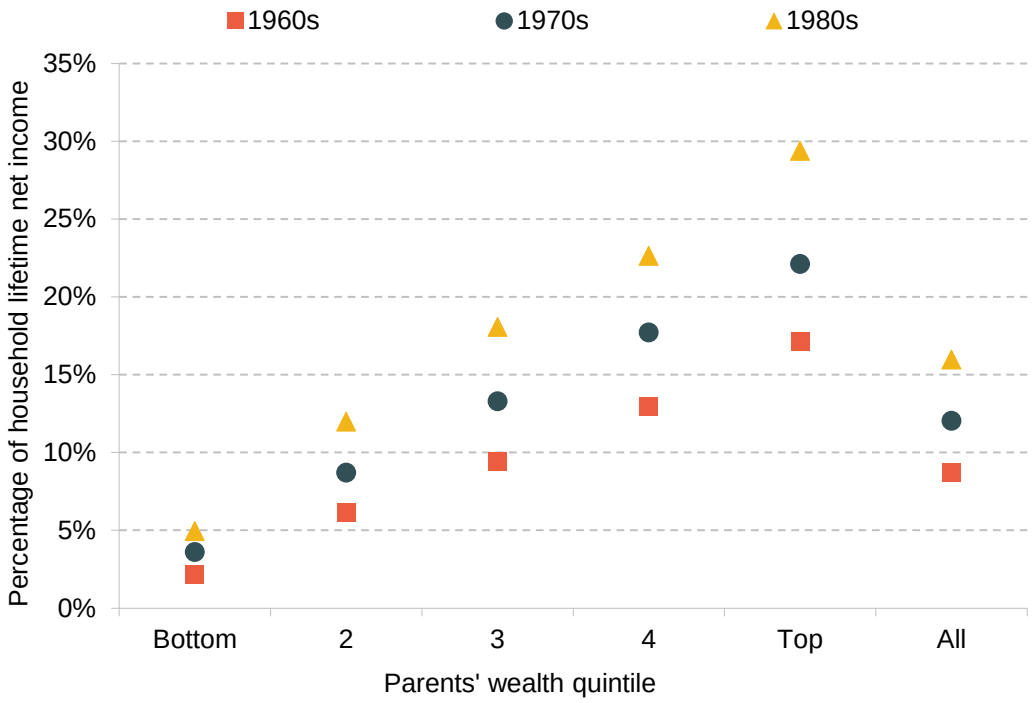


Source: Simulations using the ELSA and UKHLS.

It is important to understand that while inheritances look similar compared with lifetime income *on average* when comparing those with low incomes and those with high incomes, this masks significant variation *within* different income groups. For example, while, at the median, inheritances compare similarly with incomes across income groups, we can also ask about the share in each income group who receive very small or very large inheritances compared with their other income. Among those in the bottom fifth by lifetime income in the 1980s cohort, 11% inherit amounts worth less than their average annual income, while 10% inherit amounts worth over half their lifetime income. In the top income quintile, the equivalent numbers are just 6% and less than 1%.

While inheritances do not look likely to play a large role in defining overall income inequality in any of these birth cohorts, the fact that inheritances are becoming larger as a share of lifetime income means that differences between individuals based on their parental background are set to grow. Arguably, it is this kind of inequality – closely related to 'social mobility' – that gets more directly to the heart of concern about the role of inheritance in driving economic fortunes. Figure 2.9 shows the median value of inheritance as a share of total lifetime net income, split by the quintile of the household's parents' wealth when the household members were in their 20s. Inheritances are much larger relative to other lifetime income for those with wealthier parents. Taking the 1960s-born cohort, we estimate that the median level of inheritances compared with lifetime net income is 2% for those with parents in the poorest fifth, and 17% for those with parents in the top fifth. This gap by parental background is set to grow quite substantially with equivalent figures for the 1980s cohort being 5% and 29%.

Figure 2.9. Median inheritance as a percentage of lifetime (excluding inheritance) net income, by parental wealth quintile and decade of birth



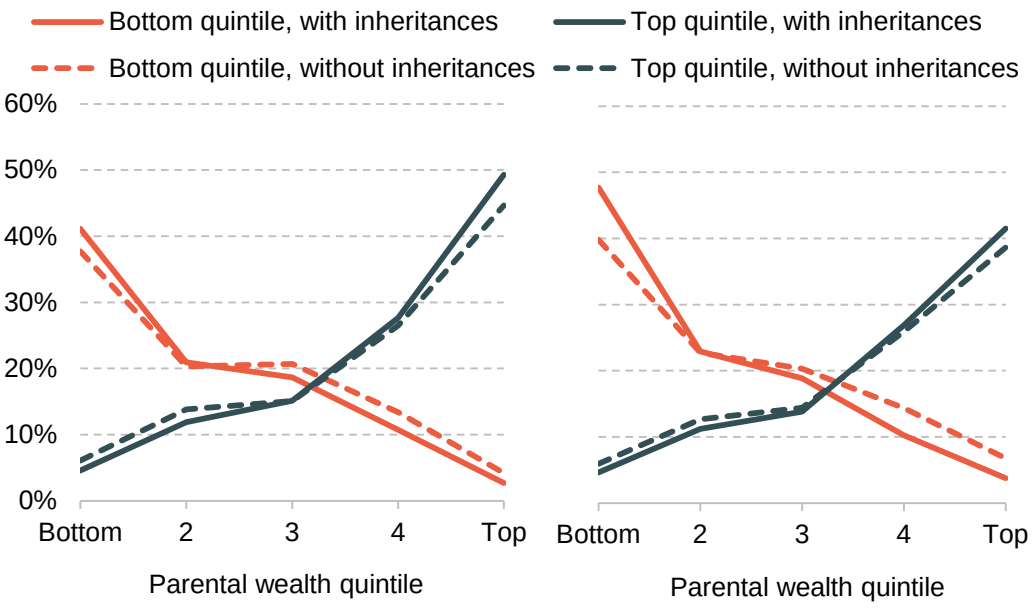
Source: Simulations using the ELSA and UKHLS.

Another way of summarising the extent of social mobility is the proportion of households with parents in the bottom or top fifth by wealth who themselves end up in the various quintiles of lifetime income. Those with wealthy parents are more likely to have high lifetime incomes, even without inheritances, as they tend to earn more. But we can ask how big a role inheritances are set to play in strengthening this tendency.

Figure 2.10 shows that we estimate that, for those born in the 1960s, in the absence of inheritances, 38% of households with parents in the bottom fifth by wealth will be in the bottom fifth by lifetime incomes themselves, but that this proportion rises to 41% as the result of inheritances. However, amongst those born in the 1980s, those figures are 40% and 48%, respectively. This means a doubling in the size of the effect of inheritances (or lack thereof) in entrenching a lack of economic status for those born in the bottom fifth. The effect on the likelihood of those with the poorest parents rising to the top quintile of lifetime incomes is affected similarly by inheritances for both decades of birth.

Inheritances also mean that those born to wealthy parents have a lower chance of 'falling' down to the bottom quintile of the lifetime income distribution. Without inheritances, we project that 4.2% or 1-in-24 of households with parents in the wealthiest fifth will end up in the bottom fifth by lifetime income. This falls to 2.6% or 1-in-38 as a result of inheritances. Amongst the 1980s-born, the likelihood of such a fall is 1-in-15 without inheritances and 1-in-26 once inheritances are included. While this suggests a role for inheritances in reducing both upwards and downwards mobility, it seems that the biggest change across generations will be that an increasing share of those with low-wealth parents will themselves have low lifetime incomes (including inheritances), compared with their peers, because of the increasing role played by inherited wealth.

Figure 2.10. Probability of ending up in bottom or top quintiles of household lifetime income, with and without inheritances, by parental wealth quintile, for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

3. How might (expected) inheritances affect economic well-being over the course of life?

We now turn from relating inheritances to lifetime income towards trying to understand more directly how these inheritances are actually affecting economic well-being over the life cycle (including before, as well as after, they are received). This entails the crucial move of trying to understand how people's economic behaviour – in particular their spending and saving, and hence wealth – is affected by the inheritances that they (expect to) receive. For this, we need to employ an empirically estimated model of how people behave, which we do in Chapter 4. But as background to this, here we set out how we might expect inheritances to affect economic well-being over the life cycle, alongside some simple descriptive information to illuminate this.

In a first step, we look at what past recipients of inheritances did upon receiving their inheritance(s). When individuals receive income or wealth they are (implicitly at least) choosing whether to spend it now or save it for later (a choice that can of course be constrained by their circumstances). An inheritance – a form of (future) wealth – is no exception to this: upon receiving an inheritance, individuals will decide whether to save or spend their inheritance, or a combination of the two.

According to the WAS, the majority (88%) of individuals who received at least one inheritance between 2006 and 2016 received it/them in a very liquid form – money

or savings, whereas 19% received a (share in a) property, 13% received personal items such as a car or jewellery, 6% received financial investments (e.g. shares) and 1% received the inheritance in another form (e.g. a business).

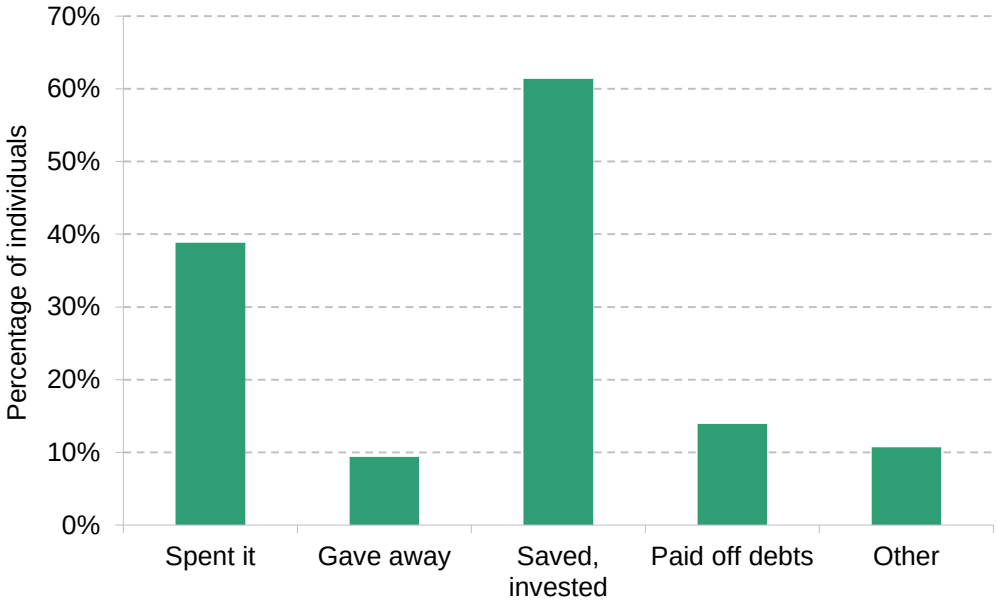
Figure 3.1 shows what individuals who received a non-property inheritance state that they did with it upon receipt. It shows that 61% (partially) saved or invested their inheritance, 39% spent it and 14% used it to pay off debts. For individuals who inherited a (share) in a property, 51% stated that they sold it, while others stated living in it, renting it out or having a family member living in it. So broadly, individuals indeed both save and consume some (or all) of their inheritance receipt(s).[7] This underlines the importance of examining the effects of inheritances not only on current wealth – as most existing studies do – but also on wealth and consumption across the full life cycle. For example, if individuals anticipate an inheritance, they can decide to take up debt and consume more in earlier years, and then pay off that debt when they receive the inheritance.

Figure 3.2 shows the proportion of non-retired individuals who expect to use a future inheritance as a source of retirement funding, by age and birth cohort. A significant minority expect to fund at least some of their retirement through a future inheritance, with the proportion slightly increasing across successive birth cohorts and reaching more than one-quarter for those born in the 1970s. The proportion decreases across ages, as older individuals are more likely to have already received their 'main' (stemming, for example, from their parents) inheritance.[8]

[7] What people state they do with their inheritance upon receipt differs along various characteristics. For example, individuals who received a non-property inheritance at the age of at least 60 were less likely to spend their inheritance and more likely to save it than younger inheritance recipients. Individuals who received a small non-property inheritance were also less likely to spend and more likely to save their inheritance than those receiving a large inheritance. Finally, individuals in the bottom half of the within-age pre-inheritance wealth distribution were more likely to spend the inheritance or use it to pay off debts than those in the top half.

[8] The survey also asks individuals what they expect their *largest* source of retirement funding to be. Between 2% and 7% of individuals expect to fund their retirement primarily through a future inheritance, with the proportion again slightly increasing across successive birth cohorts. For example, 5% of individuals born in the 1960s and 7% of those born in the 1970s aged 41–45 expect to fund their retirement mostly through a future inheritance.

Figure 3.1. Stated use of non-property inheritance receipts

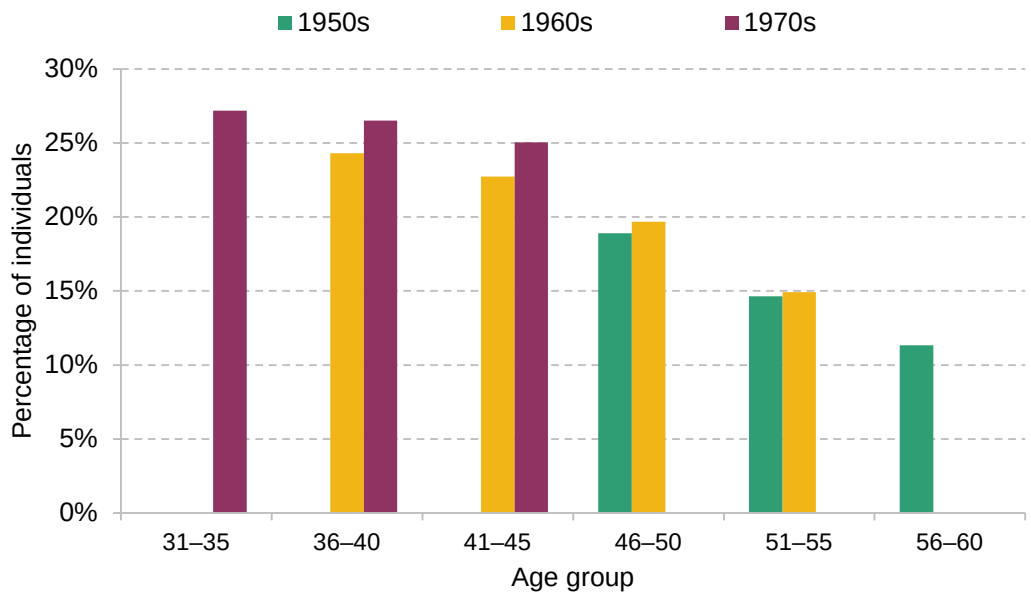


Note: Sample consists of individuals who have inherited since the last wave of WAS. 'Other' includes those who inherited money or savings, personal items, investments or a business.

Source: WAS, waves 1–5.

This suggests that not only a substantial proportion of individuals indeed expect to receive an inheritance, but also that many of them think about what to do with the inheritance before they even receive it. This provides reason to take seriously the possibility that future inheritances affect consumption and savings decisions earlier on in life, as our modelling in Chapter 4 is designed to do. For example, it is possible that individuals save less at younger ages than they otherwise would in the expectation of using their inheritance to help fund retirement expenses. Hence, they are able to consume more or save more elsewhere earlier on in life than individuals who do not expect to receive an inheritance.

Figure 3.2. Percentage of individuals reporting that they expect to use a future inheritance as a source of retirement funding, by age group and decade of birth



Note: Sample consists of individuals without a proxy respondent who are not retired by the time of the survey.

Source: WAS, waves 1–5.

How might inheritances affect spending and saving choices?

So how exactly might we expect inheritances to affect consumption, savings and wealth at different points in life? What will this depend on, and how might it therefore differ for different people? Before trying to estimate all this empirically as we do in Chapter 4, let us consider a simple example to highlight some of the key things to be thinking about. To do this usefully and transparently, we abstract from several details of reality – many of which will be treated much more carefully when we come to the actual empirical modelling in Chapter 4.

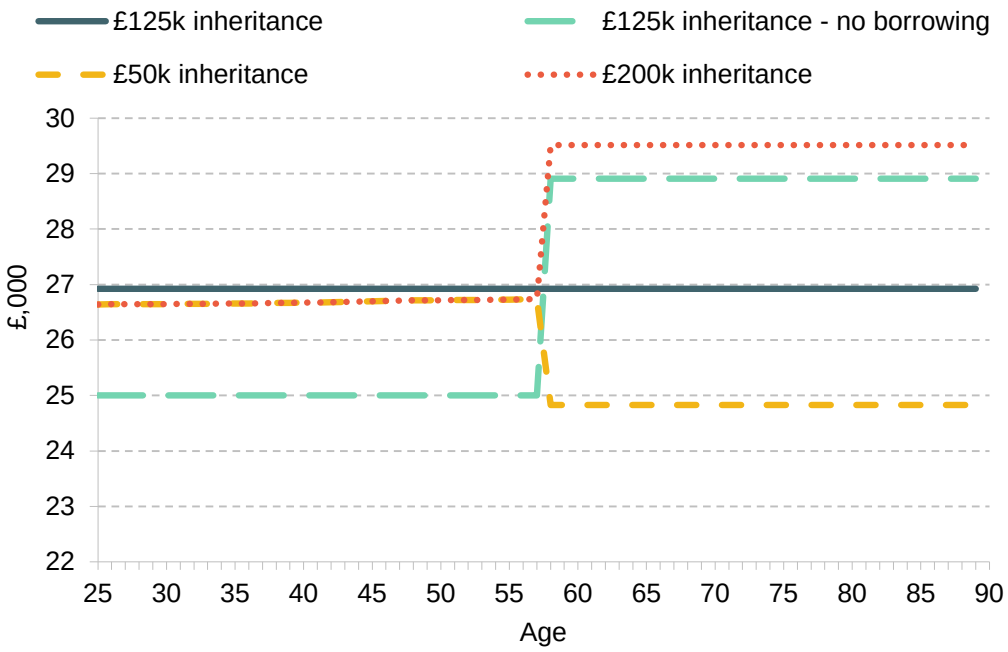
Consider, as our running example, an individual with a fixed regular income of £25,000 per year from the start of adulthood until they die at age 90. Each year, they can either save their income or spend it. They can also borrow, but must repay any borrowing by the end of their life. To keep the arithmetic simple, let us further

assume the following: they value consumption in all periods of their life in the same way; they do not value wealth that they leave after death; there is no inflation, no interest accrued on accumulated wealth and no interest paid on debts. Let us also make the standard assumption of 'diminishing marginal utility of consumption'; that is, each extra pound of spending on goods and services in a given year is of less value to the individual than the last. This has the implication that the individual would, all else equal, prefer to consume smoothly over their life course rather than in a lumpier fashion. If they received only their regular income, they would therefore simply spend exactly this amount in each year.

Within this simple framework, we consider four inheritance scenarios. Figures 3.3 and 3.4 show the levels of inheritance, consumption and net wealth that result in each case. In the first scenario ('£125k inheritance'), the individual receives an inheritance of £125,000 at age 58. Both the amount and the timing of receipt of the inheritance are known with certainty from age 25. The inheritance raises the total possible lifetime consumption of the individual by £125,000. In such a situation, our stylised model would predict that the individual would choose to 'spread' this extra consumption evenly across their whole life, consuming just under £2,000 extra in each year. Hence, we see in Figure 3.3 that they spend just under £27,000 in each year in this scenario. They would do this by borrowing an extra £2,000 in each year before the inheritance arrives, repaying this debt with part of the inheritance when it is received, and spending down the rest of the inheritance at the rate of £2,000 per year thereafter.

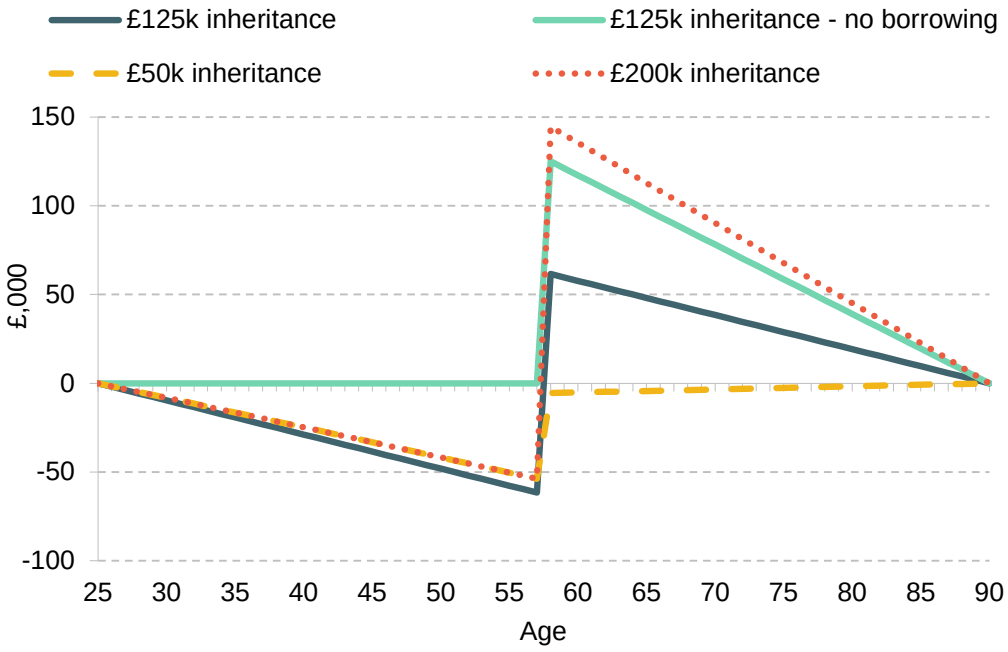
There are perhaps two important basic insights from this. First, inheritances can clearly affect living standards – and hence potentially economic inequalities – well before they are actually received. Second, the association, at any point in time, between wealth and inheritances is not going to give a complete picture of the effects of inheritances on living standards or economic inequality. Wealth early in life may actually be lower as a result of anticipated future inheritances. And wealth later in life will not include the full effect of inheritances, as some of the inheritance may already have been spent.

Figure 3.3. Example spending levels



Source: Authors' calculations.

Figure 3.4. Example net wealth levels



Source: Authors' calculations.

The role of borrowing constraints

The initial scenario depicted above abstracts from many key aspects of the economic environment that are important when considering the effects of inheritances. One example is that people often cannot borrow large sums on the basis that they will repay this from an inheritance to be received in future. They may be in a situation where they would like to spend more on their current consumption because they anticipate receiving an inheritance, but cannot access the credit to allow them do so. Of course, many people will be able to reduce their savings in expectation of an inheritance without needing to borrow. This can happen if they would have anyway saved for retirement (for example, in a pension) but can choose to reduce their level of savings because they anticipate using a future inheritance to fund their retirement spending.

The second scenario is identical to the first but for the fact that the individual is not allowed to borrow ('no borrowing'). That is, they must always have positive net wealth. This illustrates the implications of an extreme form of borrowing constraint. In this scenario, the individual consumes £25,000 in each year until their inheritance arrives. This means that the spending of the inheritance is concentrated in the years after they receive it so consumption jumps up from £25,000 to just under £29,000 at the point of receipt, and stays there thereafter.

The implication of this is that individuals without much pre-existing wealth, and who were not otherwise planning to save, may be less able to 'spend' their inheritance before they get it – their living standards may not materially increase until later in life when they actually receive the inheritance. Because people generally prefer to be able to spend their income smoothly over time rather than concentrated in particular periods, the overall lifetime gain to the economic well-being of these individuals may be lower, even for a given level of inheritance.

The role of uncertainty about inheritances

In the first two examples, the individual knew exactly when they would receive their inheritance and how much it would be. In reality, there is uncertainty over both of these factors. The third and fourth scenarios illustrate the effects of uncertainty over the size of an inheritance. In both of these examples, individuals know that they will receive an inheritance at age 58 for certain but also know that one of them will inherit £50,000 while the other will inherit £200,000, but they don't know who will get each amount. The average of these two amounts is

£125,000, equal to the inheritance in the first two examples. Before receiving their inheritance, both individuals are in the same position and so make the same choice, which is to borrow to spend in anticipation of the inheritance. In the years after the receipt of the inheritance, the 'unlucky' individual who receives the lower £50,000 inheritance ('£50k inheritance') must use this to repay some of their debts and also reduce their subsequent spending in order to repay the remainder of their debts. The 'lucky' individual ('£200k inheritance') repays their debts with the inheritance and has money left over to spend over the remainder of their life.

Importantly, in both these scenarios, the individuals do not spend the full £2,000 extra per year (which is the average of their two inheritance amounts if spread across their whole life) in the years before they inherit, even though they could do so. Their consumption is around £26,700 in the years before receiving the inheritance. This is because the agents are 'risk averse' and so cutting back on spending hurts them more than increasing spending by the same amount benefits them. They therefore choose to hold back on their spending somewhat to cushion the fall in their consumption if they receive the £50,000 inheritance. The rise in consumption upon receipt for the 'lucky' person is thus larger than the decrease in consumption for the 'unlucky' person. So overall uncertainty over the amount inherited leads to average spending rising when inheritances are received (as spending rises for 'lucky' people by more than it falls for 'unlucky' people). This means that, if people tend to be risk averse, uncertainty over the receipt of inheritances would be enough to ensure that, on average, consumption rises when inheritances are received, even in the absence of borrowing constraints.

It is notable that in this simple set-up, uncertainty over the timing of the inheritance would not, by itself, make a difference to the individual's consumption choices. It would simply shift when in life they borrow and when they save. However, when combined with other factors such as borrowing constraints or uncertainty over the size of the inheritance (which could occur even if there was a known relationship between the size of an inheritance and when it is received), timing can matter. For example, with borrowing constraints and a known size of inheritance, the earlier an inheritance is received, the smaller the change in consumption at the time of receipt.

We have seen using these very simple examples that inheritances can have varying effects on consumption, savings and wealth levels over the life cycle depending on the size and timing of inheritances, uncertainty over these, and also the borrowing constraints faced by individuals. We summarise the key points as follows.

- **Borrowing constraints**. Where borrowing constraints prevail, we would expect, on average, to see an *increase* in spending at the point of inheritance receipt. With no borrowing constraints (and no uncertainty), we would expect, on average, consumption to be unchanged after the receipt of an inheritance.
- **Uncertainty over size**. Where there is uncertainty over the size of inheritance receipts, we would expect, on average, to see an *increase* in consumption at the point of inheritance receipt. With no uncertainty (and no borrowing constraints), we would expect, on average, consumption to be unchanged after the receipt of an inheritance. With diminishing uncertainty – that is, people become more certain about the size of their inheritance as the time of receipt gets closer – consumption would start to rise, on average, as the time of receipt nears.
- **Uncertainty over timing**. Uncertainty over timing of the inheritance receipt would on its own merely shift when in life people borrow or save. However, interacted with borrowing constraints and uncertainty over size, uncertainty over timing can also affect the magnitude of response.

Effects of inheritance receipt on consumption, wealth and labour supply

To shed some preliminary evidence on how some of the above issues play out in practice, we now empirically examine whether and how inheritances affect economic decisions at around the time that they are received, looking at households that have received inheritances in the recent past.

We use two datasets – WAS and ELSA – that follow individuals and their partners over time to investigate how various economic indicators, such as household wealth, consumption and labour supply, change when inheritances are received. Our unit of analysis is an individual, or a couple if individuals have a partner. We refer to these individuals or couples as ‘households’. The individuals in the households that we examine are mostly born in the 1940s and 1950s (the median year of birth in our main sample is 1954) and their median age at the time of receipt is 58. These individuals are therefore mostly from generations born before those we are ultimately examining. While these households faced somewhat different economic conditions, including with regards to inheritances, to those born later,

they are likely sufficiently similar for their decisions to be informative about how later-born generations will behave when they come to inherit.

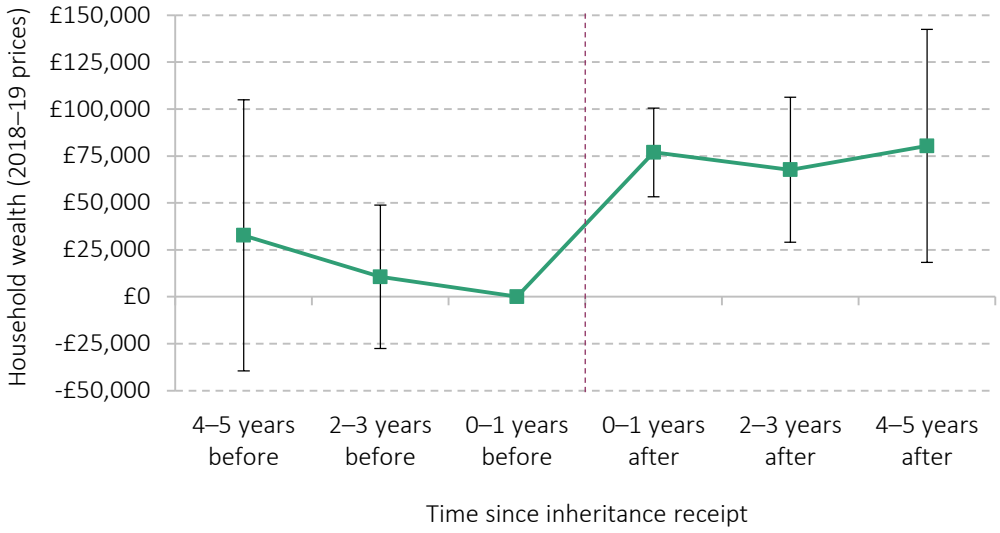
To examine the effects of inheritances, we use an 'event-study' design exploiting the variation in the timing of the receipt of inheritances, controlling for household characteristics (see Appendix A.2 for more information on the data and methodology). This allows us to investigate the change in household outcomes relative to the period prior to inheritance receipt, compared with the change that would have occurred, on average, over time (e.g., due to ageing) independent of the inheritance receipt. Unfortunately, given the limited period over which we observe individuals in the data, we are unable to provide empirical evidence of longer-term anticipatory behavioural responses or responses many years beyond receipt of inheritances. These are things that we attempt to capture in our main results in Chapter 4.

Figure 3.5 shows the impact of an inheritance receipt on household net wealth relative to the period prior to the inheritance receipt around the time of receipt. Effects are shown relative to the period immediately prior to the inheritance receipt, with the horizontal axis demonstrating the time since inheritance receipt in two-year steps and the vertical purple line indicating the rough time of inheritance receipt.

Naturally, wealth increases when households inherit. In the first period after receipt, wealth is on average £77,000 higher – roughly the size of the average inheritance.[9] This wealth increase persists over time, though there is uncertainty about to what extent. That is, inheritance recipients do not immediately spend a substantial fraction of their inheritance, but carry some, and possibly all of it, forward to potentially spend in later years. Our central estimate is that wealth is still increased by the same amount five years after the inheritance was received, though we cannot rule out that a substantial proportion would have been spent by that point. These effects are consistent with Karagiannaki (2017) who, examining household wealth responses to inheritance receipt using data from the British Household Panel Survey, found that households spent down 30% of inherited wealth on average.

[9] Unfortunately, we are unable to express this wealth increase as a proportion of the inheritance receipt, as we do not know the exact size of inheritance receipt in the WAS. However, conducting the same analysis using the ELSA only (where we have the exact inheritance amount) reveals that the average increase in wealth in the period following the receipt is around 100% of the average inheritance receipt.

Figure 3.5. Impact of inheritance receipt on household wealth by time since receipt of inheritance



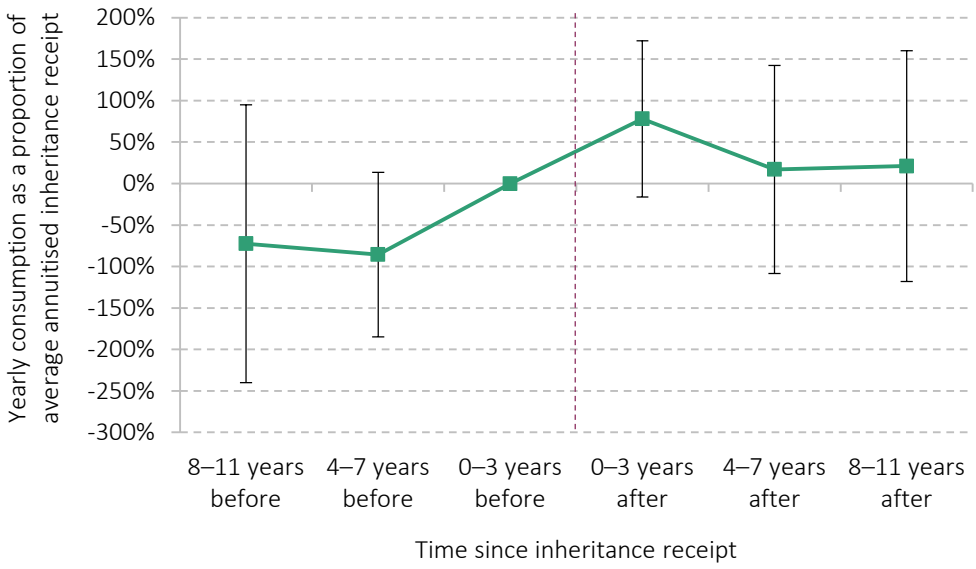
Note: Includes household fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude households that inherit more than once in the observed time period and households where one member of a couple dies in the sample period, and we only keep households that are observed at least once before and once after they have inherited. The black bars depict the 95% confidence intervals.

Source: ELSA, waves 1–9, and WAS, waves 1–5.

Figure 3.6 shows the impact of an inheritance receipt on annualised household consumption as a proportion of the average 'annuity' value of the inheritance.[10] The annuity value of the inheritance is a measure of how much spending would increase if the household spent the inheritance down evenly over their remaining years of life *after* it was received. Here, as with wealth, the effect of receiving an inheritance is shown relative to the period immediately prior to receipt. The effects are grouped into four-year steps (necessary because consumption data are only available in the ELSA, not the WAS, and so the sample size is smaller). The average size of inheritance among this group is £66,000, with the size varying substantially across households.

[10] Expenditure data in ELSA do not cover all categories of spending and so the true effects of inheritances may be higher than estimated here.

Figure 3.6. Impact of inheritance receipt on household consumption (as a proportion of average annuitised inheritance receipt) by time since receipt of inheritance



Note: Includes couple fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude couples who inherit more than once in the observed time period and only keep "constant" couples who are observed at least once before and once after they have inherited. The black bars depict the 95% confidence intervals.

Source: ELSA, waves 1–9.

One benchmark case to bear in mind is that if households were to spread their inheritance evenly across their remaining years from the point it was received, consumption would increase by 100% of the annuity value of the inheritance. However, if inheritances were spent evenly across ages from before and after receipt (that is, the inheritance is anticipated and begins to be spent before it is received), consumption would not increase at all at the moment the inheritance is received. If there are borrowing constraints or uncertainty over receipt that affect decisions, consumption would increase by less than 100%, but by more than 0% of average annuitised inheritance.[11] Comparing the average consumption change with

[11] It is, of course, also possible that households do not consume the full (or any of the) inheritance, as they may wish to bequeath some upon death. We are unable to observe whether this happens in our data.

the average annuitised value of inheritances received therefore gives us a way of comparing against these benchmark predictions.

We provide suggestive evidence that consumption rises upon receipt of an inheritance but by less than the average annuitised inheritance receipt. For example, annual consumption increases by around £2,600 or 78% of annuitised inheritance receipt in the first period after receipt (not statistically significantly different from 0% or 100% at conventional levels). Aggregating all periods after receipt of inheritance, annualised consumption among this group increases by around £2,800, or 87% of annuitised inheritance receipt, after receipt of an inheritance (this is statistically significantly different from 0% at the 10% level, but not significantly different from 100% at conventional levels). Under the assumption of consumption smoothing described earlier, this increase in consumption after inheritances are received suggests that households are affected by borrowing constraints or are risk averse and uncertain about the size of the inheritance prior to its receipt. Our central estimate is consistent with households effectively consuming *some* of their inheritance before it arrives, with most of the additional consumption occurring after receipt. However, because of the lack of precision of our estimates, we cannot reject that consumption increases by the full annuitised value of the inheritance upon receipt. Though this is not our central estimate, this means the evidence does leave open the possibility that there is no increase in consumption in anticipation of inheritances. Given that, as shown in the introduction and earlier in this chapter, individuals do report expecting to inherit, the implication of these findings is that borrowing constraints or uncertainty play a significant role in determining households' responses to this expectation. It is therefore important to incorporate these features of the world into our empirical model, as we shall do.

Splitting the sample into the bottom and top halves of the pre-inheritance-receipt wealth distribution reveals that the increase in consumption only occurs among households in the bottom half of the wealth distribution.[12] Being in the bottom half of the wealth distribution is a proxy for how credit-constrained households may be, and for those who might be more cautious about spending in the face of uncertain inheritance income because they have lower wealth to fall back on. We find that when aggregating all periods after receipt of inheritance, annualised consumption

[12] The split into two groups by household wealth is made within age groups so these differences are not driven by the fact that wealth changes with age.

among those in the bottom half of the wealth distribution increases by around £3,600 (statistically significant at the 5% level). We see no significant change in consumption at the point of inheritance receipt for those in the top half of the wealth distribution. This suggests that, as described above, households that are more credit-constrained, or for whom uncertainty is more of a pressing concern, are less able or willing to start to consume their inheritance prior to receipt.[13] Clearly this is potentially important when trying to understand the actual implications of inheritances for inequality in living standards; it is more than simply the amount that people will end up receiving that matters.

Thus far, we have focused on the effects of inheritances on savings and consumption. However, an inheritance – or anticipated inheritance – might also affect households' decisions over paid work. They may, for example, choose to retire earlier in anticipation of, or upon receiving, an inheritance. To explore this, Figure 3.7 plots the impact of an inheritance receipt on the proportion of households that have at least one member in work relative to the period immediately prior to receipt, while Figure 3.8 plots the impact on household earnings. Both provide indicative evidence of a small effect on labour supply. For example, in the years immediately following an inheritance receipt, households on average are around 2 percentage points (ppt) less likely to have a member in work and their weekly earnings have decreased by around £25. However, the small effect on earnings is only seen in the period immediately after the inheritance receipt.

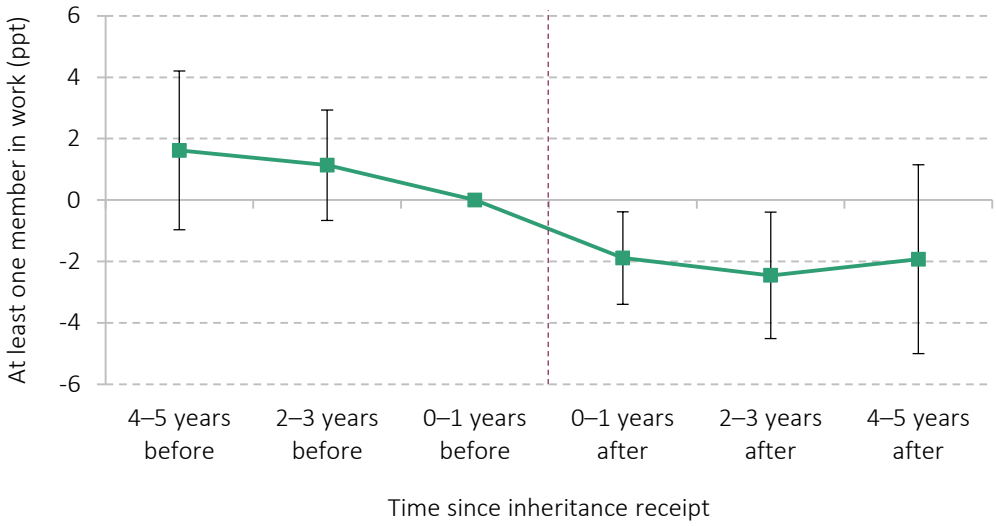
Further splitting the sample into households that, on average, are aged at least 60 and those that are, on average, younger than 60, reveals that the small effect on labour supply is only found for the older age group. This suggests that these effects are driven by early retirement and that inheritance receipt merely affects labour supply at the margin. In turn, this suggests that the effect on lifetime incomes of this response – which is key, given our research questions – is quite small.

Given that the labour supply effects found around the time of inheritance receipt are weak, and modelling labour supply choices is complex, we abstract from labour supply effects in the subsequent work. That is, we assume that household earnings

[13] Note that we additionally split the sample into a group that did expect to inherit and a group that did not expect to inherit in the period prior to receipt. However, we did not find any significant results. This may be due to our modest sample size.

are not affected by the receipt of inheritances, and we concentrate on households' consumption and savings responses. It is worth noting, however, that we are not able to examine whether individuals' labour supply responds many years before inheritance receipt. It is possible that the prospect of future inheritances has longer-term effects on career choices, but these are outside the scope of what we examine.

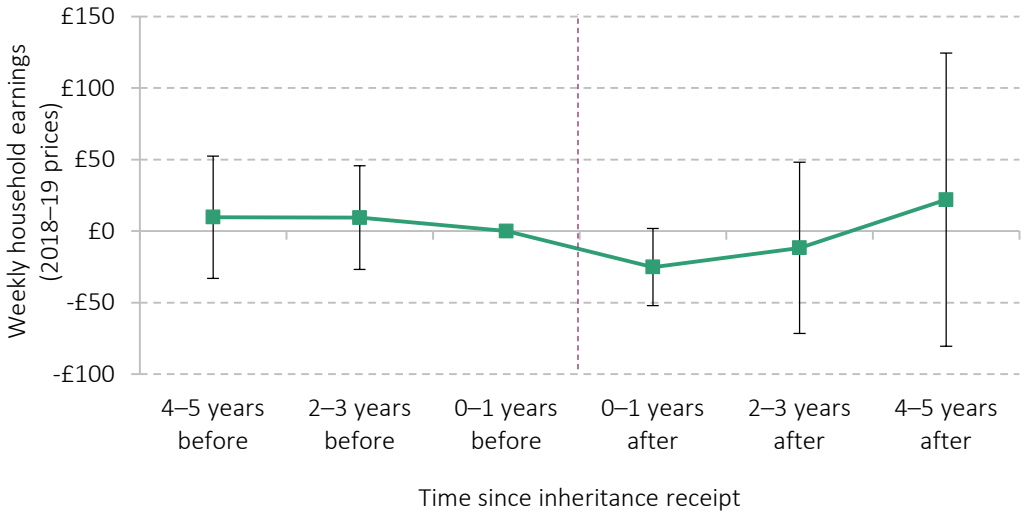
Figure 3.7. Impact of inheritance receipt on labour supply by time since receipt of inheritance



Note: Includes couple fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude couples who inherit more than once in the observed time period and only keep "constant" couples who are observed at least once before and once after they have inherited. The black bars depict the 95% confidence intervals.

Source: ELSA, waves 1–9, and WAS, waves 1–5.

Figure 3.8. Impact of inheritance receipt on family earnings by time since receipt of inheritance



Note: Includes couple fixed effects and controls for age group, age, age squared, partner's age, partner's age squared, wave and interview year indicators. We exclude couples who inherit more than once in the observed time period and only keep "constant" couples who are observed at least once before and once after they have inherited.

Source: ELSA, waves 1–9, and WAS, waves 1–5.

4. The effects of inheritances on consumption and wealth inequality

In this chapter, we turn to examine the effects of inheritances on inequalities in wealth and consumption over households' lifetimes. Our primary focus is how inheritances affect the levels and inequalities in households' consumption, as this will play a major and direct role in determining their living standards and well-being. As we have seen, different households will inherit different amounts and may choose to, or be able to, spend their inheritance at different points in their life. The overall effects of inheritances on inequalities in wealth and consumption could therefore vary across different stages in the life cycle, and the effects on lifetime economic well-being could vary across people (even if they end up receiving the same inheritance).

We examine the effects of inheritances on wealth inequality as well as consumption inequality. Wealth is of potential interest in its own right as a marker of economic security and power; a number of previous studies have focused on the relationship between inheritance and wealth, so this allows us to situate our contribution in the context of this previous research.

In order to assess the effects of inheritances on wealth and consumption inequality, we bring together the evidence presented in Chapters 2 and 3, and combine this with an economic model of how households make decisions about their savings and consumption. The reason for using such a model is threefold:

- even for those generations that have already reached an age where they have received inheritances, we lack data on inheritances, consumption and wealth

over households' whole lifetimes that would be required to examine the relationships between these outcomes directly;

- the generations we are examining are mostly still to receive any inheritance, so we need a way of extrapolating behaviour into the future;
- a model allows us to disentangle the various economic drivers of our outcomes of interest and to make predictions about what would happen under alternative possible scenarios for the future.

The parameters of this model come from empirical observations about how people behave in the real world; but, as with any model, it still has to make simplifying assumptions about the decision-making process and the economic environment. The model that we use builds on widely used, empirically estimated models of consumption and savings over the life cycle; for examples, see De Nardi (2004), French (2005), Crawford and O'Dea (2020) and Druedahl and Martinello (2020). In essence, these models try to capture in a quantitative way the circumstances and constraints households face, such as their earnings and state pension income, how their household size (and therefore costs) vary over their lifetime, how long they might expect to live in retirement, and the returns to saving and limits to borrowing. They also capture important uncertainties over these, such as risks from unemployment or falls in earnings. Receipt of inheritances is one such (uncertain) source of income that features in our model.[14]

The model shows how households would optimally choose their savings and consumption to maximise their expected welfare over their lifetime in the face of these constraints and uncertainties. In essence, this comes down to households balancing the benefits and costs of consuming income now versus saving it for later years or leaving it as a bequest. The way that households weigh up costs and benefits depends on the model parameters that specify how risk-averse households are, how they weigh the future versus today and how much they value leaving bequests when they die. We select these model parameters by calibrating the model such that it can generate reasonably closely the patterns seen in actual household wealth data from the WAS – we use this criterion to choose from within the range

[14] This means that – differences in uncertainty and tax treatment aside – receiving one extra pound in inheritance is assumed to have the same impact on households' decisions as receiving one extra pound of earnings or social security income at the same age. This assumption might be violated if households were more likely to bequeath inherited wealth than other income, for example.

of parameter estimates from existing life-cycle models estimated using UK and US data (Lockwood, 2018; Crawford and O'Dea, 2020).

Any model of this kind makes many assumptions about how households make decisions, and the environment they face. Many of these assumptions are a simplified version of reality. This is necessary in order to make the model workable in practice, and the key challenge is to simplify the model along the right dimensions so that it remains able to capture the aspects of the world that are most pertinent to the question at hand, while abstracting from other aspects.

In Box 1.1, we give a non-technical overview of the features of the model that we use. Readers wishing to understand the model in more detail are referred to the supplementary appendix, available online. The subsequent results subsections can be understood without reference to the model description so readers who wish to do so can proceed directly to those subsections.

Box 1.1. Model of savings and consumption

We use a heterogeneous-agents life-cycle model – models similar in approach to ours are found in, for example, Crawford and O'Dea (2020) and Druedahl and Martinello (2020). The agent in this model is a household. Each household lives from age 26 to a maximum possible age of 110. The time period of the model is one year.

Household types. Each household is endowed with one level of the following characteristics:

- decade of birth (1960s, 1970s or 1980s);
- education level (low, mid or high);
- earnings level (low, mid or high).

Household earnings and state pension income.

- Households are either in or out of paid work in each period.
- Households face a probability of entry or exit from work each period, which varies by household type.
- If a household is in work, its earnings are the sum of a certain component, which varies by age and household type, and an uncertain component that is described below.

- State pension income is paid from the state pension age and depends on household type and earnings in the period before the state pension age.
- No households work beyond their state pension age.

Parental households. Each household starts life with either one or two parental households, who each:

- have an age gap to the household that depends on the household's decade of birth and education level;
- have a level of wealth that is the sum of a deterministic component, which varies by age and the main household's decade of birth and education level, and a stochastic component that is described below;
- face some probability of death each year;
- leave their wealth as a bequest to their children when they die.

Inheritances.

- If one of a household's parental households dies, their bequest is subject to inheritance tax and then divided by the assumed number of children (i.e. the household and its siblings), which varies by decade of birth and education group, to yield the household's inheritance.
- Inheritances are added to a household's assets at the start of the period in which the parental household dies.

Taxes and benefits are levied on a household's income, net of any savings made, each period. The tax and benefit system is progressive and provides a minimum level of consumption.

Household choices.

- A household's total pre-tax income is equal to its earnings from work, plus any state pension income plus any inheritances it has received.
- Each period, the household must choose how much of its pre-tax income to save (or if it has accumulated assets from previous saving, how much of this to dissave).
- Household savings increase the household's holdings in an asset, which accrues a rate of return that varies by age and by decade of birth.
- Households can borrow (i.e. have negative holdings of the asset) at most twice the average annual earnings for a household of their type and must repay all borrowing by age 75 at the latest.

- Given the risk of death, households' wealth choice each period also implies a chosen level of bequest if they die.

Sources of uncertainty for the household are as follows. The households have rational expectations about all of these sources of uncertainty.

- They face some probability of death at each age from age 65 onwards, which varies by age, and the household's decade of birth and education level.
- The stochastic component of their earnings evolves in a way that depends on the household's type, age and the level of the stochastic component of earnings in the previous period.
- The stochastic component of their parents' wealth evolves in a way that depends on the household's decade of birth and education level, age and the level of the stochastic component of parents' wealth in the previous period.
- Parental households face some probability of death at each age, which varies by the parental household's age, and the household's decade of birth and education level. The realisations of the timing of death are independent across the two parental households (if the household has two).

The estimation of the earnings and parental wealth processes, and the way in which parental wealth is related to household earnings were described in Chapter 2. Further details of estimation and calibration of the model inputs and preference parameters and the method of solving the model are given in the appendix.[15]

Effects of inheritances on average consumption and wealth

We now turn to the results. The model gives us a set of predictions about how households would choose their levels of savings and consumption when faced with different circumstances. This means we can feed in the many different circumstances that we expect households to face, creating simulated cohorts of households who vary in their characteristics and the levels of earnings, inheritances

[15] The model is solved by backwards recursion, where optimal decision rules are found at the points of a grid of the model's state variables, starting in the terminal period and working backwards. To generate the results in the following subsection, we use these decision rules and the model's exogenous processes to simulate the model 1,000 times for every household type.

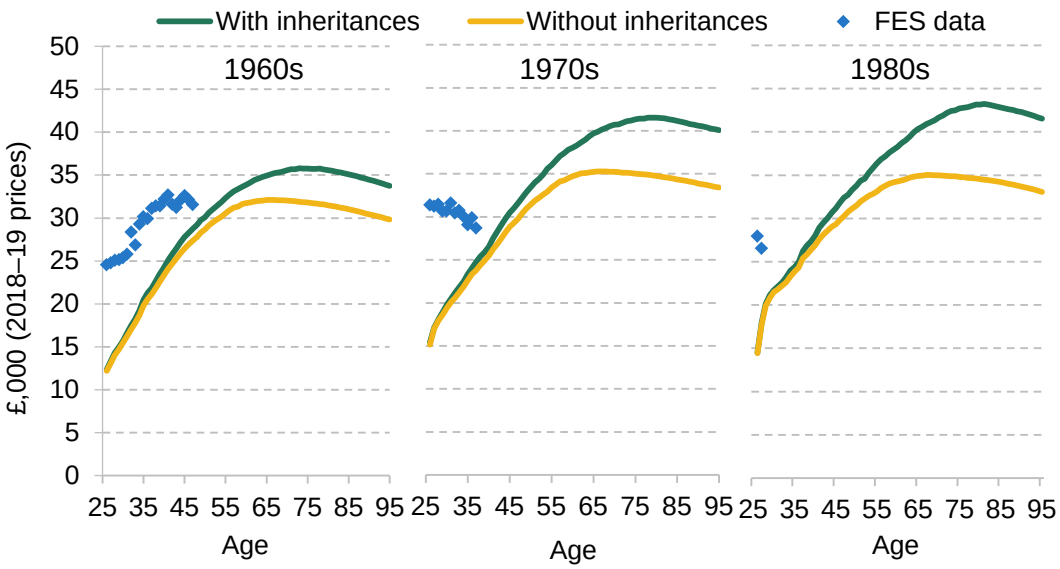
etc., that they receive. We can then analyse the distribution of consumption and wealth within that simulated cohort. We look first at the average effects of inheritances before turning to their effect on inequality and subsequently disentangling the drivers of their effects.

We note that consumption should be understood as representing the consumption from all goods and services that households purchase. In the model, there is just one consumption good representing all of these things together. Economists normally think of consumption as distinct from expenditure, as the good or service bought might be consumed at a different point in time to when it was purchased. This happens with durable goods or properties, which can be purchased at one point in time but are enjoyed for some time thereafter. In our model, it is as if the household buys all goods and services, including durable goods, at the time they consume them. We could think of them renting the use of their durable good or housing. The consumption that we model should therefore be compared with expenditure on non-durables (those things essentially consumed when purchased) and the implicit flow of consumption value from any durables and housing owned. When people buy a house, this is of course purchased both as something to be 'consumed' and, potentially, also as a form of saving. This role of housing as saving is captured by the asset in the model. Mortgage repayments that add to households' wealth in reality are here captured by saving and building up assets.

In Figures 4.1 and 4.2, we show the paths of median equivalised consumption and median wealth, simulated by our model, for households surviving to each of the ages shown. We show the model predictions from two scenarios: one with inheritances and one without, where households never expect to receive and do not actually receive any inheritances (i.e. it is as if that wealth never existed). We show this for each of our three decades of birth and also compare the model predictions with the measured levels of median consumption and median wealth, from the FES and WAS, respectively.[16]

[16] While the model predictions match the actual wealth data closely, the consumption profile that we model is at a lower level and is steeper than found in actual consumption data. The difficulty of jointly matching consumption and wealth profiles in early working life has been documented in other contexts (Gourinchas and Parker, 2002). The difficulty in jointly matching the consumption and wealth levels is driven in part by the fact that the median household reports consumption substantially higher than its income, while there is still substantial wealth accumulation at the median.

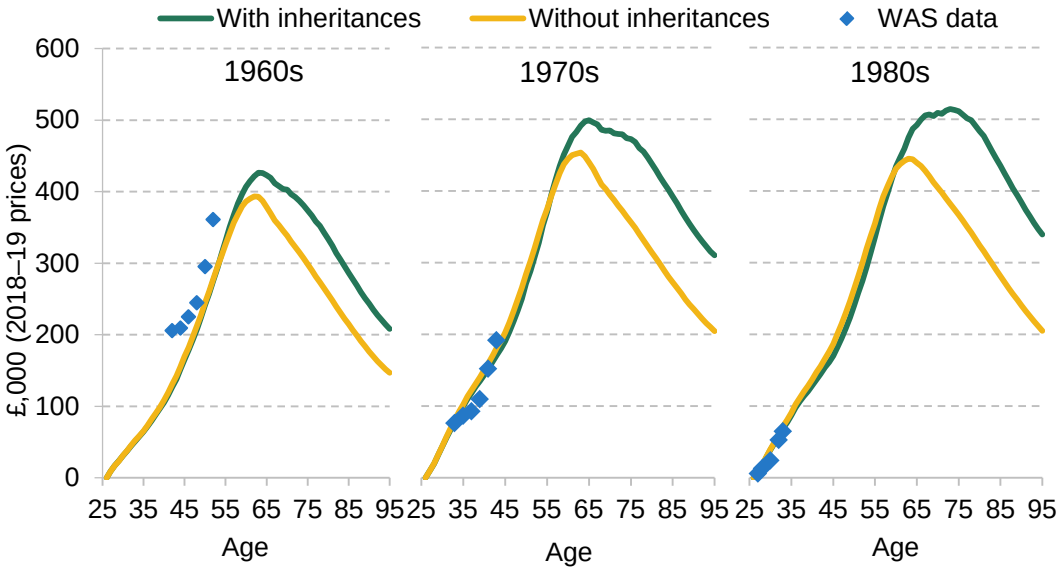
Figure 4.1. Simulated median equivalised household consumption by birth decade, with and without inheritances, and median equivalised consumption as measured in the FES



Note: Equivalised consumption expressed on the basis of a childless couple.

Source: Model simulations.

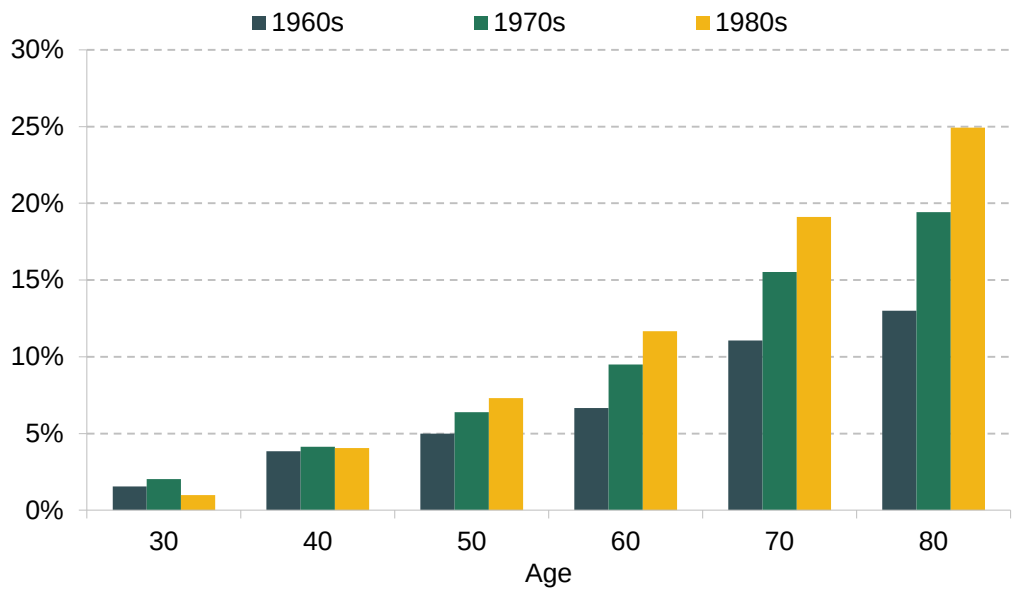
Figure 4.2. Simulated median household wealth by birth decade, with and without inheritances, and median household wealth as measured in the WAS



Source: Model simulations

The paths of median consumption show that, without inheritances, equivalised consumption increases with age, peaking at around age 60 for each cohort before declining slightly in the retirement years. The levels of consumption are slightly higher for the 1970s cohort than the 1960s cohort, reflecting the slightly higher incomes of the former group. The 1980s and 1970s cohorts have similar consumption profiles, which is in line with the similar incomes they are expected to have over their lifetimes. The addition of inheritances causes higher consumption at all ages, but particularly in later life. This is shown explicitly in Figure 4.3. For example, for those born in the 1960s, equivalised consumption each year is 2% higher at age 30 due to the addition of inheritances, 4% higher at age 40, 5% higher at age 50, 7% higher at age 60, 11% higher at age 70 and 13% higher at age 80. Consumption is increased only marginally more at age 80 than at age 70 because almost all inheritances have been received by age 70 for this generation. The effect of inheritances on median consumption is larger at older ages for later-born cohorts, in line with the increasing size of inheritances compared with lifetime income, which was documented in Chapter 2. For the 1980s-born households, inheritances

Figure 4.3. Estimated percentage increase in households' equivalised consumption at selected ages as a result of inheritances, by decade of birth



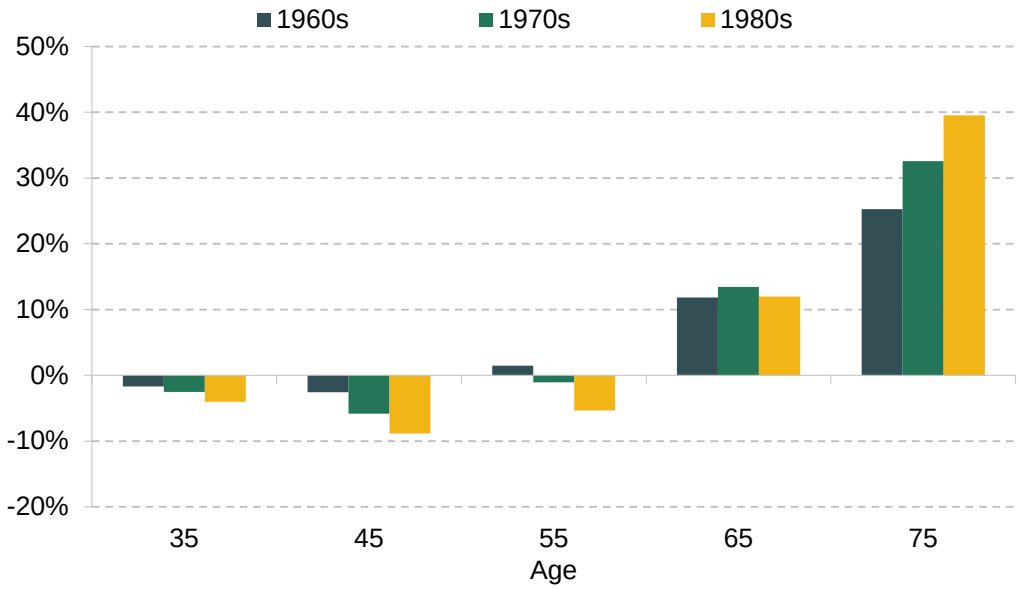
Source: Model simulations.

result in a similar percentage increase in consumption, compared with the 1960s cohort before age 50, but at age 70 they increase consumption by 19% and at age 80 they increase consumption by 25%. The effect for this generation grows even through their 70s as a substantial minority are projected to inherit only at these late ages

Turning to assets, we see, in all scenarios for all cohorts, a 'life-cycle' profile, whereby assets are built up during working life and partially drawn down in retirement.[17] The relatively higher wealth of the 1970s and 1980s cohorts, even in the absence of inheritances, again reflects their slightly higher lifetime incomes relative to the 1960s cohort. Figure 4.4 shows the percentage increase in wealth at selected ages, as a result of inheritances. The most substantial effect of inheritances is to increase assets held in later life, once the bulk of inheritances are received. For example, for those born in the 1980s, at age 75, assets are 40% higher as a result of inheritances. However, we can also see they reduce levels of wealth held at younger ages. For the 1980s-born, inheritances reduce the level of assets held at age 45 by 9%. This decrease comes despite the fact that some households will have inherited already by that age. This represents households responding to expected inheritances by saving less, and it will be explored further below. Comparing different generations, we see that the effects, both early and late in life, are larger for those born later. This is because inheritances are a larger share of their lifetime resources. The 'switch' from inheritances depressing levels of wealth to inheritances increasing wealth comes later in life for later-born cohorts. For example, for those born in the 1960s, inheritances slightly increase wealth held at age 55 but for those born in the 1980s they decrease it. This is because those born later are projected to inherit at older ages.

[17] The substantial drawdown of wealth in retirement might appear to be at odds with the very mild decumulation of assets documented for earlier cohorts. However, as our model has one asset type, the wealth measure here is comparable to total wealth *including* private pension wealth, which does tend to decline with age (Blundell et al., 2016), whereas we examine parents' assets *excluding* pension wealth.

Figure 4.4. Estimated effect of inheritances on households' wealth at selected ages, by decade of birth



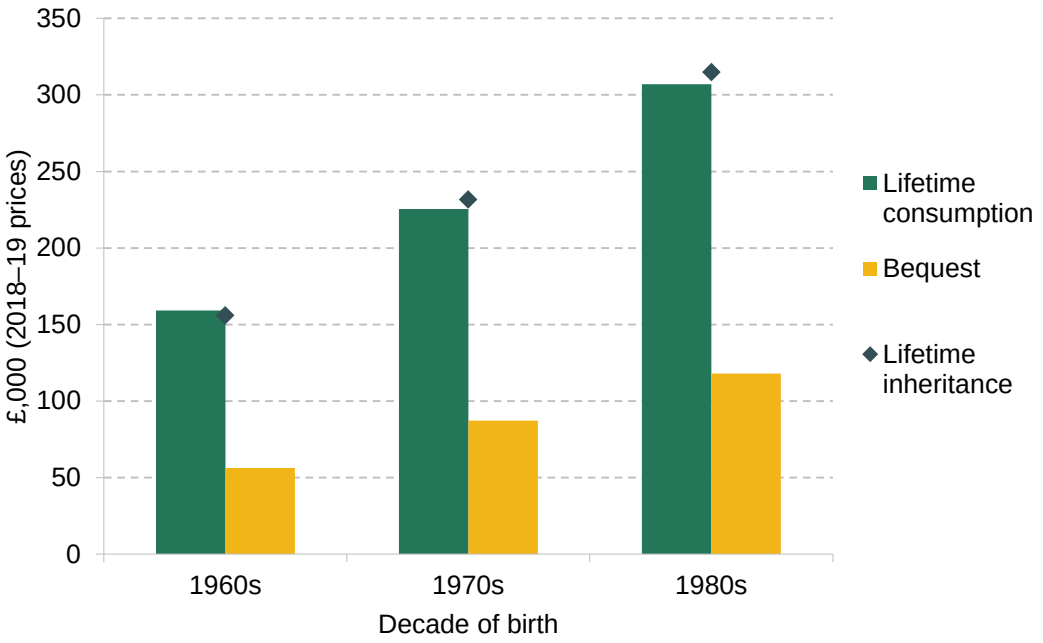
Source: Model simulations.

The fact that households hold higher wealth at older ages due to inheritances also means that they will leave larger bequests, as at each older age, some people will die without a surviving spouse and we assume their household's wealth is then passed on as a bequest. Figure 4.5 shows the average lifetime inheritance projected for each birth decade, and compares it with the average extra lifetime consumption and extra bequests that we project households will leave. The average extra consumption is approximately equal to the value of the average inheritance, rising from £159,000 to £225,000 to £306,000 from the 1960s to the 1970s to the 1980s cohorts. As percentage increases in consumption, compared with the scenario without inheritances, these figures are 8%, 10% and 14%, respectively. The extra expected bequests to be left to the next generation are slightly over a third of the value of the extra consumption brought about by inheritances, equal to £56,000 for the 1960s-born, £87,000 for the 1970s-born and £118,000 for the 1980s-born. These represent percentage increases in bequests of 21%, 35% and 47% for the three cohorts, respectively.[18] The total of the extra consumption and extra bequests

[18] This increase in the size of bequests relative to inheritances received is in line with the literature, which we follow, which models these as luxury good i.e. households spend an increasing share of their resources on bequests as their lifetime income increases (see De Nardi, 2004; Lockwood, 2018).

is more than the inheritances received because the households also receive a return on the inheritances while they are held as extra wealth. This effect compounds over time to become substantial.

Figure 4.5. Estimated increase in households' lifetime consumption and bequests to next generation as a result of inheritances received, by decade of birth



Source: Model simulations.

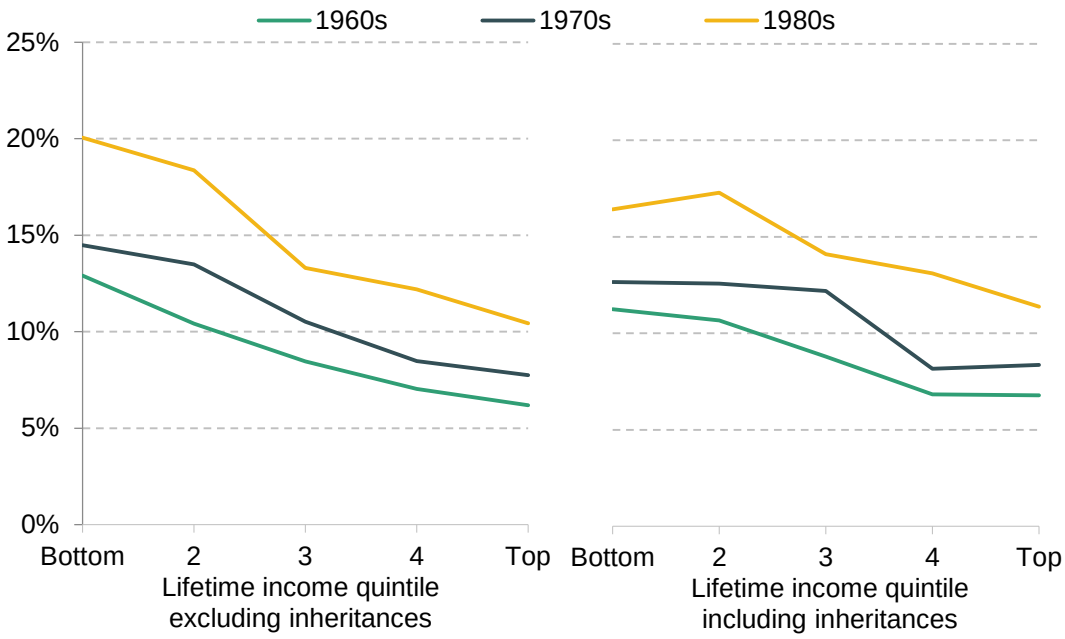
Implications for consumption inequality

We now turn to consider how the consumption effects of inheritances vary by lifetime income groups and then we examine the effects of inheritances on inequalities in the overall distribution of consumption.

Figure 4.6 shows the percentage increase in lifetime equivalised consumption for each quintile of the lifetime income distribution within each decade of birth. The left panel shows the effects when households are classified into quintiles according to their lifetime income *excluding* inheritances and the right panel shows households classified according to their lifetime income *including* inheritances. This shows that we estimate inheritances will have a larger *proportional* effect on

lifetime consumption for those at the bottom of the lifetime income distribution than those at the top in each cohort. For example, amongst those born in the 1980s, we estimate that inheritances will increase lifetime consumption amongst the bottom fifth by lifetime income *excluding inheritances* by 20%, compared to an increase of 10% for the top fifth. However, the gradient by income is smaller if we look across quintiles of the lifetime income distribution *including* inheritances. This is because inheritances have the dual role of increasing some people's levels of consumption but also changing where they are in the distribution of lifetime income and consumption. This relates to an important fact that we will examine directly later in this chapter: that even in the absence of a profound effect on overall levels of inequality, inheritances are set to play a significant role by changing who is further up and further down the distributions of lifetime income and, crucially, moving those with wealthier parents towards the top.

Figure 4.6. Percentage increase in households' lifetime equivalised consumption due to inheritances, by decade of birth and lifetime income quintile



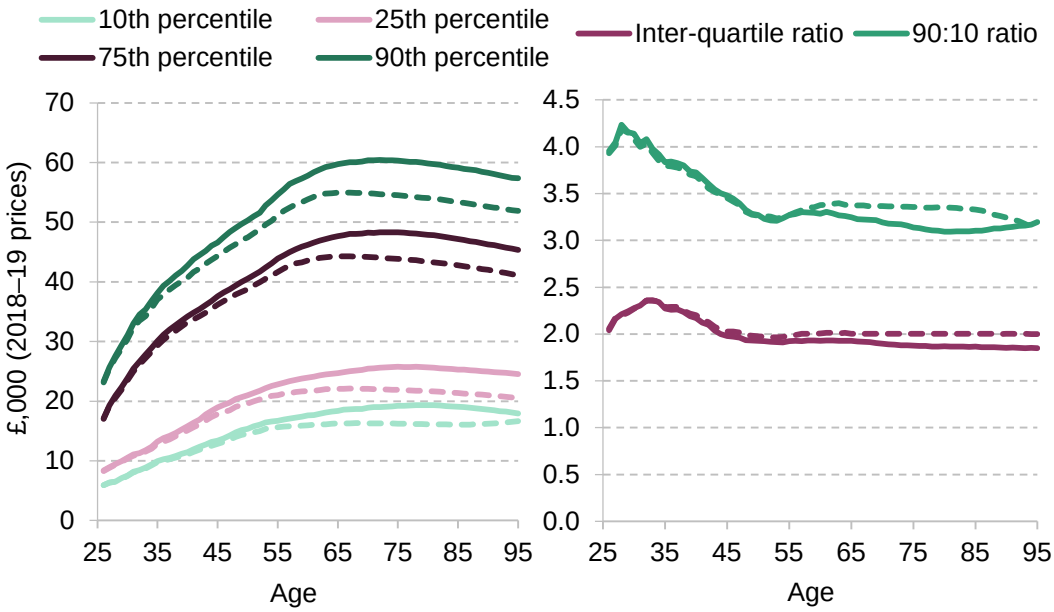
Source: Model simulations.

We now assess how these effects translate into effects across the whole distribution of consumption and wealth at different points in the life cycle. First, we show the effect of inheritances on different points of the distribution of equivalised

consumption and the consequent impact on measures of consumption inequality. The left panel of Figure 4.7 shows the 10th, 25th, 75th and 90th percentiles of consumption for the 1960s-born generation for the scenarios with inheritances (solid lines) and without inheritances (dashed lines). The right panel shows two measures of inequality calculated using the data in the left panel: the 90:10 ratio and the 75:25, or 'inter-quartile', ratio. It is important to note that those households at a particular point in the distribution may not be the same in the scenarios with and without inheritances due to the re-ranking effect of inheritances mentioned above.

Figure 4.7 shows that the effect of inheritances is larger in *absolute* terms for the higher parts of the consumption distribution. However, the effect in *proportional* terms is relatively similar across the distribution. At ages up until age 50, inheritances have a larger proportional effect on the 90th percentile than the 10th percentile, meaning that they increase the 90:10 measure of inequality at younger ages, although the effect is very small. But at ages above 50, there is a larger effect of inheritances – in proportional terms – on the lower parts of the consumption distribution. This means that consumption inequality as measured by our two metrics declines slightly at older ages due to inheritances. We can see this shown by the difference that opens up between the solid and dashed lines in the right panel. This effect is larger for the 90:10 ratio than the inter-quartile ratio. The reason for this – explored further below – is that households further down the distributions of lifetime income and consumption are less able and/or willing to react to inheritances by spending more in advance of receiving them, as they are more influenced by both credit constraints and uncertainty over the size and timing of inheritance receipt. Those lower down the lifetime income distribution, who have lower consumption levels, therefore spend a greater share of their inheritance later in life, compared with higher-income households.

Figure 4.7. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without inheritances (1960s-born)

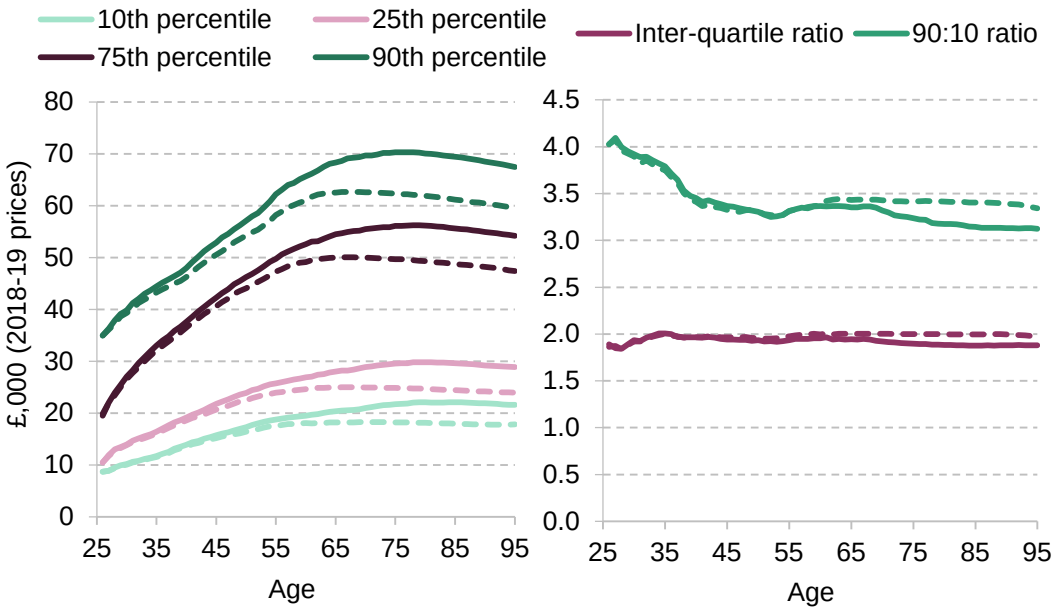


Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figures 4.8 and 4.9 show the equivalent consumption profiles for the 1970s-born and 1980s-born generations. While the effects of inheritances grow in size for later-born cohorts, they do so in a broadly similar way across the consumption distribution. The effects of inheritances on inequality are consequently similar across cohorts in terms of overall patterns: there is, if anything, a very small dis-equalising effect of inheritances at younger ages, which turns to a moderate equalising effect at older ages. Again, this is because lower lifetime income households 'spend' more of their inheritance after they receive it than higher-income households do, as the latter are more willing and able to spend in advance of receiving an inheritance. However, there are quantitative differences: for later-born cohorts, the equalising effect of inheritances is somewhat smaller and the starts later in life. For the 1980s-born, for example, inheritances increase the 90:10 ratio up until age 70 before decreasing it at older ages.

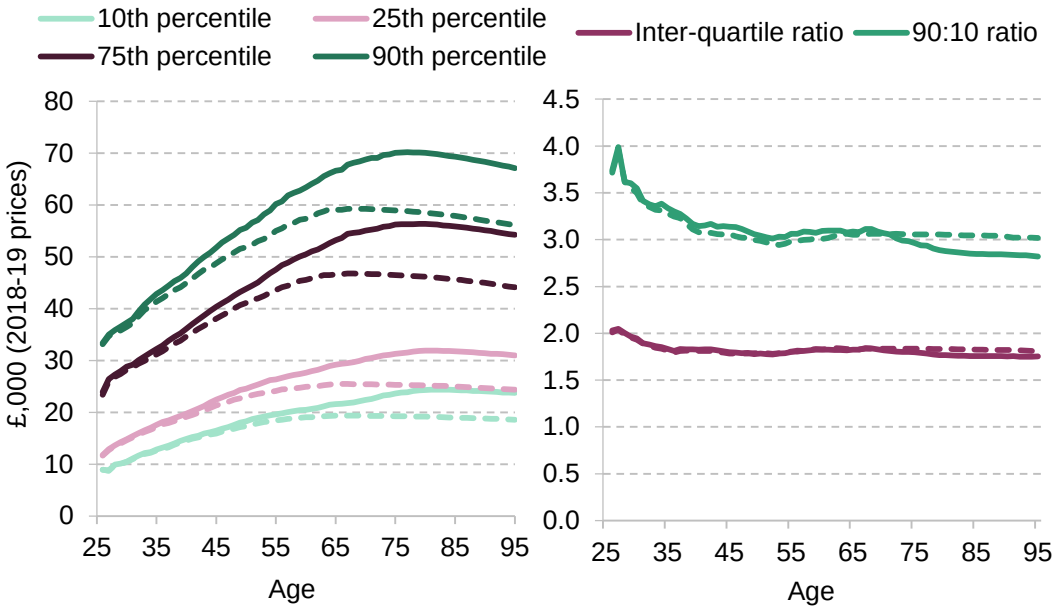
Figure 4.8. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without inheritances (1970s-born)



Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figure 4.9. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without inheritances (1980s-born)

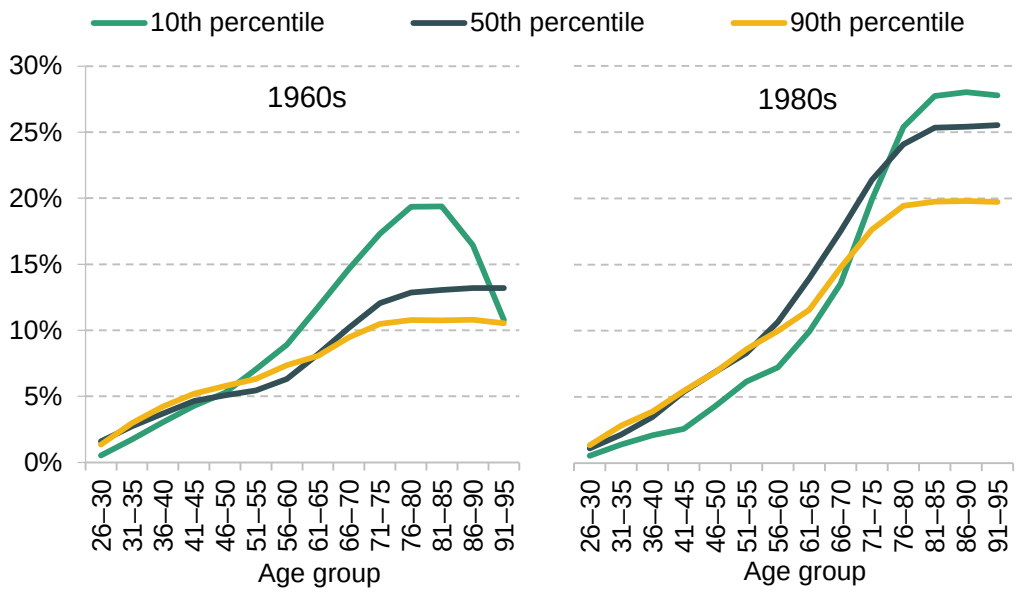


Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figure 4.10 summarises the effects of inheritances across the distribution of consumption for the 1960s-born and 1980s-born cohorts. Here, the effect is expressed in percentage terms. We clearly see the larger and later effects of inheritances for those born in the 1980s, compared with the 1960s-born cohort. We also note that for both cohorts the effect of inheritances grows more with age for the 10th percentile than for the 50th, which in turn sees a stronger age profile than the 90th percentile. In the next subsection, we explore the drivers of these patterns by examining the mechanisms that might generate different age patterns of responses at different parts of the consumption distribution, such as responses to credit constraints and uncertainty.

Figure 4.10. Percentage increase in selected percentiles of equivalised household consumption due to inheritances, for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

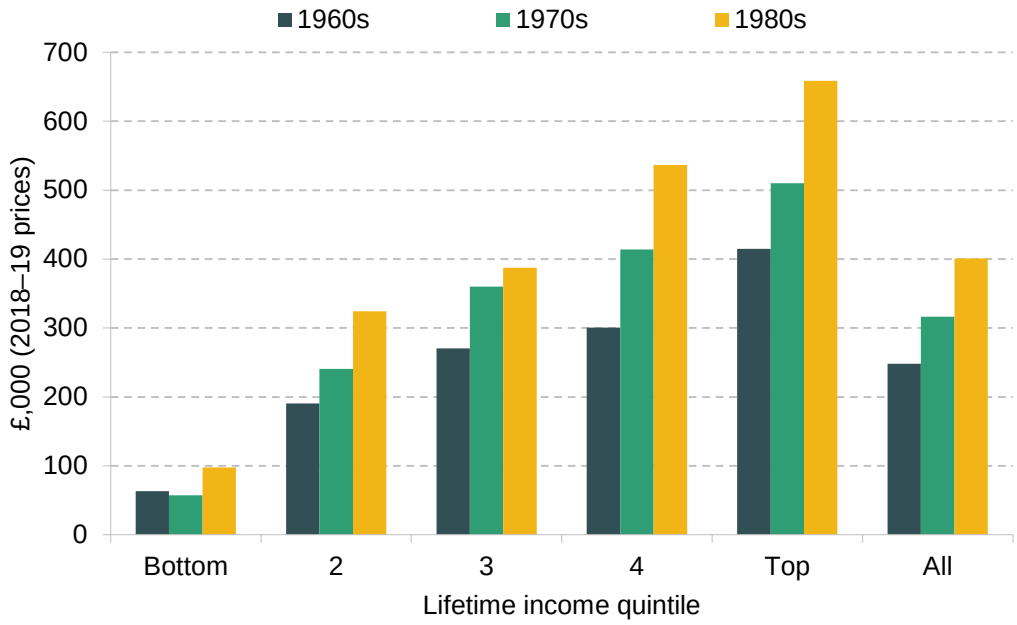
The role of anticipation, credit constraints and uncertainty

The larger effects of inheritances on the upper part of the distribution of consumption at younger ages, before most inheritances are received, suggests that higher percentiles are affected more by anticipatory behaviour; that is, people increasing their consumption in anticipation of a future inheritances. These differences are not driven by differences in the timing of receipt of inheritances as

we do not project substantial differences in the age of inheritance receipt by lifetime income, within birth cohorts. To quantify the effect of inheritances on anticipatory behaviour, we calculate for each household how much additional consumption they have in the scenario with inheritances than without, in the years before they receive any inheritance. We can express this total extra consumption before inheritance receipt as a percentage of the inheritance subsequently received to give a measure of the percentage of the inheritance that has been spent 'in anticipation' of its receipt.

Figure 4.11 shows our estimates of the increase in households' annual equivalised consumption, as a result of anticipated inheritances, in the years before they receive their inheritance. This shows that amongst those born in the 1980s, we estimate that households in the bottom fifth of lifetime income spend, on average, just under £100 extra per year as a result of the anticipation of future inheritance receipt. This additional spending is funded by either lower saving or higher borrowing. For those in the top fifth of lifetime income, the equivalent figure is £660 per year. These figures are higher for those born later due to the growing size of inheritances.

Figure 4.11. Estimated effect of inheritances on households' average annual equivalised consumption before they receive their inheritances, by decade of birth and lifetime income quintile



Source: Model simulations.

Figure 4.12 shows our estimates of the percentage of inheritances spent in advance, split by quintile of the lifetime income distribution. We see that those further up the income distribution spend more of their inheritance in advance. Amongst those born in the 1980s, the bottom fifth of households by lifetime income consume 11% of their inheritance in advance – a third as much as the 33% spent in advance by the top fifth by lifetime income. The patterns across different decades of birth are quite similar. This pattern is consistent with the findings of Chapter 3, which showed a larger increase in consumption, as a fraction of the annuitised value of the inheritance, following inheritance receipt for households with lower levels of wealth.

Figure 4.12. Effect of inheritances on households' consumption before they receive their inheritances, as a percentage of inheritance received, by decade of birth and lifetime income quintile

Note: Both additional consumption and inheritances are expressed in present discounted value terms, using the model interest rate.

Source: Model simulations.

These increases in consumption in advance of inheritance receipt are certainly consequential amounts but are lower than one might expect if we thought that households would spread the extra spending that they can afford as a result of an inheritance over their whole lives. One very approximate benchmark is that

inheritances are projected to be received, on average, 60% of the way through adult life, so if there were no uncertainty and no borrowing constraints then we might expect around 60% to be spent in advance. Anticipatory effects are particularly small for households with lower lifetime income. In the Appendix, we analyse the drivers of the amounts of inheritances spent in advance of their receipt. This analysis shows that while credit constraints are somewhat important for households in the bottom quintile of lifetime income, the effect of uncertainty over the inheritance is most important, having a substantive effect on households across the income distribution. This is not because the inheritances that will be received are more uncertain for those with low incomes – it is because they are less likely to spend uncertain amounts of money before they arrive. Intuitively, the reason is that, if a household with low lifetime income receives less inheritance than they had planned (i.e. saved) and has to cut back on spending, this is relatively more painful for them to do than it is for a household with higher lifetime income.

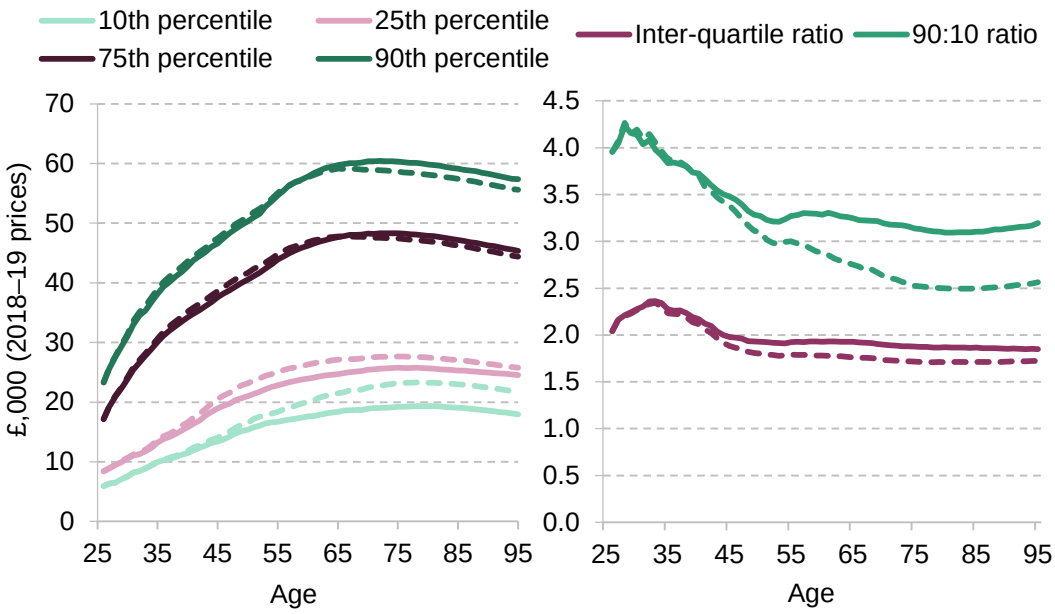
The fact that households are not able and/or willing to spread their inheritance across their whole lifetimes – as they tend to want to do in the absence of borrowing constraints or uncertainty – means that the prospect of receiving an uncertain inheritance later in life is worth less than receiving the same amount of money with certainty at the start of life. Another way of saying this is that the amount of money received at the start of life that households would value equally to their potential inheritance is less than the amount of inheritance expected.

Implications for redistributive policies

So far, we have assessed the role of inheritances by considering counterfactuals where households do not receive any inheritance. While this is useful for thinking through how inheritances have their effects, it can be instructive to consider alternative counterfactuals when evaluating the role of redistributive policies. One benchmark counterfactual to consider is where inheritances were equalised over all households at their average level. We are not able to model the effect that changes to policies would have on parents' behaviour – such as an increase in giving while alive or increasing other forms of investment into their children. Any policies aiming to substantially redistribute inheritance income would likely lead to responses by parents and so this analysis is therefore very much illustrative. The intention is to illustrate how much is 'at stake' and how this is set to change across generations as inheritances grow in size.

Figures 4.13 and 4.14 show, for the 1960s and 1980s cohorts, the effect of inheritances compared with a counterfactual where all households receive the same inheritance, equal to the mean of the inheritances we project in the main scenario. The growing size of inheritances compared with other sources of income means that the redistribution of inheritance income has a greater equalising effect for later-born cohorts. The substantive effects are on levels of consumption at older ages, after inheritances are received.[19] The largest effects are on the 90:10 ratio because these households are more likely to receive very large or very small inheritances, in the absence of redistribution, and so are more affected by the equalisation at the mean level.

Figure 4.13. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without equalising at mean inheritance (1960s-born)

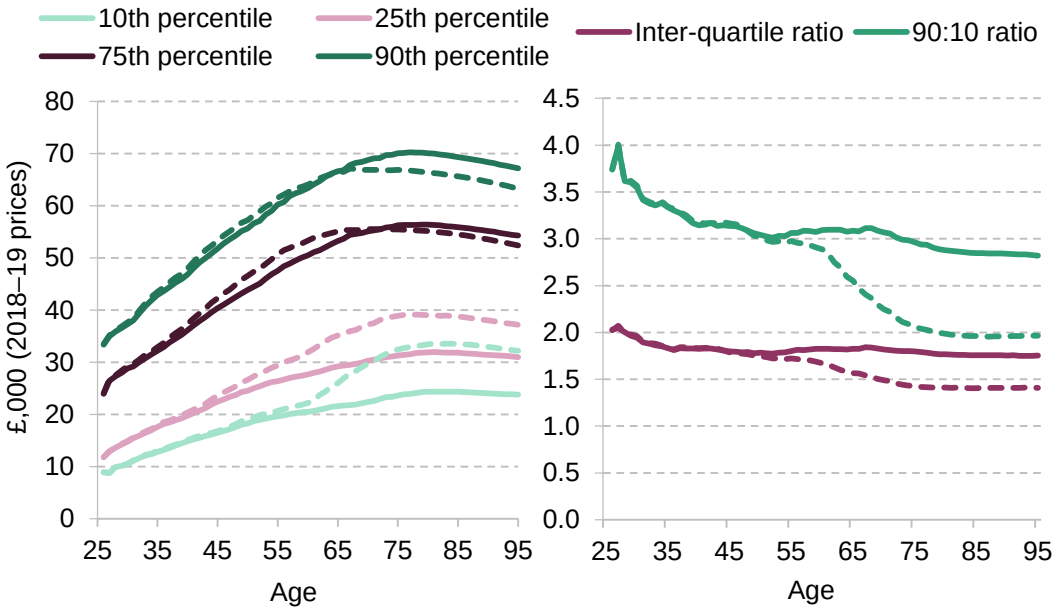


Note: Dashed lines indicate equalisation at median inheritance.

Source: Model simulations

[19] We note that the 75th and 90th percentiles of consumption actually rise slightly at younger ages in both cohorts, even though inheritances have, on average, been reduced for higher-income households. This is because the equalisation of inheritances at a given level eliminates any uncertainty over the inheritance amount and, as discussed earlier in this chapter, uncertainty is one major factor holding households back from anticipatory spending of their inheritance.

Figure 4.14. Selected percentiles (left) and inequality measures (right) for equivalised household consumption, with and without equalising at mean inheritance (1980s-born)



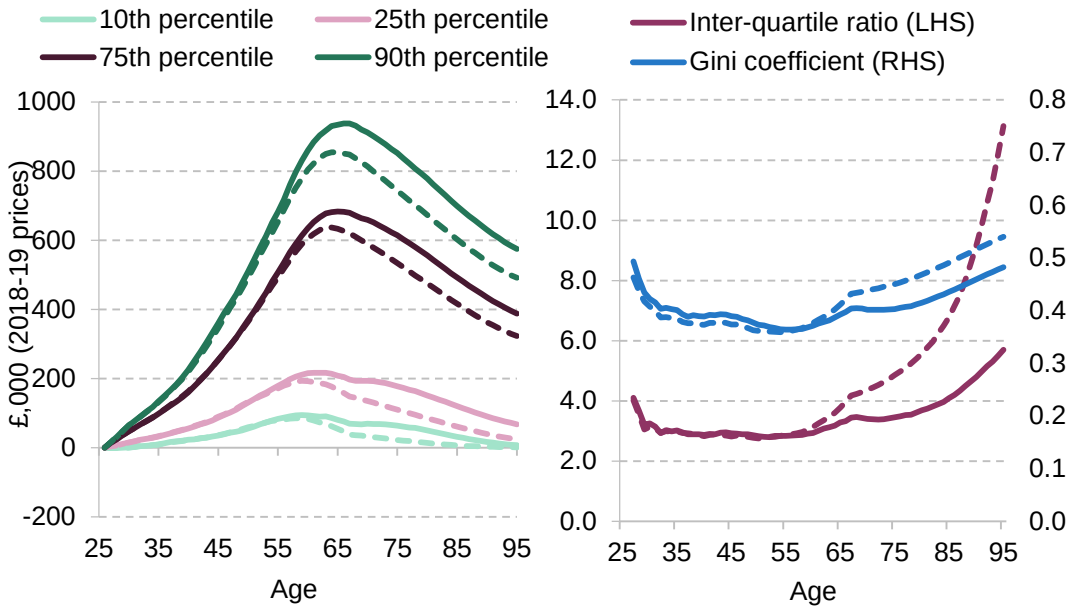
Note: Dashed lines indicate equalisation at median inheritance.

Source: Model simulations

Implications for wealth inequality

We now examine the predicted implications of inheritances for wealth inequality. Figures 4.15 and 4.16 show selected points of the distribution of wealth across the life cycle for the 1960s and 1980s cohorts, under our main scenario with inheritances and counterfactual without inheritances. At each age, the total effect of inheritances on wealth can be thought of as the sum of two factors: the direct effect of inheritances received by that age (and the returns to these if saved) and the indirect effect of the change in behaviour induced by the expectation and receipt of inheritances. Across the distribution, the effect of inheritances before around age 40 is too small to be seen but it does decrease the 10th, 25th and 75th percentiles. This suggests that anticipatory effects dominate at these ages. At older ages, once the bulk of inheritances are received, wealth is substantially higher as a result of inheritances.

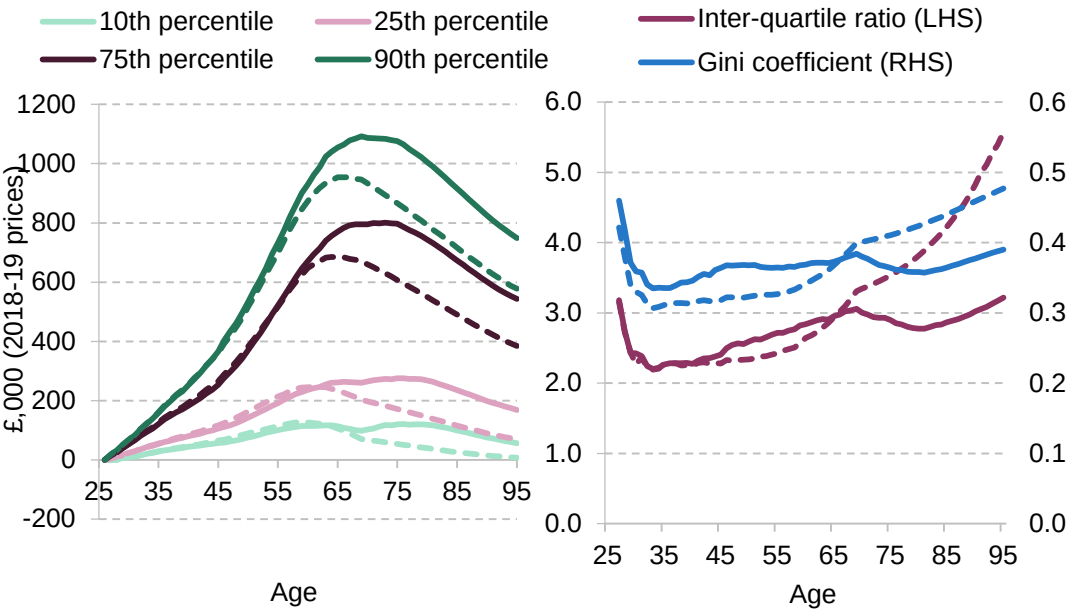
Figure 4.15. Selected percentiles (left) and inequality measures (right) for household wealth, with and without inheritances (1960s-born)



Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

Figure 4.16. Selected percentiles (left) and inequality measures (right) for household wealth, with and without inheritances (1980s-born)



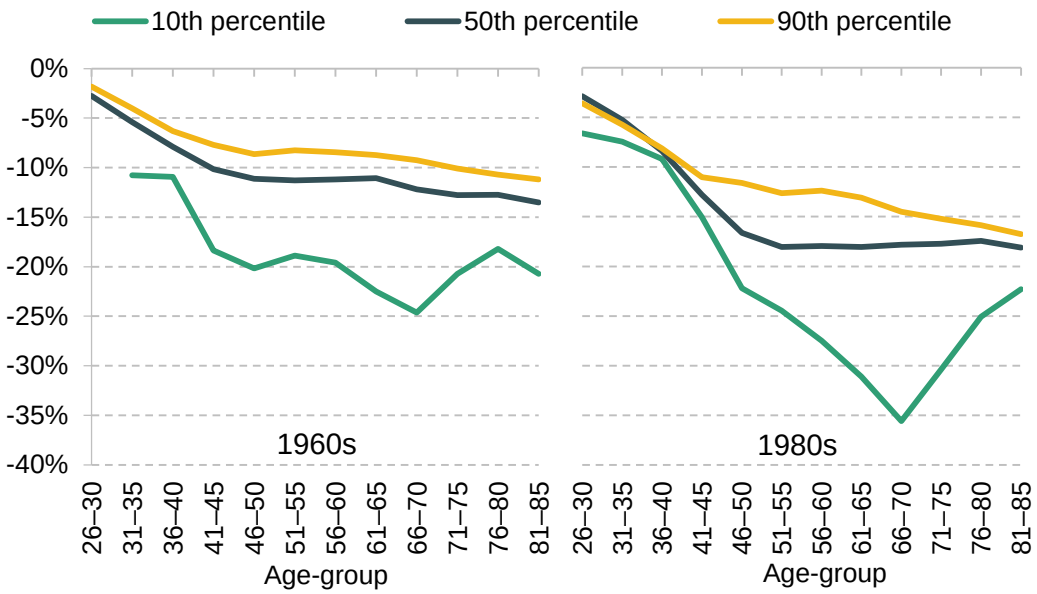
Note: Dashed lines indicate a no-inheritance scenario.

Source: Model simulations

The effects on wealth inequality that we project are shown in the right panels of Figures 4.15 and 4.16. We show the inter-quartile ratio and Gini coefficient, the latter being a commonly used measure of wealth inequality. We do not show the 90:10 ratio as the 10th percentile of wealth is very low or negative at a number of ages, making that measure difficult to interpret. We see similar qualitative patterns across measures and across decades of birth. Inheritances slightly increase wealth inequality at younger ages before slightly decreasing it at older ages, after most inheritances are received.

What is driving these inequality patterns? The effects of inheritances on wealth levels early in life are larger in absolute terms for those higher up the distribution. This is the result of the larger anticipatory consumption response to inheritances that we saw for households with higher lifetime income, who are also the households that tend to be higher up in the wealth distribution. But while these anticipatory effects, where households save less in order to consume, and so build up less wealth, are larger in *absolute* terms further up the distribution – and indeed larger as a percentage of the inheritance received – they are smaller *as a percentage of wealth* than the effects further down the wealth distribution. This is shown clearly in Figure 4.17, which isolates the anticipatory effect of inheritances on wealth by calculating wealth levels in a case where no inheritances were expected. The figure shows that the anticipatory effects are larger in percentage of wealth terms at lower points of the wealth distribution. At ages 41–45, the 10th percentile of wealth is 18% lower as a result of the anticipation of inheritances. This compares to a reduction of 10% at the median and 8% for the 90th percentile.

Figure 4.17. Percentage change in wealth due to the 'anticipation' effect of inheritances, for selected percentiles of household wealth, for 1960s-born (left) and 1980s-born (right)



Note: The anticipation effect is calculated by running a version of the model in which households do not expect to receive inheritances but then do in fact receive them in the same way as in the main scenario. The percentage difference between wealth as simulated in the main scenario and wealth in this additional 'no anticipation' scenario is the anticipation effect shown here. Note that age 26–30 is not shown for the 1960s cohort as very low wealth levels drive a spurious large percentage change.

Source: Model simulations

Why is the percentage decrease in wealth due to anticipation larger for low-wealth households even though we saw that the anticipatory *consumption* response to inheritances was smaller in *percentage* terms for households with lower lifetime income? This is because households with lower lifetime income tend to have much lower wealth *compared with their income* (and consumption) than households with high lifetime income. This is a well-documented empirical phenomenon (Dynan, Skinner and Zeldes, 2004) that also holds in our model.[20] This means that inheritances are able to increase both consumption and wealth inequality at the

[20] Households with higher lifetime income are generally found to hold higher levels of wealth compared with their lifetime incomes because of a combination of a greater need to save in order to smooth consumption into retirement due to progressive public pension systems, and a higher need to self-insure in working life due to progressive social security systems. A further reason is that bequests are often found to be luxury goods. All these dynamics are present in our model.

same time. These effects then reverse at older ages, when inheritances are received. These inheritances are much larger compared with the other wealth that lower-wealth household have at older ages (where the anticipatory behaviour effects now compound the other reasons for wealth being lower compared with lifetime income for households with low lifetime income).

A significant amount of previous research has examined the contribution of past inheritances to current wealth inequality in the UK (Crawford and Hood, 2016; Karagiannaki, 2017; Nolan et al., 2020). In crude terms, these investigations have compared inheritances reported as received over some fixed period (indexed with inflation or an assumed rate of return) with wealth held at the end of that period. The effect of inheritances on wealth inequality is assessed by computing measures of inequality with and without subtracting the present value of inheritances received. This would be equivalent to our method of assessing the effect of inheritances on inequality only in the case where households did not change their behaviour as a result of expecting to receive and receiving an inheritance. Our analysis suggests that behavioural effects could have a substantive impact on levels of wealth held, and that these anticipatory effects differ across the distribution of lifetime income and therefore wealth. As these anticipatory effects are larger for the lower parts of the distribution, this suggests that an analysis of wealth inequality that does not account for them will tend to overstate how much inheritances reduce wealth inequality (or understate how they increase it).

Implications for inequality in lifetime consumption, equality of opportunity and social mobility

We combine the effects of inheritances at different ages (weighting by the probability that individuals survive to each older age) to calculate the effect on the distribution of lifetime equivalised consumption. The effects are small (see Table 4.1): inequality in lifetime consumption as measured by the Gini coefficient is decreased by 2.7% for the 1960s cohort, falling to 2.4% for the 1980s cohort. The main finding is that we do not expect inheritances to have a substantial effect on overall lifetime consumption inequality in any of these cohorts. Arguably though, it is not so much overall inequality of this kind that is of most interest or concern when it comes to inheritances – rather it is social mobility or, loosely, inequality by family background.

Table 4.1. Effect of inheritances on lifetime equivalised consumption inequality

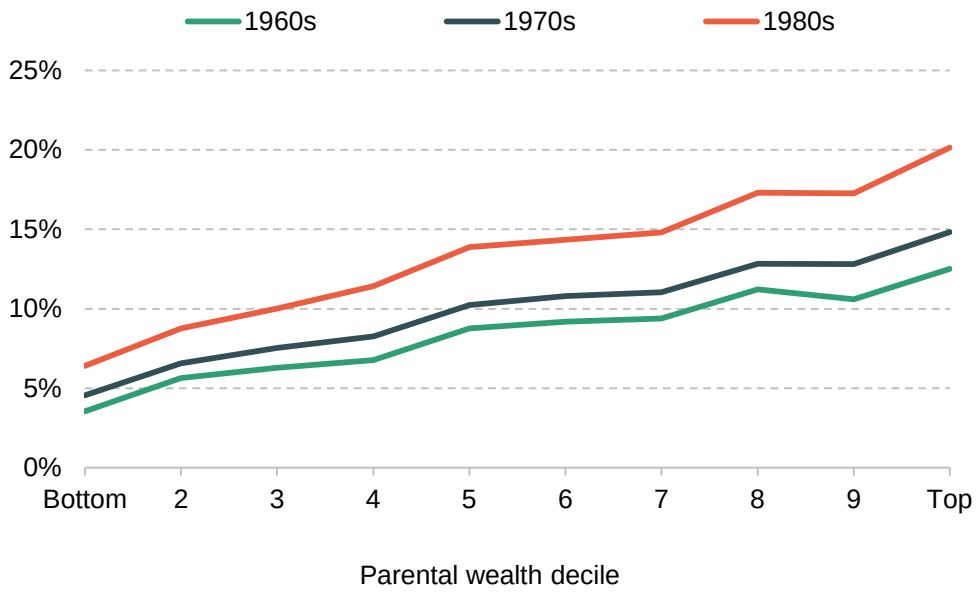
Decade of birth	Gini coefficient		Difference	% change
	No inheritance	Yes inheritance		
1960s	0.253	0.247	–0.007	–2.7
1970s	0.249	0.243	–0.006	–2.6
1980s	0.235	0.229	–0.006	–2.4

Source: Model simulations

The growing size of inheritances means that there is the potential for them to increase inequalities by parental background even if they do not increase inequality overall. Inequalities by parental background are often cited as those particularly worthy of attention or concern (Corack, 2013). One way of seeing the growing effect of inheritances in this dimension is to look at the percentage increase in lifetime consumption as a result of inheritances, for households with different levels of parental wealth. In Figure 4.18, we assign households to deciles according to the level of their parents' wealth when they are aged 26. We then show the percentage increase in average equivalised lifetime consumption that results from inheritances for each decile.

For the 1960s cohort, we project that inheritances will increase lifetime consumption by 4% for those with parents in the least wealthy tenth, compared to 13% for those with parents in the wealthiest tenth. This differential effect becomes bigger for later-born cohorts. For those born in the 1980s, inheritances increase lifetime consumption by 6% for those with parents in the bottom tenth and increase lifetime consumption by 20% for those with parents in the wealthiest tenth.

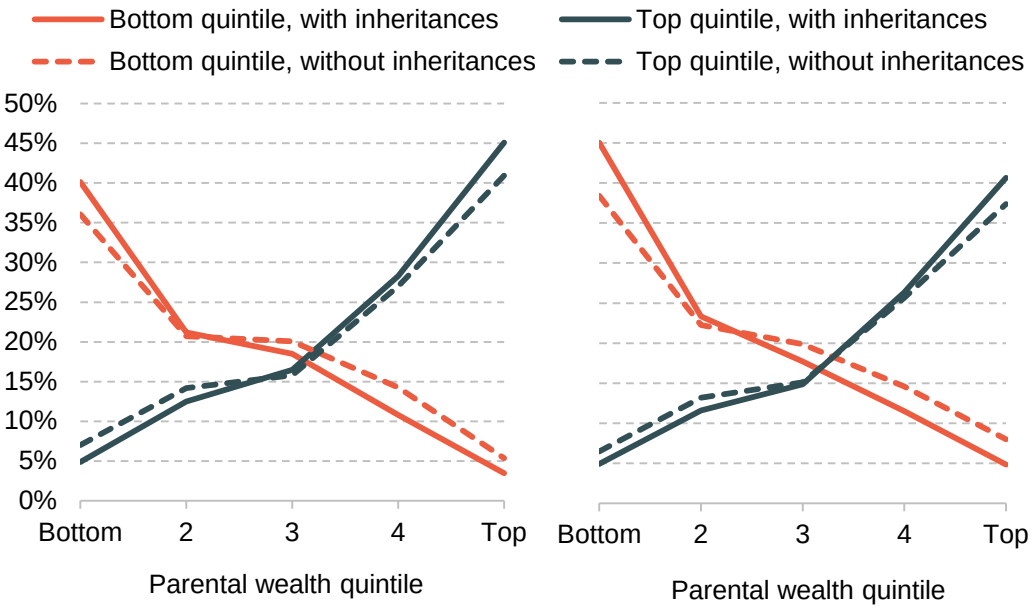
Figure 4.18. Percentage increase in mean equivalised household consumption due to inheritances, by parental wealth decile and decade of birth



Source: Model simulations

In Figure 4.19, we show the proportion of households that have parents in different parts of the wealth distribution who themselves end up in either the top or bottom quintiles of the lifetime equivalised consumption distribution. We compare these outcomes for the scenarios with and without inheritances to gauge the effect of inheritances on these measures of upwards and downwards social mobility. Analogous to the case of incomes, examined in Chapter 2, we estimate that inheritances (or lack thereof) are set to play a growing role in making the living standards of those with low-wealth parents more closely determined by that parental background. For those born in the 1960s with parents in the lowest fifth by wealth, we project that 36% would themselves be in the bottom lifetime equivalised consumption quintile without inheritances, but the addition of inheritances increases this to 40%. The difference in these proportions is even greater for those born in the 1980s, rising from 38% to 45%.

Figure 4.19. Probability of ending up in bottom or top quintiles of lifetime equivalised household consumption, with and without inheritances, by parental wealth quintile for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

A way of seeing concretely how parental wealth background is set to become a more important driver of differences between people is to decompose inequality into a component measuring inequality within groups of people who have parents with the same level of wealth and that between groups of people with different levels of parental wealth. We can examine how much of inequality is accounted for by this *between* parental wealth groups component versus that within *parental* wealth groups. Lee and Seshadri (2019) suggest that the extent to which inequality is driven by differences between individuals with different 'background characteristics' (of which parental background can be seen as one), as opposed to differences between individuals with similar background characteristics, is a measure of the degree of inequality of opportunity. We can also ask what contribution inheritances make to the share of inequality that is between parental wealth groups, and how this is set to change across cohorts. This can be interpreted as a measure of the contribution of inheritances to inequality in opportunity by parental background and how this may be expected to change across cohorts.

Table 4.2 shows the results of such an analysis for the Theil index of inequality, which is used because it can be decomposed in the way required. This shows that

the share of inequality in lifetime consumption that is *between* parental wealth deciles is 16% for the 1960s cohort when there are no inheritances and rises to 22% as a result of including inheritances. This means that 6 percentage points, or 24% of the within-group share can be attributed to the effect of inheritances. This effect grows as inheritances become a more important part of lifetime income. For the 1980s cohort, inheritances are responsible for 8 percentage points, or 33% of the within-group share of inequality. We can describe this as meaning that inheritances are projected to grow from accounting for about a quarter of inequality in living standards by parental background for those born in the 1960s to accounting for about a third of inequality of living standards by parental background for those born in the 1980s.

Table 4.2. Effect of inheritances on the between versus within parental-wealth-decile share of inequality

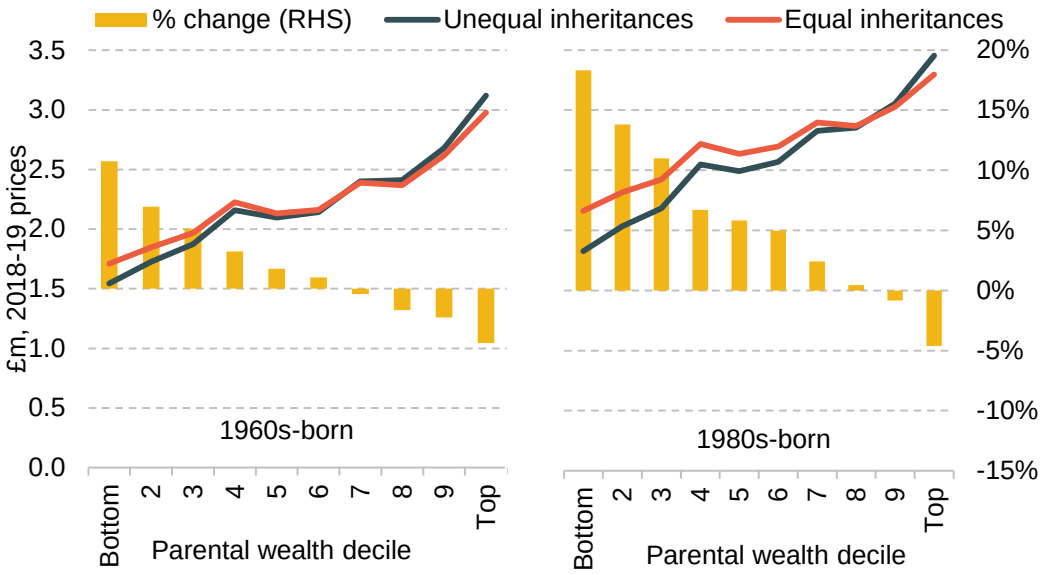
Decade of birth	No inheritances			Inheritances			Inheritance contribution
	Btwn	Wthn	Btwn share	Btwn	Wthn	Btwn share	
1960s	0.084	0.016	16%	0.074	0.020	22%	24%
1970s	0.082	0.015	15%	0.073	0.019	21%	27%
1980s	0.074	0.012	14%	0.065	0.018	22%	33%

Source: Model simulations

This growing role for inheritances in driving inequalities in living standards by parental background would also mean that any policies that substantially redistributed inheritances would play a larger role in increasing social mobility (as measured by the association of living standards with parental wealth background) amongst later-born cohorts. Figure 4.20 demonstrates this by showing average lifetime consumption by parental wealth decile under two scenarios: our baseline simulation with inheritances as projected, and another in which inheritances are equalised at their mean value. We see that the difference between these two scenarios is larger for the 1980s-born generation than for the 1960s-born generation. For those born in the 1960s, those with the wealthiest tenth of parents are projected to have lifetime consumption twice as high as those with parents in

the least wealthy tenth. Equalising inheritances at their median increases lifetime consumption of the bottom tenth by over 10% and decreases it for the top tenth by just under 5%, and consequently reduces the gap between the two by just over a quarter. For those born in the 1980s, equalising inheritances at their mean value is projected to increase lifetime consumption for the bottom tenth by 18% and decrease it by just under 5% for the top tenth. This reduces the same gap in lifetime consumption between those with the richest and poorest parents by over 40%.

Figure 4.20. Mean lifetime equivalised household consumption, by parental wealth decile, with and without equalising inheritances at their mean value, for 1960s-born (left) and 1980s-born (right)



Source: Model simulations

5. Conclusion

Recent increases in wealth among older generations, combined with sluggish working-income growth over an extended period, mean that the growing magnitude of inheritances – not just in absolute terms but in proportion to young people's other economic resources – is set to continue.

Our work supports previous research suggesting that the implications of inheritance for standard measures of inequality between rich and poor are, perhaps counterintuitively, small. But the implications for what is happening to inequality between people from different family backgrounds – that is, loosely, social mobility – are much starker. This is a profound social and economic change over a relatively short period of time. People's own earnings are, proportionally, becoming a less important determinant of their lifetime living standards. About 90% of people born in the 1980s will inherit a fraction of their lifetime earnings that only half of people born 20 years earlier inherited. Inheritances are large enough to be having significant consequences for other economic phenomena; we estimate, for example, that the accumulated savings of those born in the 1980s may be around 9% lower at the age of 45 due to the fact that they have saved less in anticipation of future inheritance.

Our new research suggests that, in order to understand properly the effects of inheritance on living standards over the life cycle, it is important to make a serious attempt to understand how people's economic behaviour is affected by inheritances – not just after they are received, but in advance of that as well. A significant fraction of inheritances are effectively spent before they are received (through lower saving or increased borrowing) in anticipation of their arrival – and it is higher-income households who are best able to do this, in part because they are less constrained by an inability to borrow early in life, and instead can draw on existing wealth to finance higher consumption in anticipation of a future inheritance. In this sense, it really is those with both high incomes themselves *and* wealthy parents who are best able to take advantage of inheritances. These findings are also important for the wider research literature on the relationship between wealth and inheritances; one will not generally capture the full benefit of a past inheritance by observing a

household's wealth because, for many, some of the benefits of the inheritance have already been realised through higher spending.

Overall, the findings of this report add further weight to the realisation that growing wealth-to-income ratios are a key – and, in some ways, worrying – phenomenon in modern Britain, with far-reaching economic and social consequences. They will require a careful and broad policy response.

While inheritance tax is a minor part of the UK tax system (for example, only 1-in-25 deaths resulted in inheritance tax being paid in 2017–18), it is in need of reform. The reliefs and exemptions built into the system create distortions and opportunities for avoidance and lead to inequities between those who are able to plan their estate in a tax-efficient way and those who are not. These problems may become only starker as inheritances grow in significance. Removing or reducing the reliefs for agricultural land, business assets and pension pots would be a good start. Relatedly, the capital gains uplift that happens at death (whereby inheritors of an asset are deemed to have acquired it at its value at death, rather than its purchase price) is another distortion that would best be eliminated.

More radical reforms of inheritance tax are more controversial, and the right way forward here depends on more than just economic arguments. Some have argued that if inheritances are taxed in order to reduce 'inequalities of opportunity', then the tax should be levied on the recipient and depend on the total gifts and inheritances they receive over their lifetime. This would reduce the scope to avoid tax by making transfers earlier in life. Others see inheritance taxation as double taxation in the cases when bequests were funded by earnings that were taxed earlier in life, and argue for it to be abolished altogether.

Improving the outlook for earnings growth, particularly for younger people, is of course a main aim of the government for a host of reasons. Making recommendations here is beyond our scope, but we note that while earnings growth remains poor – and asset prices remain high – parental resources will be of great importance in determining living standards. Policies that improve the outlook for the earnings of young people will therefore not only benefit them through the direct channel of raising incomes but could make an important contribution to improving social mobility too.

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Appendix

This appendix contains a comprehensive but non-formal description of the modelling of household incomes, inheritances and household decisions in the life-cycle model. Readers seeking a formal statement of each of these should consult the technical modelling appendix available on the IFS website.

A.1. Appendix material from Chapter 2: projecting the joint distribution of inheritances and lifetime incomes

Projecting household incomes

To project the distribution of household incomes, we use data from the Family Expenditure Survey (FES) and its successor surveys, the Expenditure and Food Survey and the Living Costs and Food Survey,[21] covering the years 1978–2018, and the UK Household Longitudinal Study (UKHLS) from the years 1991 to 2018. Our method is based on techniques from the economic modelling of household earnings and income processes and consists of the following steps.

- **Estimating average household earnings**. We estimate age profiles of average household earnings and employment rates for each of our three education groups in each of our three cohorts using the FES. As our three cohorts are still of working age, we include data from earlier cohorts in order to estimate an age profile for ages up until the late 1960s. The key assumption that we make here is that the change in earnings with age follows the same pattern with age as it has done for earlier cohorts.[22] This allows us to extrapolate the earnings of younger cohorts out into the future, given their earnings levels to date.

[21] We refer to this collection of surveys as the 'FES' for ease of exposition.

[22] As discussed further in this appendix, we assume higher employment rates at older ages for younger cohorts than for their predecessors, in line with the trend of longer working at older ages. It is the change in earnings with age conditional on employment that is assumed to be the same across cohorts.

- **Estimating the full distribution of household earnings over the life cycle**. In order to estimate (1) the full distribution of earnings outcomes around the average level estimated in the first step, and (2) how individual households tend to move up and down the earnings distribution over time, we estimate an earnings process using the method of Arellano, Blundell and Bonhomme (2017) and the profiles from the first step as an input. To estimate this model, we use data on household earnings for the UKHLS. The appendix presents evidence that this model does a good job of recreating the patterns seen in the data.
- **Going from gross household earning to net household income**. In a final step, we first estimate the state pension entitlements of households given their history of earnings.[23] This gives us households' pre-tax income at each age (we consider in later subsections how this changes if households build up and draw down savings). We can then calculate households' net income at each age by applying a tax and benefit system to their earnings and state pension entitlements.[24]

Projecting inheritances

In order to project distributions of inheritances that have been, and will be, received by those born in the 1960s, 1970s and 1980s, we use data on the wealth holdings of the parents of those generations from the English Longitudinal Study of Ageing (ELSA). As ELSA contains information about the year of birth of children of the sample members, we can use ELSA as a dataset at the 'child' level (see Bourquin et al., 2020, for further details). We assign a level of education to each 'child' observation in the ELSA dataset using a method described below. Our approach is as follows.

[23] Our model is of household earnings but the state pension system is essentially one of entitlements based on individuals' earnings histories. We therefore estimate a function that captures the state pension system for these cohorts as a function of household earnings. To do this, we simulate our household earnings process 10,000 times, and assume a split of household earnings into individual earnings (based on the average share of household earnings going to the first earner in two-earner couples as recorded in the FES). We then use a state pension calculator to calculate the total household state pension entitlements that would be accrued under the past and current state pension systems, assuming that in future years the state pension is uprated with the growth in average earnings. Using the household earnings histories and state pension entitlements, we estimate a state pension function that is a linear function of household's pre-retirement earnings, allowing this function to vary by each cohort and education group.

[24] As the UK tax and benefit system is a complex function of households' income sources and characteristics, we estimate a simplified function to capture this system using households' reported gross and net incomes from the FES, following the method of Heathcote, Storesletten and Violante (2014).

- **Estimating average parental wealth**. We first estimate age profiles for parental wealth for each of our cohort and education groups. In the estimation, we also include data from earlier cohorts, where we can observe parental wealth at the oldest ages. The assumption that we make is that the *rate* at which wealth is drawn down at older ages is the same for given education groups across cohorts, though levels of wealth will of course differ between these groups.[25]
- **Estimating the full distribution of parental wealth over the life cycle**. In a next step, as with earnings, we simulate the full distribution of parental wealth and model its evolution over time at the level of individual households. To do so, we estimate a parental wealth process in an analogous manner to that for earnings, using the estimates from the previous step as an input. In short, this process captures the probability that a parental household that is at a certain part of the distribution of wealth will be at a different point of the distribution in future years.
- The estimated parental wealth process allows us to project forwards the distribution of parental wealth to all future ages of parental households for our cohorts. The final step in creating an inheritance distribution is to combine our projections of parental wealth with estimated probabilities of the timing of parents' death and to give a distribution of bequests, following the method used in Bourquin et al. (2020). In a final step, we apply the inheritance tax system to bequeathed wealth and divide the post-tax estate by the number of heirs, to yield the projected inheritances.[26]

Linking the distributions of lifetime income and inheritances

In this step, we use the following two sources of data.

1. **The distribution of education levels within couples, from the FES**. Specifically, we use these data to calculate for an individual in each of our

[25] This approach does allow for changing decumulation of wealth across cohorts in so far as this can be captured by the changing educational composition across cohorts. This might be thought to be relevant due to increasing life expectancy at older ages amongst later-born cohorts of parents. In practice, decumulation of wealth at older ages is found to be slow, and systematic cross-cohort differences in decumulation rates are small. Further discussion of these and related issues can be found in Bourquin et al. (2020).

[26] We assume a number of heirs equal to the average number of children for parents of those in each cohort and education group, as reported in ELSA.

cohorts and with each level of education, the proportion that are in a household where the highest level of education (i.e. the highest of their level of education or that of their partner, if they have one) is low-educated, mid-educated or high-educated. Table A.1 shows the distribution for each birth cohort. Individuals are highly likely to be in a household where the highest level of education is the same as their own.

Table A.1. Distribution of household education levels by individual education level and decade of birth

Individual birth decade and education level		Education level of highest-educated household member		
		Low-educated	Mid-educated	High-educated
1960s	Low	80%	15%	6%
	Mid	n/a	85%	15%
	High	n/a	n/a	100%
1970s	Low	76%	14%	10%
	Mid	n/a	81%	19%
	High	n/a	n/a	100%
1980s	Low	78%	11%	10%
	Mid	n/a	80%	20%
	High	n/a	n/a	100%

Note: Education of individuals is defined by the age at which they completed full-time education. Low/mid/high-educated are defined by an age of completion of up to 16/17–18/19 or older. Education level of a household is defined as the higher level of education of members of a couple. The sample includes all individuals and couples with an age (or average age for couples) of 26 or older.

Source: FES, 1978–2018.

2. **Intergenerationally linked data on parents' wealth and their child's level of education and earnings, from the UKHLS**. The UKHLS contains measurements of housing wealth in all waves and periodic measurements of financial wealth and debts. The design of the UKHLS is such that sample members, including the children of those recruited to the UKHLS, continue to be followed if they move to a new household. We can therefore observe the education level and earnings in adulthood of a sample of young adults (who were in surveyed households as children) in a dataset that also contains measurement of their parents' wealth.

We use the sources of data described above, together with our household income and parental wealth processes, to link the distributions of household incomes and inheritances in the following series of steps.

- **For each decade of birth and education level, use the UKHLS to obtain the distribution of individuals across percentiles of the parental wealth distribution**. Specifically, we split parental households into 100 percentiles and, for each education level in each cohort, we obtain the percentage of individuals whose parents belong to each parental wealth percentile.
- **Assign a level of education to each 'child' in the ELSA dataset**. For each cohort of 'children' in ELSA, we assign these 'children' a level of education using the estimates from the UKHLS and the percentile of the ELSA parental wealth distribution to which their parents belong.
- **Assign a household education level to each 'child' in the ELSA dataset**. Using the estimates from the FES shown in Table A.1, we randomly assign individuals to household levels of education given their own level of education assigned in the second step and the implied distribution of household education level. This assignment of individuals to household levels of education allows us to estimate a parental wealth process for each cohort and education group.
- **Obtain the distribution of parental wealth levels by level of initial earnings and education level of the household**. The final step is to again use the UKHLS to estimate the distribution of parental wealth levels for households with different levels of earnings. In essence, we assign individuals to parts of the earnings distribution within their education group and cohort. We then calculate the proportion of parents in each part of the parental wealth distribution.

The first three steps link the distribution of parental wealth to household education within each cohort. The final step gives the link between household earnings and parental wealth, within each education group in each cohort. As our inheritance and household earnings processes project forward given the household's level of education and the initial levels of their earnings and parental wealth, this means we have linked together the distribution of household incomes and inheritances.

Key assumptions

To complete the description of our method, we note some key assumptions made in the process of linking the inheritance and household income distributions.

- We assume that the relationship between an individual's position in the earnings distribution (conditional on their education level and cohort) and their parents' position in the wealth distribution is the same as the relationship between household earnings and parental wealth.
- Households that are couples are assumed to receive an inheritance from two parental households. Our method assumes that **correlation in parental wealth level between two members of a couple is driven only by correlation in their levels of education and the fact that they share the same level of household earnings**. This can be described as no 'assortative mating' on parental wealth, conditional on individual education and household earnings.
- The relationship between a household's lifetime earnings and their parents' wealth and inheritance is captured through the household's education level and the levels of household earnings and parental wealth when the household is in early adulthood. This means that we assume that changes in earnings and parental wealth are not correlated in the way they subsequently evolve, beyond that predicted by their initial levels and the household's education level. This would rule out parents and children being likely to be hit by the same economic shocks (for example, they may live in the same area and so the household's earnings and the level of their parents' wealth will both be affected by local economic conditions) or parents and children having some underlying driver of the evolution of their earnings or wealth – such as good or bad health – which is correlated across generations and has not shown its full impact by the time the 'child' is in early adulthood. We also rule out parents deciding to leave larger or smaller inheritances to their children because of the level of income they have or the households choosing to work more or less because of the inheritance they anticipate. We discuss this final assumption further in Chapter 3.

These assumptions are each necessary because there are no data available that could guide an alternative assumption, or because modelling their implications would be prohibitively complex.

A.2. Appendix material from Chapter 3: reduced-form evidence

In the following, we set out the reduced-form analysis of the past receipt of inheritances that both motivates our life-cycle model analysis and is used to validate the predictions of the model. The results of this analysis can be found in Chapter 3. Our aim is to examine the short-run effect of receiving an inheritance on household consumption, wealth and labour supply. We implement an event-study type research design where we exploit variation in the timing of the receipt of inheritances, conditional on covariates, to identify the effect of inheritance receipt.

We draw on two datasets. The first is the Wealth and Assets Survey (WAS), a biennial panel survey by the UK Office for National Statistics that has run over two-year periods from 2006–08 onwards. This survey elicits information about individuals' and households' levels of wealth and earnings. In each wave from the second wave of the data onwards, WAS asks individuals if they have received an inheritance over the past two years. The second dataset is the ELSA, which is a household panel study that collects information on a representative sample of individuals living in England and aged 50 and above. There are nine waves, conducted biennially from 2002–03 to 2018–19. Importantly, ELSA collects detailed information about individuals' and households' levels of consumption, wealth and earnings.[27] In each wave, ELSA asks individuals if they have received an inheritance over the past two years and, if so, the value of the inheritance that they received.

We use ELSA only to investigate the short-run effect of receiving an inheritance on household consumption and we pool the two datasets when investigating the effect on wealth and labour supply. This is because WAS does not collect information on

[27] Consumption in ELSA covers a number of categories including food expenditure, leisure expenditure, clothing expenditure and housing expenditure.

consumption and we prefer to use the maximum sample size possible for the other outcomes to increase the precision of our estimates.

We treat the reporting of the receipt of an inheritance over the previous two years as an event. The sample we use is all observations of individuals or couples where both members are aged between 25 and 74. We exclude individuals or couples who have inherited multiple times over the observed period or those who have no living parents. For each household, we can construct a series of indicator variables for whether they reported receiving an inheritance at a certain number of leads or lags. The outcomes that we examine are total household consumption (includes food, housing, clothes, transfers, leisure, transport and fuel spending), total household earnings, household labour supply (measured as an indicator for at least one person being in work) and wealth (the sum of net housing wealth, household private pension wealth and household net financial assets).

The relationship that we estimate is set out in the following equation:

$$y_{i,t} = \sum_{\tau=-3}^{\tau=+3} \beta_\tau I_{i,t-\tau} + \gamma_i + X_{i,t} + \epsilon_{it}.$$

Our outcome is denoted $y_{i,t}$. The variables of the form $I_{i,t-\tau}$ are a series of indicator variables for having received an inheritance τ periods ago. Our coefficients of interest are β_τ, the effect of receiving an inheritance τ waves ago. We exclude the first lead (i.e. β_{-1} is set to zero) such that the interpretation is the effect of inheritance receipt relative to the period before receipt. We include a vector of controls $X_{i,t}$ consisting of time-variant characteristics of households such as interview date and wave observed indicators, age (average age for couples) in 10-year categories, age, age squared and (where applicable) partner's age and partner's age squared. We also include household-level fixed effects γ_i, which control for all time-invariant characteristics of households, including for example, whether a household has ever reported an inheritance. In this sense, our set-up is non-standard because we include households that have never received an inheritance. We do this because of the gain in precision in our estimates, given the modest sample of households that receive an inheritance. Clearly, the inclusion of these households has the potential to bias our results if there is a different relationship between our outcomes and the control variables amongst those who do not inherit compared with those who do inherit. These covariates are systematically correlated with both inheritance receipt and our outcomes of interest within the inheriting group. Finally,

ϵ_{it} is the idiosyncratic error term. We cluster standard errors at the household level and weight observations using the given sample weights.

A.3. Appendix material from Chapter 4: the role of credit constraints and uncertainty in the life-cycle model

Here, we set out the analysis of the role of credit constraints and uncertainty in inheritance receipt in driving the levels of anticipatory increases in consumption seen overall and for households with different levels of lifetime income.

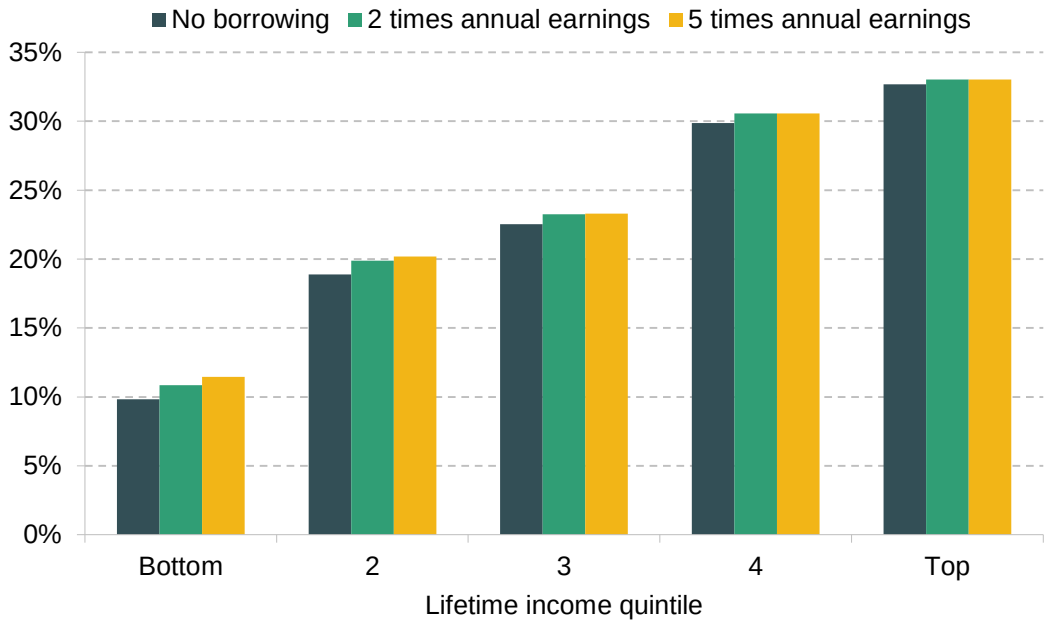
One possible explanation for the differential response to anticipated inheritances at different points of the distribution of lifetime income and consumption is that the limits to borrowing that households face are more of a constraint further down these distributions. This could because the borrowing constraints that we impose are defined as a multiple of average earnings and so are more restrictive for lower-earnings households. Even if they face similar limits to what they could borrow, these limits might be more consequential for poorer households than for those with higher lifetime income. This is because households with higher lifetime income need to accumulate wealth to smooth their consumption into retirement (as the state pension gives them only a low replacement of their earnings), and so their response to an expected inheritance might be to save less rather than to actively borrow. Households with lower lifetime income are less likely to need to accumulate wealth to smooth their consumption and so are not able to cut back on savings in the same way in response to an inheritance.

Figure A.1 illustrates the effects that borrowing limits have on the amount of their inheritance that households choose to spend in advance, for the 1980s cohort. We do this by showing our estimate of how much of their inheritance households would spend in advance if they were not able to borrow at all, or able to borrow up to five times annual average earnings for their type of household, rather than being able to borrow up to twice annual earnings as we assume in our main scenario.[28] Increasing

[28] Note that this limit on borrowing is a limit on the *net* debt that households can take on. We find that in the WAS only around 5% of households that are in net debt have net debt exceeding twice their earnings.

this borrowing limit from zero to five times annual average earnings leads households in the bottom fifth by income to spend 12% of their inheritance in advance, rather than 10%. There is very little effect of borrowing constraints for those in the highest income quintiles, as shown by the small differences between these scenarios.

Figure A.1. Percentage of the additional consumption due to inheritances that takes place before inheritance receipt, by decade of birth and lifetime income quintile, for different borrowing constraints



Note: Both additional consumption and inheritances are expressed in present discounted value terms, using the model interest rate.

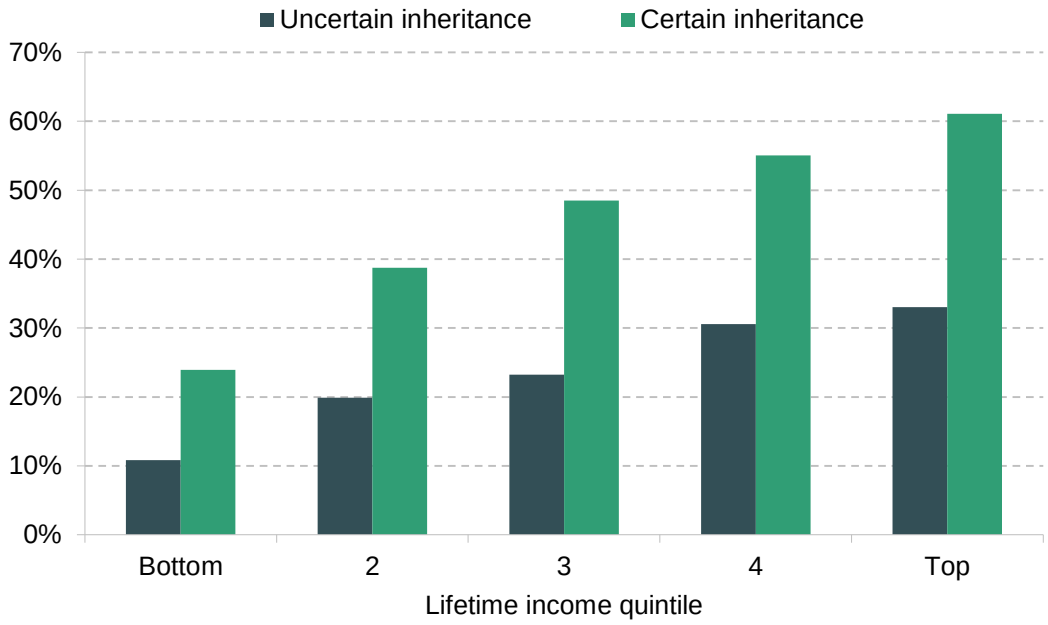
Source: Model simulations.

We now turn to a second possible explanation for the way in which inheritances feed through to consumption: inheritance amounts are uncertain before they are received and this might have differential effects across households. For example, if inheritances are more uncertain for households with lower lifetime income, or if these households would be hurt to a greater extent if they had to cut back on consumption following an unexpectedly small inheritance, then they might be less willing to spend their expected inheritance in advance. To assess this, we run a version of the model where households know how much they will inherit, and at what age they will inherit it, from the start of their lives. The value of that

inheritance is set equal to the average inheritance for someone who has the level of parental wealth that they have at the start of life.

Figure A.2 shows the effect of uncertainty on household choices. When inheritances are known in advance with certainty, this makes a large difference to consumption choices. In this scenario, households in the bottom quintile of lifetime income spend 24% of their inheritance in advance, and those in the top quintile spend 61% of their inheritance in advance. Uncertainty clearly matters for the response of households at all points of the income distribution.

Figure A.2. Percentage increase in households' average annual equivalised consumption before inheritance receipt, due to inheritances, by lifetime income quintile, and for uncertain and certain inheritances



Note: Both additional consumption and inheritances are expressed in present discounted value terms, using the model interest rate.

Source: Model simulations.