



**Inequality**

The IFS Deaton Review

# Trends in income and wealth inequalities

**Pascale Bourquin**

**Mike Brewer**

**Thomas Wernham**

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# Trends in income and wealth inequalities

Pascale Bourquin (formerly at the Institute for Fiscal Studies), Mike Brewer (Resolution Foundation; IFS) and Thomas Wernham (IFS)

## Executive summary

- This chapter brings together trends in inequalities in income, wealth and, to a limited extent, consumption in the United Kingdom, with a focus on trends until the onset of the COVID-19 pandemic.
- In the most recent years of data, the 90:50 and 50:10 ratios for household disposable income both stand at around 2. That is, household income at the 90<sup>th</sup> percentile is around double that at the median, which in turn is around double that at the 10<sup>th</sup> percentile. Unsurprisingly, disparities in household wealth are much greater, with the 90:50 ratio being around 5 (and the 50:10 ratio being almost meaningless, as households at the 10<sup>th</sup> percentile of the wealth distribution have close to £0 net wealth). On several measures, the UK has high levels of income inequality internationally, driven by the gap between the top and middle.
- The recent history of household net (i.e. post-tax and post-transfer) income inequality in the UK can be summarised in four broad episodes. In the 1960s and 1970s, incomes grew at similar rates for low-, middle- and high-income households. In the 1980s, income inequality increased substantially and across the board: the middle pulled away from the bottom, the top pulled away from the middle, and the very top pulled away from the high-income households just below them. From the early 1990s until the late 2000s financial crisis, incomes changed in a way that compressed the distribution, but not at the very top: the top 1% continued to pull further away, as they had done in the 1980s. Finally, from the late 2000s until the eve of the COVID-19 pandemic, the UK saw weak income growth across the population, but one which was evenly spread overall.
- The rise in income inequality in the 1980s was remarkably widespread, seen within people of all ages, and driven by earned and unearned sources of income. At its heart was increased inequality in both hourly wages and earnings, but, as is shown in detail in other chapters, these either peaked in the early to mid-1990s, or have risen only slightly in the near 30 years since (depending on the precise measure, and whether we look within gender or across all workers).
- A key labour market change in the past few decades has been that women's careers now look more similar to those of men. This has reduced gender inequalities (i.e. the within-household disparities in earnings), but inequality between different households in household-level earnings – a key driver of inequality in household net income – continued to rise until very recently: the 90:10 ratio in household earnings peaked only in 2012, much later than hourly wages or individual earnings. Four factors help explain this: falling hours of work among low-wage men, which has exacerbated the persistent wage gaps between low-skilled and high-skilled men; changing norms for couples to have two earners, rather than one; an increased tendency for low-wage men to live alone; and an increased tendency for high-earning individuals to be partnered with each other.

- Given these forces pushing household earnings inequality up (until recently), crucial in containing inequality in net incomes among working-age households in the 1990s and 2000s was a fall in the extent of household worklessness, and a substantial system of in-work transfers that expanded rapidly in the early 2000s (although there have been cutbacks in recent years). In 1968, income from state benefits and tax credits made up a fifth of all income of the bottom income decile (and less in all other income deciles); in 1978, this was true for the second decile too; by 1991, this was true in the third decile, and in 2008 and 2019, this was also true for the third and fourth deciles.  
An additional force acting to reduce income inequalities over the whole population has been the rising relative income of pensioner households, driven both by policy and a tendency for newer retirees to have larger pensions.
- The other force shaping inequalities in the UK is wealth. Here, the story is the dramatic change in its importance: since 1991, net household wealth has almost doubled relative to GDP (from about three and a half times as large to seven times as large). Although typical measures of relative wealth inequality show little change over that time period, the increased amount of wealth is stretching out the distance between different parts of the wealth distribution. For example, the mean wealth of the 5<sup>th</sup> decile grew by two-thirds of a typical full-time salary over the decade after 2006–08, but the mean wealth of the 9<sup>th</sup> wealth decile grew by 5.4 times, and the mean wealth of the 10<sup>th</sup> wealth decile by 8.9 times a typical full-time salary, making it ever more difficult to save one's way up the wealth distribution. As a result, the gap between someone in the 5<sup>th</sup> decile of wealth and someone at the 9<sup>th</sup> decile has grown from £299,000 to £432,000 (in 2019–20 prices) in the decade since 2006–08, or from 10 years to almost 16 years of average full-time earnings. The UK's housing market has been at the core of the rise in net household wealth, with the rise due more to capital gains more than active net saving.
- The huge growth in house prices since the mid-1990s has also upended patterns of homeownership, with today's young people far less likely to own their own homes than their parents were, and those born in the 1980s on a track that will give them lower rates of homeownership than all birth cohorts since the 1930s. Inheritances will, in time, transfer some of the wealth to today's younger cohorts, but increased longevity means that this won't happen until very late in life. Furthermore, it looks like inheritances will act to reduce social mobility, strengthening the link between the living standards of the 1980s cohort and their parents' circumstances than was the case for the 1960s cohort.
- This new intergenerational divide in wealth has come on top of generally weak growth in income in the UK since the mid-2000s. Driven by the labour market (and with sluggish productivity growth at its core), this has had much more of an impact on the most recent cohorts who would have expected to have seen rapid earnings growth in their 20s and 30s: the cohort born in the 1980s, for example, has experienced lower levels of earnings than the 1970s cohort at the same age throughout their working life so far. As a result, cohort-on-cohort improvements in the level of household disposable income – something that would have been taken for granted throughout the second half of the twentieth century – have also slowed, or stopped, for the most recent cohorts. For example, over a 25-year period beginning from the age of 25 or 30, median within-cohort income for those born in the 1940s and 1950s approximately doubled, in real terms. Those born in the 1960s saw a rise of around a half from age 25 to 50; on current trends, those born in the 1970s will see a rise of less than a quarter over 25 years. The result is a profound reversal of between-cohort differences in living standards and wealth, with those born in the 1980s or later both suffering from the

UK's poor record on productivity, and having missed out on falling or low interest rates that have caused a surge in the value of wealth that has principally accrued to those in previous generations.

- There have been key changes in many between-group differences in incomes and wealth. Of these, the most dramatic has been in how disposable income varies by age within the population at any given time. Around the 1970s, those aged over 65 were about three to four times as likely to have a low income than younger individuals; by the late 2010s, this difference had become considerably smaller. This reflects policy changes that have tilted state support towards low-income older people, but also the trend for newer retirees to have more pensions. Ethnic differences in household net income have shrunk in the last 25 years, but ethnic differences in household wealth remain extremely large. And regional differences have changed, driven in part by the UK's housing market. Measures that capture the value of housing show how the East of England and, to a lesser extent, the South West are joining the South East of England and London in pulling away from the rest of the UK. But the high costs of housing in the capital also lead London to be a very polarised region, with homeownership rates considerably below those in other regions of England and the nations of the UK.
- The considerable amount of government support means that the immediate impact of the COVID-19 pandemic on incomes was a lot more muted than it could have been, with household incomes rising at the bottom of the distribution in 2020–21. But the distributional impact of the crisis – and a hint to its long-term impact – can be seen more clearly in how household wealth changed. Unusually for an economic downturn, wealth disparities appear to have increased, driven by the enforced saving that took place when spending opportunities were curtailed, and passive gains to wealth through the unprecedented rise in asset prices. The longer-run impact will be driven by the loss of experience and opportunities for career progression that could cause long-term lower earnings for some younger workers, and by the accelerated exits from the labour market among some older workers; the disruption that many children have faced to their education may also further reduce social mobility.
- These are among the many important developments not captured by crude summary statistics such as Gini coefficients. Understanding the rich and interlocking patterns of earnings, income and wealth inequality that are hidden underneath the apparent stability of relative gaps in income and wealth between the rich and poor, and how they are affecting different generations, is essential if we are to address concerns about inequalities.

## 1. Introduction

This chapter of the IFS Deaton Review of Inequalities gives an overview of the level and trends in inequalities in income, wealth and (to a limited extent) consumption in the UK, and puts the UK's experience into the international context.

As well as providing context for the other chapters in the review, this chapter is motivated in part by the need to probe beneath the claim that the UK's inequality story has not changed much in recent decades. In the media, this story is usually told with reference to the unchanging, if high, value of the Gini coefficient for household net income, a very commonly watched and much-cited statistic in UK debates about the extent of inequality in the UK.<sup>1</sup> But this is, of course, only one summary measure of the shape of the income distribution, and household disposable income is only one of the measures of resources that we might be interested in. This chapter, therefore, looks at the following four broad issues.

- How do trends in wealth and consumption inequality – both important measures of inequalities in economic resources or well-being, although both are less well understood due to issues with data – compare with the much better known trends in income inequality?
- What changes to the shape of the income distribution – especially at the top – are hidden by an unchanging Gini coefficient?
- What has changed in the labour market or elsewhere that explains why the surge in income inequality in the 1980s came to an end?
- What are the key differences between groups in society, and especially between those in different birth cohorts?

The bulk of the analysis is an assessment of pre-pandemic inequality trends, with most of our analysis taking 2019–20 as the last data point. Although household survey data are available for the first year of the pandemic, there are questions over the quality of these data (see the references cited in Section 2). Furthermore, the shape of the income distribution in 2020–21 was so heavily affected by the various lockdowns and the government's policy response that it could be misleading to include that year in some of our longer-run analyses. In Section 8, though, we look at what is known so far about how the pandemic has affected income and wealth inequality in the UK, discussing which of the inequalities covered in the chapter are likely to be exacerbated by the pandemic (and which are not).

The rest of the chapter is organised as follows. Section 2 defines the concepts of income, consumption and wealth that are used in most of this chapter, and gives brief details of how they are measured. Much of the literature on economic inequalities the UK has been on household net income inequality. A more rounded impression of inequalities in resources can be obtained by studying the distributions of (net) income, consumption and wealth: each is interesting in its own right, and studying all three together can shed further light on the nature of inequality. However, data issues limit what can be learned from studying the distribution of consumption in the UK, and so we put much less weight on that (and relegate most of the analysis to an Appendix). Section 3 shows trends in, and international comparisons of, summary measures of inequality in

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<sup>1</sup> For examples, see Giles (2018) and Conway (2019). As shown in Figure 1, the Gini coefficient of income inequality has fluctuated between 0.332 and 0.357 since the early 1990s; as of 2019–20, it stood at 0.35.

income, consumption and wealth in the UK, and introduces the four subperiods that we use at various points during this chapter: 1968 to 1978; 1978 to 1991; 1991 to 2008; 2008 to 2019. Section 4 looks beyond summary measures of inequality to see how the shape of the income, consumption and wealth distributions changed over those four subperiods.

In the next two sections, we look at between-group inequalities. In Section 5, we look at differences between people of different ages, which we do by comparing life-cycle profiles of people from different birth cohorts (something that can tell us about intergenerational differences), and by comparing those of different ages in a given year. In this section, we also discuss briefly whether increasing household wealth might affect future inequality, although a full assessment of the links between inequality and social mobility is beyond the scope of this work. In Section 6, we examine changes in the risk that different subgroups (defined by education, ethnicity, household type, and region and nation) find themselves at the top or bottom of the distributions of income and wealth.

In Section 7, we provide an in-depth focus on how inequalities in the labour market transmit to inequalities in household income, with a particular focus on understanding what changed after the early 1990s that meant that many measures of inequality in household income stopped rising.

In Section 8, we discuss which of the inequalities covered in the chapter are likely to have been exacerbated by the COVID-19 pandemic. We conclude in Section 9.

## 2. Inequality in what?

In this section, we set out the concepts that are studied in this chapter: income, consumption and wealth. We then describe the relationship between these three, and what we gain by studying them together. We also set out some important definitional and measurement issues.

### Income, consumption and wealth

As the UK government's annual report on the income distribution says (see Department for Work and Pensions, 2022), disposable income serves a proxy for living standards, and so it is understandable that much of the focus of the literature on economic inequalities, especially in the UK, has been on household net income inequality. But a more rounded impression of inequalities in resources can be obtained by studying the distributions of (net) income, consumption and wealth (we also study wages and earnings, as key determinants of net income, in Section 7). Each is interesting in its own right, and studying all three together can shed further light on the nature of inequality.<sup>2</sup>

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<sup>2</sup> Ideally, we would analyse all three in conjunction – that is, look at the conjoint distribution of income, consumption and wealth. Unfortunately, however, there is no single UK household survey that contains information on income, consumption and wealth. ONS (2020) reports results from experimental data that statistically match information in the Living Costs and Food Survey (LCFS) and the Wealth and Assets Survey (WAS) to create a synthetic data set with income, expenditure and wealth. It finds that 7% of households in Great Britain were in the bottom fifth of the income, spending and wealth distributions, while just under 9% were in the top fifth of all three distributions. Households in the top fifth of all three distributions had eight times higher income, 145 times higher wealth and over four to five times higher spending than those who were in the bottom fifth of the distribution for all three measures. In the US, more robust research has been able to use the Panel Study of Income Dynamics (PSID), which contains data on income, wealth and consumption. Fisher et al. (2016) show that the correlation between income, consumption and wealth is high but not perfect, and has changed over time. They argue that, because the correlation in the tails of the distribution is much higher than elsewhere, inequality assessed on one dimension only is likely to understate the true level of overall economic inequality.

An economist's standard distinction would be that consumption records the actual flow of goods and services consumed in a period, income measures the ability that someone has to obtain that consumption flow, and wealth measures the ability that someone has to obtain future consumption flows.<sup>3</sup> But one could also argue that wealth is important in its own right, over and above the fact that it leads to future consumption or bequests, in the way that it affords social status or power, or confers a degree of relational advantage (see Hills et al., 2013).<sup>4</sup> Wealth is also important when thinking about the transmission of inequality across generations, as the wealth that remains upon death may be left as a bequest.

Naturally income, wealth and consumption will be correlated: for example, if an individual has low income, it will be hard for them to generate much wealth of their own. But broadly speaking, although future income and current wealth determine the future consumption possibilities of households, current levels of income and wealth do not need to be related at all to levels of consumption today.

As well as the substantive arguments that explain why one might care about one of these three concepts more than the others, there are also methodological arguments related to data quality. A long-understood phenomenon has been that those reporting the lowest incomes in household surveys do not seem to be those with the lowest living standards, and that the differences between values of income and expenditure reported by the same households are too great to be explained by consumption smoothing.<sup>5</sup> On the one hand, this might lead us to prefer to use consumption data to identify who has the lowest resources, and to track trends in this group. On the other hand, the main household survey used to estimate consumption in the UK has a low sample size, and there appears to be a growing problem of undercoverage of expenditure.<sup>6</sup> It is for this last reason in particular that we put most of the data on inequality in consumption in the Appendix: the fact that undercoverage has grown over time means that it is not clear whether the relatively modest recorded changes in consumption inequality since 1991 (shown in Figures A.40 and A.42) are genuine, or just due to an increased inability to pick up the expenditure of high-spending households.

### Data, definitions and measurement sources

No single source in the UK measures all of income, spending and wealth, so the analysis in this chapter is mainly based on data from three household surveys – the Family Resources Survey (FRS), the Family Expenditure Survey (FES) and the Wealth and Assets Survey (WAS) – and the Households Below Average Income data set (which is derived from the FRS). These are discussed in the Appendix. For international comparisons, we also draw on international data from the OECD, or the World Inequality Database (WID).

The main features of our definitions of income, consumption and wealth are as follows; see the Appendix for more details, Brewer (2019b) for a longer discussion about most of these issues, and UNECE (2011) and OECD (2013) for international best-practice guidelines.

<sup>3</sup> The classical economic argument that consumption is the more direct indicator of a household's well-being or standard of living is made in, for example, Poterba (1989), Cutler and Katz (1992) and Slesnick (1993).

<sup>4</sup> This way of thinking about wealth obviously lies behind Piketty's thinking (see Piketty, 2014, for example).

<sup>5</sup> The UK evidence is summarised in Brewer, Etheridge and O'Dea (2017), but this builds on many years of work by Bruce Meyer and Jim Sullivan in the US; recent examples are Han, Meyer and Sullivan (2021) and Meyer and Sullivan (2017).

<sup>6</sup> A long time series is in figure B.2 of Crossley and O'Dea (2010), showing a decline in the coverage rate from almost 90% in the early 1970s to just over 65% in the late 2000s, a much larger decline than happened with income in the same survey.

- We usually consider income and consumption (or expenditure) at the level of the household, and adjust for household composition using an equivalence scale.<sup>7</sup> This is because the welfare of any one individual in a household is likely to depend on not only their own income, consumption and wealth, but also on that of other household members. Summing up income, consumption and wealth within households, however, implicitly assumes that all individuals in the household have the same standard of living.<sup>8</sup> Because this implies that every person in the household has access to the same income or spending, this means that we cannot look at gender inequalities (as they would tell us only about differences between single men and single women). When looking at labour market outcomes such as hourly wages, hours worked or individual gross earnings, we do this at the individual level. When looking at wealth, we consider per-adult household wealth. Adults are defined for this purpose as those aged 18 and above, plus 16 and 17 year olds not in full-time education.
- Our measure of net income follows the concepts used in the UK government's publication, Households Below Average Income (HBAI). This is a comprehensive measure of after-tax, cash income (plus a very small number of very-near-cash welfare programmes). This measure of income includes, inter alia, all earnings from employment, profit or loss from self-employment, state support, income from occupational and private pensions and investment income. It is measured after deducting income tax, employee (but not employer) and self-employed National Insurance contributions, and council tax, and it includes income from state benefits, tax credits and a small number of very-near-cash benefits-in-kind. Neither realised nor notional capital gains are included.<sup>9</sup> It does not include the implicit income accruing to owner-occupiers, home production, or the value of benefits-in-kind from public services.<sup>10</sup> Unless stated otherwise, measures of household income are measured without deducting housing costs; that is, we use the before housing costs (BHC) measure. Exceptions are when we look at relative poverty or regional differences where we also look at the after housing costs (AHC) measure. Where we do look at housing costs, these include (broadly) rent plus mortgage interest, and do not include the repayment of the mortgage principal.
- Our measure of consumption starts with total expenditure, removes spending that is akin to saving or investments, and adds in estimated consumption flows from housing and vehicles.<sup>11</sup> This is, therefore, very different – and deliberately so – from a measure of non-durable consumption. The key implication is that a growth in rental prices will increase the consumption that is imputed to homeowners, and we use this concept precisely to show how the act of recognising the direct benefits of being a homeowner (in the form of free housing services) affects inequalities in living standards. As a variant, we sometimes show results that look only at total expenditure (including durables).
- Our measure of household wealth is the value of property less any debts owed (e.g. mortgages), plus the value of any financial assets, including, for example, bank accounts,

<sup>7</sup> One exception is Figure 5 where the WAS-based estimates of top wealth shares use per-adult family wealth.

<sup>8</sup> Alternative assumptions could be made: for example, that income, consumption and wealth are perfectly shared within families but not households. However, given the data that are available, we believe perfect income sharing to be the least arbitrary and most transparent assumption.

<sup>9</sup> Advani and Summers (2020, 2022) discuss how capital gains affect the income distribution in the UK.

<sup>10</sup> ONS (2021) includes the value of some publically provided private goods. For another example, see Paulus, Sutherland and Tsakloglou (2010).

<sup>11</sup> We do this following Brewer et al. (2017). We lack comprehensive data on other durables owned, so we do not impute the consumption flow from durables other than housing and vehicles, which means that we implicitly treat them as if they were non-durables.

shares and pension funds. In most of the analysis of wealth in this chapter, we use survey data from the WAS, conducted by the Office for National Statistics (ONS). In our own analysis, the definition of wealth includes net financial wealth, pension wealth and property wealth. We exclude physical wealth –following Crawford, Innes and O’Dea (2016) and Bangham and Leslie (2020) – as the survey asks about the replacement value, which does not reflect the true value of depreciated items, and we exclude business assets, due to limited data available in the WAS. (However, the series derived from the WAS, shown in Figure 5, does include both physical wealth and business investments, after correcting the raw survey values, as described in Advani, Bangham and Leslie, 2021.) Note that pension entitlements recorded in the WAS do not include the future value of state pension entitlements (Crawford and Hood, 2015).

- Household income and consumption are measured over short periods of time, and not (as is the norm in other countries) over a year (however, we report them in per-week or in annualised per-year amounts).<sup>12</sup>
- Household income and consumption are usually equivalised to account for differences in household size. If they relate to an equivalised concept, they are expressed using a couple with no children as the base household type. Household wealth is usually expressed in per-adult terms.<sup>13</sup>
- All cash figures are presented in 2019–20 prices. All growth rates in income, consumption and wealth are given after accounting for inflation. We use measures of inflation based on the Consumer Prices Index (CPI) that include mortgage interest payments.<sup>14</sup>
- Data on income are presented for households in the UK from 2002–03 onwards, and for Great Britain for earlier years. Data on earnings and other employment outcomes and income are presented for Great Britain before 2002–03 and for the UK for later years. Data on consumption are presented for Great Britain up until 1993, and for the UK after this.<sup>15</sup> For wealth statistics, we are limited to presenting statistics for Great Britain only. Because the FRS, FES and WAS are surveys of private households, they do not cover individuals in nursing or retirement homes, homeless individuals, or those in prisons, hostels or other institutions.<sup>16</sup>

<sup>12</sup> The measure of income is intended to be usual income over a recent period (the underlying survey does not precisely define the period, but it can be thought of as monthly), and the measure of spending is based on a two-week spending diary but augmented with spending on irregular items over a three-month period.

<sup>13</sup> We rescale household income and consumption using the modified OECD equivalence scale, and by rescaling household wealth by the number of adults in the household. This is because it is less obvious that children will benefit (to a large extent) from household wealth, which generally will be used to support household consumption during retirement, and hence once children are most likely to have left the household (OECD, 2013). It is unlikely to be the case that the same equivalence scale is appropriate for, say, both cash income and a measure of consumption that includes implicit consumption of owner-occupied housing, but there is no consensus on how to adjust the modified OECD. All of these adjustments implicitly assume that all individuals in the household have the same standard of living. Alternative assumptions could be made: for example, that income, consumption and wealth are perfectly shared within families but not households. However, given the data that are available, perfect income sharing is the least arbitrary and most transparent assumption.

<sup>14</sup> See Department for Work and Pensions (2020) for more information on this measure of inflation.

<sup>15</sup> Northern Ireland represents 3% of the UK population.

<sup>16</sup> See Fitzpatrick et al. (2020) for a study of destitution in the UK. They estimate that over a million households in the UK live in destitution – defined as the circumstances facing people who cannot afford to buy the absolute essentials that are needed to eat, stay warm and dry, and keep clean.

## Limitations

The key advantage of using instruments based on household surveys to estimate the distribution of these different measures of living standards is that they can be measured at the level of the household, along with full details on the composition of the household. But there are, of course, several drawbacks in using such instruments: some are the result of errors of coverage, and others result from difficulties in accurately measuring the right concept in a household survey, because of either conceptual problems or more traditional respondent errors. These drawbacks include the following.

- Both the FRS and the LCFS underestimate income at the top of the income distribution. As a result, the official HBAI series has for years featured a correction that affects the estimated income of approximately the top 1%. A similar correction has recently been applied to estimates of income inequality based on the LCFS. We discuss these matters more in Box 1.
- It has long been observed that households reporting the lowest income do not seem to have the lowest living standards (as measured by other concepts). Such a finding could arise because of income volatility, but the extent of this mismatch is too large to be caused purely by this phenomenon, and it is known that the FRS and LCFS under-report the amount of income received in state benefits and tax credits (see Brewer et al., 2017; Corlett et al., 2018).
- The FES and related surveys appear to miss out on a considerable fraction of household spending, and this undercoverage has been growing since the early 1990s (Crossley and O'Dea, 2010). Evidence suggests this comes mainly from high-spending households; see, for example, Blundell and Etheridge (2010) or Brewer et al. (2017).
- The WAS is thought to underestimate the wealth at the very top of the wealth distribution; see our discussion in Section 3, or Advani, Bangham and Leslie (2021) for recent work that tries to correct these deficiencies.
- The FRS and LCFS continued to collect data through 2020–21, and we show those data points in some of our key graphs in the chapter. However, the pandemic did change data collection practices, and the ONS and the Department for Work and Pensions advise that the latest available income statistics are subject to additional uncertainty because of disruptions to sampling, and the lag in measurement of the incomes of the self-employed in particular (see ONS, 2022a; Department for Work and Pensions, 2022).

## 3. Overview of the level and trends in economic inequalities

In this section, we take a high-level look at trends in inequality in household net income and wealth (and, in the Appendix, consumption) in the UK, before taking a closer look at the distributions in the following section (wage and earnings inequalities are covered in Section 7). Where feasible, we compare this with the level and trends found internationally. As noted earlier, we postpone assessment of the impact of the COVID-19 crisis to Section 8.

The key findings are that the UK has high levels of income inequality compared with similar developed economies, with a (pre-pandemic) Gini coefficient that is the second highest in the G7 (after the US), and is more unequal than all the countries in the EU other than Lithuania and Latvia. Similarly, international comparisons of top income inequality also show that the UK is more unequal than comparable developed economies. Difficulties in obtaining data make it

harder to measure wealth inequality than income inequality, and harder still to make meaningful comparisons between countries, but the two main sources of cross-national data suggest that the UK is less of an outlier in household wealth inequality than it is in household income. Having said that, inequality in household wealth in the UK is much greater than it is in household income, with the top 1% share being over 20% for wealth, compared to 13% for income (both on a pre-tax basis).

### Income inequality

We have consistent data on inequality in household disposable income across the whole distribution for nearly 60 years, and we show several summary measures in Figure 1: the Gini coefficient, which summarises inequality across the whole distribution; the 90:10, 90:50 and 50:10 ratios, which capture gaps between different parts of the distribution; and a measure of relative poverty, defined as the number of people living in households with less than 60% of the contemporaneous median income (we discuss relative poverty more in Box 2).<sup>17</sup>

Trends in these are similar, but not identical, and together they suggest that the UK's recent history of income inequality breaks neatly into the following four periods.<sup>18</sup>

- The 1960s and 1970s, when the Gini coefficient and 90:10 ratio for household income were low and slightly falling.
- From 1978 to 1991, a 13-year period when income inequality rose rapidly; the 90:10 ratio rose by almost a half, for example.
- From 1991 to 2008, the 17-year period with high income inequality that was brought to an end by the financial crisis. Here, trends vary with the precise measure being used: the 90:10 ratio fell, the relative poverty rate fell, but the Gini coefficient rose (especially if we focus on the series marked 'ONS', which, since 2001-02, better captures income at the top; we discuss these measurement issues more in Box 1).<sup>19</sup>
- From 2008 to 2019, from the financial crisis to the onset of the COVID-19 pandemic, in which income inequality fell slightly but has picked back up recently.

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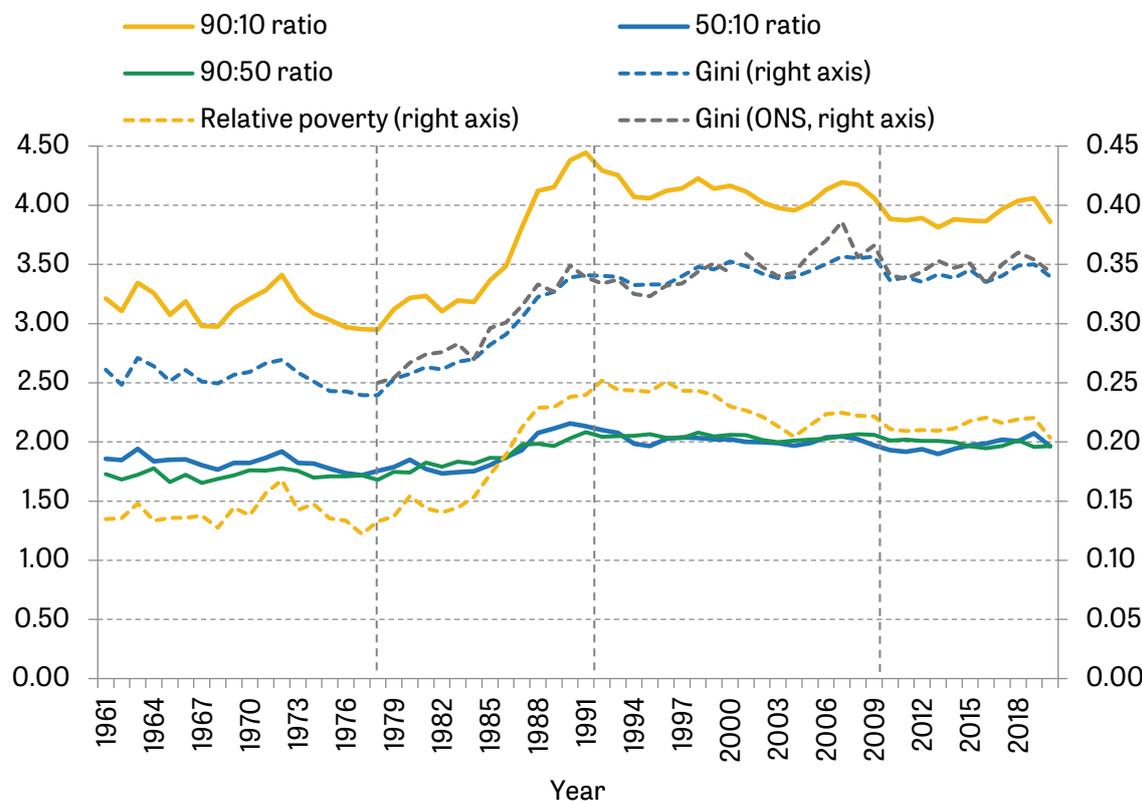
<sup>17</sup> See Gornick (2022).

<sup>18</sup> Atkinson and Jenkins (2020) produce consistent series on household income inequality (although not on the same basis as shown in Figure 1) back to 1937, concluding that 'it appears reasonable to argue that income inequality in the UK today is at least as high as it was just before World War 2'.

<sup>19</sup> Burkhauser et al. (2018a, b) show that income inequality trends in the 2000s depend significantly on how top-sensitive the inequality measure is; we look at top income trends in Box 1.

The 1980s were clearly a transformative decade, one in which the level of income inequality in the UK changed profoundly (as did, so we shall see, consumption inequality). We also show in Section 5 that the rise in income inequality was seen by all cohorts, and led to a permanent shift up in within-cohort inequality.<sup>20</sup>

**Figure 1. Inequality in net household income and relative poverty in the UK, 1961–2020**



Note: The inequality measures are based on incomes measured net of taxes and benefits but before housing costs have been deducted. The relative poverty rate is defined as the proportion of people living in households with less than 60% of contemporaneous median income after the deduction of housing costs. All incomes have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Series labelled Gini-ONS is from table 9 of the ONS published data set 'The effects of taxes and benefits on household income, disposable income estimate' (2021), which includes a 'top incomes' adjustment from 2001–02. The other series are authors' calculations using the FES for 1961–93 and the FRS for 1994–2020 and a 'top incomes' adjustment using administrative tax data.

Figure 2 shows the Gini coefficient for disposable household income in OECD countries in pre-pandemic years. On this measure, the UK had a high level of income inequality, with the second highest level in the G7 (after the US), and a higher Gini than all countries in the EU other than Latvia and Lithuania. Out of the 38 countries in the OECD, only Latvia, Lithuania, the US, Turkey, Mexico, Chile and Costa Rica have higher pre-pandemic Gini coefficients for income.<sup>21</sup> Although

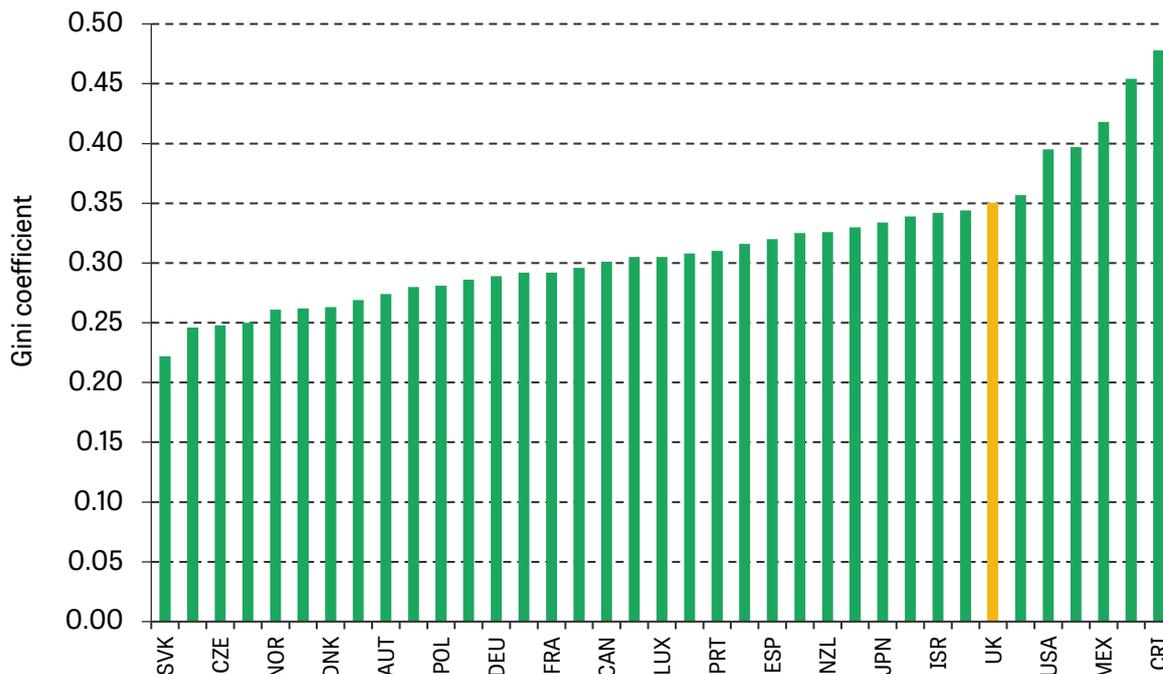
<sup>20</sup> Some of the labour market changes that lay behind this are explored in Section 7, as well as in other chapters of this review (especially Giupponi and Machin, 2022).

<sup>21</sup> On the 90:10 measure, the UK performs slightly better, with lower inequality than Italy, Spain, Japan and Korea, as well as those listed in main text that have higher values of the Gini (source: authors' analysis of the data at <https://data.oecd.org/inequality/income-inequality.htm>).

households in the UK have a higher average disposable income than many of the countries shown in Figure 2, there are many countries that manage to have a lower Gini and higher average household disposable incomes.<sup>22</sup>

As the OECD data show, the UK's high level of inequality is due to an internationally high level of inequality in the top half of the distribution of household disposable income (or, at least, between the 50<sup>th</sup> centile and the 90<sup>th</sup> centile), rather than in the bottom half.<sup>23,24</sup>

**Figure 2. Gini coefficient of income inequality across OECD countries, 2019 or latest year (if earlier)**



Note: Incomes have been measured net of taxes and benefits but before housing costs have been deducted. All incomes have been equivalised, mostly using the modified OECD equivalence scale. In some cases, other scales are employed.

Source: UK, authors' calculations using the FRS for 2019 and a 'top incomes' adjustment using administrative tax data. All other countries from the OECD.

Figure 3 shows long-term trends in income inequality across the G7 countries. Although many countries have seen income inequality drift up in recent decades – leading the OECD to say that

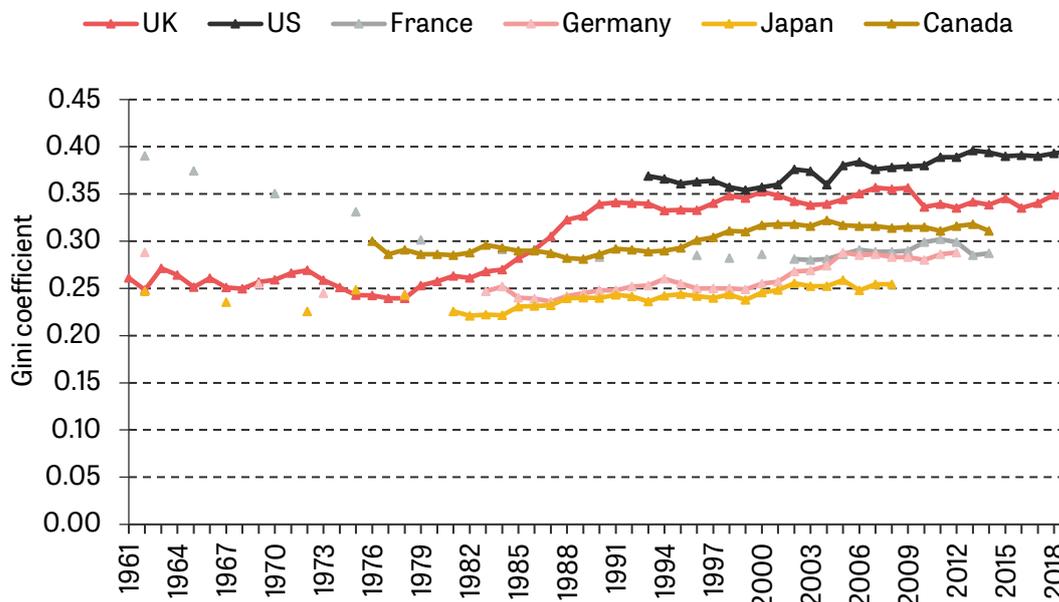
<sup>22</sup> See figure 36 of Resolution Foundation and Centre for Economic Performance, LSE (2022).

<sup>23</sup> See Gornick (2022), but this can also be seen through analysis of the data at <https://data.oecd.org/inequality/income-inequality.htm>, where seven countries have a higher 90:50 ratio but 14 have a higher 50:10 ratio (excluding South Africa, which is not shown in Figure 2).

<sup>24</sup> Various studies have compared where the UK sits in rankings of pre-tax and post-tax inequality. Such comparisons are very sensitive to whether this is done for the elderly, and whether state-run pension schemes count as private or public income. A conceptual difficulty is that the extent of pre-tax inequality will in reality depend on the extent of redistribution done by the tax and benefit system, particularly at the bottom. For this reason, we do not consider further that can be learned from these comparisons.

income inequality is at the highest level it has been for the past 50 years or so<sup>25</sup> – the UK was one of the first to enter this new high-inequality era, and experienced a larger rise.

**Figure 3. Gini coefficient of income inequality across selected developed countries**



Note: Incomes have been measured net of taxes and benefits but before housing costs have been deducted. All incomes have been equivalised, mostly using the modified OECD equivalence scale. In some cases, other scales are employed. UK data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: US, from OECD (<https://data.oecd.org/inequality/income-inequality.htm>). UK, authors' calculations using the FES for 1961–93 and the FRS for 1994–2019 and a 'top incomes' adjustment using administrative tax data. All other countries, Atkinson et al. (2017).

### Top income shares and inequality at the very top

Figure 4 shows different estimates of top income shares for the UK, where we have switched from a concept of household income to individual income.<sup>26</sup> It should be noted that these not only come from different underlying sources – household survey or administrative data – but also use different definitions of income, as discussed in Box 1.

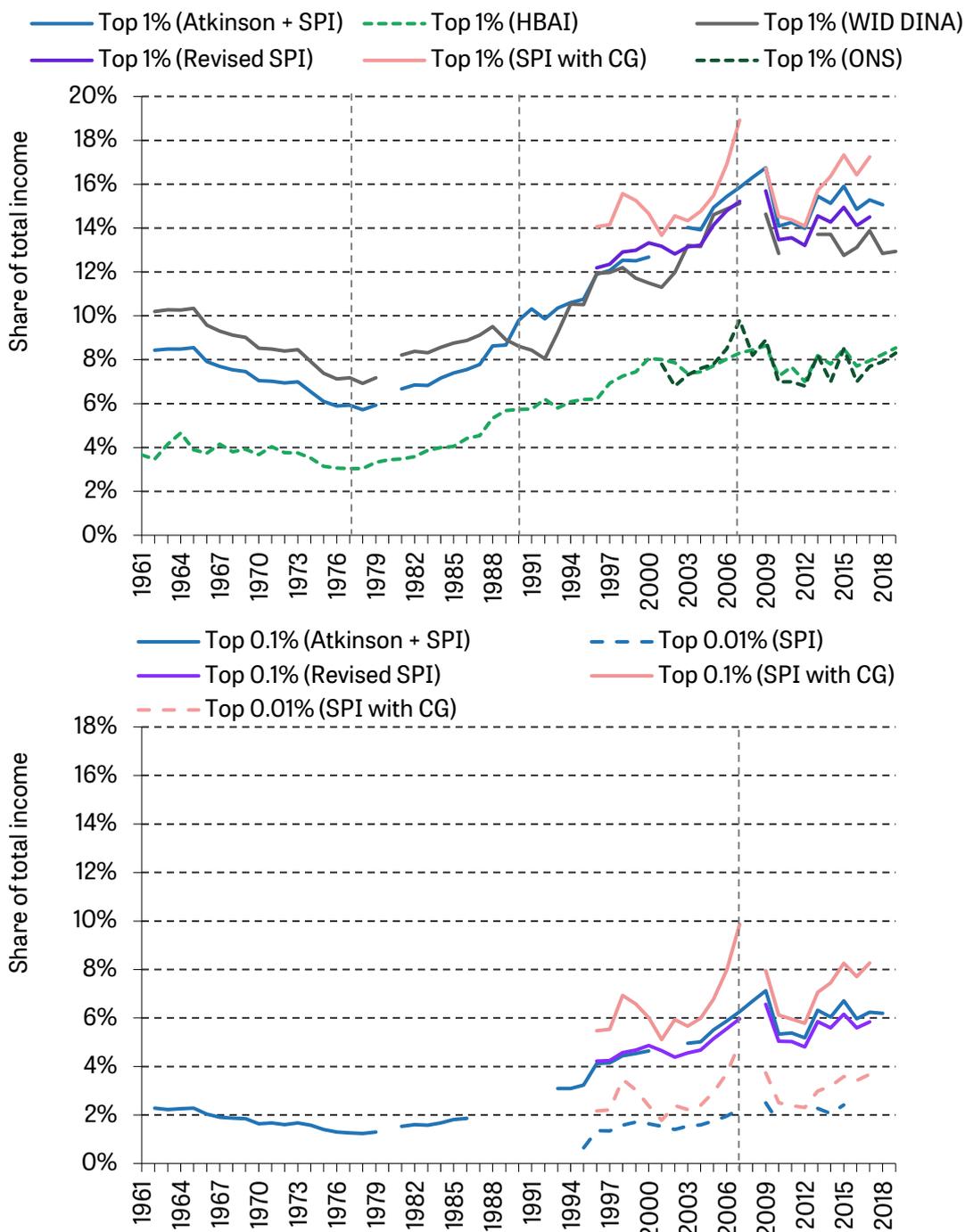
The figure makes three points. First, top income shares based on disposable income are much lower than those based on pre-tax income (8% rather than around 14% in the latest year); this primarily reflects the operation of the personal tax system. Second, differently from the Gini coefficient and the 90:10 ratio shown in Figure 1, these measures of income inequality continued to rise throughout the 1990s and the first half of the 2000s, peaking in 2008; since then, they have risen from their post-financial crisis lows, but remain below the historical highs. Third, top

<sup>25</sup> See <http://www.oecd.org/social/inequality.htm>.

<sup>26</sup> The most comprehensive source of internationally comparable data on top income shares is at the World Inequality Database ([wid.world](http://wid.world)), but this is moving away from looking at shares of fiscal income to an approach based on distributional national accounts (this attempts to allocate all national income to individuals). On this measure, the share of the top 1% in the UK stood at 12.7% in 2019, which is well below that in Canada and the US, about the same as Germany and Japan, but higher than France and Italy.

income shares in recent years have become very sensitive to the inclusion of (realised) capital gains: adding capital gains boost the top 0.1% share from 6% to 8%, for example.<sup>27</sup>

**Figure 4. Pre-tax and post-tax top income shares in the UK, 1961–2019**



Note: The WID DINA, Atkinson + SPI, Revised SPI, and SPI with CG series show pre-tax income share. The HBAI and ONS series give the share of net household income, without deducting for housing costs.

<sup>27</sup> Advani, Corlett and Summers (2020) discuss – especially in the discussion of their figure 3 – the reason for the surge in capital gains in 2007–08.

Source: WID DINA data series *sptinc* (accessed 15/06/2021) is originally from Blanchet, Chancel and Gethin (2020). The Atkinson + SPI series is from Delestre et al (2022). HBAI, authors' calculations using the FES for 1961–93 and the FRS for 1994–2019 and a 'top incomes' adjustment using administrative tax data. ONS data are from ONS (2021b). The Revised SPI and SPI with CG series are from Advani, Summers and Tarrant (2021).

### Box 1. Measures of top income shares in the UK

Figure 4 shows different estimates of top income shares for the UK. Two of the series shown in the figure (those labelled 'HBAI' and 'ONS') come from household survey data. It is valid to question whether either of these series can be said to be unbiased estimates of true top income shares (see also Jenkins, 2022). In particular, it has long been known that survey-based measures of income have particular limitations with respect to top incomes (Burkhauser et al., 2018b), including:

- under-reporting – survey respondents with higher incomes often under-report these;
- undercoverage – there are lower response rates from those with the highest incomes.

In an attempt to reduce the impact of these biases, the HBAI series has included an 'SPI adjustment' since 1992. In this, individuals reporting incomes above a certain threshold have their incomes replaced with the mean income among those who have a taxable income above that same threshold, as estimated from administrative data on tax liabilities (a data set called the Survey of Personal Incomes, or SPI). Note that this procedure will not capture the inequality within the highest-income segment of the population.

Burkhauser et al. (2018b) find that this adjustment increases inequality on many measures, and reduces year-on-year volatility, but Burkhauser et al. (2018a) point out how the procedure could be improved. A method using some of these improvements has since been adopted in the ONS series (see Shine and Webber, 2019). In Figure 4, the HBAI series suggests that top income shares (in disposable income) have returned to their pre-financial-crisis peak, but the ONS series does not (because the ONS series has a higher pre-financial-crisis peak). Given that Burkhauser et al. (2018a) have shown how the SPI adjustment used in the HBAI series was performing particularly badly in the mid-2000s, it is likely that the latter conclusion is more likely to be correct.

The other series in Figure 4 are derived in some way from administrative data on tax returns. The series labelled 'SPI' are from Brewer and Sámano-Robles (2019), and extend the series in Atkinson (2007); they closely correspond to the WID concept of 'pre-tax fiscal income'. Those labelled 'Revised SPI' are from Advani, Summers and Tarrant (2022), and are extremely similar but use a different denominator; from late 2021, these will be the official series of fiscal income shares at the WID (the SPI is taken from various administrative data sources owned by HM Revenue and Customs that are derived from data it holds for the purposes of calculating individuals' income tax liabilities). Delestre et al. (2022) show another series, where the denominator is based just on the income recorded in the SPI (which they call 'total fiscal income'); they say that, in recent years, the choice of denominator affects the level (slightly) but not the trend of top income series. Finally, the series labelled 'WID DINA' measure pre-tax national income shares, and are based on distributional national accounts (data points beyond 2017 represent an extrapolation; see Morgan and Neef, 2020).

We should also consider whether any of these series are likely to be accurate (other than the issues to do with the denominator, discussed in Advani, Summers and Tarrant, 2022). One inherent limitation is that any estimates based on administrative data from a tax authority are vulnerable to inaccuracies due to avoidance and evasion. A second consideration, and one specific to those based on the SPI, is that it does not capture incomes from capital gains: the 'SPI with CG' series (from Advani, Summers and Tarrant, 2021) shows that adding in realised capital gains boosts top income shares by an amount that is growing steadily over time, and is proportionately greater at higher income thresholds.

### Consumption inequality

Figure A.40 in the Appendix presents the Gini coefficient for our measure of household consumption (which includes an imputed consumption flow for homeowners) and total expenditure (as well as disposable income, for reference). Figure A.41 shows the 90:10 and 50:10 ratios; it shows that the Gini in household consumption is always lower than the Gini in household expenditure (and it also grew by less in the 1980s), indicating that the imputed consumption flow to owner-occupiers is, on balance, inequality-reducing. The figure shows an increase in the 1980s, mirroring that seen for income (though less pronounced) and a flattening over the 1990s and 2000s. This leaves the consumption Gini in 2019 higher than it was in the 1970s, but lower than its 1980s peak. However, as we noted earlier, these trends are likely to be affected by the growing undercoverage of total spending that has occurred since the mid-1990s in the household survey that underpins these estimates.

International comparisons are much more limited for consumption and expenditure than they are for income, and we do not discuss them further here.

### Wealth inequality

Wealth inequality in the UK has been studied less than income inequality because of the lack of accurate and consistent data. But Figure 5 presents various estimates for the top 1% and top 10% share of wealth in the UK since the early twentieth century using a variety of different sources.<sup>28</sup> The longest time series (which is from the WID, and was originally compiled by Piketty, 2014, although the figures have been revised since then) suggests that top wealth shares fell considerably over the first 70 years of the twentieth century, bottoming out in the late 1970s or early 1980s. Since then, although sources vary on the levels, most agree there has been little trend. It is also clear that wealth is distributed far more unequally than is income.

Consistent microdata across the whole wealth distribution has been available from the WAS since 2006–08, and estimates taken directly from that data set also show very little trend, either in top income shares (shown in Figure 5, but note that the series shown there differ in the precise definition), or the Gini (which has risen from 0.63 in 2006–08 to 0.64 in 2016–18).<sup>29</sup>

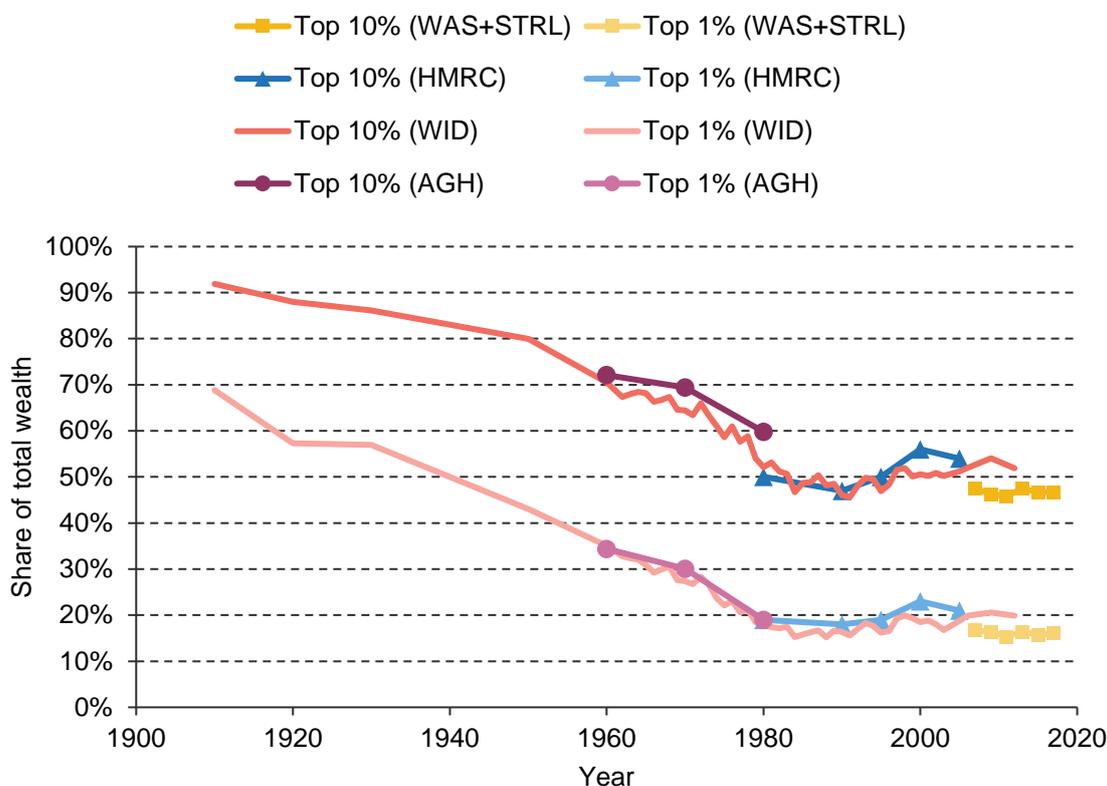
In recent work, Advani, Bangham and Leslie (2021) have attempted to correct for the under-recording of wealth in WAS. They estimate that, in the 2016–18 wave, the WAS under-recorded total wealth in the UK by about 5%; applying this to the relevant parts of the wealth distribution

<sup>28</sup> The WID distributional analysis, OECD analysis, HMRC personal wealth statistics and the AGH (Atkinson, Gordon and Harrison, 1989) series are based on estate data (i.e. data on the value of property of deceased people) from HMRC and predecessor organisations. Adjustments are made to account for differences between the wealth distribution and deceased people. They exclude the value of pension entitlements.

<sup>29</sup> Results for 2018–20 are found in ONS (2022b), and a more detailed analysis in Broome and Leslie (2022).

pushes the share of wealth held by the top 10% from 51% to 55%, and the top 1% share from 18% to 23%.

**Figure 5. Top wealth shares in the UK since 1910**



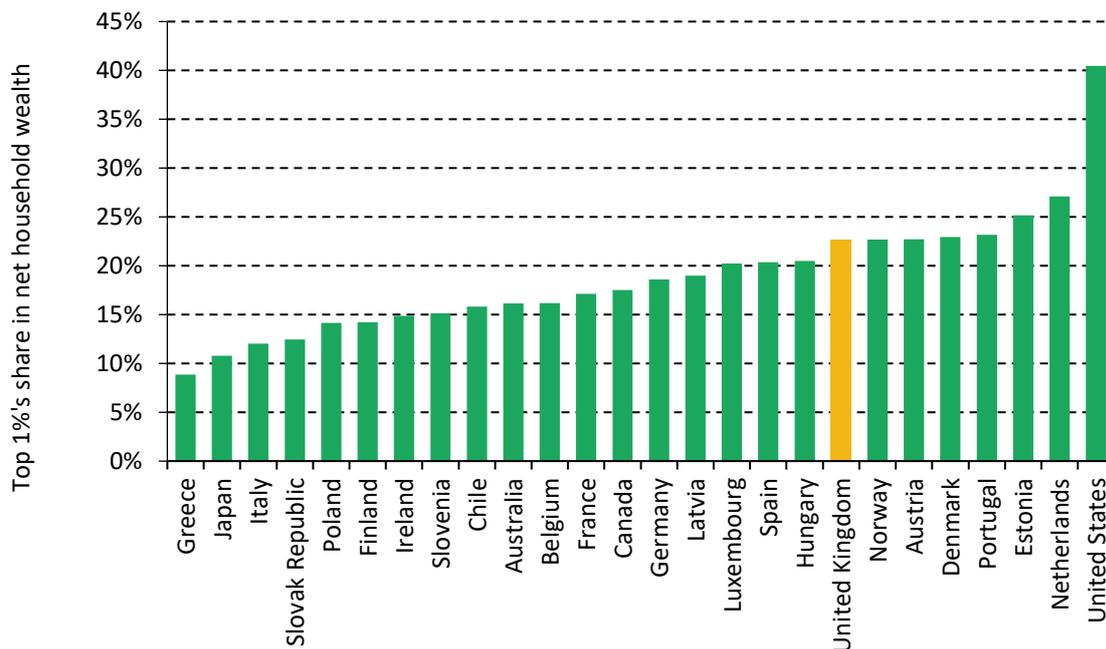
Note: The WID, AGH and HMRC series are for individual wealth, but the WAS series is per-adult family wealth.<sup>30</sup>

Source: WID data are 'Net Personal Wealth' share (shweal). WAS and WAS+STRL data are from Advani, Bingham and Leslie (2021); other data are taken from Brewer (2019a).

International comparisons are also harder to make for wealth inequality than for income inequality. Here, we show two estimates, based on very different sources. Figure 6 shows estimates compiled by the OECD using a wealth concept that is broadly similar to that shown in Figure 5, which suggests that the top 1% share of household wealth in the UK is relatively low compared with other countries, at least compared with where the UK sits in the league table for income inequality. Figure 7 shows time-series estimates from the WID for selected countries; note that this series suggests that the UK has relatively low levels of wealth inequality, and certainly the lowest in the G7. For those few countries where long time series exist, the decline in wealth inequality stopped in the 1970s or 1980s, since when it has been rising.

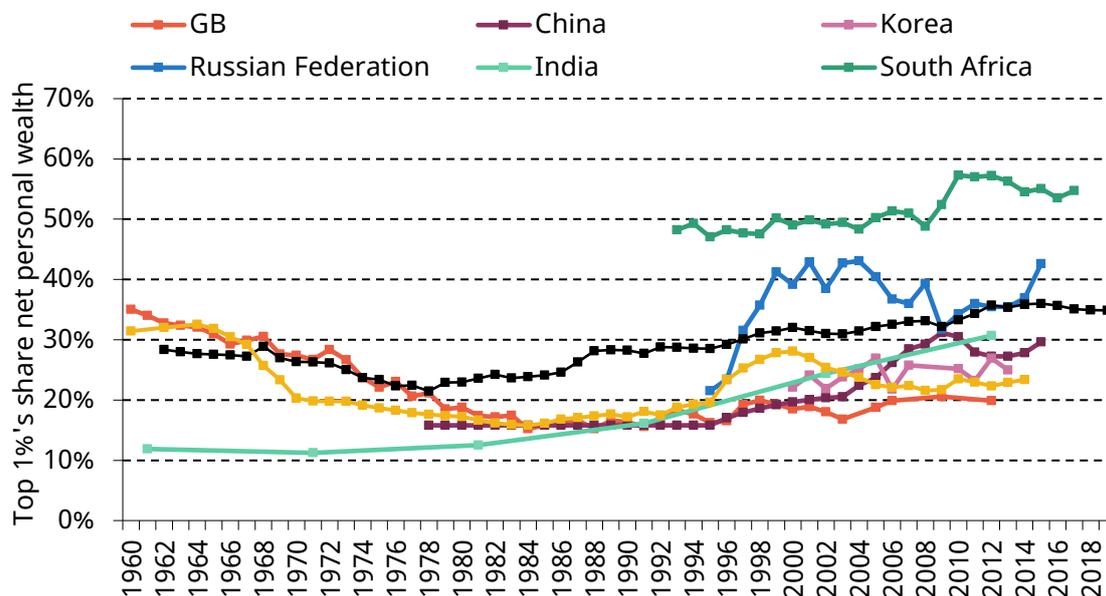
<sup>30</sup> See also HMRC (2014).

**Figure 6. Top 1%'s share in household net wealth across various OECD countries, 2016 or latest data**



Source: Share of top 1% of wealth (ST1), OECD (<https://stats.oecd.org/Index.aspx?DataSetCode=WALTH>, date accessed 15/07/2021).

**Figure 7. Top 1%'s share in net personal wealth, various countries**



Source: Net Personal Wealth Top 1% share (shweal), WID (<https://wid.world/data/>, date accessed 08/07/2021).

## 4. Changes over time across the whole distribution of income, consumption and wealth

The story from Figure 1 (or Section 3) is that the 1980s was the decade where the UK's income inequality story changed profoundly, since when core summary measures of income inequality (and consumption inequality, although data issues make us less certain about this) have hardly changed. But it is not possible to summarise everything we might want to know about inequality – which is, after all, a concept related to the whole shape of the distribution – in a single numerical measure, and we have already seen (in Figure 4) that the unchanging Gini coefficient since the early 1990s occurred at the same time as top income shares were rising. In this section, therefore, we look at how household net income and wealth have changed over time at different parts of their respective distributions. For income, we focus on changes within the following periods: 1961 (or 1968, depending on data availability) to 1978, 1978 to 1991, 1991 to 2008 and 2008 to 2019. The cut-off points for these periods have been chosen as the turning points either for income inequality (1978, 1991) or the GDP growth (2008). For wealth, we can only look at changes since 2006–08. The Appendix contains results for consumption (see Figure A.42).

### Household disposable Income

Figure 8 shows the pattern of growth in household disposable income across the income distribution over the four subperiods.<sup>31</sup>

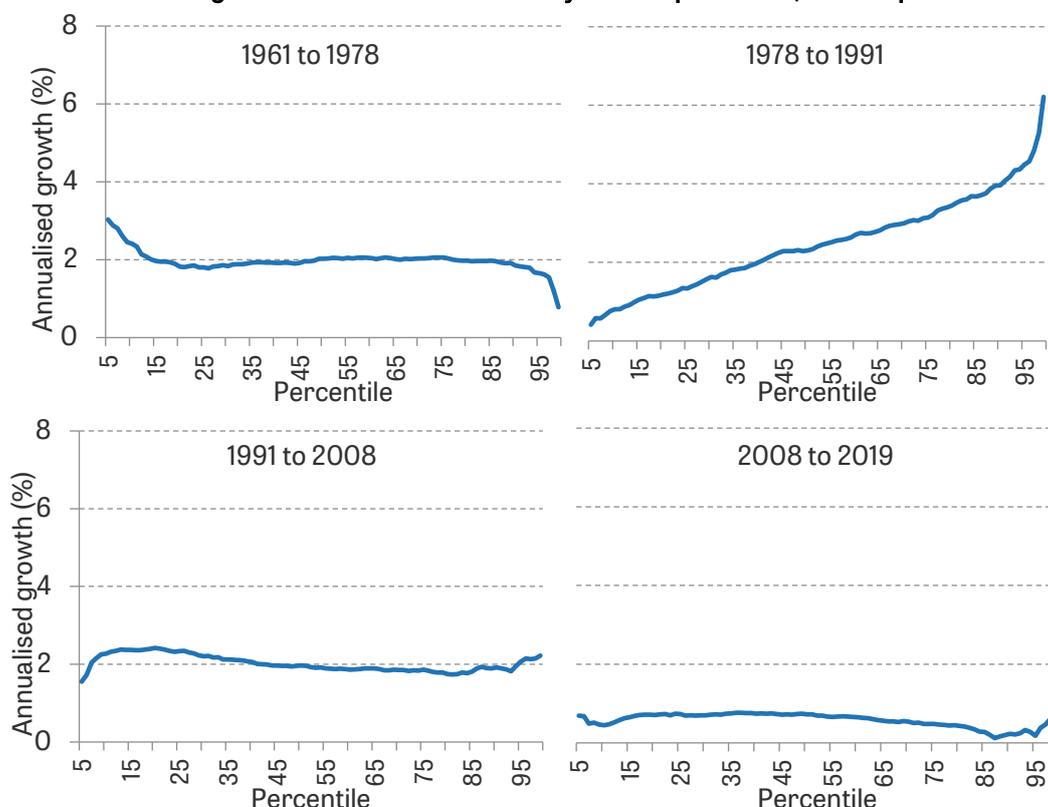
From 1961 to 1978, individuals at the bottom of the household income distribution saw greater income growth than the top and the middle, leading to a fall in the Gini coefficient. In contrast, from 1978 to 1991, the income distribution changed in a way that unambiguously increased inequality, with faster income growth at higher income levels. This means that the huge increase in overall income inequality is not due to any one part of the distribution growing further away from any other: it, instead, reflects a general opening up of disparities at all income levels (and we discuss this more in Section 7).

From 1991 to 2008, the picture is less clear. Incomes grew in a way that led to greater equality between the 10<sup>th</sup> and 80<sup>th</sup> percentiles, but the bottom centiles fell behind and the top saw stronger income growth (and note that the figure excludes the top 1% and the bottom 5%). The period from 2008 to 2019 (with the data ending just as the COVID-19 crisis began) saw weak

<sup>31</sup> The equivalent results for our measures of household expenditure and consumption are shown in Figure A.42 in the Appendix. From 1968 to 1978, individuals at the bottom of the household consumption or expenditure distributions saw lower consumption and total expenditure growth than the top and the middle, clearly indicating a rise in inequality (although this was not even over the period); these are different trends to that seen for income inequality, which fell over this period. The trend towards greater inequality is even more pronounced between 1978 and 1991, as demonstrated by the upward-sloping lines (this is more pronounced for total expenditure, meaning that, over this period, the change in the consumption flow from owner-occupied housing was more equally distributed than change in other elements of consumption). From 1991 to 2008, both consumption and expenditure grew relatively equally across the distribution, with the higher growth for consumption reflecting the strong growth in the price of housing (which drives up the implied consumption flow from owner-occupied housing). Since 2008, growth in both expenditure and consumption has been negative across the whole distribution, with a very slight compression of the distribution. However, as we noted earlier, these latter trends are likely to be affected by the growing undercoverage of total spending that has occurred since the mid-1990s in the household survey that underpins these estimates.

income growth across the distribution, with the bottom half of the household income distribution faring slightly better than the top half, but with incomes in the top 5% pulling away again.<sup>32</sup>

**Figure 8. Annualised growth in household income by income percentile, various periods**



Note: Incomes have been measured net of taxes and benefits but before housing costs have been deducted. All incomes have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1961–93 and the FRS for 1994–2019 and a 'top incomes' adjustment using administrative tax data.

### Changing composition of income

Unpacking what lies behind the trends shown in Figure 8 is the aim of the rest of this chapter, along with other chapters in the IFS Deaton Review. At this stage, it is worth noting the changing importance of different income sources across the distribution. These are shown in Figure A.34 (for working-age households) and Figure A.35 (for pensioner households) up to 2019–20, and the key findings are as follows.

- For working-age households, income from state benefits has increased in importance and spread further up the income distribution: in 1968, benefit income made up a fifth of all income of the bottom income decile; in 1978, this was true for the second decile too; by 1991, this was true in the third decile; and in 2008 and 2019, this is also true for the third and fourth deciles. This means that the income sources of households toward the middle of the income

<sup>32</sup> As we discussed in Box 1, the HBAI series that underpins Figure 8 is probably a less reliable guide to top incomes than the ONS series shown in Figure 1. But the ONS series and the measures derived from administrative data on taxable incomes in Figure 5 also show a pick up in top income inequality from the early to mid-2010s.

distribution have become more similar to households at the bottom of the distribution. For non-pensioners in the third income decile, income from benefits made up 28% of income in 2019, compared to 41% in 2009, 25% in 1991 and 14% in 1978. For non-pensioners in the fifth income decile, income from benefits made up 12% of income in 2019, compared to 18% in 2009 and 9% in both 1991 and 1978. However, there is a countervailing trend in the bottom income decile: in 2019, working-age households in the bottom income decile received more than half their income from the labour market, something that had not been the case since 1968.

- For working-age households, earnings from women have increased in importance as a share of income, and earnings from men decreased as a share, evenly across the distribution. Self-employment income has increased in importance as a share of income for working-age households, and has become particularly important in recent years for the top of the income distribution.<sup>33</sup>
- For pensioner households, there was a marked fall in the importance of income from the labour market between 1968 and 1978. Since then, the key trend has been the growth in income from private and occupational pensions.
- The data set providing these estimates cannot provide us with a detailed picture of the very top of the distribution, partly because of sample size and differential non-response, and partly as it is less good at capturing all sources of non-earned income than it is earned income. Administrative data on tax returns suggest that (unsurprisingly) unearned income becomes more important at the very top of the distribution, and has become more important over time, but this misses out on income from capital gains.<sup>34</sup>

The contribution that different income sources have made to the changes in overall income inequality is explored in the Appendix, which updates Brewer and Wren-Lewis (2016); see Tables A.1 and A.2, and Figures A.33–A.36). Unsurprisingly, the income source that makes the greatest contribution to inequality is men's gross employment earnings, followed by women's gross employment earnings, and net self-employment earnings (of men and women combined). When we look at the changes in inequality in different periods, we find the following.

- Between 1978 and 1991, almost every source change increased its distribution in ways that pushed up overall inequality. Although men's gross employment earnings was the income source that contributed the most to the rise in inequality in the 1980s, it was the case that self-employment, investment and pensions income together explain 38% of the total rise in inequality over the 1980s, despite representing 19% of total income in 1991.
- Reductions in the share of income that comes from men's gross employment earnings, and from investment income, mean that both now mechanically contribute less to overall income inequality than they did in 1991, despite growing inequality in both income sources considered in isolation. Conversely, increases in the share of overall income from women's gross employment earnings mean that it contributed more to overall inequality in 2019 than in 1991,

<sup>33</sup> This trend came to an abrupt end in 2020, with the number of self-employed workers falling from 5.0 million at the end of 2019 down to 4.2 million in early 2022, largely driven by people flowing out of self-employment to become employees. The consensus is that some of this is due to a tax change that meant some people reclassified themselves as employees, and some was a genuine response to the COVID-19 pandemic (see ONS, 2022c).

<sup>34</sup> See Brewer and Sámamo-Robles (2019) and Delestre et al. (2022). Advani and Summers (2020) look at the importance of capital gains for top incomes.

despite growing more equal over the same period. Self-employment income and private pension income have changed in ways that have pushed up overall inequality since 1991; this is both by becoming more important sources of income and by becoming more unequal in their own right. Finally, the amount by which state benefits act to reduce income inequality has fallen since 1978, chiefly because benefits directed to pensioners are now less well targeted to those on a low income than was the case in 1978.

## Wealth

As noted earlier, we have detailed and consistent data on the distribution of wealth only since 2006–08, and in that time there has been little change in most summary measures of wealth inequality.<sup>35</sup>

But this mostly unchanged relative measure of inequality hides what are growing absolute gaps between different parts of the wealth distribution. These are significant, given that household wealth has been growing faster than GDP for several decades: since 1991, household wealth has almost doubled relative to GDP (from about three and a half times as large to seven times as large); since 2006–08, the stock of household wealth has risen by over one and a half times the UK's GDP.<sup>36</sup> As a result of this, the mean wealth of someone in the 5<sup>th</sup> wealth decile went from around £93,000 to £111,000 in the ten years after 2006–08, but the gap between the mean wealth of the 5<sup>th</sup> and 9<sup>th</sup> wealth deciles grew from around £299,000 to £430,000. One way of showing how significant are these changes in absolute levels of wealth is to express them as multiples of the median full-time earnings. Put this way, the mean wealth of the 5<sup>th</sup> decile grew by two-thirds of a typical full-time salary over the decade after 2006–08. But the mean wealth of the 9<sup>th</sup> wealth decile grew by 5.4 times, and the mean wealth of the 10<sup>th</sup> wealth decile by 8.9 times a typical full-time salary.<sup>37</sup> As a result, the gap between the 5<sup>th</sup> and 9<sup>th</sup> deciles has increased from 10 years to almost 16 years of typical full-time earnings. The increasing value of wealth relative to household income or GDP was one of the factors identified in Piketty (2014) as predicting a more unequal society in future; we discuss this later, in Box 3.

The implications of that rise in wealth can be seen in Figure 9, which shows the real-terms value of the amount of wealth of different types owned by people in different deciles of the wealth distribution. This shows clearly that the fastest-growing source of wealth is from pension wealth: since 2006–08, the share of all household wealth that is held in pensions has risen by 9 percentage points (to 47%), the share that is in property has fallen by 8 percentage points (to 39%), and the share that is financial investments is down 1 percentage point to 13% (the different sources of pension wealth in 2016–18 are shown in Figure 10).<sup>38</sup>

This is an argument, though, that some of the rise in pension wealth is illusory.<sup>39</sup> Bangham and Leslie (2020) analyse this in detail: they show that the estimated value of Defined Benefit (DB) pots increased by 75% between 2006–08 and 2016–18, and the value of Defined Contribution (DC) pots almost doubled. The increase in the estimated value of DB pots is driven by falls in both market annuity rates (which means that it is now more expensive to purchase the sort of guaranteed income in retirement provided by a DB pension) and in the discount rate used by ONS to value

<sup>35</sup> See also figure 3 of Bangham and Leslie (2020), and Advani, Bangham and Leslie (2021).

<sup>36</sup> See figure 12 of Bangham and Leslie (2020).

<sup>37</sup> This comparison comes from Hills et al. (2013). We use 2017 median earnings for full-time working-age workers.

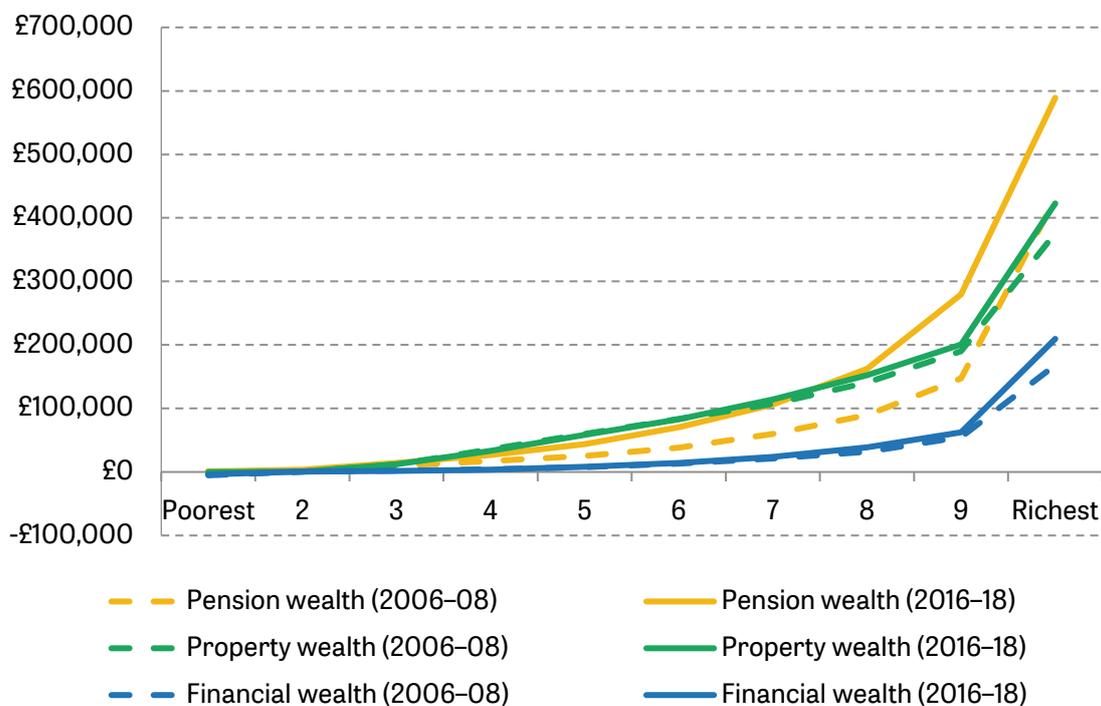
<sup>38</sup> See figure 13 of Bangham and Leslie (2020) and Advani, Bangham and Leslie (2021).

<sup>39</sup> Bangham and Leslie (2020) and Mulheirn (2020) show that the increase in financial wealth since 2006–08 in other categories has also been driven by changes in asset prices rather than active saving by individuals.

them (which means that the future income is now deemed to be more valuable). Indeed, Bangham and Leslie (2020) show that this rise in value occurred at the same time as the average *income* provided by DB pensions has fallen by 11% (although this incorporates compositional effects).

The rise in the total value of DC pots has been accompanied by a rise in the fraction of the population with some DC pension wealth, driven in part by pensions auto-enrolment, so at least part of it reflects an increase in active wealth accumulation.<sup>40</sup> But, again, much of the increased value is likely to be driven by falling interest rates that have pushed up asset prices. This increased pension wealth may not, then, translate into higher incomes in retirement if the fall in interest rates also means that more wealth is needed in retirement to sustain a given standard of living. However, those who did not hold pension wealth before the fall in interest rates during the financial crisis will now have to save even more to catch up with those who did, so the rise in pension wealth since 2006–08 captured in the WAS has genuinely increased the gaps between those with and without such wealth.

**Figure 9. Average values of different sources of wealth in each wealth decile, 2006–08 and 2016–18**

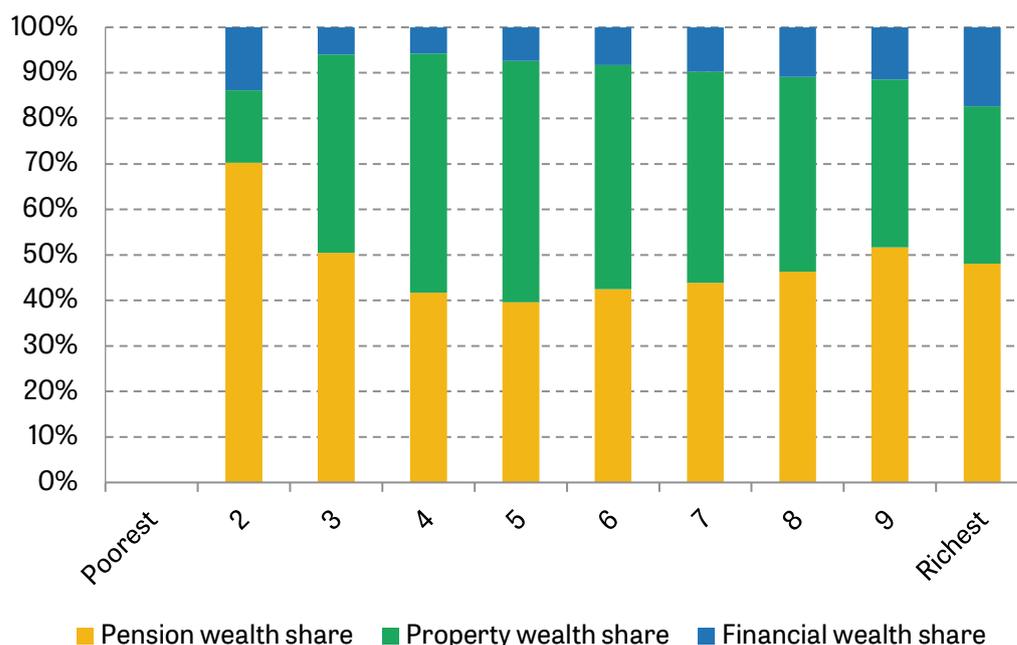


Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above). Wealth includes pension, property and financial wealth. Physical wealth is excluded.

Source: Authors' calculations using the WAS, wave 1 and round 6.

<sup>40</sup> This is shown very clearly in figure 10 of Cribb (2019).

**Figure 10. Composition of net household wealth, 2016–18**



Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above). Wealth includes pension, property and financial wealth. Physical wealth is excluded. The lowest decile is excluded as net wealth is negative.

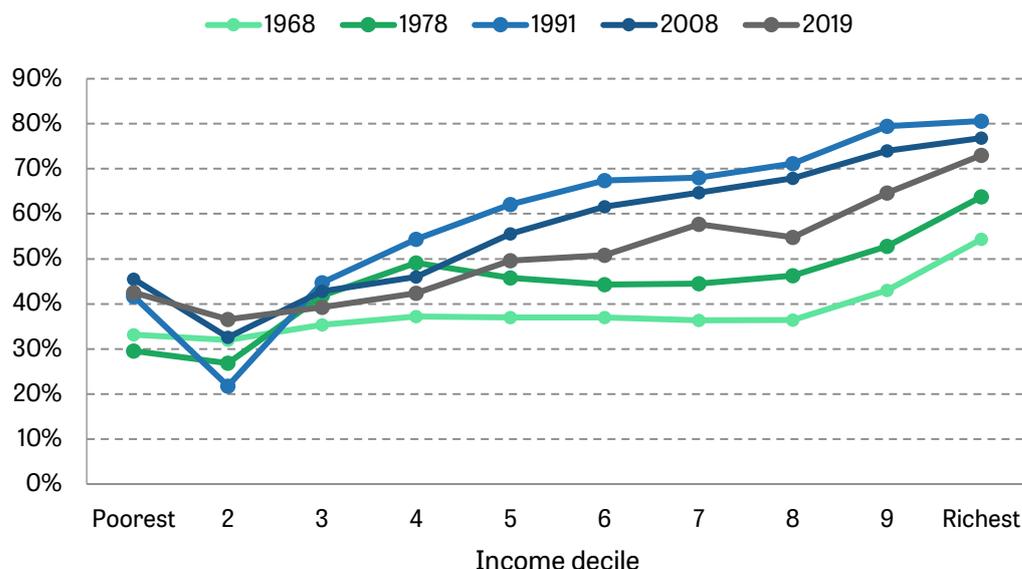
Source: Authors' calculations using the WAS, round 6.

Taking a longer perspective, the rise in the importance of wealth in the UK since the 1970s is closely linked to housing wealth. Estimates from the WID are that housing made up 11% of total wealth of the wealthiest 1% in the UK in 1971, but 32% by 2012 (the equivalent figures for the wealthiest 10% are 22% in 1971 and 45% in 2012), and this change is principally due to capital gains.<sup>41</sup>

### The changing relationship between homeownership and income

As we discussed in Section 2, we do not have microdata on the joint distribution of income, consumption and wealth, and so we cannot easily see how inequality in these concepts has evolved together. The WAS data do tell us a little about how the distribution of income and wealth are changing since 2006–08 but, to get a longer view, we need to restrict ourselves to looking at the joint distribution of income and housing tenure. We do this in Figure 11, which looks at how being a homeowner varies with income, and has varied over time, among adults in non-pensioner households.

<sup>41</sup> This draws on Brewer (2019a). See Alvaredo, Atkinson and Morelli (2017) for the figures on housing wealth. See also Hills et al. (2013) and D'Arcy and Gardiner (2017), who look at changes since the early 1990s, and Madsen (2019), who takes a much longer view. In the last 15 years, pensions have become a more important source of total household wealth at the expense of property.

**Figure 11. Proportion of non-pensioner adults who are homeowners, by income decile**

Note: A 'homeowner' is defined as an individual, living in owner-occupied housing, who is either the household reference person or their partner. Sample includes adults in non-pensioner households, but income deciles are defined for the whole population. Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in Great Britain only.

Source: Authors' calculations using the FES up to 1993, and the FRS for 1994–95 to 2019.

Two facts stand out. First, there was a large rise in the fraction of non-pensioner adults who are homeowners from 1968 to 1991 (shown by the bottom light green line and top light blue line, respectively), and then a decline through to 2019 (shown by the grey line in the middle) (among all non-pensioner households, the fraction owning their own home with a mortgage or outright rose from 38% to 59% from 1968 to 1991, then fell to 51% by 2019). Second, the income gradients (e.g. the difference between homeownership rates in the 3<sup>rd</sup> and 10<sup>th</sup> income deciles) have steepened since 1968. Although the large increase in income gradient by 1991 has been partially reversed, it was still steeper in the top half of the distribution in 2019 than it ever was previously. The increasing gradient and declining rates of homeownership (among non-pensioners) together mean that (for example) non-pensioner adults in the 6<sup>th</sup> income decile in 1991 (as well as in deciles 7–10) were more likely to be homeowners than adults in all income deciles other than the top in 2019.<sup>42</sup>

This change in homeownership has happened alongside a decline in the importance of the social rented sector in the UK, and a rise in the size of the private rented sector. Since 1978, the housing tenures of those on middle and low incomes have become more similar: in the past, their tenures tended to be different (social housing versus homeownership), but they are now more similar and now likely to be renting privately.

<sup>42</sup> Figure 11 also shows that homeownership rates are higher in the bottom income decile than the second to bottom decile. This is the sort of evidence that is used in Brewer et al. (2017) to argue that reporting a low income in a household survey is not necessarily a good guide to having a low standard of living.

## 5. Differences in income and wealth across age and generation

In this and the following section, we look at a different dimension of inequality: between-group differences. In this section, we look at how income and wealth vary by age at a particular point in time, and we compare the trends over the life cycle across different cohorts defined by decade of birth (referred to from now on simply as a 'cohort'), and how these patterns have changed over time.<sup>43</sup> We end by summarising what is known about trends in within-cohort measures of inequality; the relatively small sample sizes in the household surveys before 1994–95 limit what we can say here, but Section 6 builds on this by looking at differences between groups defined by education, ethnicity, household type and region of England or nation of the UK.

The key findings are the following.

- Over the last 60 years, there has been a huge fall in the risk of having a relative low income among older adults. After many decades of having poverty rates greater than the average, since 2003 the fraction of those aged over the state pension age who are in relative poverty has been lower than the average rate (measured after housing costs). There is now a clear U-shaped pattern to the risk of low income on a BHC measure, it being highest for children under 18 and adults aged 75 or over, and lowest for those in the main years of working life. On an AHC measure, the risk is lower for younger age groups.
- Those born in the first half of the twentieth century could expect to grow up to experience higher living standards than did their predecessors at the same age. But these cohort-on-cohort improvements in the level of individual earnings and household income have slowed down for cohorts born after 1960, or even earlier (i.e. for those born after 1950) for homeownership. In particular, the 1980s cohort has experienced lower levels of earnings from the age of 25 than the 1970s cohort at the same age, as well as much lower rates of homeownership. Two factors are driving this: the generally weak real-terms growth in earnings that the UK has experienced since the mid-2000s, and especially after the financial crisis – which means that recent cohorts are seeing median earnings fall in real terms as they age – and the house price boom, which has brought an end to cohort-on-cohort increases in homeownership rates. This means that those born in the 1980s have been hit by the double whammy of weak earnings growth, and falling or low interest rates that have caused a surge in the value of wealth that has principally accrued to those in previous generations.
- Cohort-on-cohort improvements in the level of household disposable income have also slowed, or stopped, for the most recent cohorts, but not in as dramatic a way as those for earnings. In particular, over a 25-year period beginning from the age of 25 or 30, median within-cohort income for those born in the 1940s and 1950s approximately doubled, in real terms. Those born in the 1960s had higher incomes in their mid-20s than their predecessors did at the same age, but saw a rise of around a half from age 25 to 50; those born in the 1970s also had higher incomes than earlier cohorts at age 25, but on current trends are likely to see incomes rise by less than a quarter over 25 years.

<sup>43</sup> Some of the analysis by cohorts directly updates Cribb (2019), and similar analysis can also be found in various reports by the Resolution Foundation, including Henehan et al. (2021) and Resolution Foundation (2018).

## Trends by age

### Household disposable income

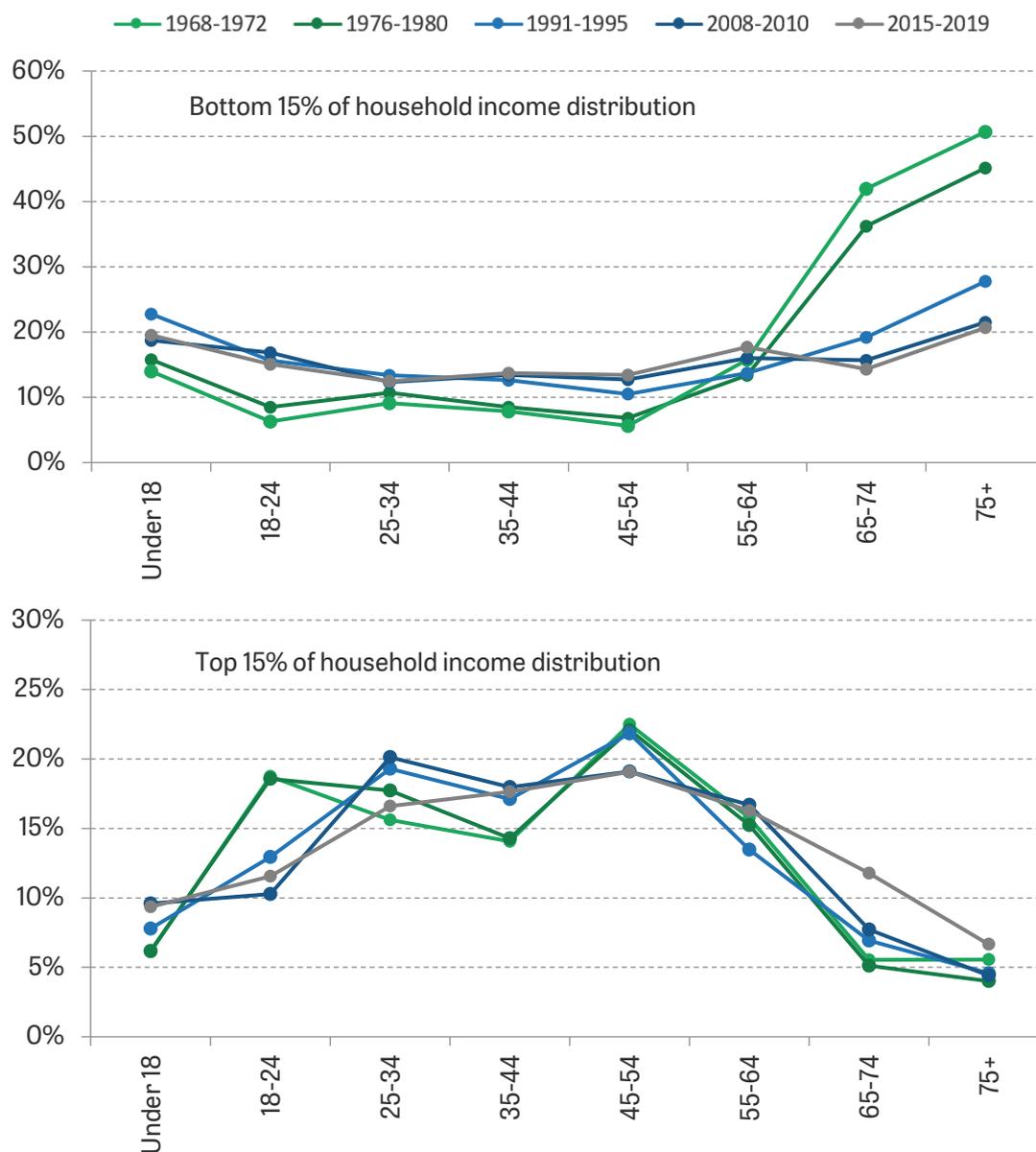
One of the most significant trends in the distribution of income over the last 50 years has been in the changing age profile of income.

Figure 12 shows the change in the age profile of being at the top or bottom of the income distribution in any given year. Broadly speaking, the age profile for the risk of being at the bottom of the distribution is U-shaped, and that of being at the top is the opposite (inverse-U-shaped); both correspond to incomes being highest in the 45–54 age band. But there has been a dramatic shift over the past 50 years of the age profile of income, with older individuals now less likely to be at the bottom of the income distributions, and more likely to be at the top. For example, 50% of those aged 75 or over were in the bottom 15% of the income distribution in 1968–72, compared to just 20% in 2015–19, and those aged 65–74 are now less likely to be at in the bottom 15% of the income distribution than those aged 55–64 or under 18. Changes at the top of the distribution have been less dramatic: there has been a slight increase in the chance that those aged 65–74 are at the top of the income distribution, offset by a fall for those aged 18–24. As we discuss in Box 2, these changes are due to cohort effects – successive generations of older adults have become better-off, retiring with higher pensions and more likely to own their own homes – and policy effects, where increased generosity of social security benefits has transformed prospects for older adults with few resources of their own. Figure 13 does the same but using the AHC measure of income, which accounts, for example, for the fact that a relatively high fraction of older people have low or zero housing costs after paying off their mortgage; this shows that older people are now less likely than others to be at the bottom of the AHC income distribution.

Figure A.43 in the Appendix shows the change in the age profile of the risk of being in the top and bottom of the consumption distribution (these are affected by the growing undercoverage of total spending that has occurred since the mid-1990s in the household survey that underpins these estimates<sup>44</sup>). As with income, there been a dramatic change in the risk of low consumption for the elderly population (and a corresponding clear rise among those aged 65 and over in the chance of being at the top of the consumption distribution). As a result, the age profile for the risk of being at the bottom of the distribution has lost a lot of its U-shape: instead, the risk declines with age until about age 75; similarly, the risk of being at the top of the distribution increases with age until about age 65. The age profiles here are determined by age profiles in cash expenditure – where there is a well-known drop-off in spending at older ages (see Brewer and O’Dea, 2012, for example), as well as age profiles in homeownership (which we show in Figure 24), which drives the imputed consumption ascribed to owner-occupiers.

<sup>44</sup> At face value, these two charts show that cohort-on-cohort progress in consumption seems to have come to a halt slightly earlier than for household disposable income, such that, in the most recent years of data, all cohorts born since 1950 appear to have lower consumption than those born a decade earlier (as ever, this is the most marked for those born in the 1980s). This could be due to the declining coverage rate of the underlying survey, which means that estimates of household spending are increasingly downward biased over time, showing up as a period effect that has more impact on higher-spending cohorts. It could also reflect the (genuine) generational change in homeownership, given that the measure of consumption includes the estimated consumption flow from owning property; we show this directly in Figure 16.

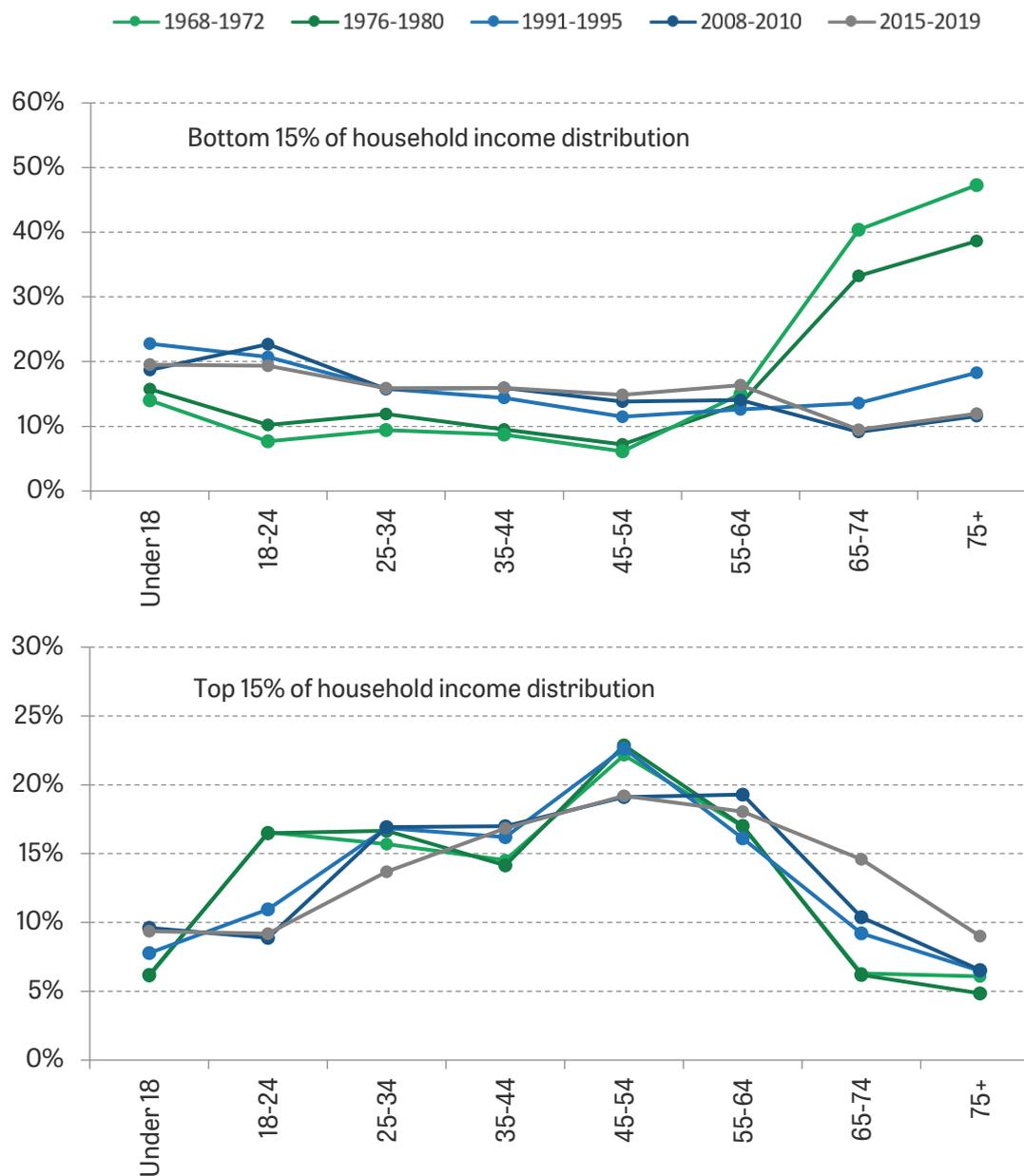
**Figure 12. Proportion of individuals in the bottom and top 15% of the BHC household income distribution by age**



Note: Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

**Figure 13. Proportion of individuals in the bottom and top 15% of the AHC household income distribution by age**



Note: Incomes have been measured net of taxes and benefits, after housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average.

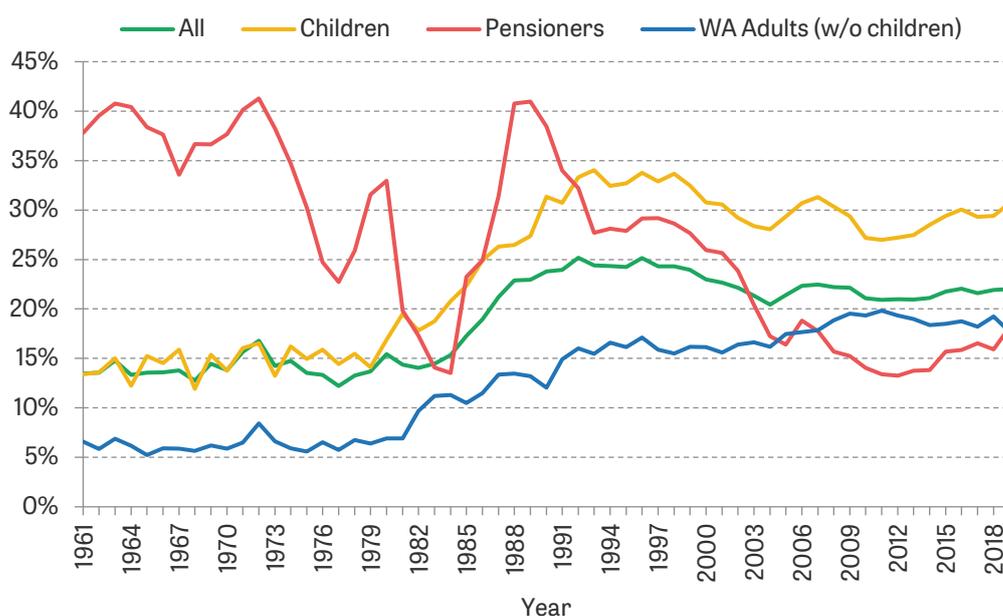
Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

The changing age distribution of households at the bottom of the distribution of resources can also be seen when we look at trends in relative income poverty rates for different groups, which we do in Box 2.

## Box 2. Trends in the level and composition of relative poverty

The changing age distribution of households at the bottom of the distribution of resources represents one of the major social changes of the past five decades. This can be seen very clearly in a measure of relative income poverty. Figure 14 shows the relative poverty rate overall and by demographic group over time. We show the fraction of individuals whose disposable household income – having deducted housing costs (i.e. the AHC measure from the HBAI) – is below 60% of contemporary median income.

**Figure 14. Relative poverty rate (AHC) by demographic group**



Note: Incomes have been measured net of taxes and benefits, after housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. The relative poverty line is defined as 60% of median AHC income in each year. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019–20.

Pensioners used to be by far the most likely to be in poverty by this measure; now they are the least likely. Indeed, the poverty rate among pensioners has fallen markedly over the last three decades (but risen in the most recent years) from around 41% in 1989 to 18% in 2019. This is largely ascribed to both cohort effects and policy effects. The cohort effects refer to the cohort-on-cohort increases in private pension entitlements and in employment at older ages. The policy impacts are driven by the increased generosity of pensioner benefits (for example, the introduction of Winter Fuel Payments in 1998, the Minimum Income Guarantee in 1999 and its subsequent replacement, Pension Credit, and the Basic State Pension 'triple lock' in 2010). However, the relative pensioner poverty rate has been increasing from 2012, when it hit a low of 13% (explanations include rising housing costs and reported falls in private pension income, although these may in part be a data quality issue; see Bourquin et al., 2019b). The relative pensioner poverty rate notably also stands out due to its procyclical natures.

The rate of child poverty rose substantially during the 1980s, fell over most of the 1990s and 2000s, before rising from 2011 onwards. In 2019, it stood at 31% – similar to immediate pre-recession levels, although still below the mid-1990s levels. The fall in the relative child poverty rate over the late 1990s and 2000s can be explained by various tax and benefit reforms, such as the increase in income support and the introduction and expansion of tax credits as well as by a (likely related) fall in the proportion of children living in workless families (Joyce and Sibeta, 2013). The rise during the 2010s is caused partly by policy: this period saw real-terms cuts in many benefit entitlements through a failure to uprate in line with inflation, an explicit reduction in the generosity of in-work benefits for families with children, and two cost-saving measures (the two-child limit and the benefit cap) whose burden is felt disproportionately by low-income households with children (see, for example, Cribb et al., 2022b).

The relative poverty rate of working-age adults without children, unlike that of the other demographic groups, continued to increase over most of the 1990s and 2000s. In 2019, the relative poverty rate among working-age adults without children was high by historical levels, standing at 18% in 2019 compared with rates of around 15% in the 1990s. This is a group that, unlike pensioners and families with children, was not favoured by tax and benefit reforms undertaken by the Labour government in the mid-90s through to 2010–11 (Joyce and Sibeta, 2013).

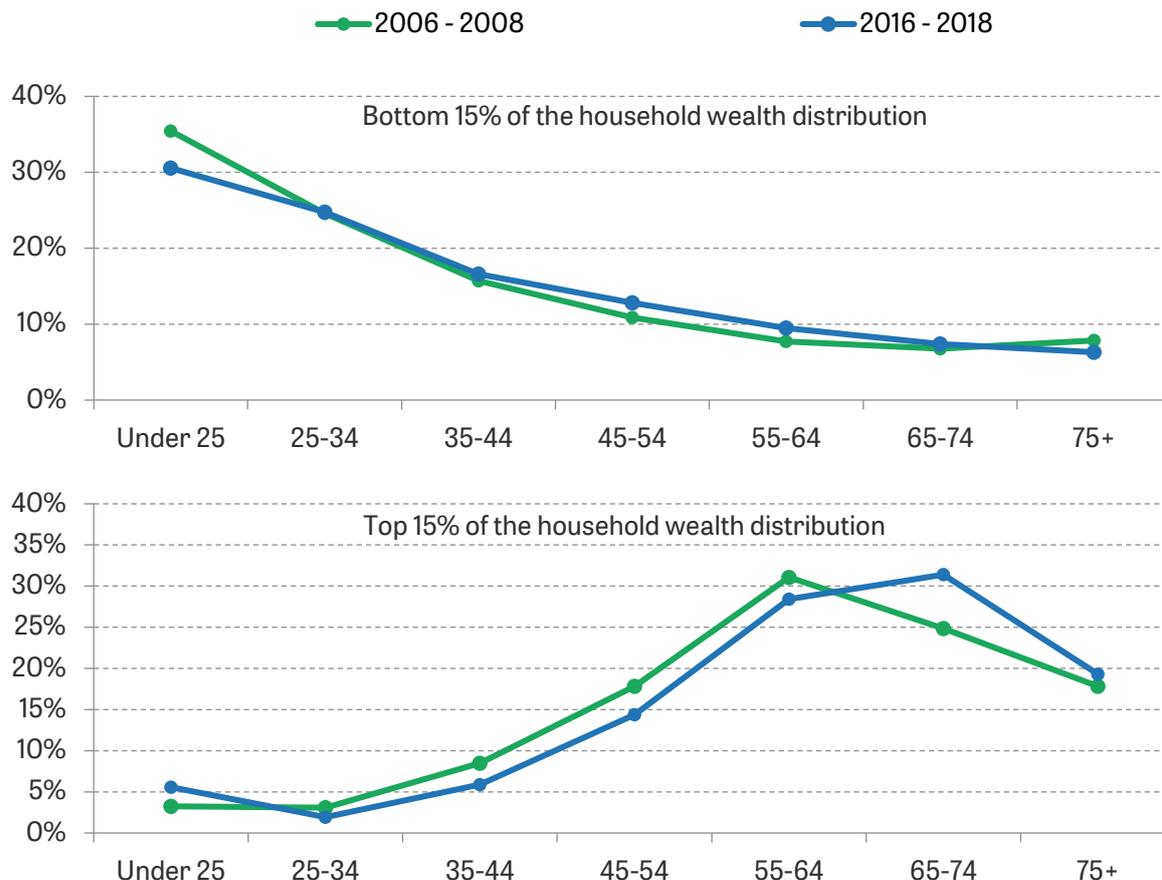
Broadly speaking, those below the relative poverty line today are far more likely to be children or adults, and far less likely to be pensioners, than was the case in previous decades. As a result, those in work are much more likely to be in poverty than they used to. Indeed, the in-work relative poverty rate – defined as the proportion of non-pensioner, working households that are in relative poverty – has increased substantially over the last four decades or so. Bourquin et al. (2019a) show that the huge increase in the relative in-work poverty rate since 1994 is partly explained by two trends that would normally be thought of as desirable: the catch-up of pensioner incomes pushed up median income and thus the relative poverty line, and falls in worklessness brought relatively low-earning households into work. However, they also find that less-desirable trends also help explain rising in-work poverty. First, there was an increase in household earnings inequality within working households (which we show in Section 7). Second, housing costs – broadly defined as rental costs plus mortgage interest costs, but not including any repayment of the mortgage principal – rose by more for low-income than high-income households, rising by roughly a fifth between 1994–95 and 2017–18 for the second-highest income quintile (and approximately zero for the highest-income quintile), but by over 60% for the second-poorest income quintile (see figure 12 of Bourquin et al., 2019a). Third, although benefit changes in the 2000s worked to reduce relative in-work poverty, reductions to benefit entitlements between 2010–11 and the onset of the COVID-19 pandemic partially reversed this.

### Household wealth and homeownership

Figure 15 shows a chart analogous to Figure 13 but for wealth, where our time series goes back only to 2006–08.<sup>45</sup> It shows a clear age profile in the risk of being at the top or bottom of the wealth distribution, with wealth holdings peaking in late working age and early retirement; the only obvious change over the ten or so years where we have detailed wealth data is the increasing share of those aged 65 or over at the top of the wealth distribution.

<sup>45</sup> Figure 9 of Advani, Bangham and Leslie (2021) shows a similar analysis.

**Figure 15. Proportion of individuals in the bottom and top 15% of the household wealth distribution by age**

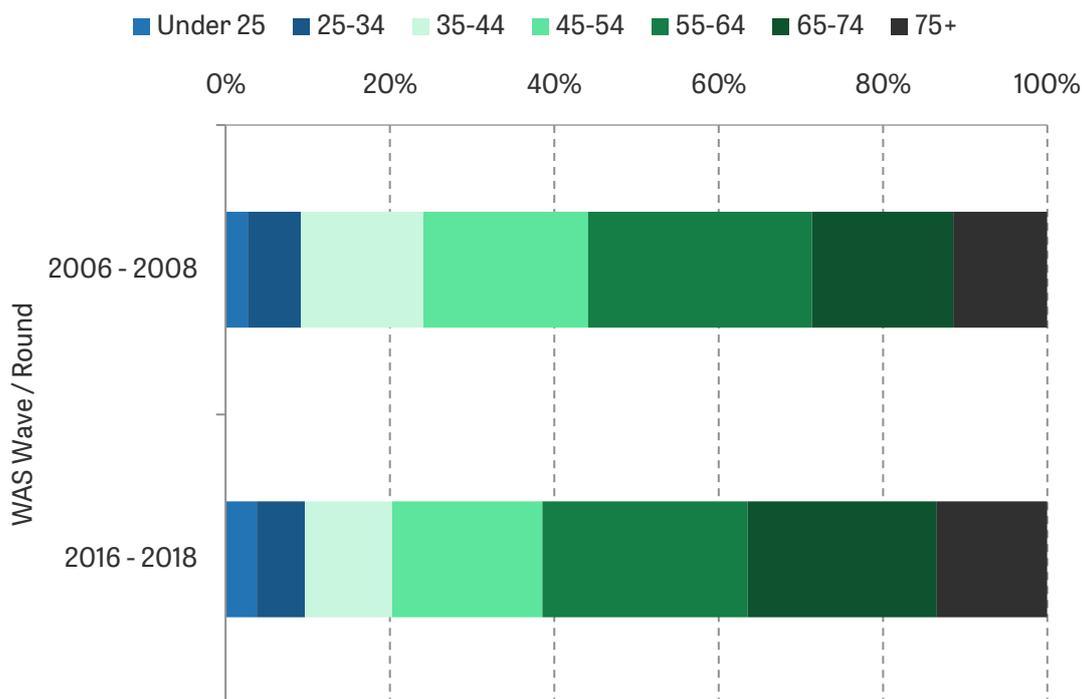


Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above), and includes pension, property and financial wealth. Physical wealth is excluded.

Source: Authors' calculations using the WAS, wave 1 and round 6.

Figure 16 shows this information in a different way, plotting what fraction of household wealth is held by people of different ages (note that this measure does not account for differences in population by age group or how these change over time). Even over this short 12-year period, there are noticeable shifts, with the share of wealth held by those aged 55 or over rising by just over 5 percentage points to 61% (although some of this will reflect shifts in the age profile of the population).

**Figure 16. Wealth shares by age band over time**



Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above), and includes pension, property and financial wealth. Physical wealth is excluded.

Source: Authors' calculations using the WAS, wave 1 and round 6.

### Life-cycle trends for different birth cohorts

#### Household disposable income, employment and earnings

The analysis above is, of course, showing us a mixture of age effects and cohort effects (i.e. it is comparing people who are both of different ages and from different birth cohorts).

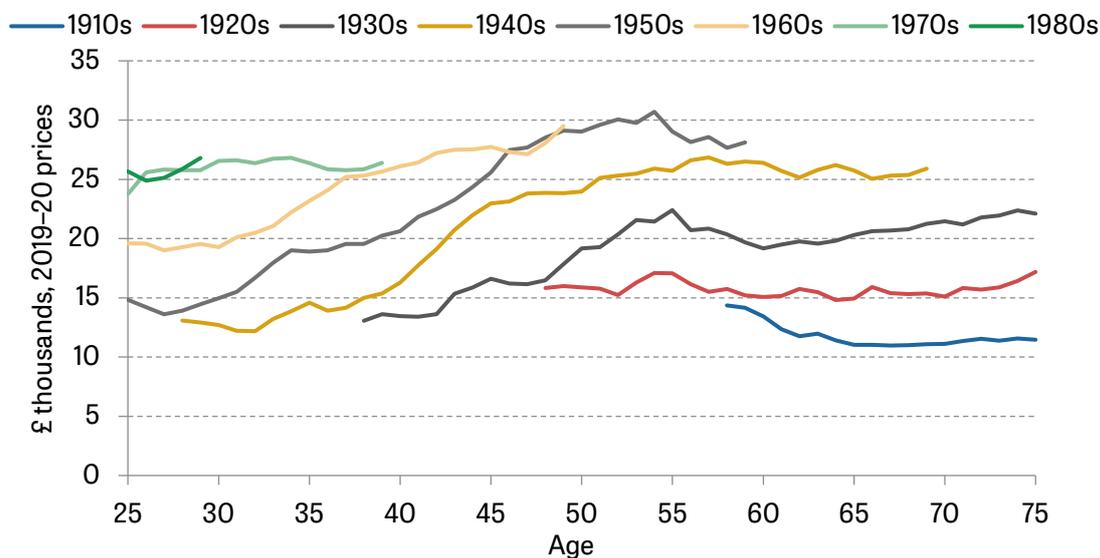
So, rather than showing differences between people of different ages (as in Figure 13), Figure 17 plots life-cycle trends in (median) household net income for people in different birth cohorts.<sup>46</sup> This shows that cohorts up to and including the 1950s have seen clear cohort-on-cohort real-terms progress in disposable income (by this, we mean that their incomes were higher than those from earlier birth cohorts when assessed at the same age), but this is not the case for recent cohorts. In particular, for those born in the 1960s and 1970s, weak growth in income in the most recent years means that the initial cohort-on-cohort progress has essentially disappeared, and the 1980s cohort have seen no sign of cohort-on-cohort progress at all.

Another way of analysing this chart is to look at the changing slopes of the lines. Those born before 1930, and after 1970, see age-income profiles that are essentially flat with age, whereas those born in the 1940s, 1950s and 1960s saw their income rise sharply with age until retirement. This has the following implication: those born in the 1940s and 1950s saw their median (within-

<sup>46</sup> As is usual, we allocate the equalised household net income to each individual in a household, so a household with people from different birth cohorts could contribute to more than one series on the chart; an alternative would be just to show the income by the age of the head of the household.

cohort) income approximately double, in real terms, over a 25-year period beginning from the age of 25 or 30. Those born in the 1960s saw a rise in income of around a half from age 25 to 50; on current trends, those born in the 1970s will see a rise of less than a quarter over 25 years.

**Figure 17. Median equivalised disposable BHC household income, for people born in different decades**



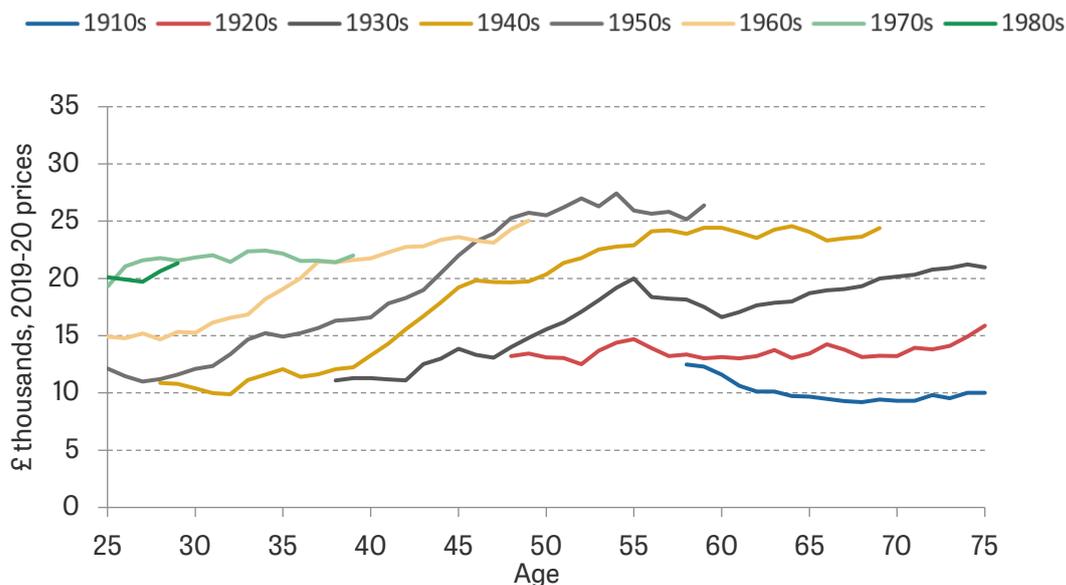
Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average. All incomes are adjusted to 2019–20 prices using a variant of the CPI that includes mortgage interest repayments.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

Figure 18 shows the equivalent to Figure 17 for incomes measured AHC. This makes the most recent three cohorts look slightly worse than earlier cohorts than using incomes measured BHC; this is because there have been particularly large cohort-on-cohort increases in housing costs, as shown in Figure 19.<sup>47</sup> Although this rise in what is spent on housing could reflect that people are consuming more quality-adjusted housing (i.e. more space, or nicer amenities), a key factor is the cohort trends in homeownership, which we show in Figure 24: the low housing costs at older age experienced by the 1940s cohort compared with earlier cohorts, for example, reflect higher rates of homeownership, which, at older ages, usually implies no housing costs.

<sup>47</sup> Importantly, here (as elsewhere in this chapter), housing costs are defined as rental costs plus mortgage interest costs, and do not include the repayment of the mortgage principal. This is probably the right concept to think about when comparing the housing costs of renters and mortgagors. However, the huge rise in house prices over time means that repayment of a mortgage principal is now a much larger part of the cost of buying a home than it was in the 1970s (see, for example, figure 5 of Judge and Leslie, 2021, which looks at first-time buyers), and if we had incorporated this, then it would have further increased the relative size of housing costs for newer cohorts.

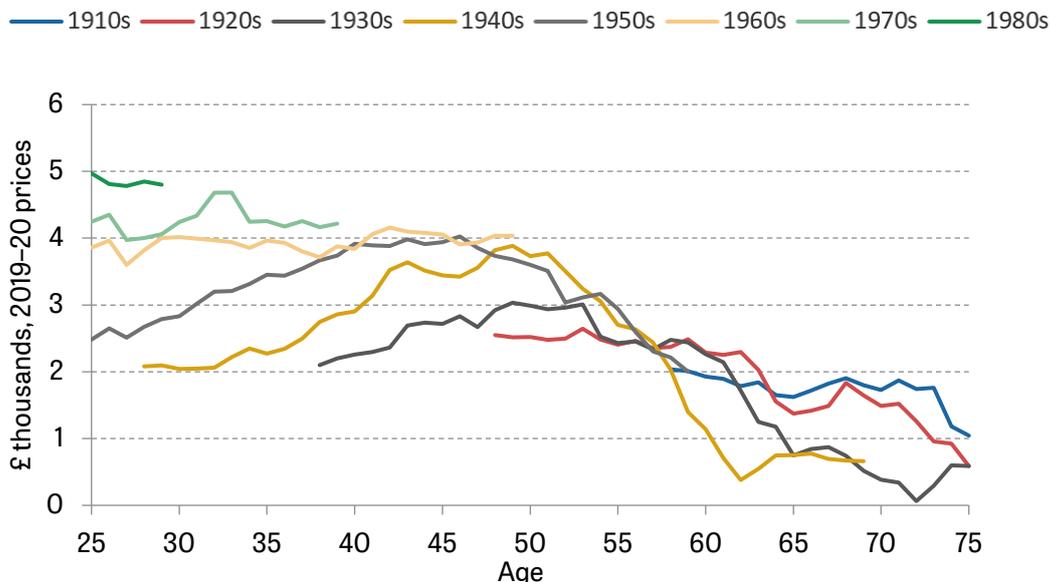
**Figure 18. Median equivalised disposable AHC household income, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Incomes have been measured net of taxes and benefits, after housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average. All incomes are adjusted to 2019–20 prices using a variant of the CPI that includes mortgage interest repayments.

Source: Authors’ calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

**Figure 19. Median housing costs, for people born in different decades**

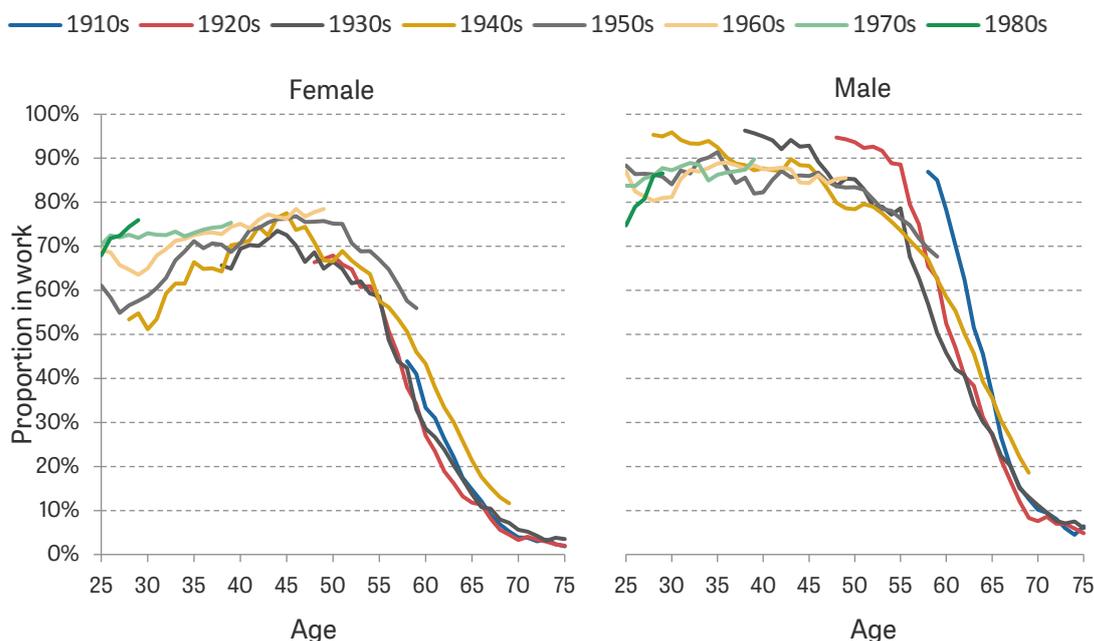


Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Housing costs have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

These trends reflect a complicated interaction of cohort and age trends in labour force participation, earnings and household formation. It is beyond the scope of this paper to understand these in full, but Figure 20 shows how the age profile of employment has changed for different decade-of-birth cohorts, and Figures 21 and 22 show cohort trends in (weekly) earnings rates for those in work. For men, there has been a cohort-on-cohort trend towards lower employment rates – influenced also by the structural changes of the 1980s, which particularly hit older men – that has stabilised for those born from the 1960s: 95% of men born in the 1920s were in work at age 49, compared to 85% born in the 1960s. For women, the cohort-on-cohort trend (beginning with those born in the 1950s, and possibly still continuing) is towards higher employment rates: for example, 51% of women born in the 1940s were in work at age 30, compared to 73% of those born in the 1970s. Looking at earnings for those in work, we can see that the 1920s (for men), 1930s and 1940s cohorts saw cohort-on-cohort real-terms progress in earnings (i.e. their earnings were higher than those from earlier birth cohorts when assessed at the same age). But the slow growth in average earnings during the mid-2000s, followed by the fall in average earnings after the financial crisis (see, for example, figure 1 in Giupponi and Machin, 2022), has wiped out any cohort-on-cohort progress that had been seen among those born in the 1950s, 1960s and 1970s. For both men and women, this cohort-on-cohort reversal is especially pronounced for those born in the 1980s, who have had lower earnings than those born in the 1970s for all of their labour market career so far.

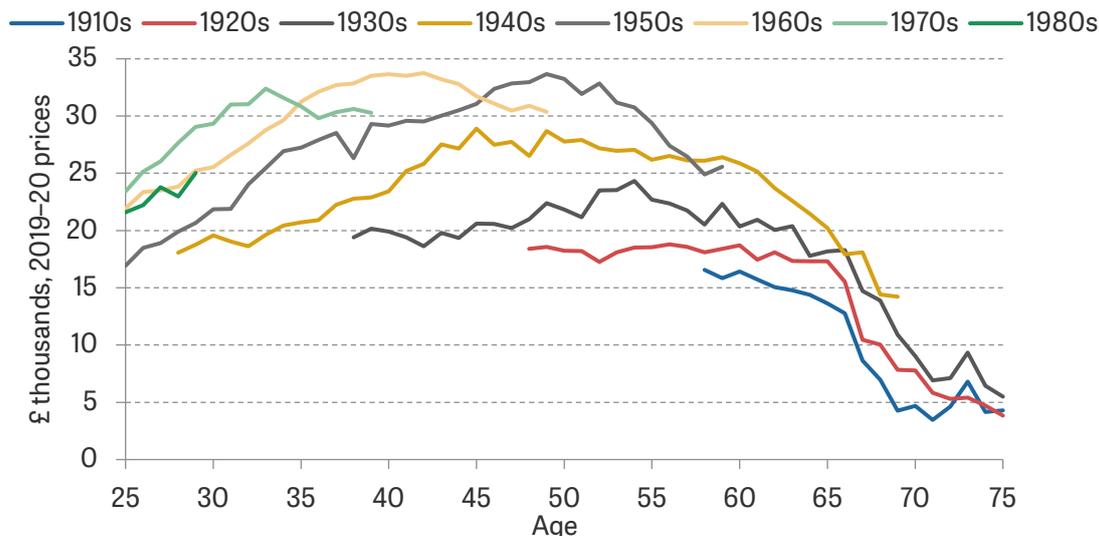
**Figure 20. Employment rates by year of birth, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

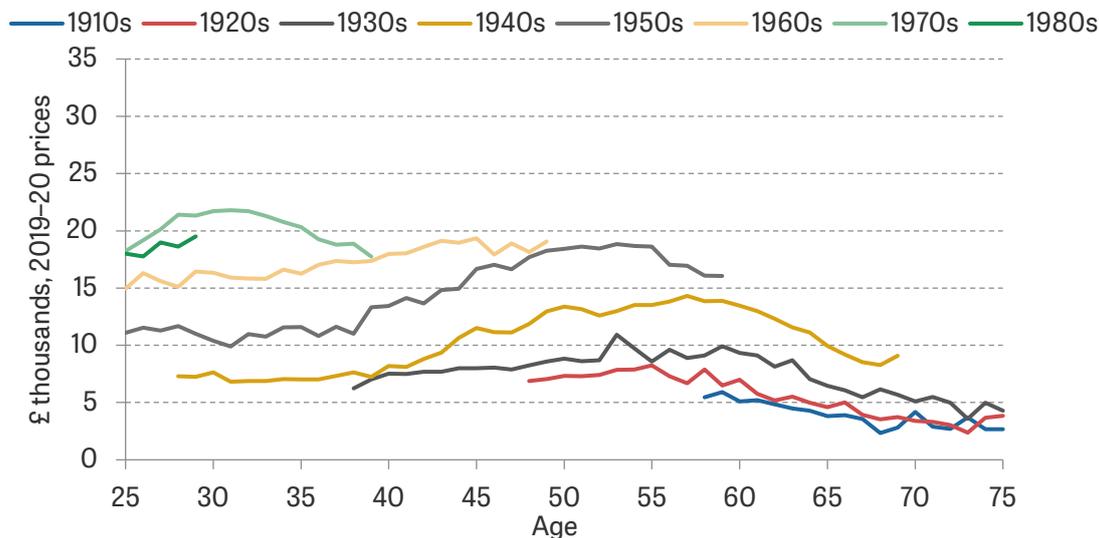
**Figure 21. Real median gross individual earnings among those in work, for men born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average. All incomes are adjusted to 2019–20 prices using a variant of the CPI that includes mortgage interest repayments.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

**Figure 22. Real median gross individual earnings among those in work, for women born in different decades**



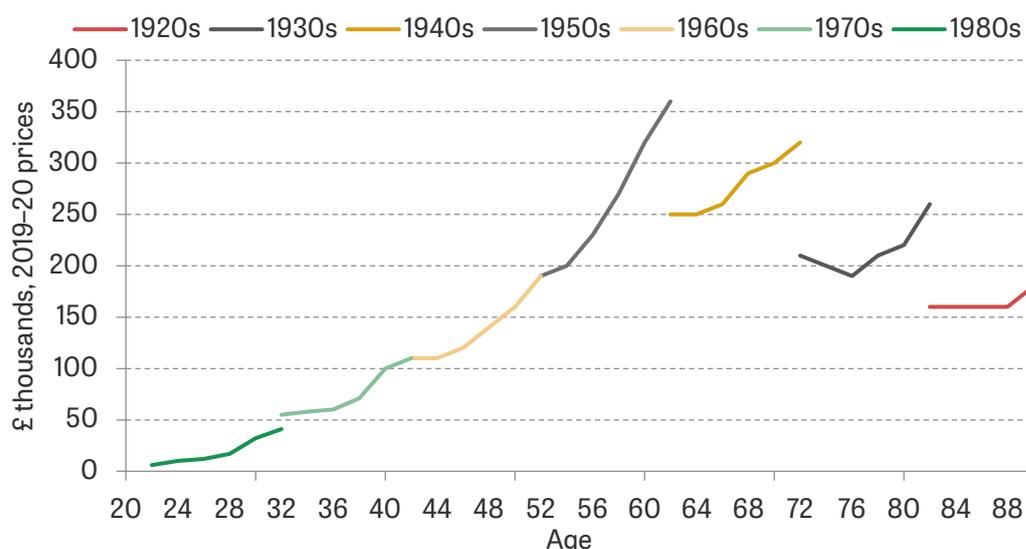
Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average. All incomes are adjusted to 2019–20 prices using a variant of the CPI that includes mortgage interest repayments.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

### Wealth

Figure 23 shows life-cycle profiles of wealth over the short period of time for which we have comprehensive data on all forms of wealth (i.e. since 2006–08).<sup>48</sup> Other than a very strong life-cycle profile, it shows clear evidence of cohort-on-cohort improvements in wealth, which stopped at the 1960s cohort. However, care needs to be taken in interpreting results for the most recent cohorts, as the analysis is limited to households containing no more than two adults (meaning that young adults living with housemates, who we might suspect had low levels of wealth, are not included in the analysis sample).

**Figure 23. Median net household wealth per adult by age, for people born in different decades**



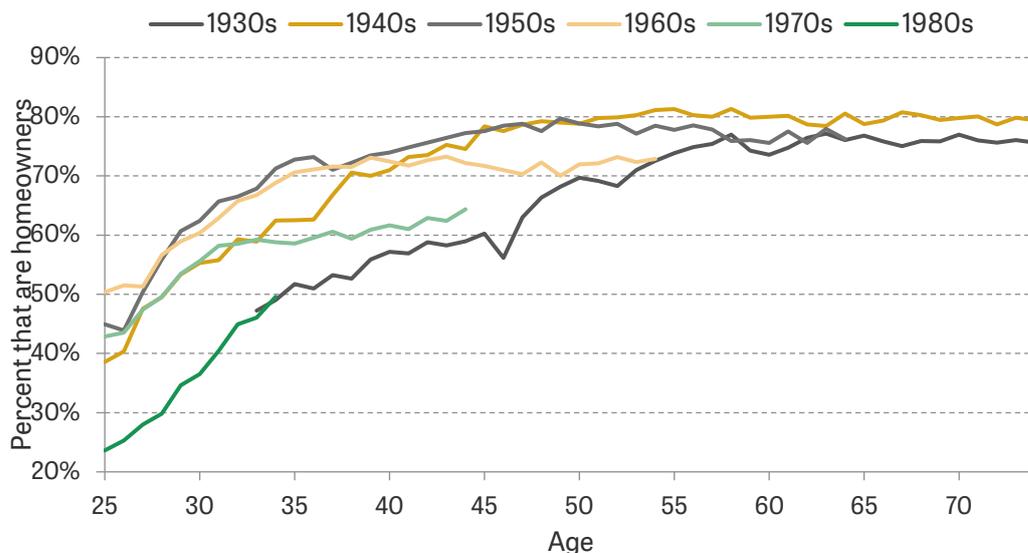
Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full time education, plus all aged 18 and above). Wealth includes pension, property and financial wealth. Physical wealth is excluded. Sample restricted to households containing either one adult or two (and their dependent children if they have any).

Source: Calculations by Jonathan Cribb, using the WAS, waves 1–4 and rounds 5–6.

To get a longer-term view, we can focus on one aspect of household wealth – that is, homeownership – where we have data back to 1968. Figure 24 plots homeownership rates by age and cohort. There was clear cohort-on-cohort improvement in homeownership rates for the 1940s and the 1950s cohorts, but the rapid growth in house prices that began during the 1980s brought this to a halt. In particular, the 1960s cohort was tracking the 1950s cohort precisely during their 20s and 30s (in that they had similar rates of homeownership at the same age), but began to fall behind from about the age of 35 (although note that Figure 23 shows these cohorts to be on a similar life-cycle profile of overall wealth, at least at the median). The 1970s and 1980s cohorts have fallen much further behind; indeed, the 1980s cohort seems to be following the homeownership age profile of those born in the 1930s, with rates of homeownership of about 50% at age 35, rather than 70% that was seen at that age for those born in the 1950s.

<sup>48</sup> Figure 6 of Cribb (2019) also splits this by type of wealth, which suggests that lower property wealth is the main cause of the lower wealth among the 1980s cohort. It is also the case that younger cohorts are more likely to be acquiring DC pension wealth, rather than DB pension wealth (as shown in Cribb, 2019), but the certainty and high payouts of DB schemes will be reflected in the valuations that underpin Figure 16 or Figure 23.

**Figure 24. Average homeownership by age, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. A 'homeowner' is defined as an individual, living in owner-occupied housing, who is either the household reference person or their partner.

Source: Updated by Jonathan Cribb from Cribb (2019).

The analysis here shows that those born in the 1980s and after have been hit by the double whammy of weak earnings growth, leading to a real-terms fall in earnings as they age, and the fact that falling or low interest rates have given large capital gains to wealth holders in previous generations, and caused the cost of housing to rise. But to get a full impression of how the increased amount of household wealth might affect the prospects of different generations, we should also think about inheritances – those in the low-wealth 1980s cohort may end up inheriting some of the wealth accumulated by the (say) high-wealth 1950s cohort – and we do this in Box 3.

### Box 3. Inheritances and inequality

A stylised way to think about inheritances and inequality was provided by Piketty (2014).<sup>49</sup> He argued that some developed countries could end up resembling the Gilded Age, or la Belle Epoque, where the very rich are dominated by those who have inherited and then live off their wealth. As Heather Boushey has it: '[a]s incomes accumulate into capital and then calcify into inheritances, the wealth of the dead takes on greater importance than that of the living.'

We can break down Piketty's prediction into four parts:

- wealth is becoming more unequally distributed;
- wealth is growing in importance;
- much of the wealth that is accumulated is now being bequeathed, rather than spent;

<sup>49</sup> This draws on Brewer (2019a).

- wealth is bequeathed to those who tend to be rich already.

Trends in inequality of wealth were shown in Figure 5; the fraction of wealth held by the wealthiest 10% is very high compared with income, and is probably a little higher now than its estimated low point in the 1970s. We have also noted that wealth has been growing in importance in the UK in recent decades, and that an increasing amount of household wealth, even with unchanging inequality, means that the wealthiest are, for all practical purposes, accelerating away from the rest of society.

The third part of Piketty's prediction is that much of the wealth that is accumulated is being bequeathed, rather than spent. Inheritances in the UK are certainly growing in importance. Over the past few decades, the value of bequests has risen in real terms; more of us expect to bequeath something, and more of us have inherited, or expect to be able to inherit, something (75% of those born in the 1970s already have inherited or expect to inherit in the future, but just over a third of those born in the 1930s have inherited anything). But because we have only had good data on inheritances and wealth since the mid-2000s, it is not yet clear whether inheritances are rising as a fraction of all wealth holdings, as Piketty predicted.<sup>50</sup> Bourquin et al. (2021), however, predict that inheritances will become more important, assessed as a fraction of their recipients' lifetime income, with the median value rising from 9% of household lifetime (non-inheritance) income for those born in the 1960s to 16% for those born in the 1980s.

The final step in the puzzle is in determining whether inheritances are increasing inequalities.<sup>51</sup> On the face of it, it is hard to see that inheritances can be doing anything to make us a more equal society. Bequests themselves are very unequal: 85% of all wealth held by those aged 80 or over is held by half the population, with the other half having just 15% (Hood and Joyce, 2017). We know that the chances of receiving an inheritance peak for adults aged 55–64, and are higher for those who have higher levels of education; those who already have wealth, or who have high lifetime incomes, are more likely to inherit, and tend to inherit large sums than those who started off with less (Hills et al., 2013; Crawford and Hood, 2015; Hood and Joyce, 2017; ONS, 2018). Similarly, people's perception of whether they are likely to receive an inheritance rises with income (Hood and Joyce, 2017). There is also a pattern within couples: the likelihood that one member of a couple receives an inheritance is higher if their partner has received one (Crawford and Hood, 2015). In the early 2010s, nearly half (46%) of non-homeowning 20–35 year olds have parents who are not homeowners either, but 83% of millennial homeowners have a parent who also owns their own home.

<sup>50</sup> Piketty estimated that the value of all bequests and gifts (as a fraction of UK national income) reached a low point in the period from 1970 to 1990, and has been rising since). Hills et al. (2013) agree that the total size of estates as a fraction of national income has been rising since the 1980s. But this is the same pattern as for total household wealth, and neither source looks at whether the fraction of wealth that is inherited, rather than accumulated in one's own lifetime, has been rising.

<sup>51</sup> Wealth can also pass between generations through transfers or gifts made when parents are alive. We think their total size is about a tenth that of inheritances. What little we know suggest that gifts are more likely to be made by those who have more wealth, but that being a well-off child reduces the likelihood of receiving a gift from your parents. So, although gifts are another way in which accumulated wealth can be transmitted through generations, one interpretation of the data is that parents might be doing their own form of within-family redistribution when they give out these gifts.

However, researchers have suggested that inheritances may have reduced – albeit very slightly – summary measures of wealth inequalities (Hills et al., 2013; Crawford and Hood, 2015; ONS, 2018; Bourquin et al., 2021). This is because some inheritances were received by those who otherwise would have had very low levels of wealth indeed, and this does more to reduce a measure of wealth inequality such as the Gini than does the fact that the wealthy are more likely to inherit, and more likely to inherit a lot (and the same is true if we look at what inheritances do to an individual's lifetime income). But, as we discussed earlier, relative measures of inequality can fall even though the gaps between the haves and have-nots seem as large as before.

But Bourquin et al. (2021) take a different approach by looking directly at what inheritances do to the strength of the relationship between a parent's standard of living and their children's.<sup>52</sup> Their simulations imply that inheritances will act to reduce social mobility in the UK. In particular, their simulations suggest that the gap between the value of inheritances of those whose parents were at the top or bottom of the wealth distribution will be higher for those born in the 1980s than those born in the 1960s. Also, inheritances are projected to account for around a quarter of the inequality in lifetime consumption by parental background for those born in the 1960s, although this will rise to a third for those born in the 1980s. It is important to note that this study was not trying to look at the overall impact of parental wealth on their children's future wealth or income, but just that which operates through bequests. We can also imagine that parental wealth will also help in the process of the child's human capital accumulation, whether through access to better schools or paid-for educational inputs.

Overall, then, whatever inheritances end up doing to summary measures of inequality, we should not expect the transfer of wealth between generations to reduce underlying inequalities in any meaningful sense.

### Trends in within-cohort inequalities

Figures A.5–A.11 in the Appendix look at trends in within-cohort measures of inequality (some are shown in two ways, one that highlights the between-cohort differences, and one that highlights the so-called 'period' effects – differences between different points in time that are common to all cohorts). A general issue is that the sample sizes of the underlying household surveys are not large enough to estimate these measures very precisely – and we do not have good microdata on wealth for long enough to perform this sort of analysis at all – but the figures suggest the following.

- For earnings, within-cohort inequality rises with age, reflecting a greater variation in hours worked and hourly wages as people age. For income, within-cohort inequality first rises, peaks at late working age, and then falls with age as people move into retirement.
- For both earnings and income, the data are consistent with the 1980s acting as a simple period shock to within-cohort inequality. This can be seen most clearly if we look at the 1930s to 1960s cohorts in Figure A.7; the 1930s, 1940s and 1950s cohorts all see a strong rise in inequality at ages that roughly align with the period shock of the 1980s (for the 1960s cohort, the 1980s shock happens too soon in their working lives to be evident here), but all four cohorts have a within-cohort Gini coefficient of 0.35 at around age 55. (The same pattern is broadly true for earnings, as shown in Figure A.5, but here there is some evidence that the

<sup>52</sup> Intergenerational correlations in wealth for the UK are shown in Blanden, Eyles and Machin (2021), Davenport, Levell and Sturrock (2021) and Gregg and Kanabar (2021).

1970s cohort is seeing greater inequality than any previous cohort, but this does not seem to be true for the 1980s cohort). Although there are many other things that we have not controlled for, this is consistent with the rise in inequality shock of the 1980s moving affected cohorts to a higher level of within-cohort inequality, but not putting them on to a higher growth rate of inequality.

- The evidence on consumption is noisy, reflecting the smaller sample size; it is consistent with more recent cohorts having higher within-cohort inequality in early life, but seeing less growth as they age. However, this could also reflect increasing inability to capture expenditure at the top of the distribution.

## 6. The changing composition of the top and bottom of the income, consumption and wealth distributions

In this section, we look at how the characteristics of the top and bottom 15% of the income and wealth distribution have changed over time. This gives us an insight into how some between-group differences have changed over the last four decades (although we are limited by what characteristics are recorded in the respective household surveys). Equivalent results for consumption are shown in the Appendix (see Figures A.43–A.45). We look at subgroups defined by education, ethnicity, household type and geography (i.e. region of England and nation of the UK). Our analysis of how these risks have changed when considering wealth is limited by the fact that the underpinning household survey begins only in 2006–08.

The key findings are the following.

- The difference between the chance that graduates and those who have left school at age 16 are found in the top or bottom of the income distribution has fallen over time, although interpreting this is complicated by the huge rise in the proportion of graduates since our data begin in the late 1970s. But graduates remain over three times more likely to be in the top 15%, and about half as likely to be found in the bottom 15%, than those who have left school at age 16.
- All of the minority ethnic groups we can look at have a higher risk of being at the bottom of the income distribution than those whose ethnic group is white, and all except the Chinese and Indian ethnic groups have a lower risk of being at the top of the income distribution than those whose ethnic group is white. But these ethnic differences have reduced in the past two decades, especially at the bottom of the distribution.
- As well as very large falls in the risk of low income among pensioner households, lone parents have also seen a large fall in the risk of having a low income, although the post-2010 trend in this risk is upwards. The household type whose risk of a low income has risen noticeably is men below the pension age who are living alone, where the risk of a low income has doubled. At the top of the income distribution, the major change has been the fall in the chance of having a high income for men living alone, which is offset by the growing fraction of couples with children at the top of the income distribution.
- Among the regions of England and nations of the UK, London stands out as having the highest incomes and the highest housing costs (house prices and rents are higher, and more people rent, rather than own). It also has the most unequally distributed incomes, particularly when

assessed after housing costs. Over the past 50 years, regions of England or nations of the UK most likely to see higher levels of household resources are the East, South East and South West of England; those that have fallen down (relatively) include London, the North West, the North East and the West Midlands, with the precise list depending whether one looks at income or consumption (which reflects the value of owner-occupied housing).

## Education

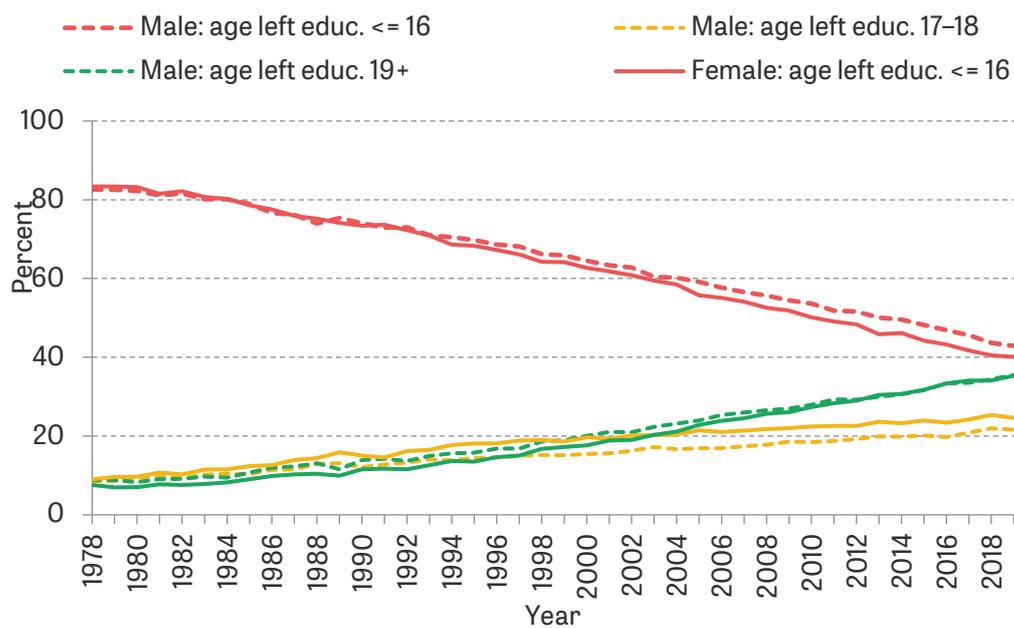
As discussed in Box 4, time-series assessments of how outcomes vary by education are limited by the variables available to us that measure educational attainment, and affected by the huge shift in educational attainment since 1978 (indeed, in the Appendix, Figures A.4 and A.44 show that the risk of being in the bottom 15% of the population has risen for all education groups (and the risk of being in the top 15% of the population has fallen for all education groups), something that can only be true with large compositional changes. Accordingly, we show in Figure 26 the odds ratios of being at the top or bottom of the income distribution. There is still a strong educational gradient to the chance of being at the top or the bottom of the income distribution, but the differences by education have fallen over time.

### Box 4. Assessing differences by educational qualifications

When analysing how outcomes vary by educational attainment, we are limited to using a three-way split based on the age that individuals left full-time education: left education at the age of 16 or younger, left education at the age of 17 or 18, and left education at the age of 19 or older (for household education, we take the highest level of education within the household). A split such as this can be hard to interpret when there have been considerable changes in educational attainment: as shown in Figure 25, there has been a substantial (+27 ppt for men and +28 ppt for women) increase in the proportion of individuals aged 25–74 who stayed in education beyond the age of 18 since 1978. This means that this group (and the other two education groups) will, on average, have different characteristics from the group they were in the past, which makes accurate like-for-like comparisons over such long time periods impossible.

However, the way in which income and wealth vary by education is clearly a key marker of the extent of inequality in the UK. Appendix A.2 therefore shows this for earnings, income, consumption and wealth.

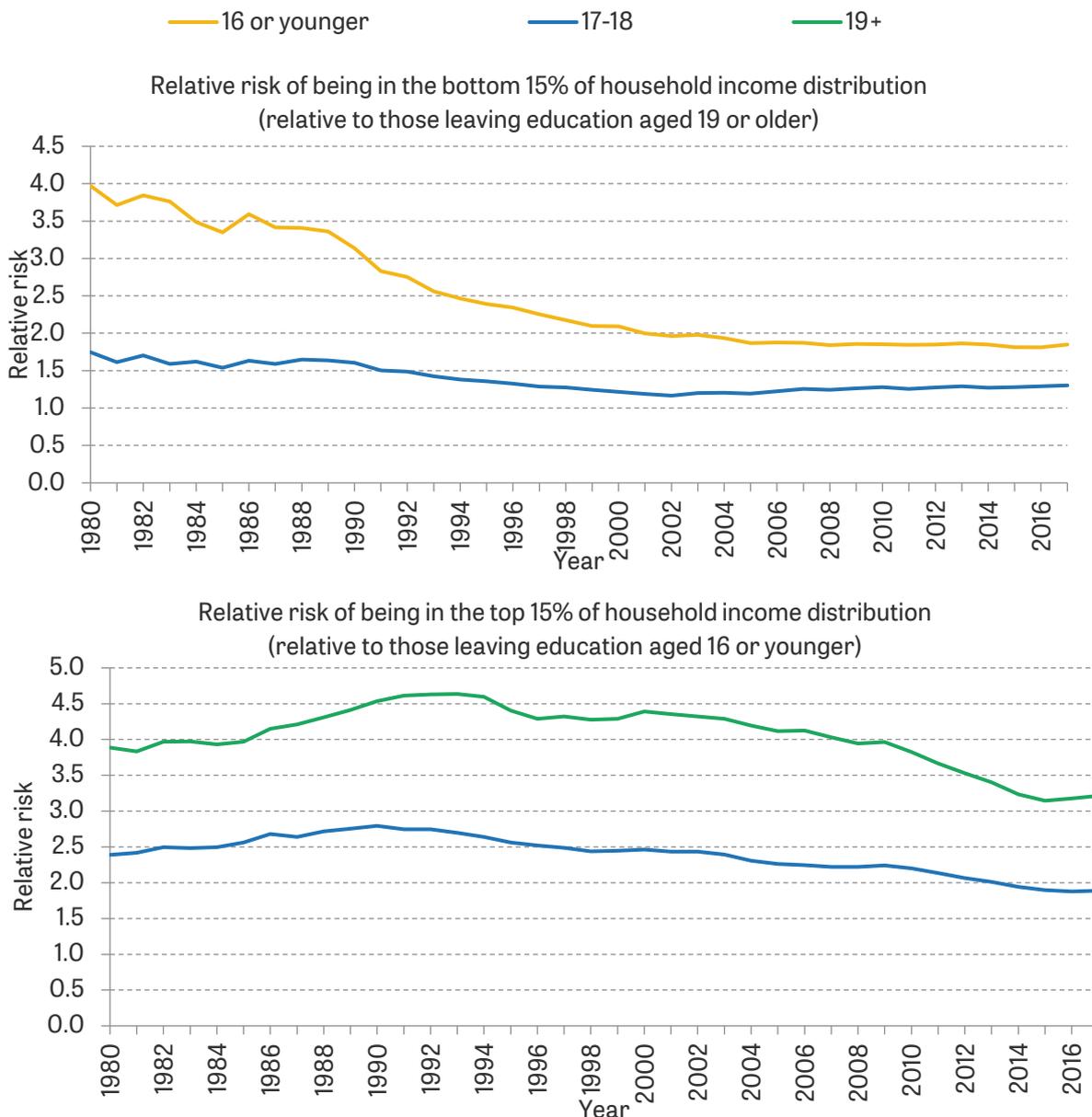
**Figure 25. Trends in educational attainment for those aged 25–74 by gender, 1978–2019**



Note: Sample consists of individuals aged 25–74 who have completed full-time education.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

**Figure 26. Relative risk of being in the bottom and top 15% of the household income distribution by age left education**

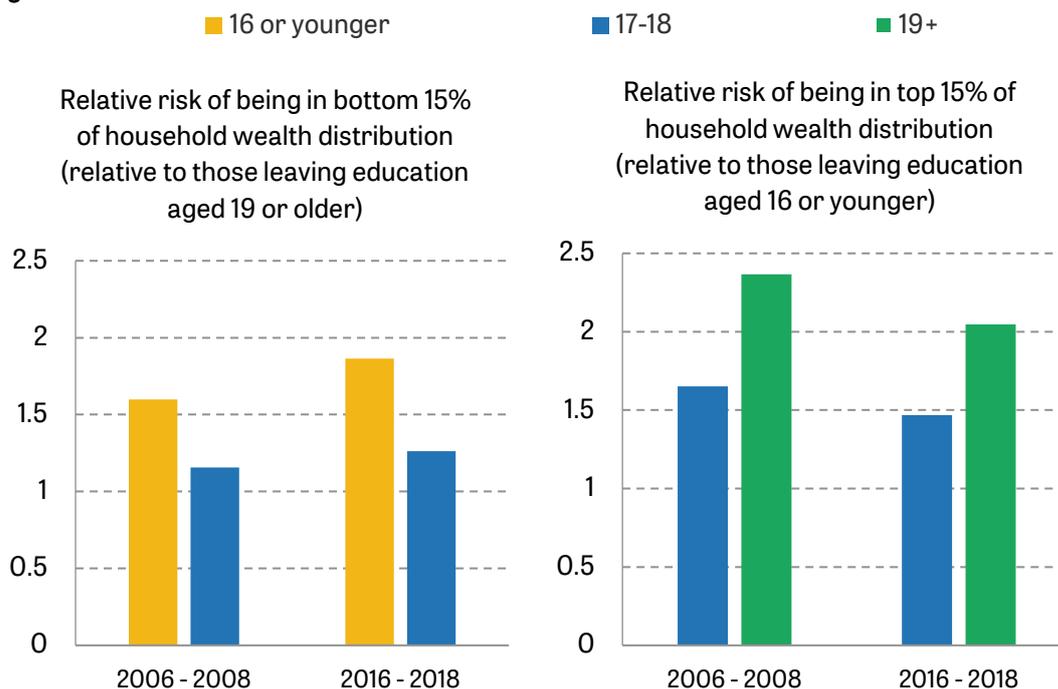


Note: Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

For wealth, where we only have a 10-year period, it looks like the educational gradients for being at the top of the distribution have flattened, but the educational gradients for being at the bottom of the distribution have steepened (see Figure 27).

**Figure 27. Relative risk of being in the bottom and top 15% of the household wealth distribution by age left education**



Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above), and includes pension, property and financial wealth. Physical wealth is excluded.

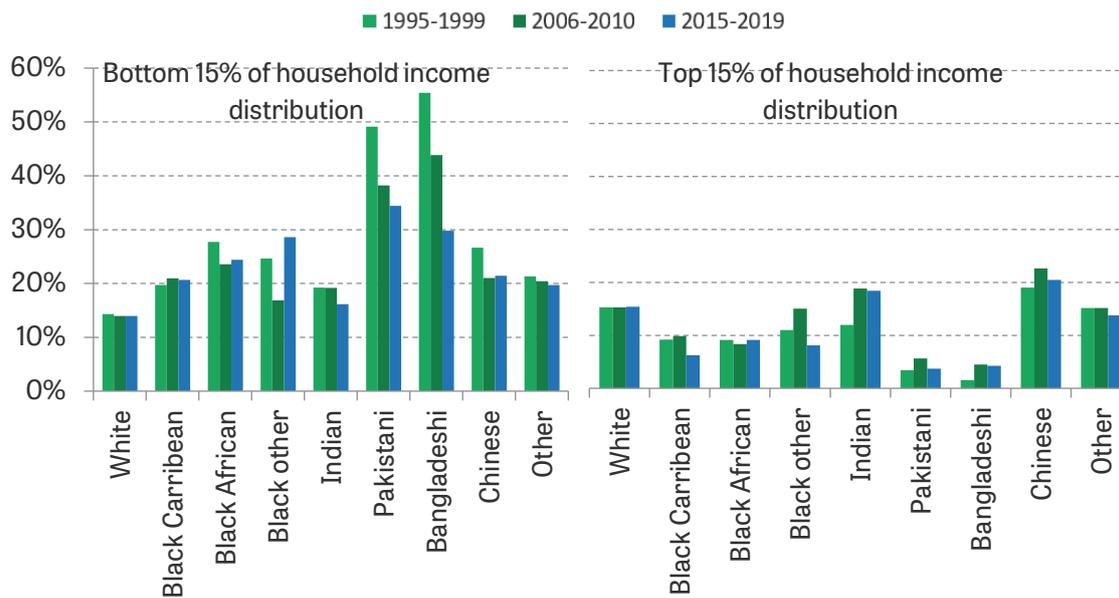
Source: Authors' calculations using the WAS, waves 1-4 and rounds 5-6.

### Ethnicity

Limitations in the underlying data mean we can look at ethnic differences only back to 1995, and we cannot do it at all for consumption. Figure 28 shows changes over time in the risk of being in the top or bottom of the income distribution by ethnic group.

All of the ethnicities shown have a higher risk of being at the bottom of the income distribution than those whose ethnic group is white, and all except the Chinese and Indian ethnic groups have a lower risk of being at the top of the income distribution than those whose ethnic group is white. But these ethnic differences have, in general terms, reduced, especially at the bottom of the distribution.

**Figure 28. Proportion of individuals in the bottom and top 15% of the household income distribution by ethnicity**



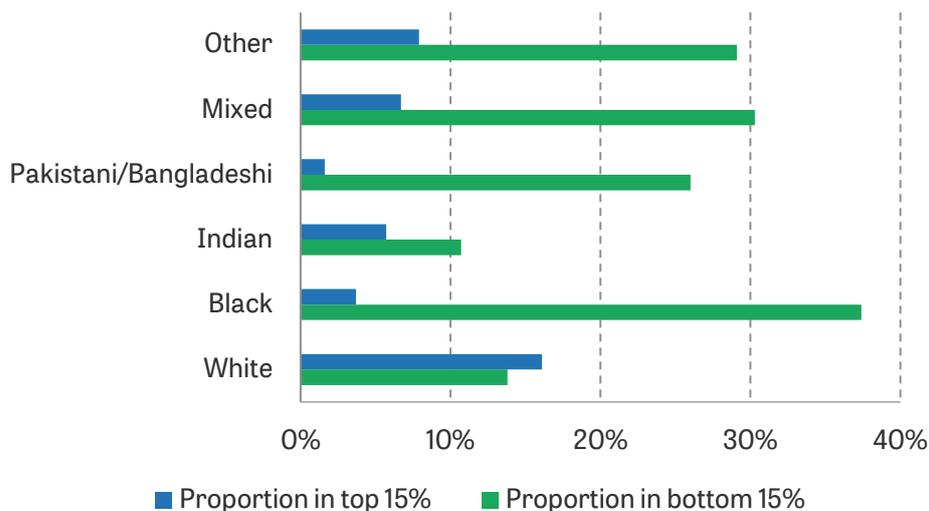
Note: Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

Figure 29 shows the risk of being at the bottom and top of the wealth distribution for different ethnic groups.<sup>53</sup> All minority ethnic groups have a lower chance of being in the top 15% of the wealth distribution than the white ethnic group, and all ethnicities other than the Indian group have a higher chance of being in the bottom 15% of the wealth distribution than the white group. Bangham (2020) shows that some of this is explained by differences in the ages of adults from different ethnic groups – which is important, given the very strong life-cycle profile to wealth – but that substantial differences remain after accounting for age and other factors.

<sup>53</sup> Bangham (2020) and figure 10 of Advani, Bangham and Leslie (2021) show similar analyses.

**Figure 29. Proportion of individuals in the bottom and top 15% of the household wealth distribution by ethnicity**



Note: Wealth is calculated per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above), and includes pension, property and financial wealth. Physical wealth is excluded. Data points are plotted at the mid-point of the two-year waves.

Source: Jonathan Cribb's calculations using the WAS, waves 1-4 and rounds 5-6, pooled.

### Household type

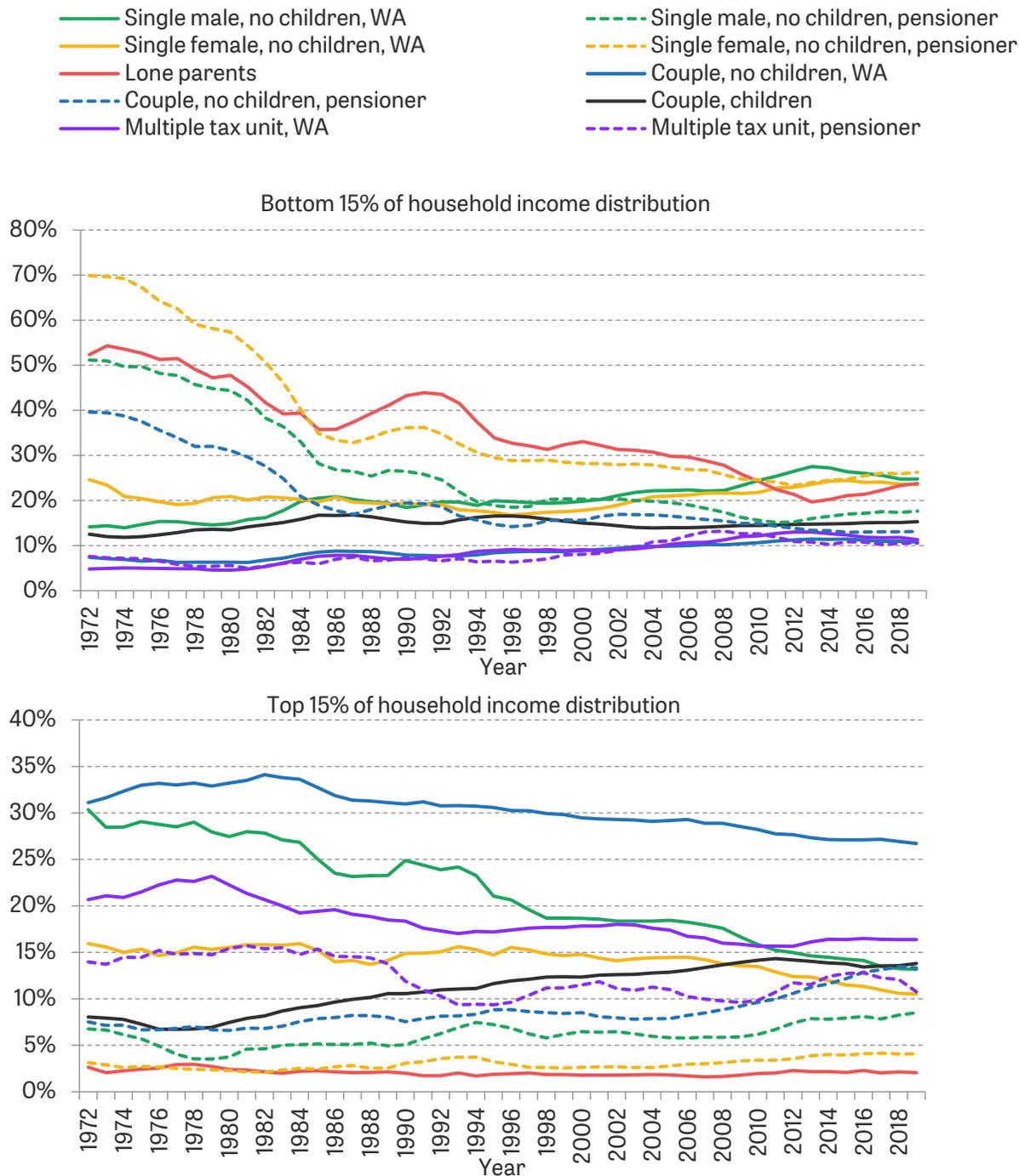
There have been some very substantial changes over the last 50 years in the risk of different household types being at the top or bottom of the income distribution. In particular, Figure 30 shows the following.

- Consistent with Figure 13, there have been very large falls in the risk of low income among pensioner households: the risk of a single woman over the state pension age who lives alone being in the bottom 15% has fallen from 70% in 1972 to 33% in 1987 to 26% in 2019, for example (for men, the rate has fallen from 50% in 1972 to 18% now). For couple pensioners, the risk is down from 40% in 1972 to 17% in 1987 to 13% in 2019, and they are now less likely to be found in the bottom 15% than other household types.<sup>54</sup> Pensioners have also become increasingly likely to be found at the top of the income distribution, particularly since the mid-2000s, but the changes are less stark.
- Lone parents (where we do not split by gender) have seen a large fall in the likelihood that they are at the bottom of the income distribution, down from over 50% in 1972 to 24% in 2019 (although the post-2010 trend in this risk is upwards).
- As our measures are relative, then falls in the risk of low income for some groups have to be offset by a higher risk for others; this is most marked for men below the pension age who are living alone, for whom the risk of a low income has doubled (from 13% to 26%).
- At the top of the income distribution, the major change has been the fall in the chance of being in the top 15% for men living alone (down from just over 30% to just under 15%), which is offset by the growing fraction of couples with children at the top of the income distribution

<sup>54</sup> There has been a small rise in the risk of low income among those in households that contain both pensioners and non-pensioners, though.

(where the risk has risen from 8% to 14%), linked to the rise in the fraction of couples with two earners (which we discuss in Section 7), and small increases in the risk of being at the top of the income distribution among the various pensioner households.

**Figure 30. Proportion of individuals in the bottom and top 15% of the household income distribution by household type**



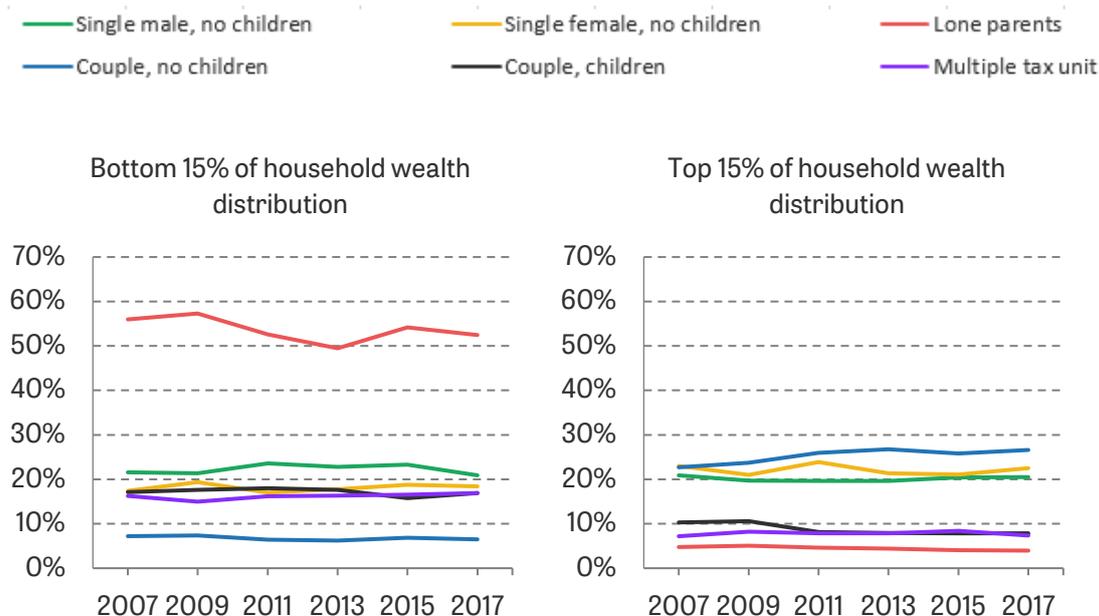
Note: Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and to households in Great Britain for earlier years. We show the five-year rolling average, with data plotted at the mid-point of each period. A tax unit is a single adult, or a married or cohabiting couple, together with any dependent children. Where household

types are split by pensioner status or working-age (WA) status, any household containing a pensioner is designated a pensioner household.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

Figure 31 shows changes over the past decade or so in the risk of being in the top and bottom of the wealth distribution. There are few changes over this short period (a small rise in the risk of being at the top of the distribution among couples with no dependent children); the biggest difference between household types is the much greater risk of being at the bottom of the wealth distribution among lone parents (over 50% in the latest year of data).

**Figure 31. Proportion of individuals in the bottom and top 15% of the household wealth distribution by household type**



Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above), and includes pension, property and financial wealth. Physical wealth is excluded. Data points are plotted at the mid-point of the two-year waves. A tax unit is a single adult, or a married or cohabiting couple, together with any dependent children.

Source: Authors' calculations using the WAS, waves 1-4 and rounds 5-6. Data are plotted at the middle year of each wave/round.

### Region

In another chapter for this review, Overman and Xu (2022) have looked comprehensively at spatial disparities in the UK's labour market, concluding, very broadly, that although these are smaller now than at any point since the late 1990s, they are remarkably persistent. The use of administrative data, or high-quality surveys of employers, means that these labour market differences are relatively well understood. Less is known about spatial disparities in the outcomes under investigation in this chapter, though. This is partly because the household surveys discussed in Section 2 are not large enough to provide robust estimates below the level of the nation/region (and, pre-1994, even that requires pooling several years of data). There are other sources of data that can help us learn about spatial disparities in income and wealth, but none of them tells us about inequalities *within* geographical areas as well as *between* them.<sup>55</sup> In this

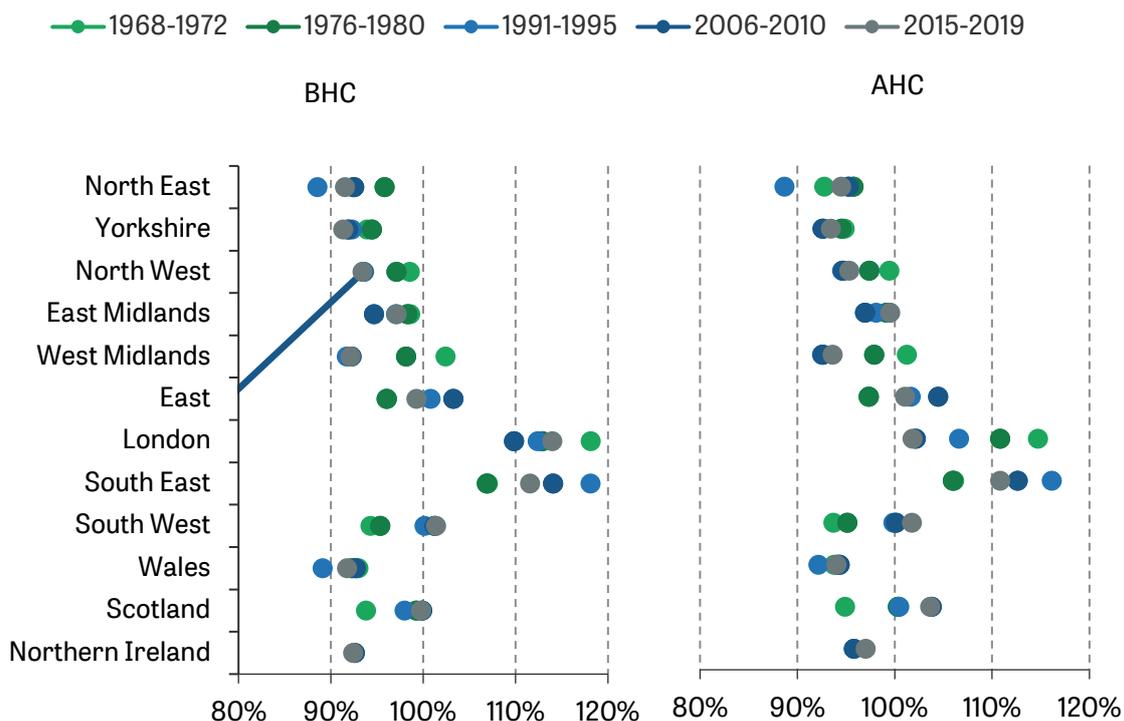
<sup>55</sup> For example: the ONS publish synthetic estimates of disposable income at very small levels of geography (see ONS, 2021c); there is an official Index of Multiple Deprivation that ranks very small levels of geography on a set of domains, one of which is income (see <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>); and there are National Accounts-based measures of average income at the local authority level (see ONS, 2021c). These and others are analysed in Agrawal and Phillips (2020) and Judge and McCurdy (2022).

subsection, we continue to use the household surveys covering income and wealth to show disparities between (and, to a limited extent, within) the nations of the UK and the regions of England. Because there are significant differences in housing costs between regions, we show measures of income before and after deducting housing costs.

We start by showing differences between regions, as measured by median disposable income. Figure 32 shows the ratio of each region's or nation's median income to the UK-wide median income for the five key time periods (data from Northern Ireland are only available for the final time period). In recent years, London and the South East stand out as the highest income regions (on this metric) on a BHC basis, followed by Scotland, East and South West England, and then followed by the remaining regions of England, Wales and Northern Ireland.

Between-region differences are smaller on an AHC basis (i.e. higher housing costs offset some of the higher incomes, as noted in Overman and Xu, 2022). The major difference between the AHC and BHC measures is that London falls down the ranking of regions on an AHC basis in the most recent years, leaving the South East, followed by Scotland, as the two highest-income regions of England or nations of the UK on this metric.

**Figure 32. Ratio of median household income in each region or nation to median income for the UK**

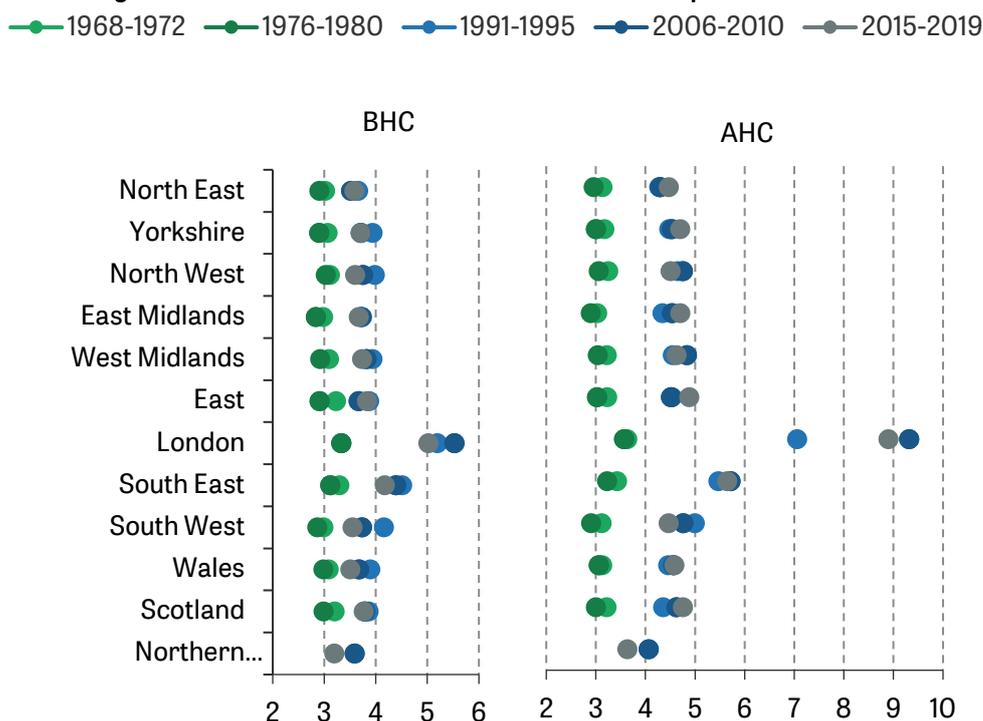


Note: Incomes have been measured net of taxes and benefits, before and after housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

It is also important to note the striking variation in within-region income inequalities. Figure 33 shows the 90:10 ratios for the different regions of England and nations of the UK. The clear stand out fact is the much greater inequality (on this measure) in London, and especially so on an AHC basis.

**Figure 33. Regional and national 90:10 ratios for household disposable income**



Note: Incomes have been measured net of taxes and benefits, before and after housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. We show the five-year rolling average.

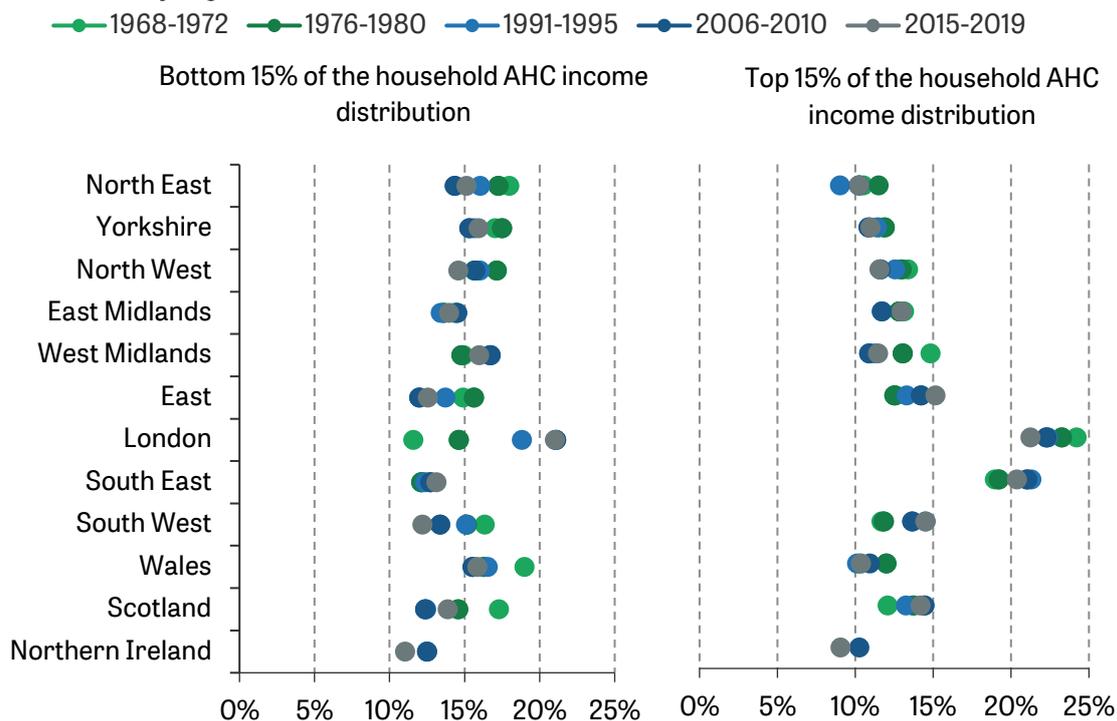
Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

With those two pieces of preliminary analysis in mind, Figure 34 shows regional and national differences in the risk of being at the top and bottom of the distribution of household disposable income measured AHC (data from Northern Ireland are only available for the final time period). (Figure 35 repeats the analysis using incomes measured without deducting housing costs, or the BHC income measure).

The key trend at the bottom of the distribution has been the increased risk for people in London to be at the bottom of the (AHC) income distribution, such that, in the most recent data, this is the region with the greatest risk. This reflects the growing level of housing costs in London. The change is so pronounced that almost all other regions of England and nations of the UK correspondingly saw their risk of having a low income fall – exceptions are the South East and the West Midlands.

As shown directly in Figure 33, these two figures also show that London is standing out as being polarised: people in London continue to have the highest risk of being at the top of the UK income distribution, although this advantage has declined over time, as well as being at the bottom. Regions and nations improving on this measure include Scotland, the East of England and the South West of England; alongside London, the North West and the West Midlands are now also less likely to be found at the top of the AHC income distribution.

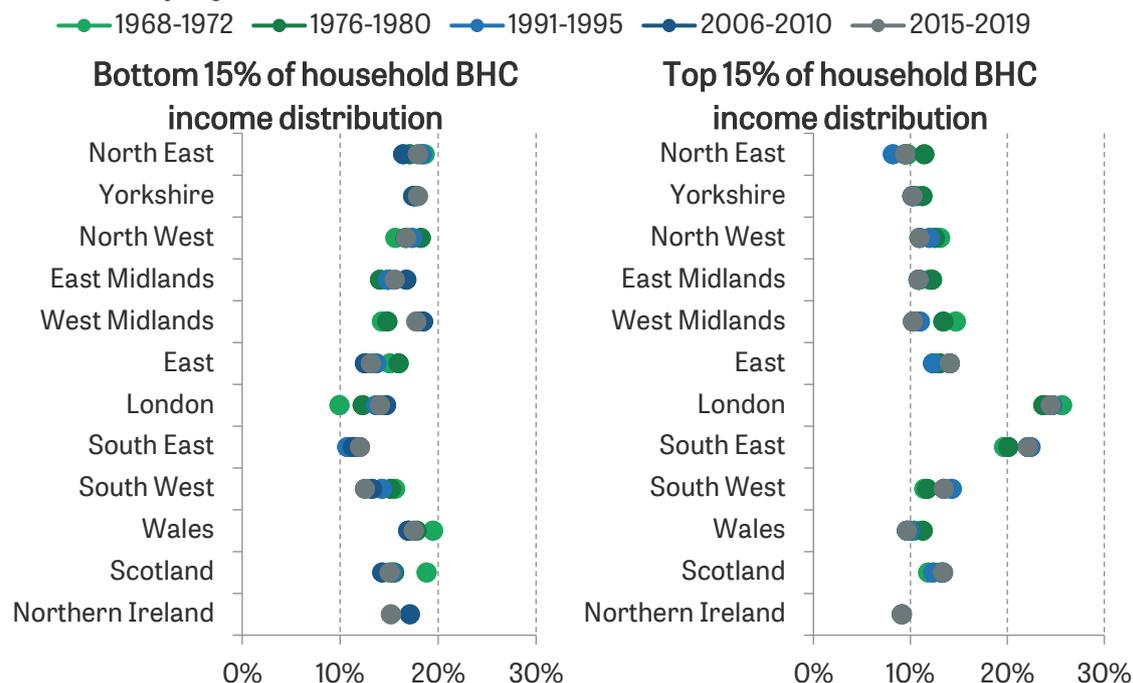
**Figure 34. Proportion of individuals in the bottom and top 15% of the AHC household income distribution by region or nation of the UK**



Note: Incomes have been measured net of taxes and benefits, after housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. We show the five-year rolling average.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

**Figure 35. Proportion of individuals in the bottom and top 15% of the BHC household income distribution by region or nation of the UK**



Note: Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. We show the 5-year rolling average.

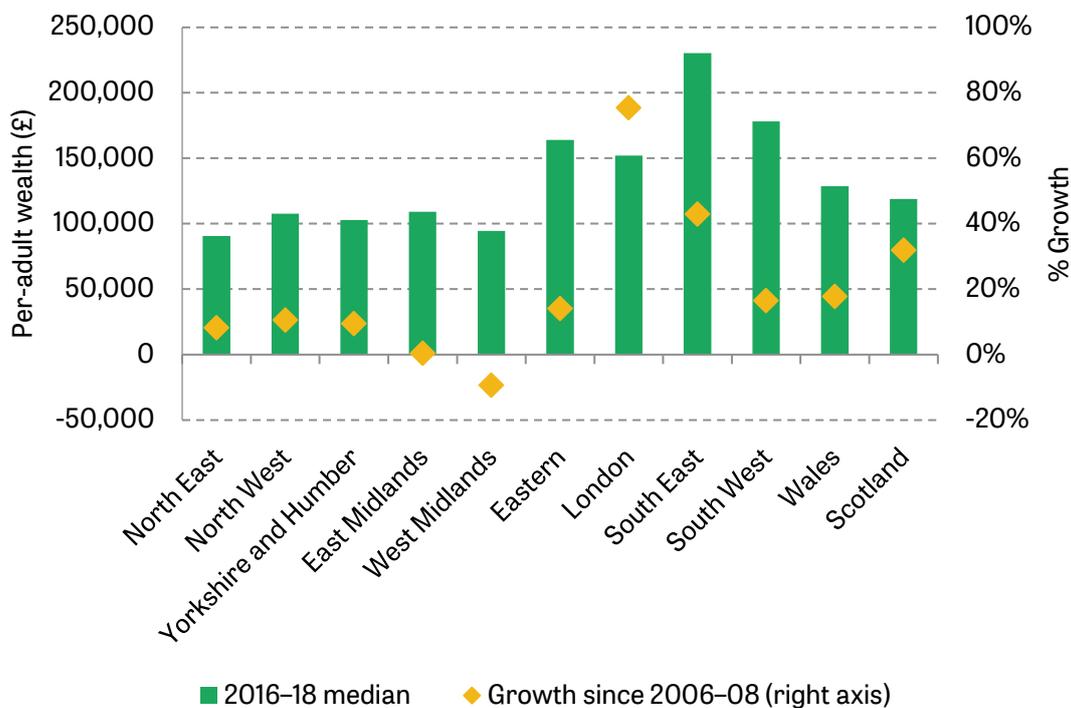
Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2018–19.

Figure A.47 in the Appendix repeats this analysis for consumption. This is an important chart to show, as the measure of consumption includes an estimate of the consumption flow that accrues to owner occupiers. As a result, the regional patterns at the bottom of the distribution are very different from income: those in London do not have the greatest risk of being at the bottom of the consumption distribution (although this risk has gone up over time) – the risk is highest in the North East, the West Midlands, and Scotland. But the pattern at the top is very similar between income and consumption, with those in London have the greatest likelihood of being at the top of the distribution. On the consumption measure, regions and nations that are improving their position include: East Midlands, the East, the South East and the South West of England (both at the bottom and the top), and those whose position is deteriorating are: London, the North West of England, and the West Midlands (at the bottom), and North East and North West of England, London and Wales (at the top).

The difference between Figure A.47 and Figure 33 comes mostly from giving owner-occupiers an imputed consumption flow from their houses, something that makes a lot of difference in areas with high housing costs. Conceptually, this is a valid thing to do if everyone values the amenities or characteristics of London (i.e. the things that make housing expensive) in the same way. More realistically, though, given that there is variation in preferences, and that there are costs (broadly defined) of moving away from your family, there could be people in London who place much less value on its amenities than the average person, so that being born in London could seem like an expensive curse.

Moving now to wealth, Figure 36 shows the level of median household wealth in each region and nation in the latest data along with the growth rate since 2006–08.<sup>56</sup> Here, there is a clear story of increasing regional inequalities: median wealth has grown much faster since 2006–08 in London and the South East (although also in Scotland), with much lower (or even no growth) seen in the low wealth areas of England (and even a decline in median wealth in the West Midlands).

**Figure 36. Median per-adult wealth in each region or nation in 2016–18 and growth since 2006–08**



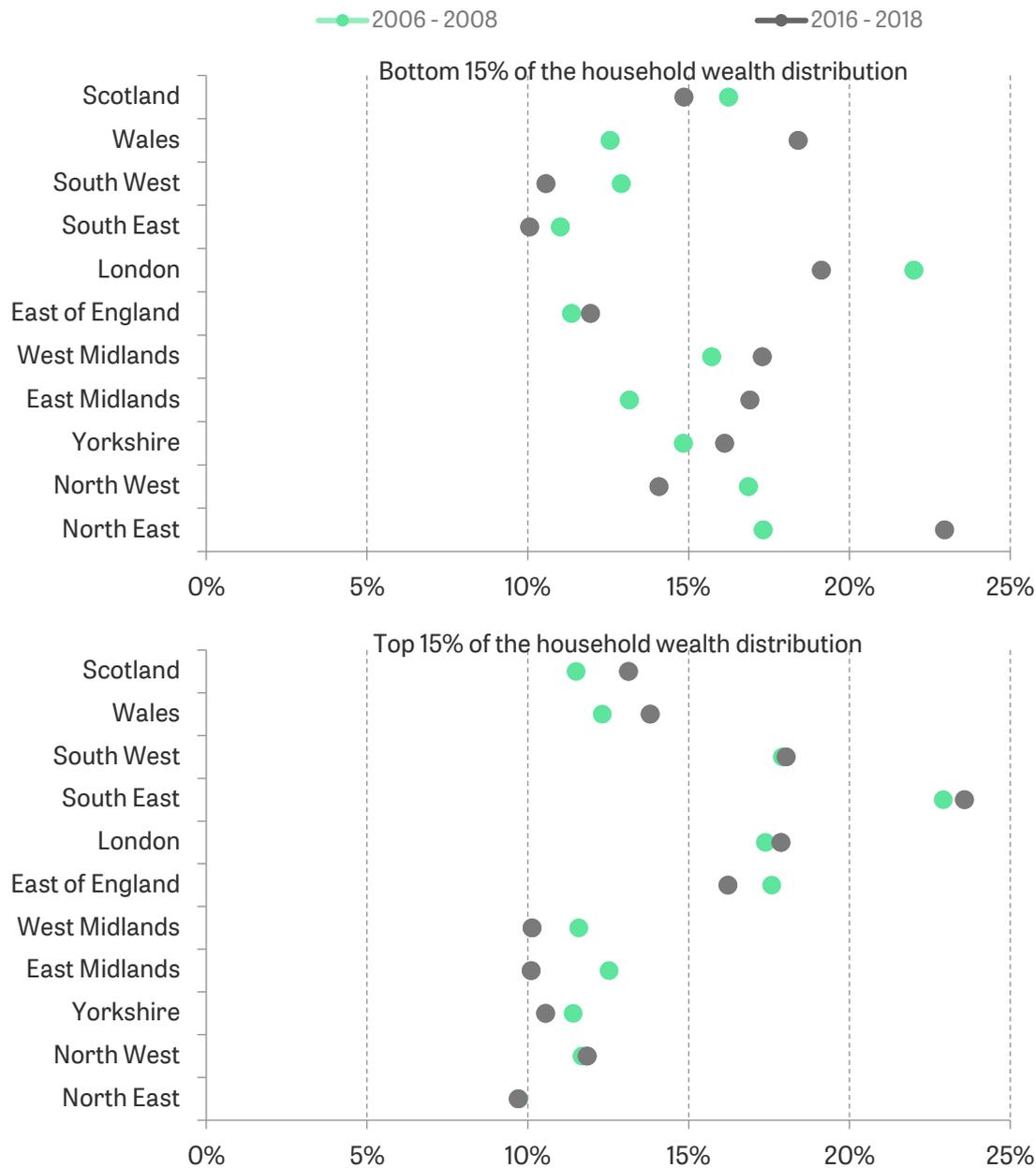
Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above), and includes pension, property and financial wealth. Physical wealth is excluded.

Source: Authors' calculations using the WAS, wave 1 and round 6.

As with income, there are also important regional differences in within-region inequality. We show this in Figure 37, which shows recent trends in the risk of being at the top or bottom of the wealth distribution. London stands out as having high risks of both low and high wealth; instead of London, it is households in the South East of England that have the highest chance of being at the top of the wealth distribution.

<sup>56</sup> Figures 11 and 12 of Advani, Bangham and Leslie (2021) show a similar analysis.

**Figure 37. Proportion of individuals in the bottom and top 15% of the household wealth distribution by region or nation of the UK**

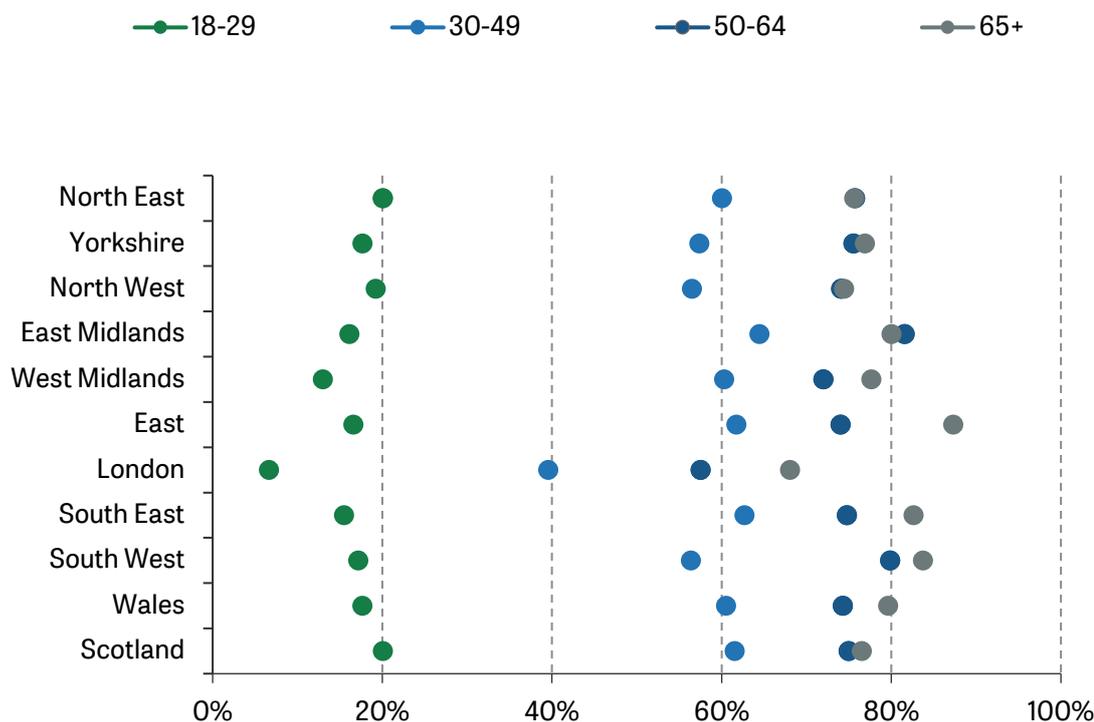


Note: Wealth is calculated at the household level and expressed per adult (16 and 17 year olds not in full-time education, plus all aged 18 and above), and includes pension, property and financial wealth. Physical wealth is excluded.

Source: Authors' calculations using the WAS, waves 1-4 and rounds 5-6.

The high risk of having a low wealth for households in London is strongly related to the lower rates of homeownership in the capital. As Figure 38 shows, this is common to all age groups, with those aged 30 or over having homeownership rates that are 15-20 percentage points below similarly aged households in other regions of England or nations of the UK.

**Figure 38. Proportion of adults who are homeowners, by age and region or nation, from 2017–18 to 2019–20**



Note: A 'homeowner' is defined as an individual, living in owner-occupied housing, who is either the household reference person or their partner. Figures relate to households in Great Britain only.

Source: Authors' calculations using the FRS from 2017 to 2019.

## 7. The contribution of labour market inequalities to household income inequality

In this section, we focus more closely on how labour market trends have interacted with trends in household formation and household labour supply behaviour to affect household-level inequalities in earnings and income.

We do this in three sections. First, we discuss how the levels of key labour market outcomes have varied over time and between genders (gender gaps in the labour market are examined in more detail in Andrew et al., 2021). Second, we present an overview of how inequality in these outcomes has changed (with more detail being provided in Giupponi and Machin, 2022). Finally, we look in more detail at how changes in the distribution of wages, the link between hourly wage and hours worked, and within-household patterns of labour market behaviour combine to affect inequality in household income among working-age households. This deepens and extends some of the findings in Cribb, Joyce and Wernham (2022a), which does a similar analysis covering the period from 1994 to 2019.<sup>57</sup>

<sup>57</sup> One key point to note when comparing our analysis with those of other studies is that when examining individual outcomes such as an employment rate, we restrict our sample to those aged 25–74 (see Box 6 for further technical details).

Our analysis focuses on the labour market, and we have less to say about changes in the tax and benefit system; see Box 5 for a brief discussion of the literature on this.

### Box 5. The impact of the personal tax and benefit system on inequality in household incomes

In this section, we do not look in detail at the impact that changes to the tax and benefit system have had on household income inequality (although other chapters of the IFS Deaton Review will look at the role of the welfare system, the contribution that income from state benefits makes to inequality is considered in our decomposition, reported on in Table A.2). However, the following pieces of research are relevant.

- ONS (2021a) (particularly table 6a of the associated data set) tracks inequality in pre-tax-and-transfer income as well as disposable (i.e. post-tax-and-transfer) income. Trends in the Gini coefficient for original and disposable income are reasonably similar, except in recent years, where the ONS notes that the amount of redistribution done by the benefit system has fallen since the early 2010s (matching our findings in Table A.2). Gornick (2022) does a similar analysis, looking internationally.
- Clark and Leicester (2004) look at how changes to the personal tax and benefit system from the 1970s to the 1990s affected income inequality, at least in a mechanical or static sense. They find that income tax cuts in the late 1970s and late 1980s increased inequality, and direct tax rises in the early 1980s and 1990s, together with increases in means-tested benefits in the late 1990s, reduced it. A partial update was provided by Adam and Browne (2010), who found that the Labour governments' reforms from 1997 to 2010 did more to reduce inequality than the previous Conservative governments, but that the precise quantification depended crucially on the 'no reform' counterfactual. An even more recent update is in Bourquin, Norris Keiller and Waters (2019c).
- As we discuss later in this section, Cribb et al. (2022a), who update Belfield et al. (2017), identify that the expansion of state support to low-income households in the 1990s and 2000s (via in-work cash benefits or repayable tax credits) is a core reason why increased inequality in household earnings has not translated into increased inequality in disposable household incomes. Additionally, as we show in Appendix A.6, the expansion of support to out-of-work families with children in the late 1990s and 2000s helped close the gap between out-of-work and in-work working-age households.
- Policy towards means-tested benefits and the basic state pension has been one of the core reasons why the income gaps between working-age and pensioner households have been closing since the mid-1990s, as identified by Belfield et al. (2017) (citing Hood and Joyce, 2013; Cribb, Emmerson and Tetlow, 2016), and as we show in Appendix A.6.

### Key change in labour market outcomes over the past 50 years

Appendix A.4 documents trends in employment, hours, wages and earnings by age and gender, and also how these have varied by education (although see Box 4 for an important caveat to this).

The key points are as follows.

- Over the last five decades, the overall employment rate (among those aged 25–74) has risen, with higher female employment offsetting the fall in male employment. This means that the gender gap in employment rates in 2019 – though still significant at 10 percentage points among adults aged 25–74 – was 32 percentage points smaller than it was in 1968 (see Figures A.12 and A.13). Figure 39 shows how the age profile of employment has changed over time (complementing Figure 20 earlier, which showed life-cycle trends by birth cohort). The falls in male employment in the aftermath of the 1980s and early 1990s recessions were especially pronounced for younger and older men, but male employment has been on an upwards trend since the mid-1990s, and fell back only very slightly after the financial crisis. The huge increase in female employment – in 2019, the female employment rate generally exceeded 75% for ages 24–57 – can largely be explained by a change in working patterns at particular points in the life cycle, with the initial change being particularly concentrated among women in their mid-20s to mid-30s, and the rise in late years concentrated at older ages.
- As we showed earlier in Figure 20, for men, the cohort-on-cohort trend towards lower employment rates – influenced also by the structural changes of the 1980s – mostly affected cohorts born up until the 1960s: 95% of men born in the 1920s were in work at age 49, compared to 85% born in the 1960s. For women, the cohort-on-cohort trend is towards higher employment rates. This began with those born in the 1950s, and is possibly still continuing: for example, 51% of women born in the 1940s were in work at age 30, compared to 73% of those born in the 1970s (and see Section 5 for more details).
- Among men and women, changes in employment rates over time have steepened the gradient by education: the fall in male employment has been starker for low-educated men than for high-educated men, largely driven by a sharp fall for this group following the 1980s recession (Figure A.18). Similarly, the rise in female employment has been smallest for low-educated women. As a result, the employment gap across education groups (pooled across men and women) has consequently widened substantially – by around 5 percentage points over the entire period.
- Hours worked among employees rose for women over the 1980s and early 1990s, but there has been a steady decline for men since 1990, meaning the gender gap in hours worked (among employees) has shrunk over the period (we do not have consistent data on hours worked by self-employed workers); see Figures A.14, A.15, A.19 and A.20.
- Median wages among employees aged 25–74 grew in real terms in almost every year from 1968 to 2009, more than doubling over that period, but the striking feature is the fall back in real hourly wages since the financial crisis (see Figure A.16). Despite a modest recovery in the most recent years, median hourly wages in 2019 were still just below the peak in 2009. The ratio of male to female median wages has fallen by about one-third over the period 1968–2019.
- Similar to real hourly wages, the UK has experienced first a stalling of earnings growth since the mid-2000s, and then a decline since the financial crisis, with a modest recovery in the most recent years. As a result, median earnings in 2019 were still just below their 2009 levels (see Figure A.17). The fall in hours worked by men means that median male earnings peaked in the mid-2000s (rather than in 2009, as was the case for hourly wages, and for female

earnings), and this has contributed to the closing gender gap, with the ratio of male to female median earnings falling by over 70% from 1968 to 2019.<sup>58</sup>

- From 1978 to 1997, the gap in median real hourly wages between those with low and high levels of education grew; since 2008, there is clear evidence that they have fallen (Figure A.21). Median earnings have changed in similar ways, but with smaller differences (Figure A.22).

Many of these points are discussed in other chapters in this review, principally Andrew et al. (2021) and Giupponi and Machin (2022).

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<sup>58</sup> This is also shown in figure 12 of Andrew et al. (2021), who use the Labour Force Survey.

### Box 6. Technical details for the analysis in this section

The analysis in this section and in the appendix uses data from two household surveys: the FES and the FRS (see Appendix A.1 for more information), covering the UK from 2002–03 onwards and Great Britain for earlier years. Our series start in 1968 unless we are splitting by education, in which case we start in 1978.

When examining individual outcomes such as an employment rate, we restrict our sample to those aged 25–74: this means that our analysis is not conflicted by the large rise in participation in higher education over the period. We further restrict our sample by excluding the top and bottom 1% of the gender-specific wage or gross earnings distributions, reflecting the measurement difficulties at the very top and the bottom of the distribution.

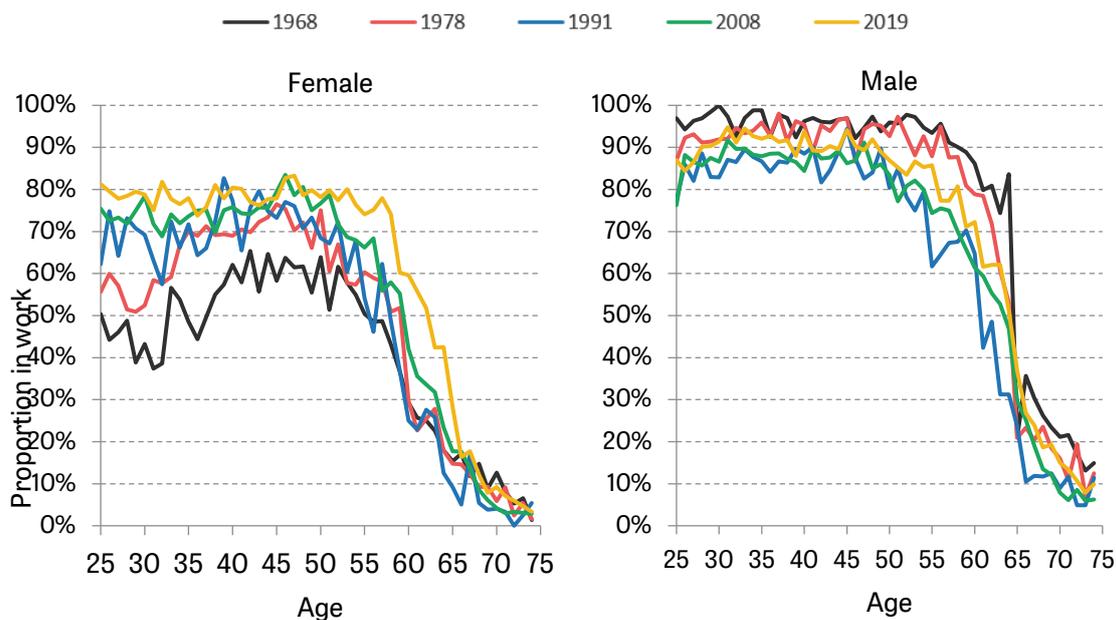
When examining hours worked, we restrict the sample to employees, as we do not have a consistent series of hours worked for the self-employed; this also means that our estimates of hourly wages (which we calculate by dividing weekly earnings by weekly hours worked) are for employees only. Furthermore, we are unable to include unpaid overtime before 1997, so there is a structural break in our series of hours worked in 1997, denoted by the vertical dashed lines in the figures. This also means there is a structural break in 1997 when examining hourly wages (which we calculate by dividing weekly earnings by weekly hours worked, including unpaid overtime where possible).

When analysing how outcomes vary by educational attainment, we are limited to using a three-way split based on the age that individuals left full-time education: left education at the age of 16 or younger, left education at the age of 17 or 18, and left education at the age of 19 or older (for household education, we take the highest level of education within the household). As discussed in Box 4, a split such as this can be hard to interpret when there have been considerable changes in educational attainment: as shown in Figure 25, since 1978 there has been a substantial (+27 ppt for men and +28 ppt for women) increase in the proportion of individuals aged 25–74 who stayed in education beyond the age of 18. This means that this group (and the other two education groups) will, on average, have different characteristics from the group they were in the past, which makes accurate like-for-like comparisons over such long time periods impossible.

This focus on the labour market is justified in part by the results of a decomposition of income inequality by income source that provides an update of parts of Brewer and Wren Lewis (2017) (and shown in Section A.6), showing that:

- the two income sources contributing the most to household income inequality are male and female (pre-tax) employment earnings;
- the biggest absolute contribution to the rise in inequality in the 1980s came from male employment earnings; and,
- since 1991, changes in male employment earnings have been helping to prevent inequality rise further.

**Figure 39. Trends in employment rates by age and by gender, various years**



Note: Cohort of birth is approximated based on age and year of interview. In the cohort analysis, age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

### Key changes in inequality in wages, earnings and disposable income of working households over the past 50 years

Appendix A.4 also shows trends in inequality (measured by the 90:10 and 50:10 ratios) in hourly wages and individual earnings (across all workers and by gender), and in household earnings and household disposable income among in-work households.<sup>59</sup>

The key findings are the following.

- The 90:10 ratio for hourly wages rose rapidly in the 1980s and mid-1990s, with a slightly larger rise among men than women (Figure A.23). Since the structural break in 1997 (see Box 6), the 90:10 ratio has fallen among women, but not men, but the overall 90:10 ratio has fallen, helped by the closing gender gap in wages. Wage inequality at the bottom (i.e. the 50:10 ratio) has also fallen among both men and women; this is widely attributed to the introduction of the National Minimum Wage in 1999 and subsequent increases, which have been particularly strong for those aged 25 and over since 2016.<sup>60</sup>
- The 90:10 ratio in earnings (including self-employment income) grew over the 1980s for both men and women, driven almost entirely by an increase in hourly wage inequality for both men and women, and peaking in the early 1990s; since then, earnings inequality has grown among

<sup>59</sup> This has also been examined by Cribb et al. (2022a), who study only the period since 1994 and provide a partial update to Belfield et al. (2017), and we draw on their findings here too.

<sup>60</sup> See Giupponi and Machin (2022).

men and fallen among women (Figure A.25).<sup>61</sup> Again, the falling gender gap means that the trend across all workers since the early 1990s is for the 90:10 ratio to fall. Here, though, it is important to note two caveats. First, Figure A.26 shows that if the sample is restricted to full-time working-age workers, there is no steady decline in the 90:10 ratio since the 1990s. Second, the Gini coefficient shows a different longer-term pattern from the 90:10 ratio (see Figure A.27), with no substantial change overall since the early 1990s. Plotting Lorenz curves reveals that this is because the changes to the distribution of wages at and above the 90<sup>th</sup> centile are pushing up the Gini coefficient by similar amounts to how changes to the distribution of wages around the 10<sup>th</sup> centile are reducing it.

- Unlike wages and individual earnings, the 90:10 ratio in household earnings did not peak in the early 1990s, and rose continuously from 1968 to around 2012. As Cribb et al. (2022a) show (and we show later), this reflects that the changes in women's earnings and working patterns since the mid-1990s have acted to reduce inequality within households by more than they did between households.
- Despite the increased inequality in household earnings (among in-work households), inequality in disposable income among the same sample has remained essentially unchanged since the early 1990s. Cribb et al. (2022a) show (and we confirm later) that this is due to cash transfers for low-earning working households rising relative to earnings, particularly during 1997–2004 (which saw large real increases in cash transfers) and since the 2008 financial crisis (when transfers grew at least in line with prices and earnings fell in real terms).

In the remainder of this section, we look at some of the important underlying trends identified in Cribb et al. (2022a), adding to that study a longer time period, and a more granular assessment of the key changes.<sup>62</sup>

### Wages

Changes in overall hourly wage inequality are explored in detail in Figure 40, which plots the annualised growth in hourly wages across the hourly wage distribution for the four time periods used in Section 4: 1968 to 1978, 1978 to 1991, 1991 to 2008 and 2008 to 2019. The figure shows the following.

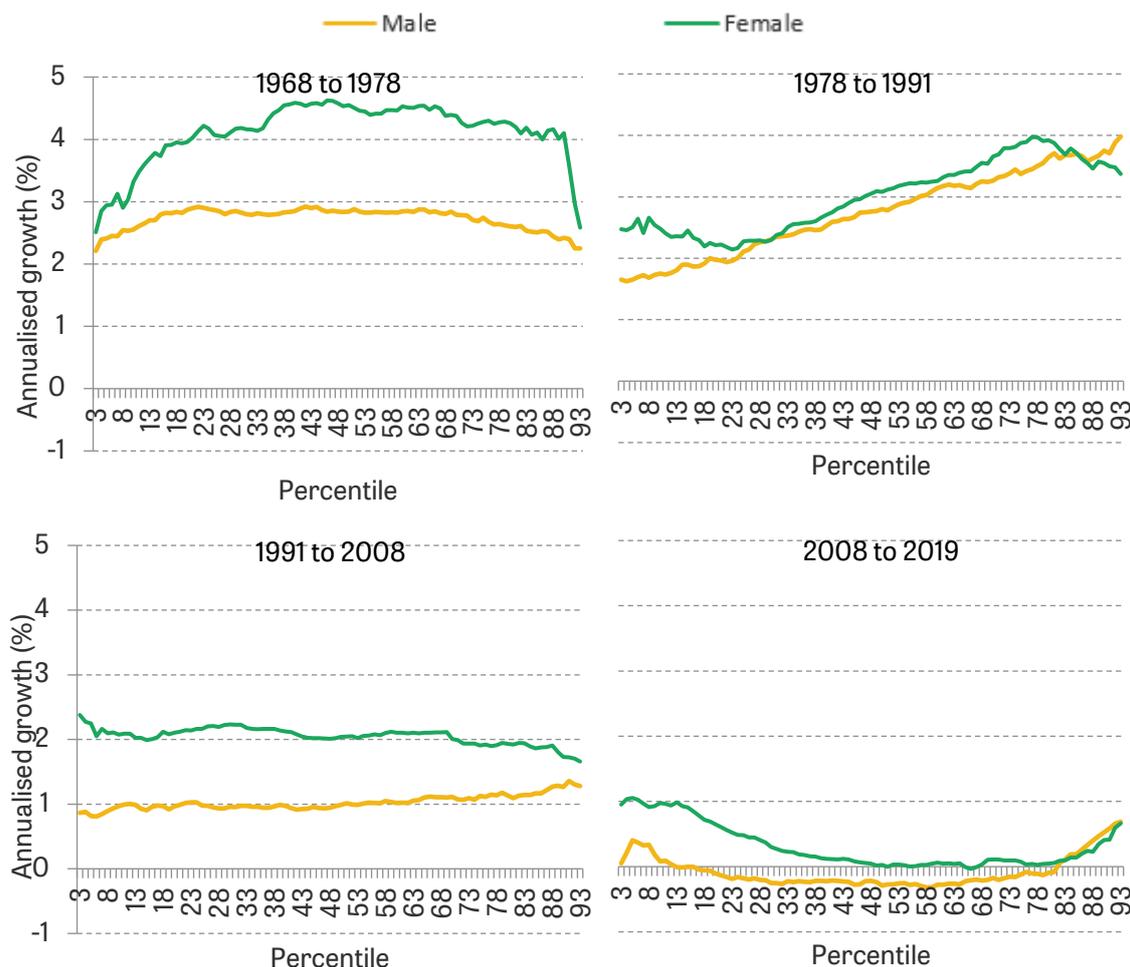
- Across all four periods and the full hourly wage distribution, female hourly wages saw higher growth than male hourly wages (which explains the reduction in the gender gap in hourly wages shown in Figure A.16).
- From 1978 to 1991, there was a clear pattern among men of higher wage growth, and the same for women across most of the distribution; this will have pushed up inequality in hourly wages.
- From 1991 to 2008, growth in hourly wages among men was skewed towards higher wages; for women, the opposite is true.

<sup>61</sup> Cribb et al. (2022a) attribute the changes since the mid-1990s among men to a reduction in hours worked among low-wage men that has exacerbated the rising inequality in hourly wages; they show that women have seen a fall in the inequality in hours worked as well as a fall in hourly wage inequality.

<sup>62</sup> This analysis builds on that in Blundell and Etheridge (2010) and Blundell et al. (2018).

- Wage growth in the 2008–19 period was U-shaped, benefiting those with lower and high wages. For men, real wage growth at most points in the distribution was negative over this period.

**Figure 40. Annualised growth in hourly wages for employees by wage percentile by gender, various periods**



Note: Sample is employees aged 25–74. We do not include the bottom and top 1% when calculating the wage percentiles. Hours used to calculate hourly wage include paid (and unpaid from 1997 onwards) overtime and have been top-coded to 97 hours per week. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

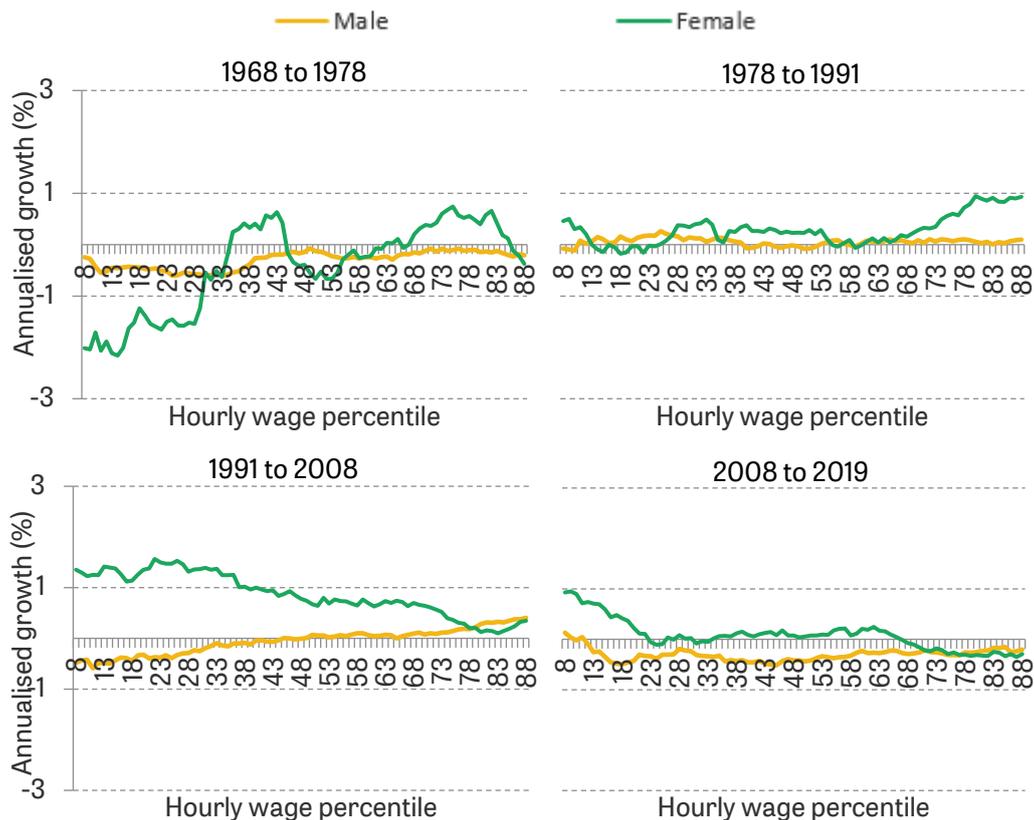
### Change in hours worked by hourly wage among employees

Overall earnings inequality is affected by the way that changes in hours worked are correlated with changes in hourly wages. Figure 41 looks at this by plotting the annualised growth in average hours worked (by employees) across the hourly wage distribution for the four time periods used above, separately for men and women. The key points are the following.

- Among women, there was a fall in hours worked for women at the bottom of the hourly wage distribution, but not the top, between 1968 and 1978, and then a rise in hours worked among women that was skewed to high-wage employees from 1978 and 1991. Both observations mean that earnings inequality would have risen by more than hourly wage inequality.

- But this pattern is reversed since 1991, with increases in hours worked among women being clearly skewed to low-wage women, so acting to lower earnings inequality.
- The changes to hours worked among men are smaller in magnitude than they are among women (as shown in Figure A.19). But the correlation between changes to hours and hourly wages is especially strong between 1991 and 2008, where hours fell among low-wage men and rose among high-wage men, thereby pushing up earnings inequality.<sup>63</sup>

**Figure 41. Annualised growth in weekly hours worked for employees by hourly wage percentile by gender, various periods**



Note: Sample is employees aged 25–74. We show the 15-percentile rolling average of growth in hours worked by hourly wage percentile. Hours include paid (and unpaid from 1997 onwards) overtime and have been top-coded at 97 hours per week. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

### Individual earnings

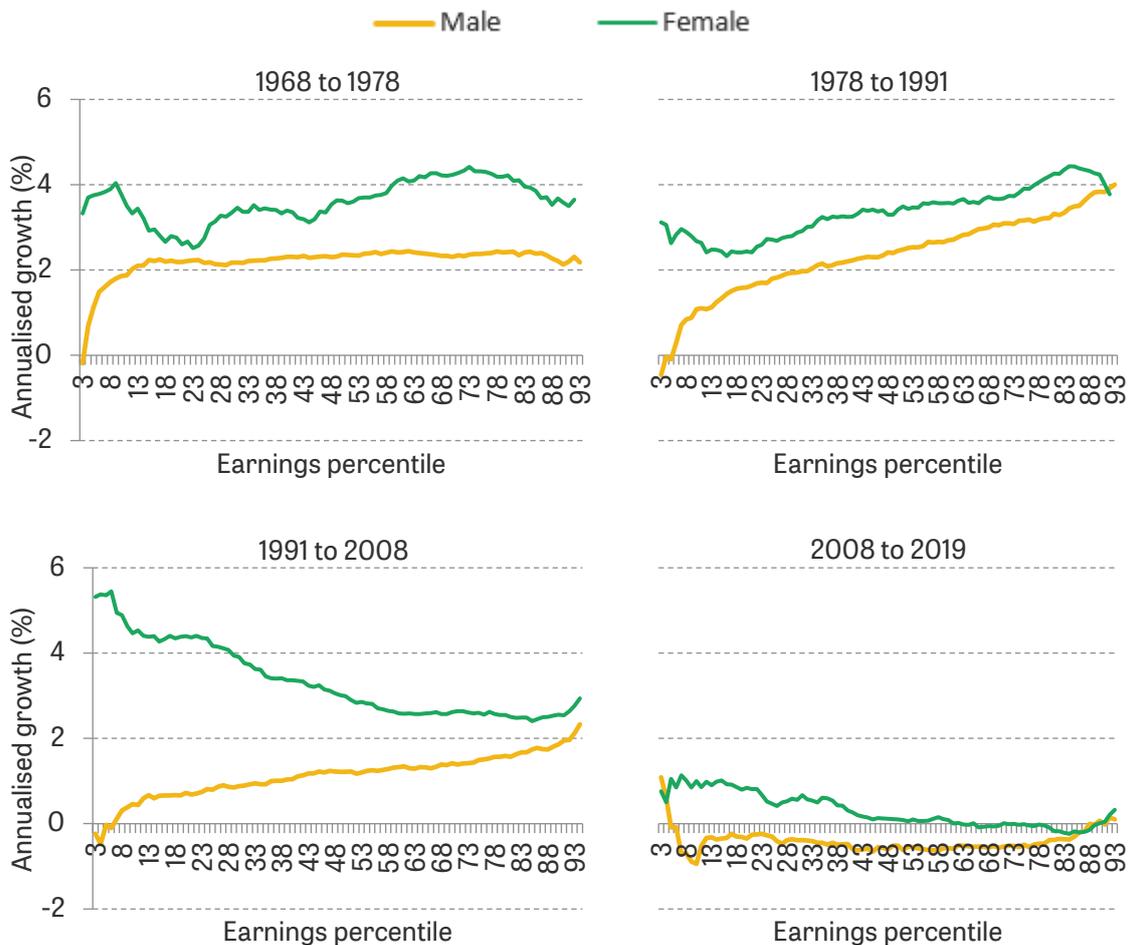
The result of the correlations between changing hours of work and hourly wage shown in Figure 41 can be seen in Figure 42, which plots the annualised growth in earnings (including self-

<sup>63</sup> Blundell et al. (2018) show that the concentration of the fall in hours at the bottom of the hourly wage distribution for men is explained both by a reduction in the prevalence of long hours (more than 45 hours per week) as well as an increase in part-time work. They argue that the increase in hours worked for women with low hourly wages, conversely, is likely to have been caused by a fall in 'mini-jobs' (defined as fewer than 16 hours per week) at least partly related to the introduction of Working Families Tax Credit (WFTC) in 1999, which made eligibility contingent on working at least 16 hours paid work a week.

employment income) across the earnings distribution for the four time periods used previously. The figure shows the following.

- Across all four periods and virtually the full distribution, women have seen higher earnings growth than men, which explains the narrowing gender earnings gap shown in Figure A.17.
- The patterns for growth in gross earnings before 1991 are similar to those seen for hourly wages shown in Figure 40, among both men and women, with growth being higher at higher points in the earnings distribution. From 1991 to 2008, the changes to earnings are more exaggerated versions of the patterns of changes to hourly wages, with higher growth for high-earning men and low-earning women.
- In line with the poor wage growth and modest changes in hours worked from 2008 to 2019, gross individual earnings stalled (or fell for men) across most of the distribution over this period. However, the incomes of low-earning men and (especially) women fared slightly better than the incomes of higher-earning workers.
- Figure 43 shows that, among workers, at the median, men earned 47% more than women in 2019, down from 55% in 2009, 116% in 1991 and 271% in 1968. However, the gap at the 90<sup>th</sup> percentile is at a similar level to 2005, having increased in the 2010s.

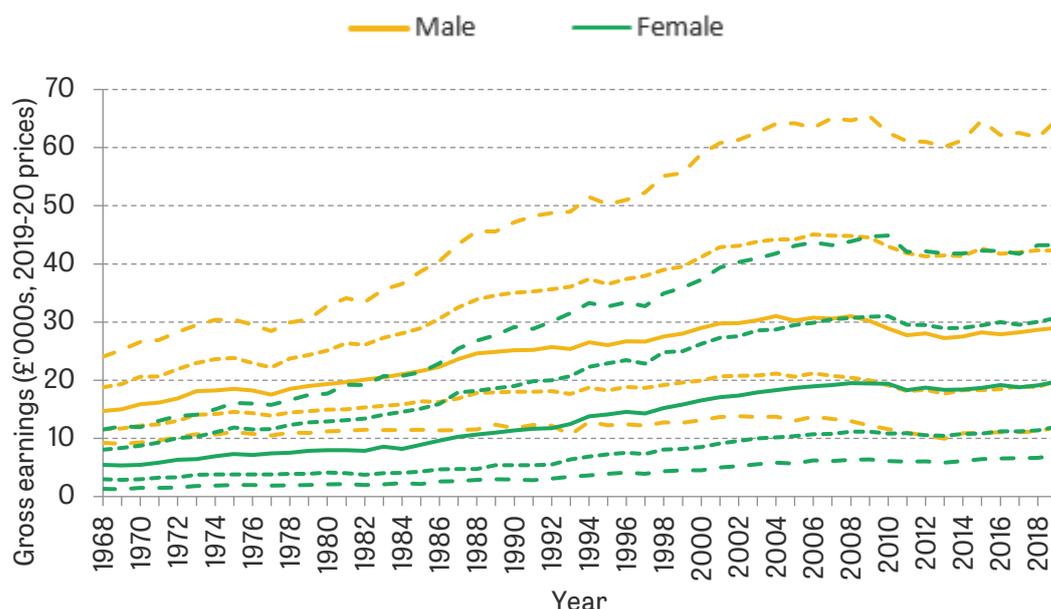
**Figure 42. Annualised growth in gross earnings for working individuals by earnings percentile and gender, various periods**



Note: Sample is individuals in work aged 25–74. We exclude those in the bottom and top 5% of the gender-specific wage distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

**Figure 43. Gross earnings for working individuals by earnings percentile (10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, 90<sup>th</sup>) and gender**



Note: Sample is individuals in work aged 25–74. We exclude those in the bottom and top 5% of the gender-specific wage distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

### Household earnings

So far, we have seen that the large increases in inequality in female and male earnings over the 1980s were driven by an increase in wage inequality for both men and women. Since then, male earnings inequality has continued to rise, due to sustained hourly wage inequality increases (until the most recent years) and a decline in hours worked for low-earning men. The story for female earnings inequality has been the opposite: female earnings inequality has fallen across most of the distribution, driven both by a fall in inequality in hourly wages and by increases in hours worked that have been skewed to low-wage workers. Across all workers, these offsetting trends have led to a decline in the 90:10 ratio (or no change in the Gini coefficient; see Figure A.27).

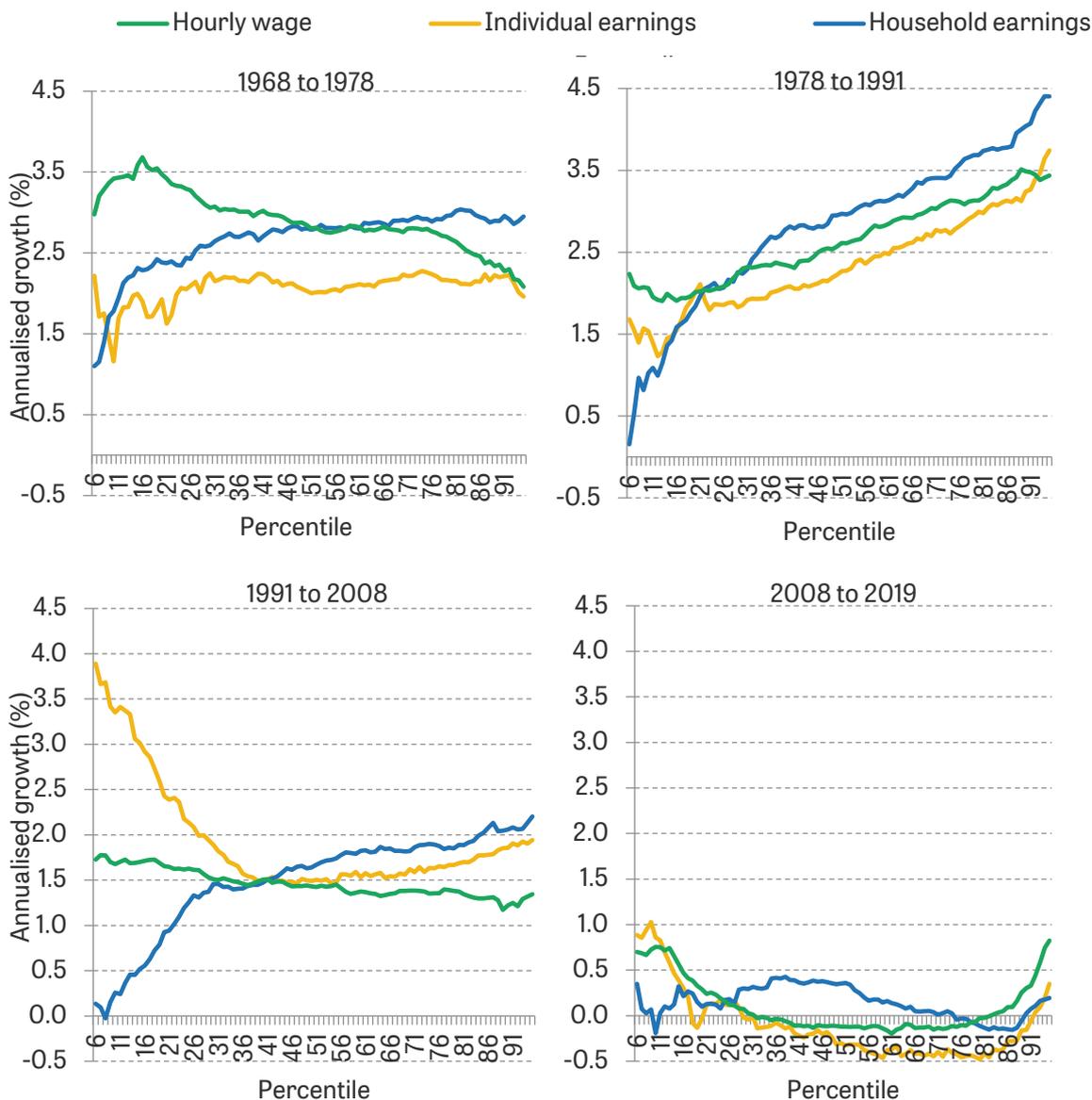
We now look at the full set of changes across the (unequalised) household earnings distribution over the same four time periods (Figure 44). The figure shows the following.

- Between 1968 and 1978, the biggest difference is between the pattern of changes to hourly wages – greatest at lower wages – and the pattern of growth in either measure of earnings – with the fastest growth at the top.
- Between 1978 and 1991, the patterns of growth in hourly wages and individual earnings were similar (both clearly inequality-enhancing, as previously discussed), and the pattern of growth in household-level earnings was even more so.
- In the 1991–2008 period, the patterns of growth in the three series look very different: hourly wages grew in a manner that was moderately inequality-reducing; individual earnings grew

much faster at the bottom (driven by the rise in female hours of work) than the middle, but also faster at the top than the middle (driven by men); and household-level earnings changed in an unambiguously inequality-enhancing way.

- Since 2008, hourly wages and individual earnings show a U-shaped pattern of growth; the pattern of growth among household-level earnings has been the opposite, except that it has also seen strong growth at the top. But all the changes have been relatively modest.

**Figure 44. Annualised growth in hourly wage, gross individual earnings and gross household earnings by percentile, various periods**



Note: Sample is individuals in work aged 25–74. We exclude those in the bottom and top 5% of the respective distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

Unpacking the reasons for the differences in the patterns of growth in inequality in individual and household earnings is difficult: the differences are affected by changes in household composition, changes in working patterns within households, and changes in the extent to which people live with partners with similar earnings potential (sometimes called 'assortative mating'). We give a full assessment of this in Appendix A.5, but the key findings are as follows.

- Since the late 1970s, living as a single adult has become more common across those who left education at age 18 or under (although Box 6 cautions against looking at splits by education over a long time period): for example, 19% of the lowest-educated group were living as a single adult in 1978, but by 2019, 33% were. Over the same period, the fraction of those in the highest-education group living as a single adult has fallen slightly, but steadily, since the late 1990s. Similar patterns are also seen, especially since the early 1990s, if this is analysed by the level of earnings: the likelihood that someone lives alone has been increasing by more for those who are out of work or with lower earnings than those with high earnings. These trends will have acted to push up household earnings inequality.
- Employment patterns within couples are also (mostly) suggestive that household-level earnings inequalities could be growing by more than individual-level earnings inequalities. The clearest trend is the rise in two-earner couples: in the 1970s, this occurred uniformly across the distribution, reflecting a general rise in female employment, but in the 1980s and 1990s, the change was greater among high-earning individuals (the so-called polarisation of employment within couples: see Gregg and Wadsworth, 2001). This trend seems to have stopped, though, or even reversed slightly, since the financial crisis.
- Where both members of a couple are in work, our data have always shown a positive correlation between one's own and one's partner's average earnings percentile (that is, people further up the individual gross earnings distribution tend to have partners who, if in work, are also further up the gross earnings distribution). But the degree of assortativeness among two-earner couples has increased, especially in the top half of the earnings distribution (for example, the average earnings rank of the partner of someone at the 90<sup>th</sup> centile has risen by about 11 percentage points for men and 10 percentage points for women since 1968).<sup>64</sup> In a related trend, out-of-work women are now less likely to have a high-earning partner than they were previously. Overall, these changes will have been pushing up inequality in household-level earnings.

### Household disposable income

As we saw in Section 4, inequality in disposable income across the bulk of the distribution has remained essentially unchanged since the early 1990s, despite the increased inequality in household earnings (among in-work households). Figure 45 probes this more precisely, by looking in detail at growth in household earnings and household disposable income over the four periods among working households only.<sup>65</sup> The key findings are as follows.

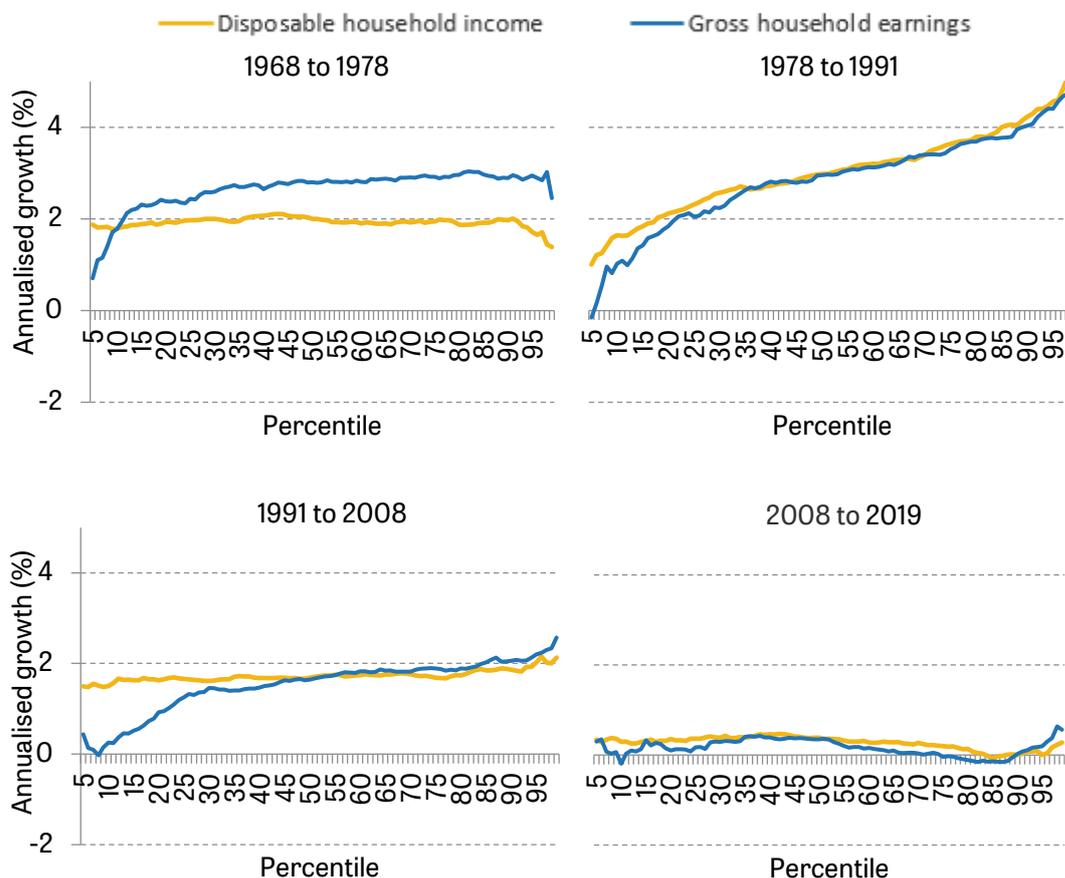
- From 1968 to the financial crisis, the changes to household disposable income among working households have been less inequality-enhancing than have the changes to

<sup>64</sup> These comparisons are, of course, affected by who is living in a couple and which couples have both adults in work.

<sup>65</sup> The change in the fraction of households who are in work means that compositional changes could be driving some of the patterns shown in these charts (as, indeed, could have been the case for much of the analysis in this section). This is explored in figure 8 of Cribb et al. (2022a) and indirectly in figure 17 of Corlett, Odamtten and Try (2022). We also switch to using equalised concepts, which is why the lines for household earnings are slightly different from those in Figure 42.

household earnings. This is particularly noticeable at the bottom of the distribution, and especially in the 1968–78 and the 1991–2008 periods. In the latter period, this reflects the considerable expansion of government support provided to in-work families.

**Figure 45. Annualised growth in gross household earnings and household disposable income for working households by percentile, various periods**



Note: Sample is individuals in working, non-pensioner households. All incomes have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

### Non-working households

The groups missing so far in this section have been non-working households. Cribb et al. (2022a) looked briefly at these groups, and Appendix A.6 reports the results of simple decompositions between working and non-working working-age households, and between working-age and pensioner households. The key findings of both are as follows.

- Between 1978 and 1991, the income of out-of-work working-age households fell relative to the economy-wide mean, and there was a rise in household worklessness, both of which pushed up income inequality. But both trends have reversed since: there has been a rise in the relative income of out-of-work households since 1991 (initially, this was driven by the generous increases in benefits for those with children in the late 1990s and 2000s; since the

financial crisis, it has been a reflection of the real-terms fall in earnings for working households), and a fall in household worklessness.

- Between 1978 and 1991, income inequality was pushed up by a small rise in the share of pensioner households, as well as by the fact that pensioner household incomes fell behind those of non-pensioner households (who were benefiting from the strong earnings growth over this period). Finally, increases in private pension provision and in entitlements to state pensions have led to a sustained increase in the relative position of pensioners, who were previously a relatively poor group. Since 1991, the relative income of pensioners has improved, due both to strong growth in private pensions income and to government policy since the early 2000s to index either the basic state pension or means-tested benefits for pensioners to at least growth in average earnings.

## 8. Changes since 2020: impact of the COVID-19 crisis on economic inequality

The bulk of this chapter has been an assessment of pre-pandemic inequality trends, with most of our analysis taking 2019–20 as the last data point. This partly reflects that the pandemic had very dramatic, but mostly temporary, impacts on the labour market, household incomes and spending and saving patterns. Thus, it would be preferable for an assessment of long-run trends – as this chapter tries to do – to not be influenced by that extraordinary time. It also reflects that there are questions over the quality of household survey data collected during the pandemic.<sup>66</sup> In this section, then, we discuss briefly what we know about how the sort of inequalities discussed in this chapter have been affected by the COVID-19 pandemic, and by the surge in the cost of living that followed, made worse by Russia's invasion of Ukraine in early 2022.<sup>67</sup>

Overall, the COVID-19 pandemic was an extraordinary disruption, the effects of which were hugely mitigated by government. The labour market impact, even though it was hugely cushioned by the furlough scheme, was felt along occupational lines, but with adverse outcomes more likely among young, poorly-paid and ethnic minority workers.<sup>68</sup> Although the impact on household incomes was relatively modest thanks to the UK government's interventions, debts and arrears were more likely to rise for low-income households, and the enforced saving arising from lockdowns and social distancing, combined with a general rise in asset prices to worsen wealth inequalities (Leslie and Shah, 2021). The pandemic and the government's response also had very large impacts on children's education, and these seem also to have a strong socio-economic status gradient, and may well have long-term consequences, as the lost schooling risks reducing earnings down the line.<sup>69</sup> Among young people outside of formal education, the experience of

<sup>66</sup> Official data on household incomes from the period, which are starting to emerge, indicate limited impacts on household incomes during this period, consistent with the above considerations. For example, HBAI statistics for 2020–21 indicate a small fall in the Gini coefficient (Department for Work and Pensions, 2022) from 0.35 to 0.34; this was driven by rises in income at the bottom of the income distribution, and slight falls everywhere else (though these data may fail to capture changes at the very top of the distribution) (Cribb and Wernham, 2022). The 90:10 ratio is also down slightly. The latest ONS data also suggest a small fall in the Gini from 0.35 to 0.34 (ONS, 2022a). In neither case, however, is the decrease statistically significant. See ONS (2022a) and Department for Work and Pensions (2022) for more on these points.

<sup>67</sup> As well as the primary sources cited below, this section draws on Blundell et al. (2021).

<sup>68</sup> Blundell et al. (2020) show that lower-earning workers were more likely to be furloughed in the first lockdown. Cominetti et al. (2021) show that labour market disruption disproportionately affected those on atypical contracts, and those from black, Pakistani and Bangladeshi ethnicities, and that this was driven, but not entirely explained, by sector of work.

<sup>69</sup> Blundell et al. (2021) suggest that poorer children had less education during the first lockdown in particular, a mechanism by which the pandemic may deepen inequalities between socio-economic groups in a lasting way. On

parental job loss has been far from random, and the likelihood of young people experiencing labour market disruption was higher for the most disadvantaged, both findings that would work against intergenerational social mobility.<sup>70</sup> Most striking, perhaps, were the large inequalities in the pandemic's impacts on health outcomes, with very clear differences in outcomes between ethnic minorities, and considerably higher mortality for those in deprived areas.

At the time of concluding this chapter (mid-2022), several things seem to have happened in the aftermath of the UK government relaxing all COVID-19 restrictions, and the Russian invasion of Ukraine.<sup>71</sup> First, there are record levels of vacancies and time to fill vacancies. At this stage, it remains debatable what is causing this. It could be primarily due to changes in labour supply post-pandemic that may well be persistent – in particular, a reduction in the working-age population (through a fall in net migration) and a rise in inactivity among the remaining working-age population, which is, at the time of writing, principally driven by older adults withdrawing from the labour market (Boileau and Cribb, 2022). Alternatively, we could still be experiencing a period of adjustment as the economy returns to its new steady state. In particular, after job-to-job moves collapsed during the pandemic, they are now very high – perhaps as people make the job moves that were delayed by the uncertainty and collapse in vacancies during 2020 and 2021. Job-to-job moves create vacancies that take time to fill, even if there has been no net increase in the number of jobs offered. This possibility is lent some support by the fact that job-finding rates among the unemployed are not much different from pre-pandemic (Joyce et al., 2022). Second, earnings are rising more quickly than was typical pre-pandemic, but in a strongly inequality-enhancing way, with newly available administrative data from employers' returns to HMRC showing very rapid growth at the 99<sup>th</sup> centile of employee earnings (Xu, 2022). Third, inflation has soared to a 40-year record, and is set to rise higher from October 2022, and this has prompted a rise in interest rates. During 2021, the rapid growth in fuel prices meant that high-income households were more likely to experience a higher-than-average level of price inflation, but as energy and food prices began to rise rapidly in 2022, that pattern has reversed.<sup>72</sup> Fourth, the UK government has responded to the rising cost of living with a series of one-off payments and interventions costing (so far) over £30 billion, and these have had a broadly progressive impact on the income distribution (Bell et al., 2022). This all leads to a remarkably uncertain time for the state of the economy and household living standards, but this is clearly a different direction from that of recent decades, and perhaps the start of a new phase in inequality.

## 9. Conclusion

This chapter has focused on what is known about the extent of inequalities in income and wealth (and, to some extent, consumption) in the UK, looking at trends and international comparisons.

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schooling loss, see also Elliot Major, Eyles and Machin (2021b). On the quality of the home schooling environment, see Andrew et al. (2020) and Cattan et al. (2021). See also Cattan et al (2022) for a wider discussion.

<sup>70</sup> See Elliot Major, Eyles and Machin (2021a) and Eyles (2021). Blundell et al. (2022) point out that inequalities in the pandemic's labour market impact could translate into inequalities in subsequent 'scarring effects', harming later labour market outcomes. As lower earners, the young, and certain ethnic minorities, are particularly likely to have suffered in this respect, and this could deepen existing earnings and income inequalities.

<sup>71</sup> Corlett and Try (2022) assess prospects for inequality and incomes from 2021–22 to 2025–26, although the current conflict in Ukraine and the very volatile path for inflation make these forecasts more uncertain than usual.

<sup>72</sup> The patterns in 2021 are shown in ONS (2022d).

A core point has been how the relatively unchanging Gini coefficient for household disposable income since the early 1990s hides many important social changes, which include the following.

- There has been a remarkable change in the relative fortunes of older adults, who have gone from being over twice as likely to have a relative low income than the average individual in the 1960s, to less likely by the mid-2000s. Ethnic gaps in incomes are also smaller than they were in the mid-1990s, even if white individuals remain less likely to be at the bottom of the income distribution than minority ethnic groups.
- The changes to household formation and household employment patterns have continued to put upward pressure on inequality in household incomes, even after higher minimum wages and increased working among women began to reduce measures of individual-level inequality in the labour market.
- The growth in state support to working families in the 1990s and 2000s had a crucial role in holding down inequality in household income among working-age households.
- There has been an end of cohort-on-cohort improvements in earnings and living standards for those born in the 1960s and subsequently.

Although we have not been able to look at the joint distribution of income, wealth and consumption – and what we have said about consumption inequality has been limited by an increasing failure by the underlying household survey to capture all household spending in the UK (as well as small sample sizes) – it is very important to analyse income and wealth together. The key points here include the following.

- Wealth as a share of national or household income has increased enormously in recent decades. Even with an unchanging distribution of wealth, this means that absolute gaps between those with the most and least wealth are rising rapidly, making it less and less likely that individuals can save their way up the wealth distribution.
- So much of the additional wealth has come from capital gains, which means that the largest gains are accruing to those who already held the most wealth. This in turn means that, on top of suffering from the UK's poor record on productivity, which has led to weak or no growth in real wages, those born in the 1980s or later are also struggling from an ever-increasing wealth gap between them and those in previous cohorts: those born in the 1980s are on a track that would give them lower rates of homeownership than all birth cohorts since the 1930s.

Looking across our findings, many of the trends identified here point towards patterns whereby those at the top are experiencing a separate set of trends from the rest, and low- and middle-income households are becoming more similar to each other. For example, before the financial crisis, income growth at the top looked to be on a separate trend from the rest of the distribution; although the financial crisis helped to equalise matters, there has been a recovery in incomes at the top since then, and the continuing importance of capital gains as the main source of changes to wealth means that those who already have wealth are soaring away from those who have less. However, the decline of unemployment, stagnant earnings and a large in-work transfer system have meant that low- and middle-income households are more similar to each other in the 2000s and 2010s than they were in the 1970s and 1980s when it comes to their sources of income – with earnings being dominant for both, but state top-ups also significant for both. Declines in homeownership concentrated among those with middling economic fortunes mean that the

housing circumstances of the bottom and the middle, and their overall wealth levels, look more similar than in the past too.

We have not tried to assess where inequalities and wealth might change in future, but we have looked at the possible long-lasting impacts of the COVID-19 pandemic. Although the economy and labour market seem to have recovered now – and it was the case that government support for incomes did a great deal to prevent a crisis in living standards – the long-lasting impacts of the crisis look set either to exacerbate pre-existing inequalities (with enforced saving and asset price rises helping the well-off), or to bear down on social mobility (with labour market or educational disruption being more serious for those on low incomes, or who are growing up, or grew up, in households with a low income). How this plays out will depend partly on the (particularly uncertain) economic outlook in the next few years, but also on policy interventions targeted at schools or young people.

We have said little here about the reasons for being concerned about inequality. Other chapters in the review will look at some aspects of this, but we do note here that the evidence in this chapter should be read alongside the increasing evidence on the apparently harmful impacts of inequality.<sup>73</sup> Unequal societies seem to be less healthy, less trusting, and tend to have more crime and violence. A high level of inequality is not a necessary consequence of a vibrant economy, and key international organisations are worried that inequality can be a drag on economic growth. The concern raised by a given level of earnings or income inequality is lessened if periods of low income are short, but we know that a great deal of income mobility is short range. There is also clear evidence that where people end up in society is heavily influenced by where they started from, and of particular concern given the evidence presented in this chapter is the idea that there could be a causal link between high levels of inequality and low social mobility. In addition, the growing importance of wealth, and the way that it is bequeathed, risks leading to ever-growing and ever-ossifying gaps between different sections of society. Understanding the rich and interlocking patterns of earnings, income and wealth inequality, and how they are affecting different generations, is, therefore, essential if we are to address concerns about inequalities.

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<sup>73</sup> This draws on Brewer (2019a), which contains citations for all the points made here.

# Appendix

## A.1. Data sets

The new analysis in this chapter is based on data from the following sources.

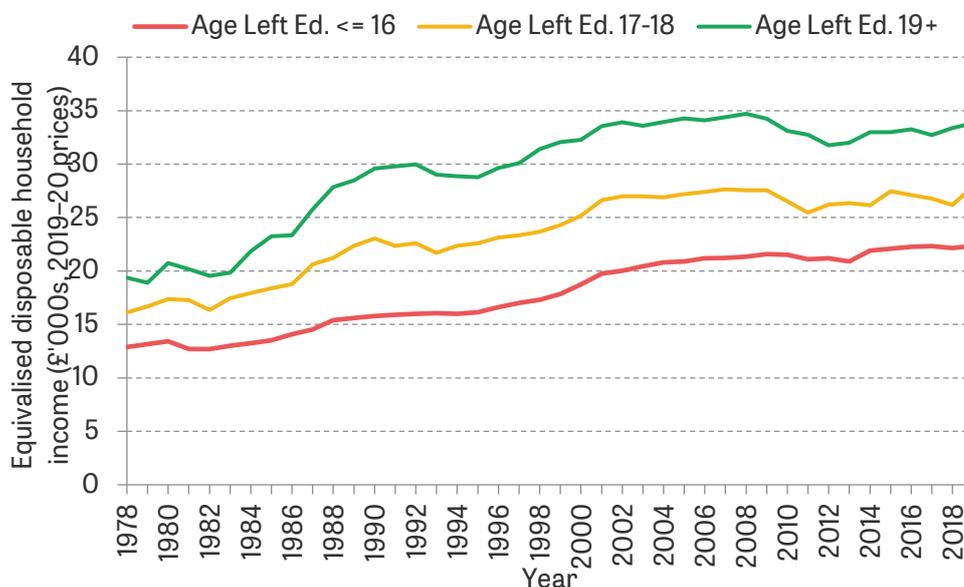
- The Households Below Average Income (HBAI) data set is a derived data set, produced by the Department for Work and Pensions, containing information on household income and its components. These measures of incomes underlie the annual statistics from the Department for Work and Pensions on the distribution of income (see Department for Work and Pensions, 2022). Since 1994–95, the HBAI has been derived from the FRS; before that, it was derived from the FES. The change in the underlying data set is not thought to lead to significant discontinuities, but it does lead to a large change in the sample size. See Goodman and Webb (1995) and Department for Work and Pensions (2020) in the data citations.
- The Family Resources Survey (FRS) is a repeated cross-section survey, currently of around 20,000 households a year, which contains detailed information on different sources of household and individual incomes. The FRS data are available from 1994–95 to 2019–20. The FRS covers Great Britain until 2002–3, and the UK thereafter. See Department for Work and Pensions, Office for National Statistics, NatCen Social Research (2020) in the data citations.
- The Family Expenditure Survey (FES) is a repeated cross-section survey of around 5,000 to 7,000 households per year running from 1961 to 2019 (it is known as the Expenditure and Food Survey between 2001 and 2007, and the Living Costs and Food Survey since then, but we shall refer to it as the FES). As well as detailed information on household and individual incomes, the FES also includes data on household expenditure, from which we can derive measures of household consumption. The FES is only for Great Britain until 1993–94, and then the UK from 1994–95. See Office for National Statistics (2002) and Office for National Statistics, Department for Environment, Food and Rural Affairs (2019) in the data citations.
- The Wealth and Assets Survey (WAS) is a biennial household panel survey of around 18,000–30,000 households (see ONS, 2022e). It contains detailed individual and household wealth data. Currently, seven waves are available, covering the years 2006–08 to 2018–20, but the seventh wave was not available to us in time to be analysed in this report.<sup>74</sup> The WAS covers Great Britain. See Office for National Statistics (2019) in the data citations.

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<sup>74</sup> See ONS (2022b) or Broome and Leslie (2022) for analysis of the 2018–20 wave.

## A.2. Key outcomes by education

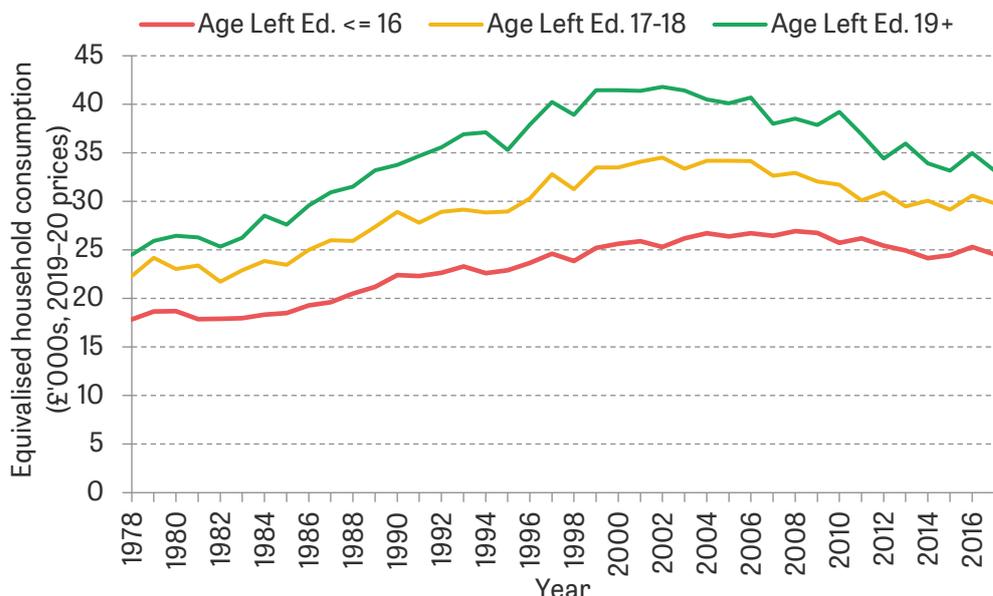
Figure A.1. Median household income by household education, 1978–2019



Note: Incomes have been measured net of taxes and benefits but before housing costs have been deducted and are expressed in 2019–20 prices. All incomes have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019 and a 'top incomes' adjustment using administrative tax data.

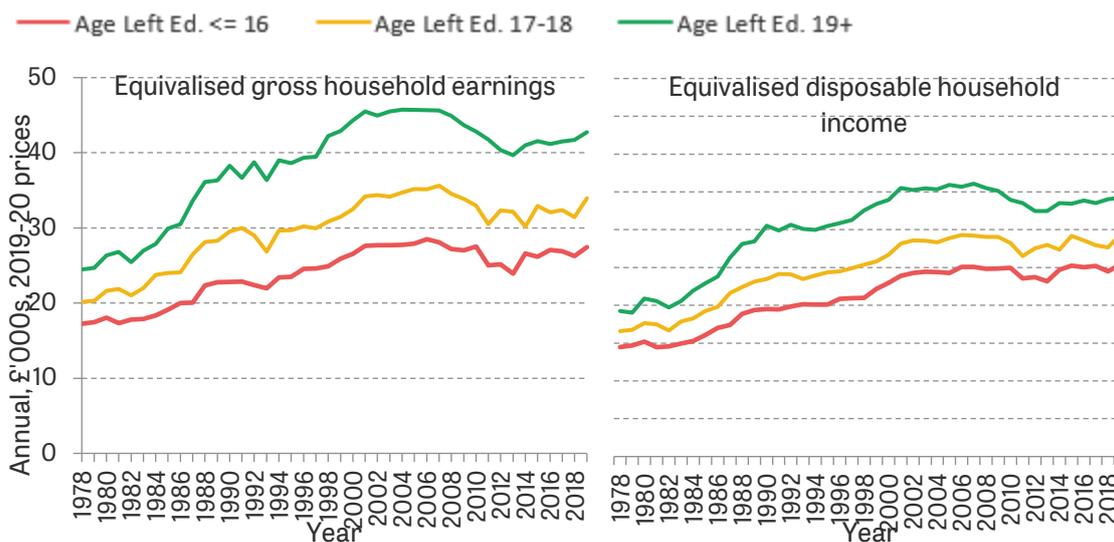
Figure A.2. Median household consumption by household education, 1978–2017



Note: Consumption is in 2019–20 prices. Consumption has been equivalised using the modified after housing costs OECD equivalence scale. The measure of consumption is constructed using a measure of cash outlays, subtracting spending on vehicles and housing (viewing these outlays as investments), and adding in an imputed consumption value for the two items. Years refer to calendar years up until 1993 and financial years from 1994 on and are representative of households in Great Britain before 1994 and of the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1978–2017.

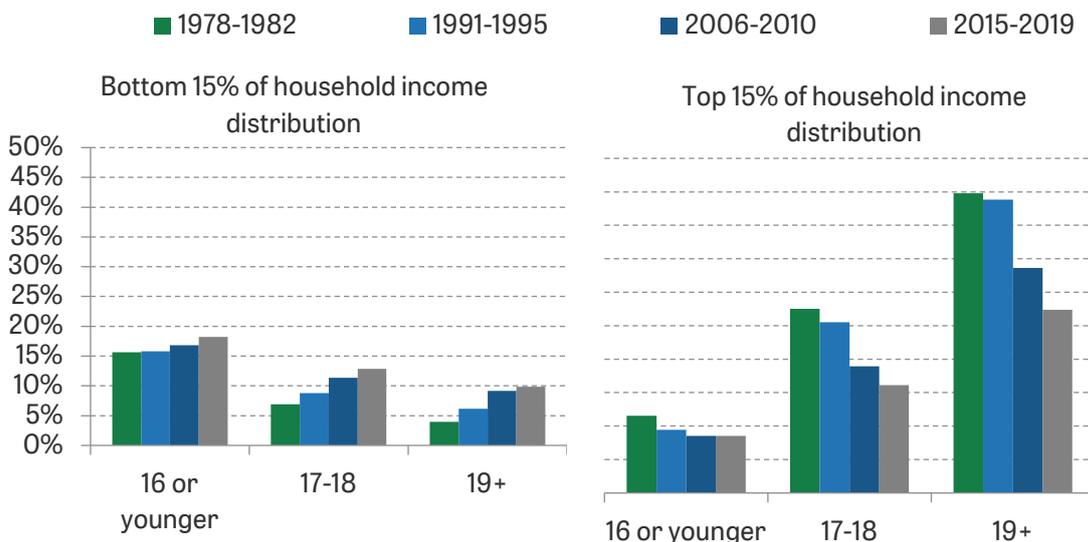
**Figure A.3. Median gross household earnings and disposable household income among working households by household education, 1978–2019**



Note: Sample is individuals in working, non-pensioner households. Incomes are in 2019–20 prices. All incomes have been equivalised using the modified OECD equivalence scale. Household education is defined as the highest education level (so longest stayed at school) within the household. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

**Figure A.4. Proportion of individuals in the bottom and top 15% of the household income distribution by age left education**



Note: Incomes have been measured net of taxes and benefits, before housing costs have been deducted, and have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to

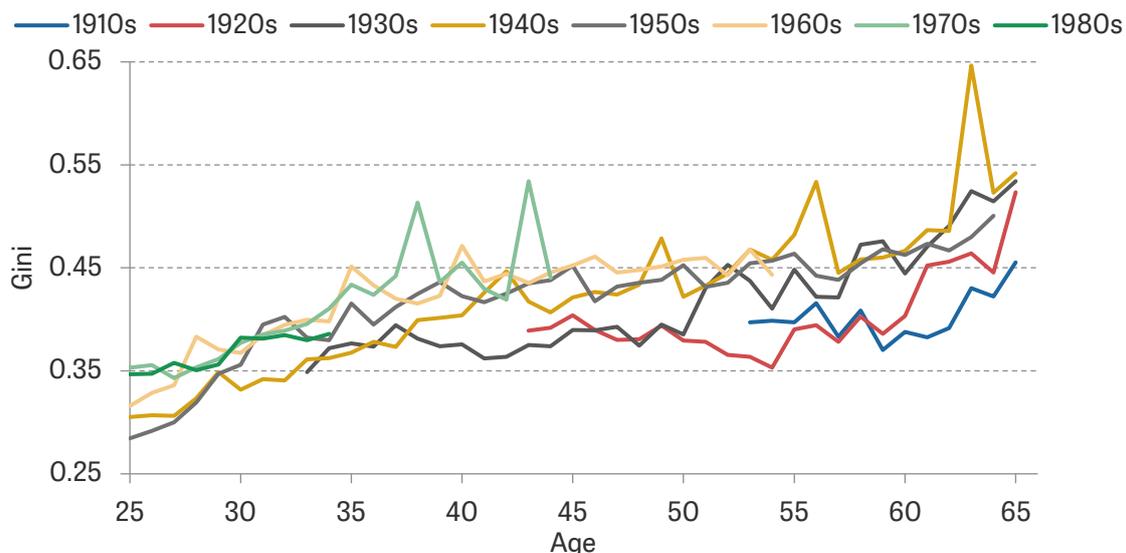
financial years from 1993–94 onwards. Figures relate to households in the UK from 2002–03 onwards and in Great Britain for earlier years. We show the five-year rolling average.

Source: Authors' calculations using the FES up to 1993, and the FRS from 1994–95 to 2019.

### A.3. Analysis of within-cohort inequality

The figures below show age-cohort analysis of within-cohort inequality (as measured by the Gini) in our core concepts of income, consumption and wealth.

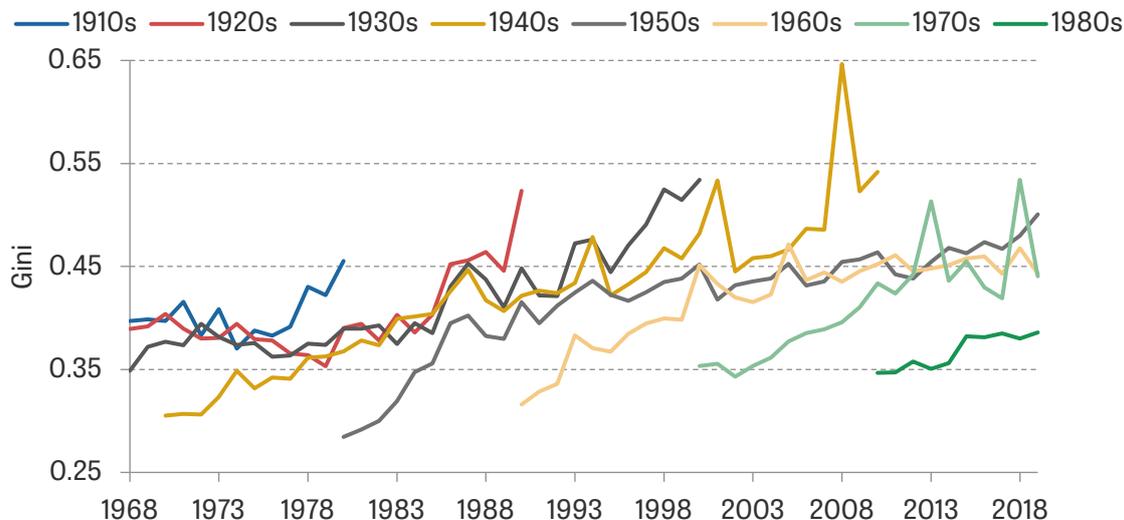
**Figure A.5. Gini coefficient of gross individual earnings amongst those in work, by age, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Sample is individuals in work. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

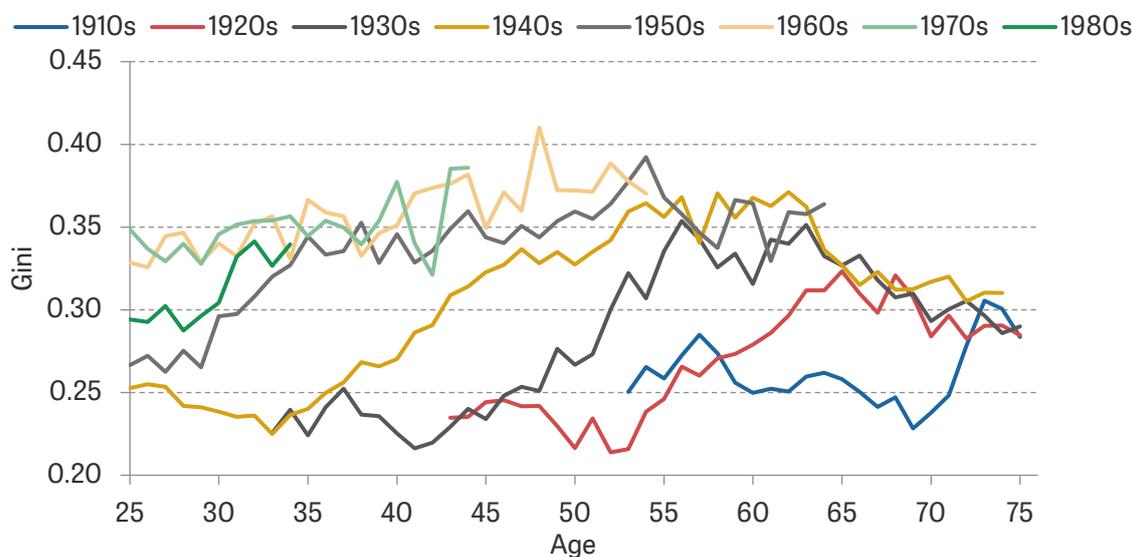
**Figure A.6. Gini coefficient of gross individual earnings amongst those in work, by year, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Sample is individuals in work. Data are representative of households in Great Britain between 1994 and 2001-02 and of households in Great Britain and Northern Ireland before 1994 and from 2002-03 onwards.

Source: Authors' calculations using the FES for 1968-93 and the FRS for 1994-2019.

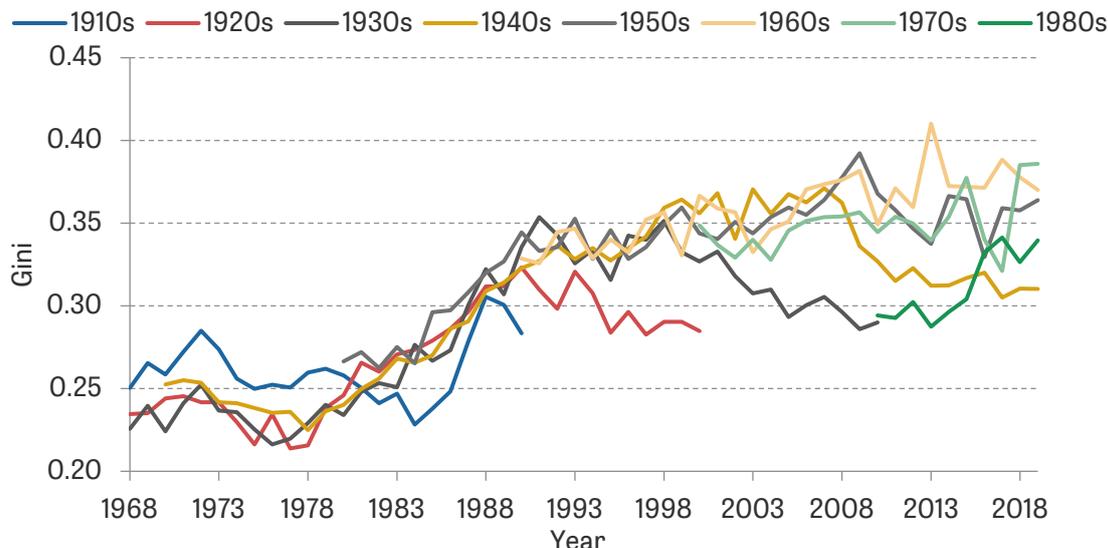
**Figure A.7. Gini coefficient of equivalised disposable household income by age, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Data are representative of households in Great Britain between 1994 and 2001-02 and of households in Great Britain and Northern Ireland before 1994 and from 2002-03 onwards.

Source: Authors' calculations using the FES for 1968-93 and the FRS for 1994-2019.

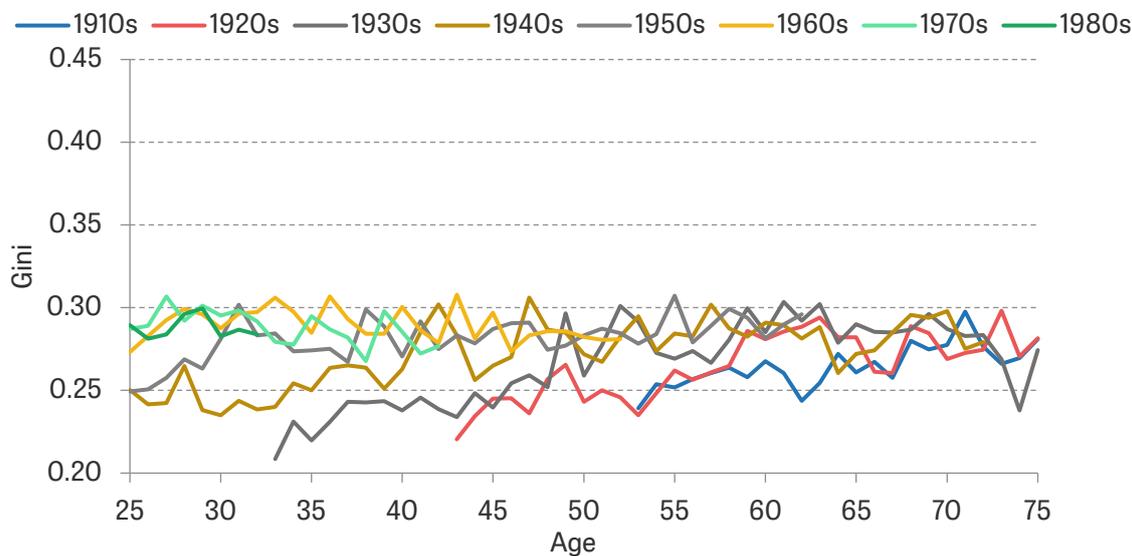
**Figure A.8. Gini coefficient of equivalised disposable household income by year, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Data are representative of households in Great Britain between 1994 and 2001-02 and of households in Great Britain and Northern Ireland before 1994 and from 2002-03 onwards.

Source: Authors' calculations using the FES for 1968-93 and the FRS for 1994-2019.

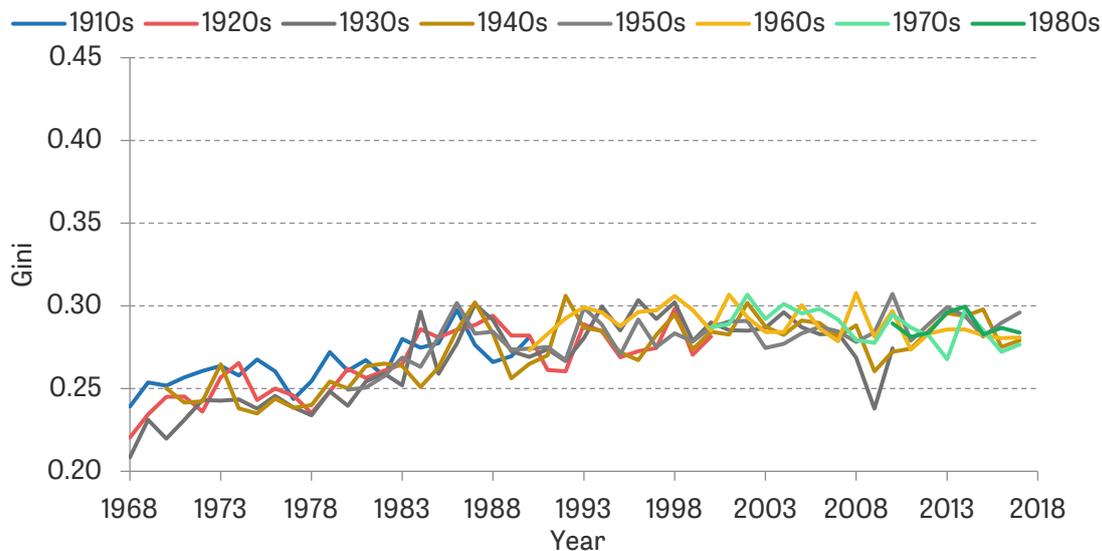
**Figure A.9. Gini coefficient of real household consumption by age, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Data are representative of households in Great Britain before 1994 and in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1974-2017.

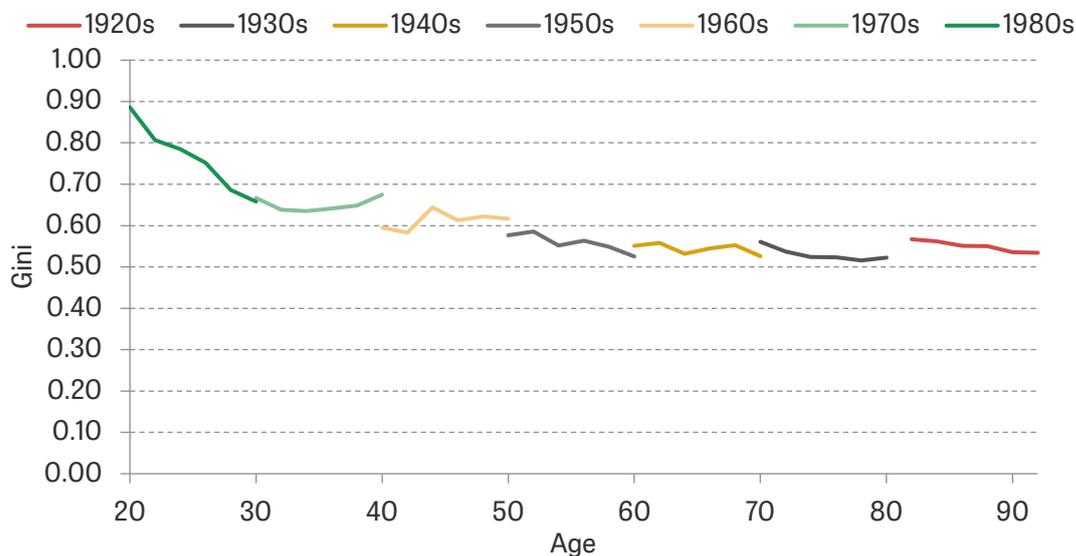
**Figure A.10. Gini coefficient of real household consumption by year, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Data are representative of households in Great Britain before 1994 and in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1974–2017.

**Figure A.11. Gini coefficient of wealth per adult by age, for people born in different decades**



Note: Sample restricted to households containing either one adult or two (and their dependent children if they have any).

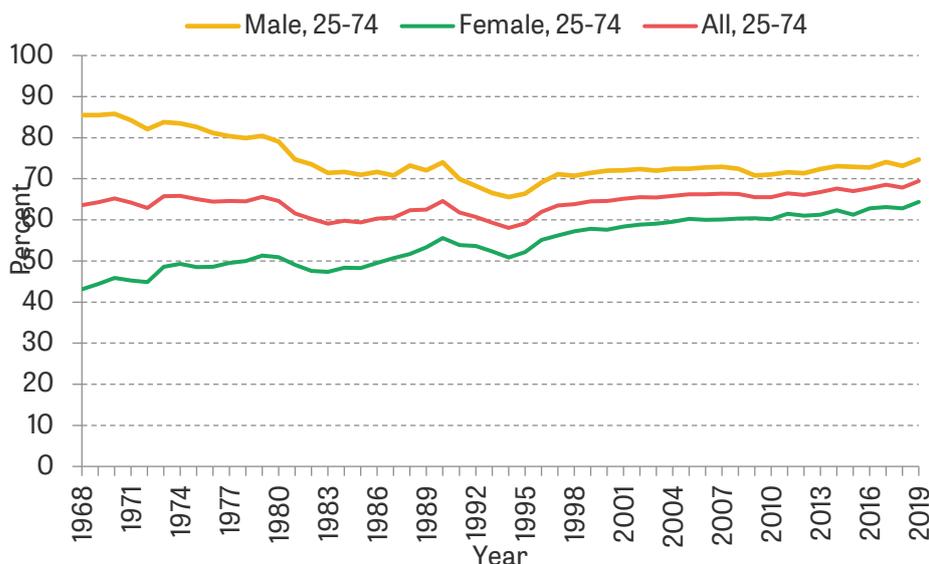
Source: Calculations by Jonathan Cribb, using the WAS, waves 1–4 and rounds 5–6.

## A.4. Overview of changes to labour market outcomes

This appendix shows the level of key labour market outcomes since 1968, or 1978 when we split by education. See Box 6 for technical details.

### Key labour market outcomes

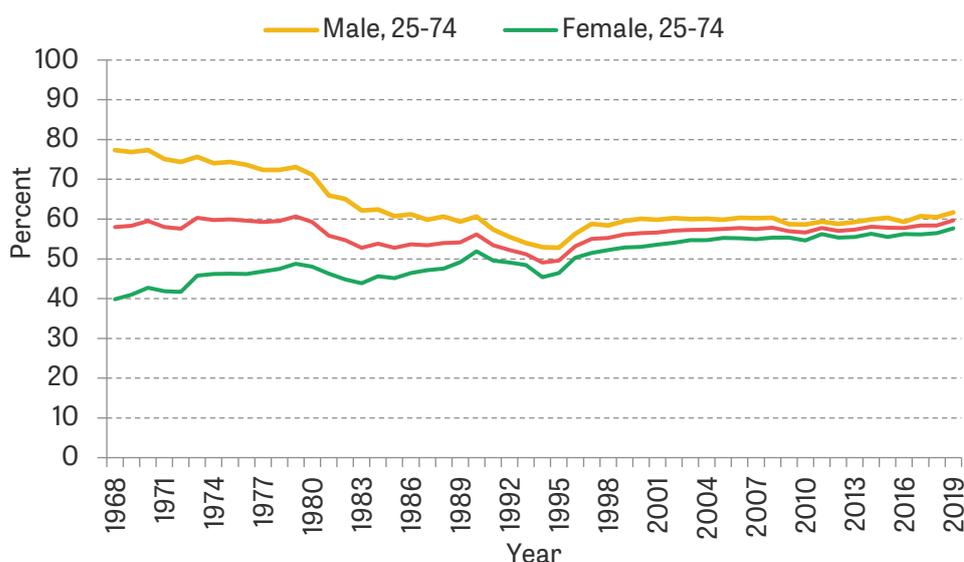
**Figure A.12. Trends in combined employment and self-employment rates for those aged 25–74 overall and by gender, 1968–2019**



Note: Sample is individuals aged 25–74. Employees and self-employed workers are included. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

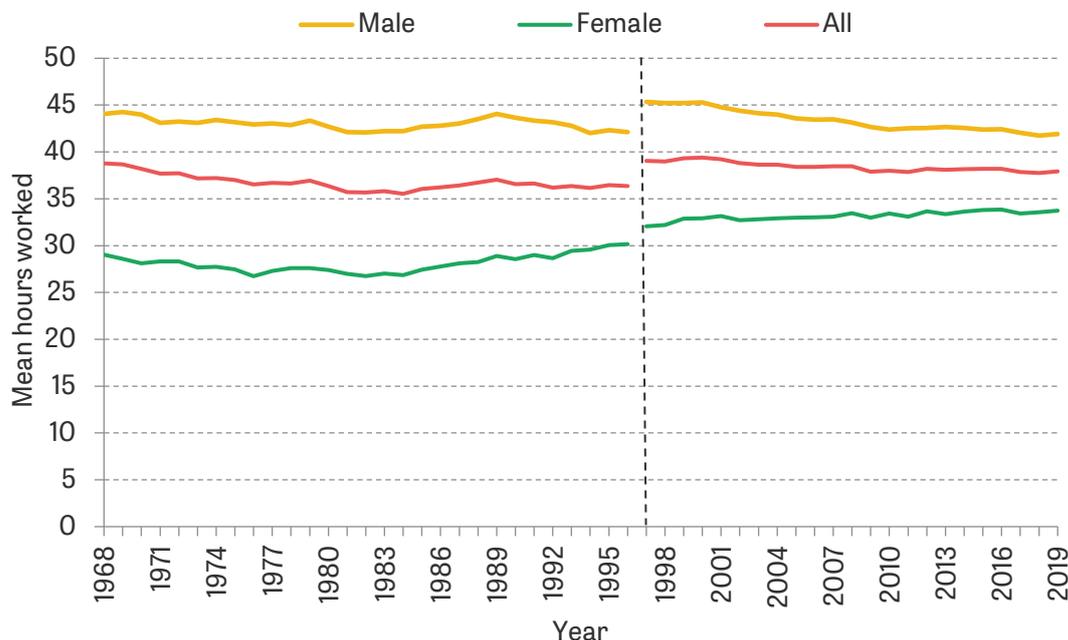
**Figure A.13. Trends in employee employment rates for those aged 25–74 overall and by gender, 1968–2019**



Note: Sample is individuals aged 25–74. Self-employed workers are excluded. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

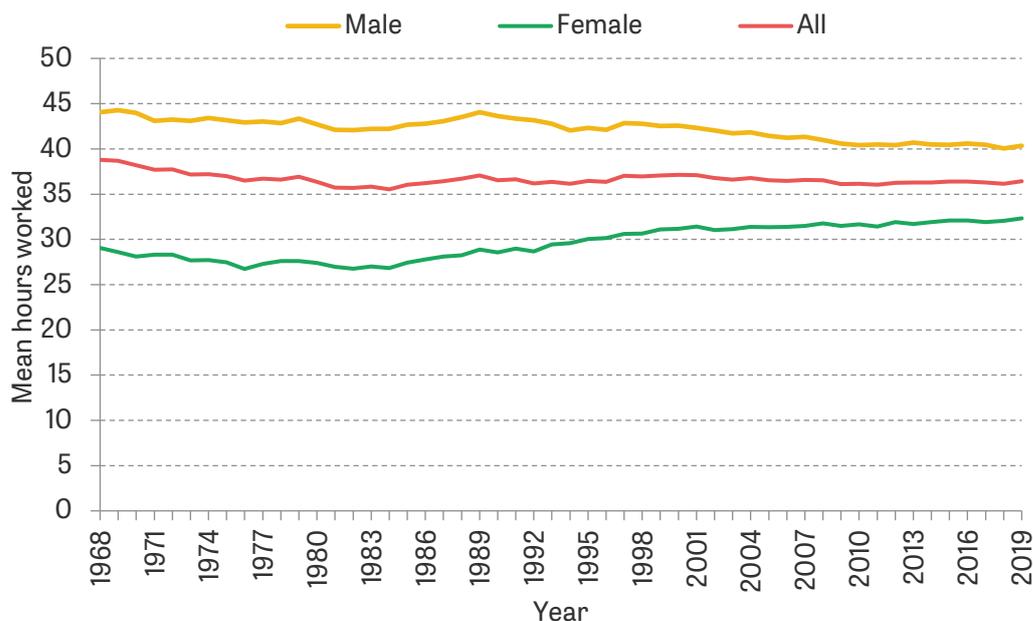
**Figure A.14. Mean hours worked among employees overall and by gender, 1968–2019**



Note: Sample is employees aged 25–74. Hours include paid (and unpaid from 1997 onwards) overtime and have been top-coded to 97 hours per week. The top and bottom 1% of the gender-specific wage distribution are excluded. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using FES for 1968–1993 and FRS for 1994–2019.

**Figure A.15. Mean hours worked amongst employees overall and by gender, excluding unpaid overtime, 1968–2019**

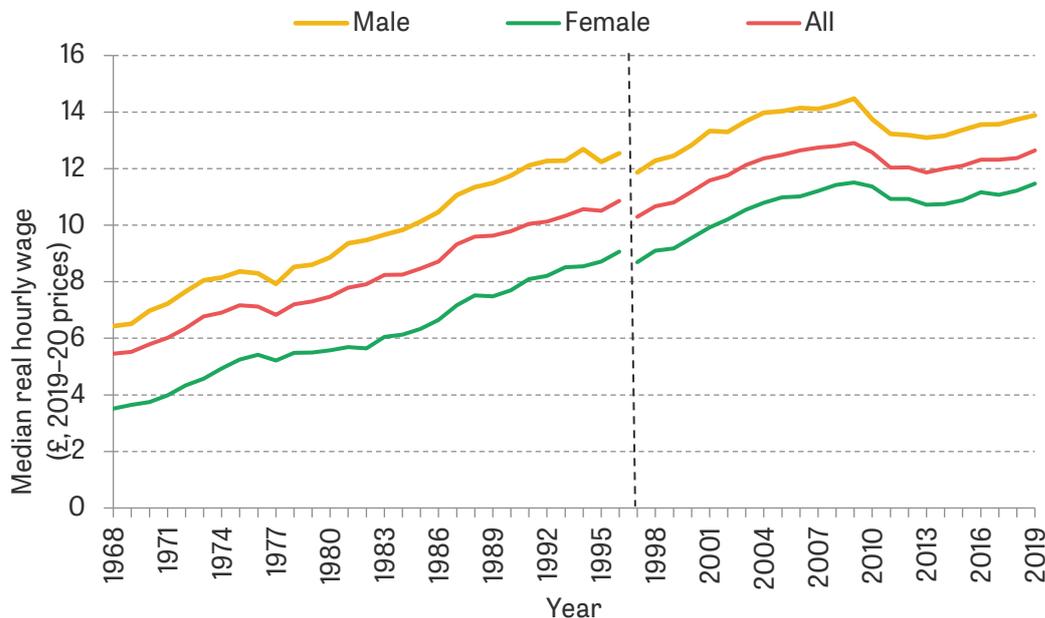


Note: Sample is employees aged 25–74. Hours include paid, but not unpaid overtime and have been top-coded to 97 hours per week. The top and bottom 1% of the gender-specific wage distribution are excluded. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

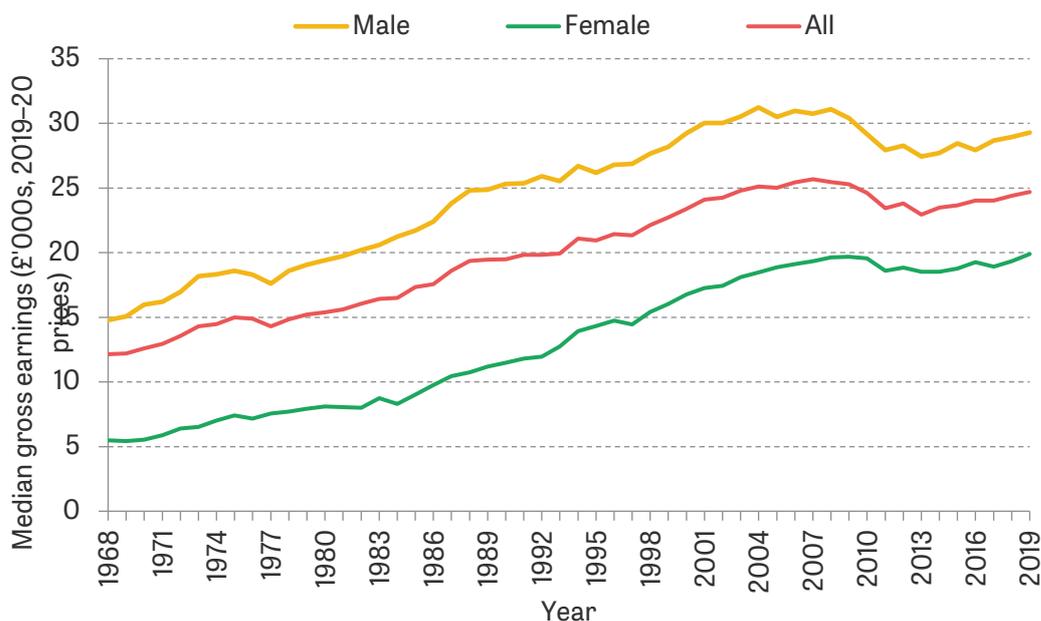
**Figure A.16. Median real hourly wages amongst employees overall and by gender, 1968–2019**



Note: Sample is employees aged 25–74. Wages are in 2019–20 prices. Hours used to calculate hourly wage include paid (and unpaid from 1997 onwards) overtime and have been top-coded to 97 hours per week. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

**Figure A.17. Median real gross individual earnings amongst employees overall and by gender, 1968–2019**

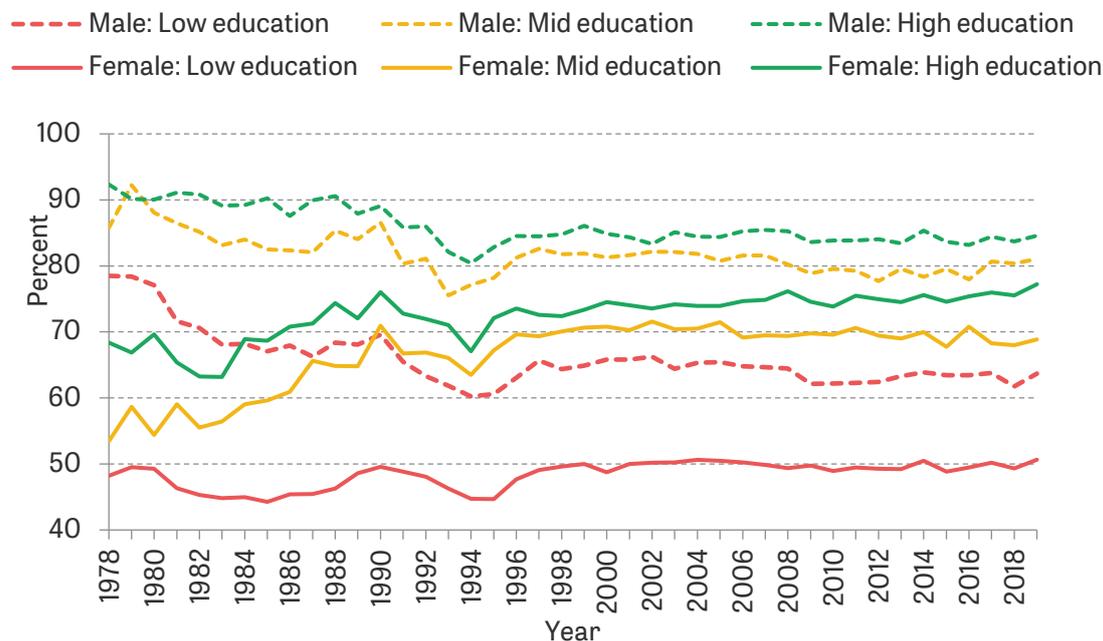


Note: Sample is employees aged 25–74. Gross earnings are in 2019–20 prices. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

### Key labour market outcomes by education

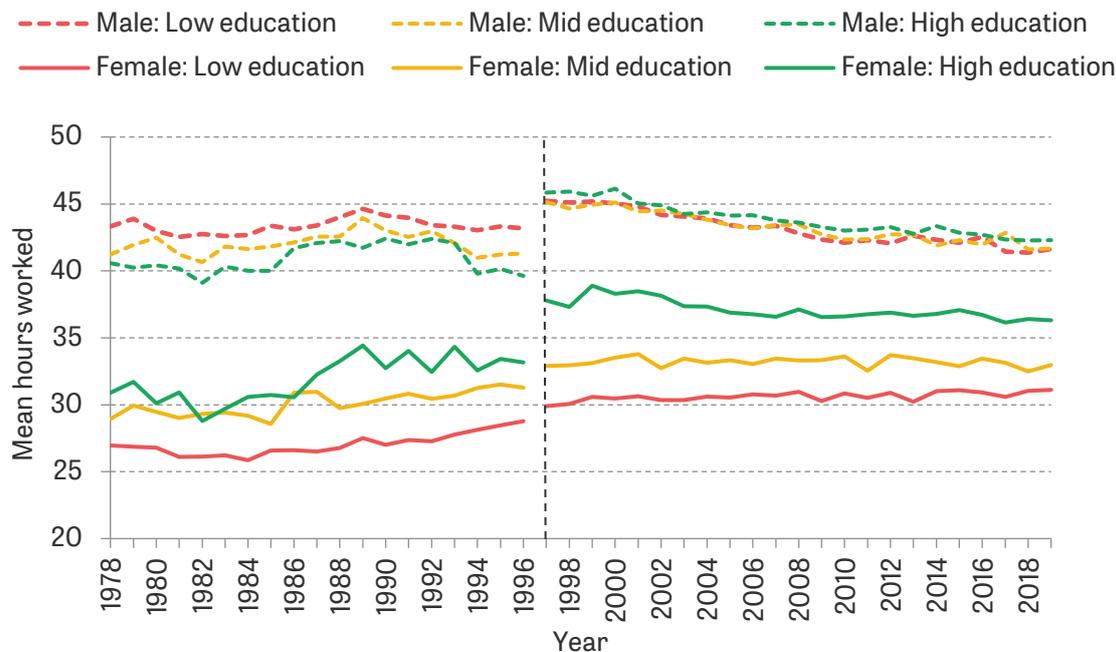
**Figure A.18. Trends in employment rates for those aged 25–74 by education and gender, 1978–2019**



Note: Sample is individuals aged 25–74 who have completed full-time education. 'Low' education means left school aged 16 or under, 'mid' means left aged 17 or 18, and 'high' means left aged 19 and above. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

**Figure A.19. Mean hours worked by gender and education, 1978–2019**

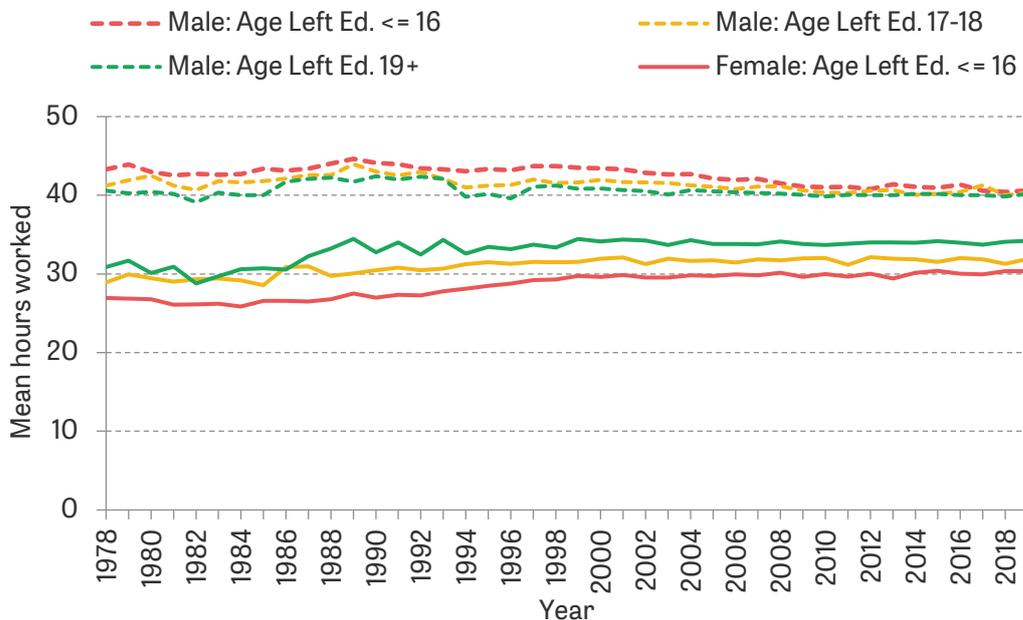


Note: Sample is employees aged 25–74 who have completed full-time education. Hours include paid (and unpaid from 1997 onwards) overtime and have been top-coded to 97 hours per week. The top and bottom 1% of the gender-specific wage distribution are excluded. Years refer to calendar years up to and including 1992 and to financial years from 1993–94

onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

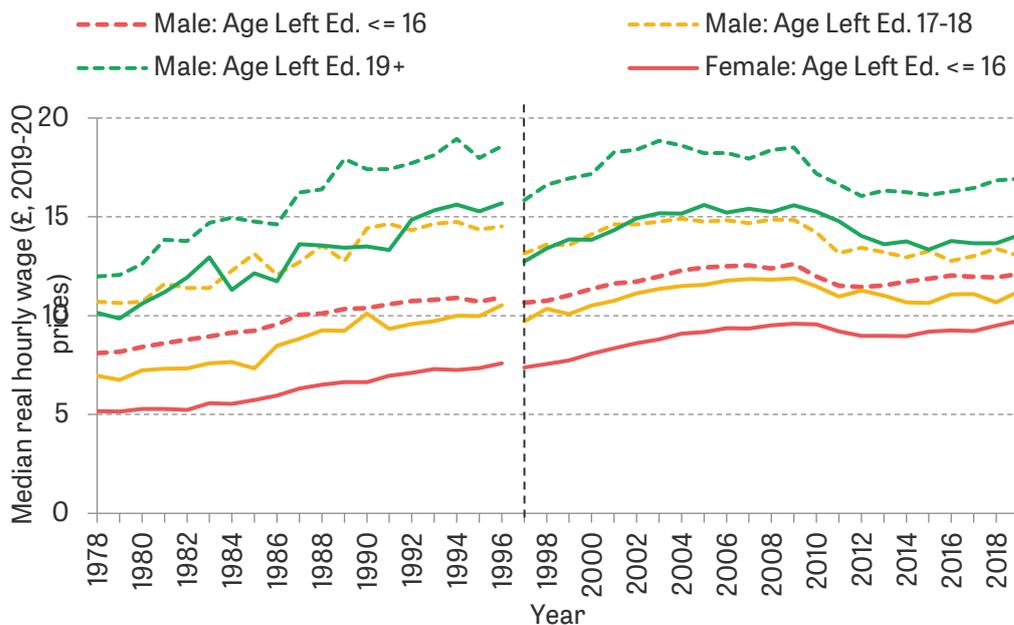
**Figure A.20. Mean hours worked by gender and education, excluding unpaid overtime, 1978–2019**



Note: Sample is employees aged 25–74 who have completed full-time education. Hours include paid, but not unpaid overtime and have been top-coded to 97 hours per week. The top and bottom 1% of the gender-specific wage distribution are excluded. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using FES for 1978-1993 and FRS for 1994-2019.

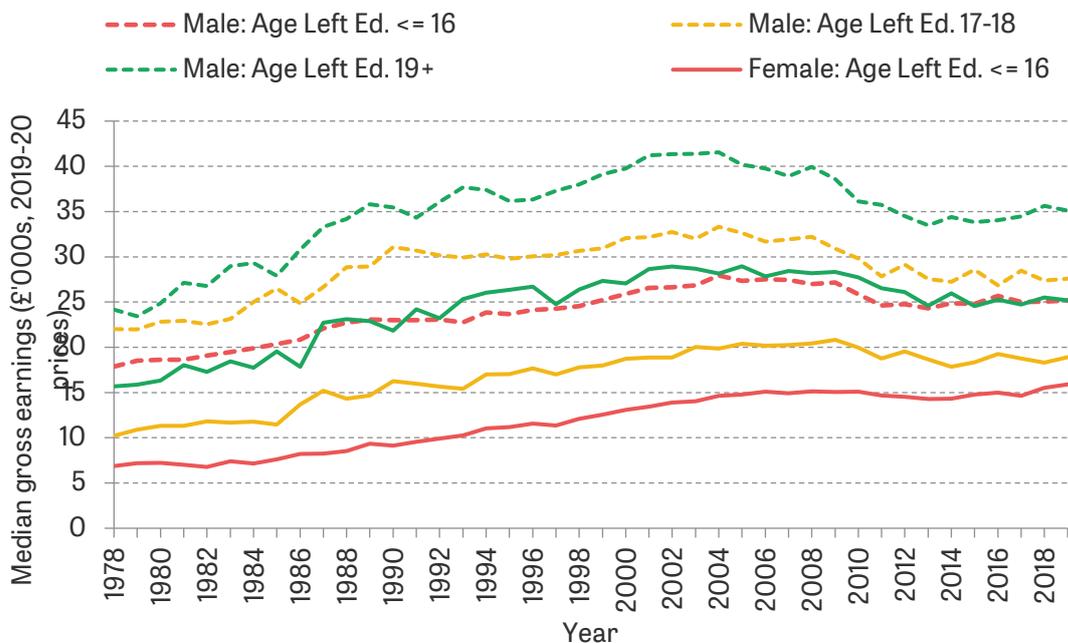
**Figure A.21. Median real hourly wages by education and gender, 1978–2019**



Note: Sample is employees aged 25–74 who have completed full-time education. Wages are in 2019–20 prices. Hours used to calculate hourly wage include paid (and unpaid from 1997 onwards) overtime and have been top-coded to 97 hours per week. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

**Figure A.22. Median gross individual earnings by gender and education, 1978–2019**

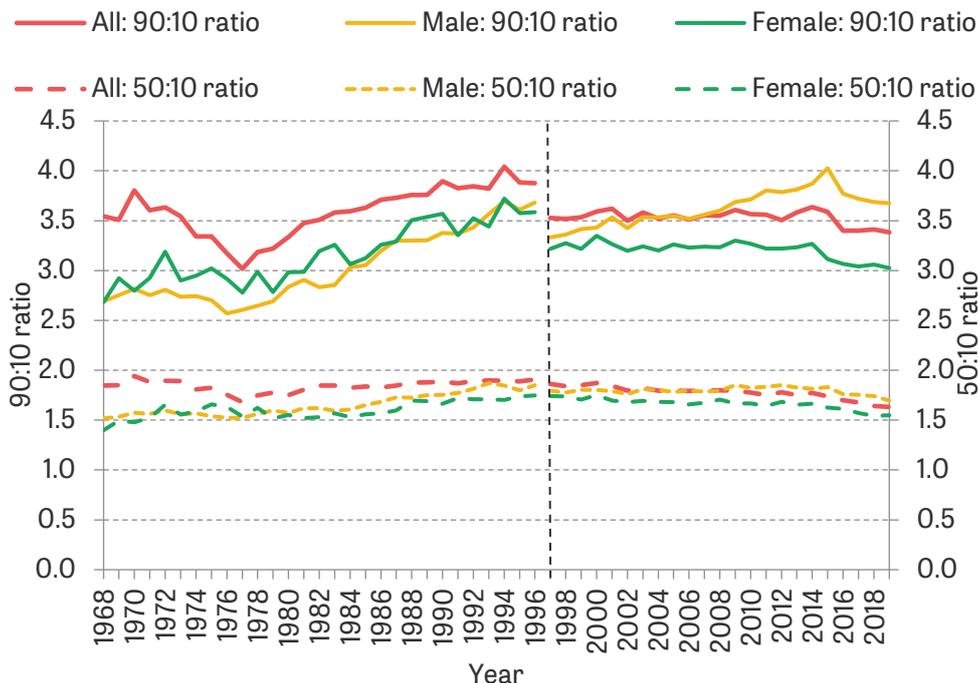


Note: Sample is individuals in work aged 25–74 who have completed full-time education. Gross earnings are in 2019–20 prices. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

**Inequalities in hours, earnings and disposable income of in-work households**

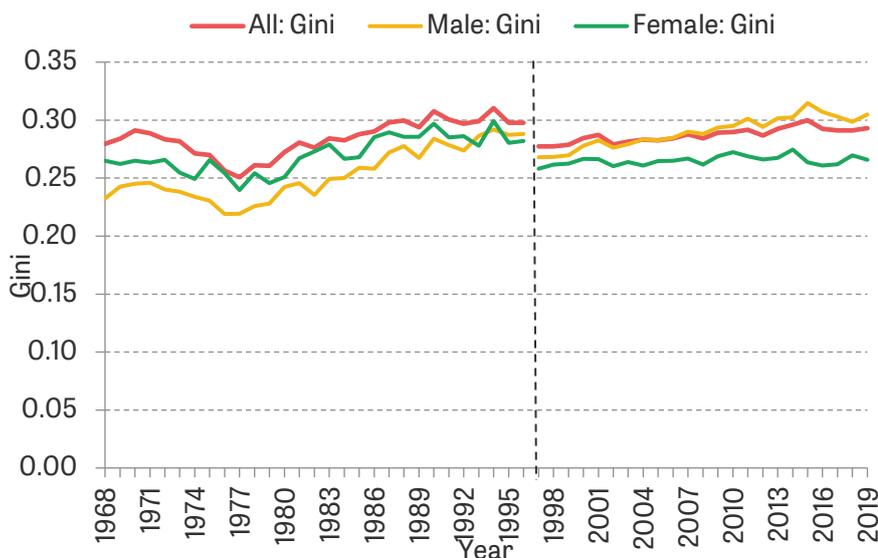
**Figure A.23. The 90:10 and 50:10 ratios of hourly wages in UK overall and by gender, 1968–2019**



Note: Sample is employees aged 25–74. The top and bottom 1% of the gender-specific wage distribution are excluded. Hours used to calculate hourly wage include paid (and unpaid from 1997 onwards) overtime and have been top-coded to 97 hours per week. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

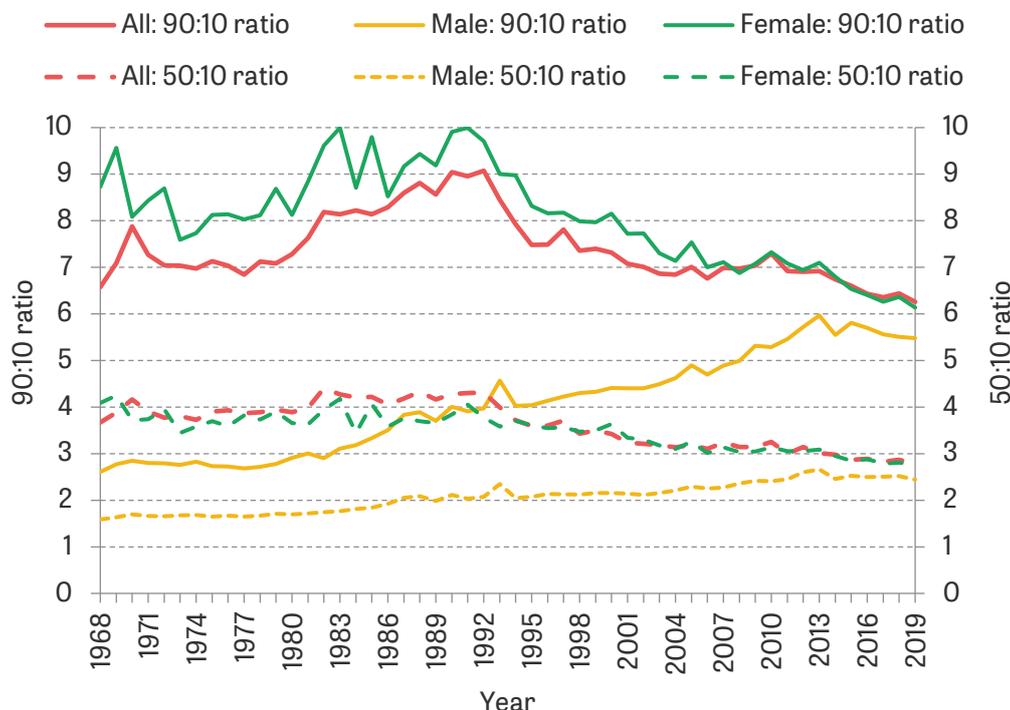
**Figure A.24. Gini coefficient of hourly wages overall and by gender, 1968–2019**



Note: Sample is employees aged 25–74. The top and bottom 1% of the gender-specific wage distribution are excluded. Hours used to calculate hourly wage include paid (and unpaid from 1997 onwards) overtime and have been top-coded to 97 hours per week. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

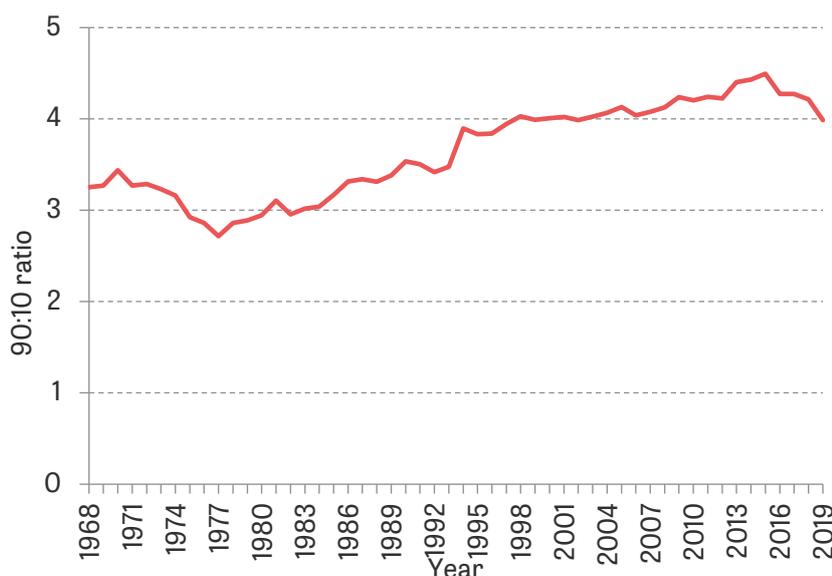
**Figure A.25. The 90:10 and 50:10 ratios of gross individual earnings overall and by gender, 1968–2019**



Note: Sample is individuals in work aged 25–74. We exclude the bottom and top 1% of the gender-specific gross earnings distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using FES for 1968–1993 and FRS for 1994–2019.

**Figure A.26. The 90:10 ratios of gross individual earnings for working-age full time workers, 1968–2019**

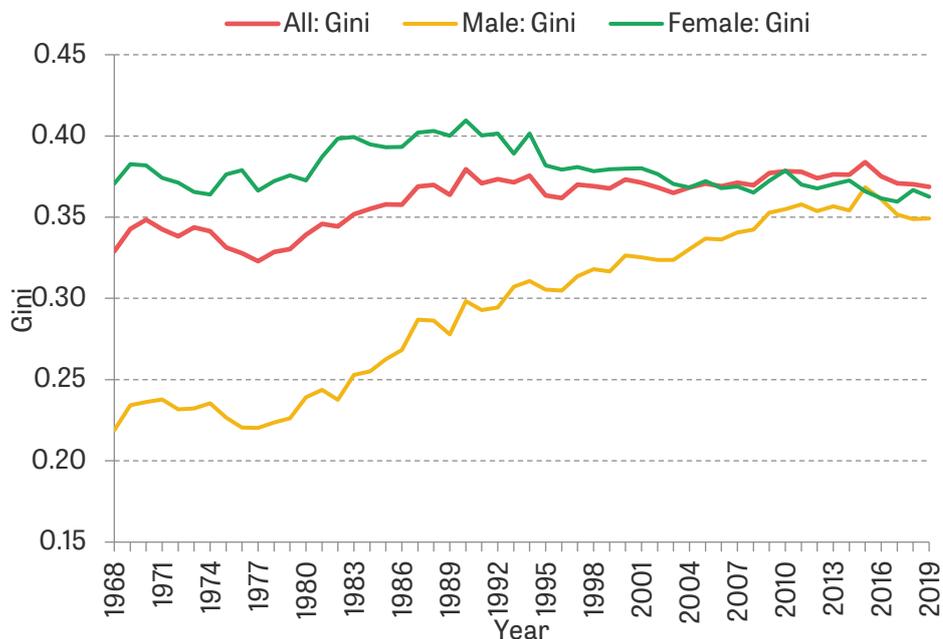


Note: Sample is individuals working at least 35 hours a week who have not reached state pension age. We exclude the bottom and top 1% of the gender-specific gross earnings distribution. Years refer to calendar years up to and including

1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

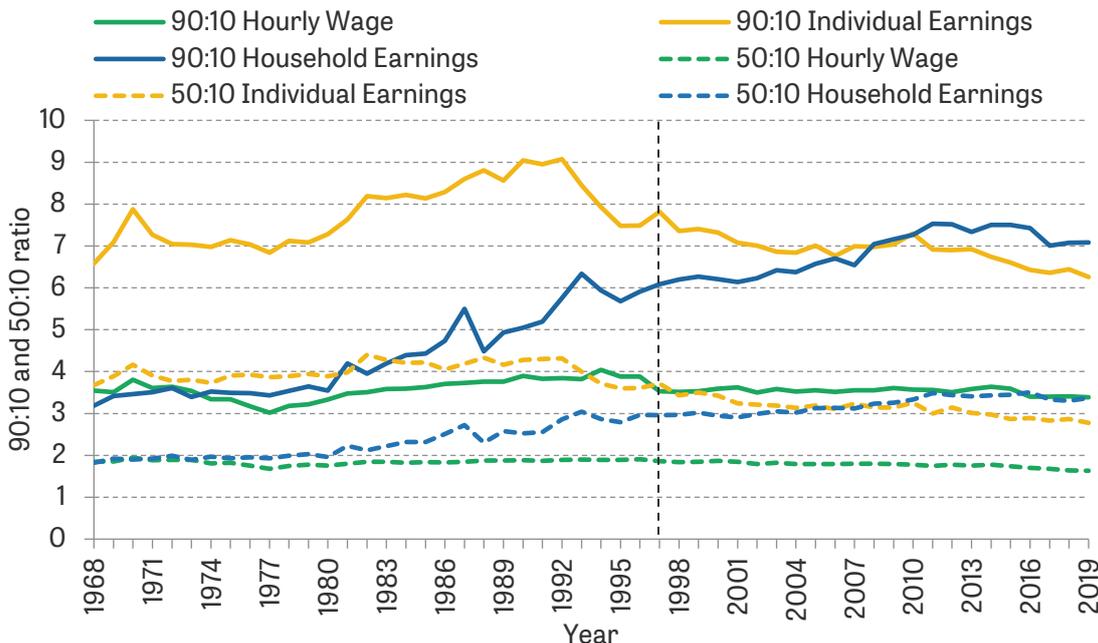
**Figure A.27. Gini coefficient of gross individual earnings overall and by gender, 1968–2019**



Note: Sample is individuals in work aged 25–74. We exclude the bottom and top 1% of the gender-specific gross earnings distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain between 1994 and 2001–02 and of households in Great Britain and Northern Ireland before 1994 and from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

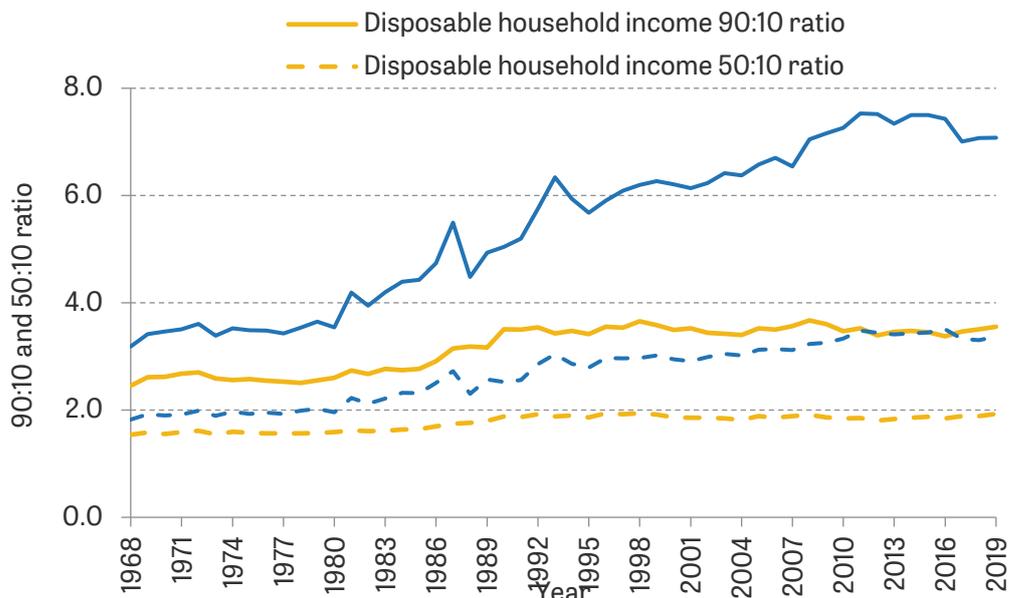
**Figure A.28. The 90:10 and 50:10 ratios of hourly wage, gross individual earnings and household earnings, 1968-2019**



Note: Sample is individuals in work aged 25–74. We exclude the bottom and top 1% of the gender-specific gross earnings distribution. Household earnings have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

**Figure A.29. The 90:10 and 50:10 ratios of gross household earnings and disposable income of working households, 1968–2019**



Note: Sample is individuals in working, non-pensioner households. Incomes are in 2019–20 prices. All incomes have been equivalised using the modified OECD equivalence scale. We exclude households in the bottom and top 1% of the gross household earnings/ disposable household income distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

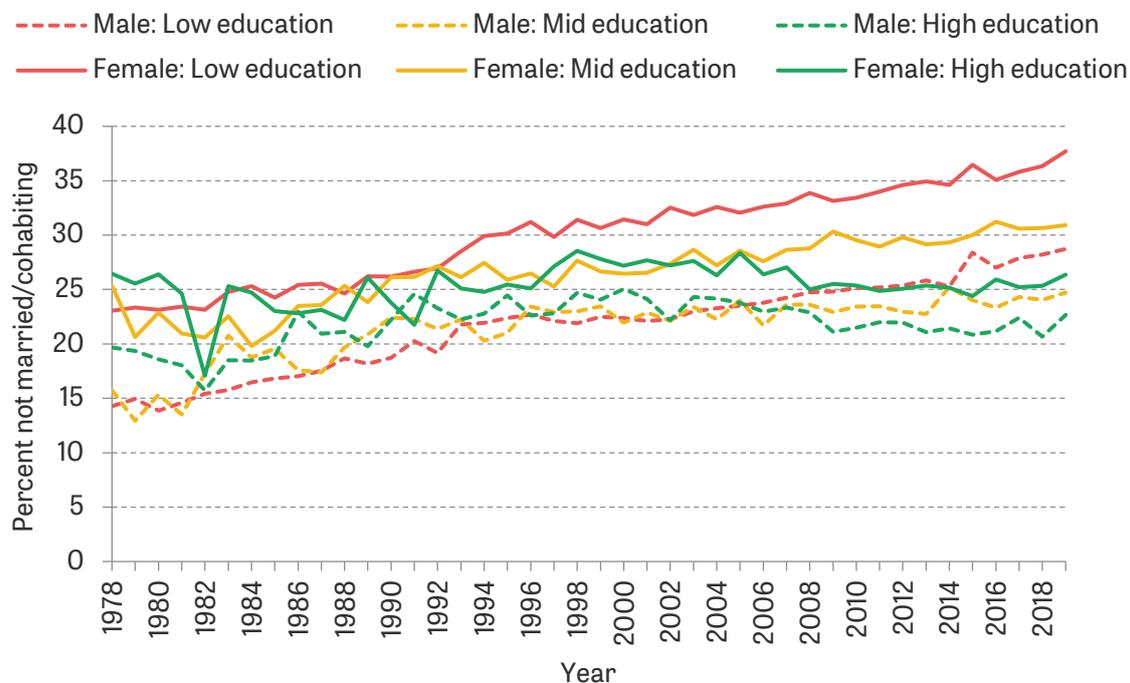
Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

## A.5. Understanding the within-household changes in employment and earnings

In this appendix, we provide a detailed analysis of what lies behind the different patterns of changes in individual and household earnings.

Figure A.30 shows the proportion of individuals aged 25–74 who are living as a single adult (i.e. they are not married or cohabitating). Over the full time period, living as a single adult has become more common across those who left education at age 18 or under (although Box 6 cautions against looking at splits by education over a long time period): in 1978, 19% of the lowest-educated group were living as a single adult, but by 2019, 33% were. However, the fraction of those in the highest-education group living as a single adult has fallen slightly, but steadily, since the late 1990s.

**Figure A.30. Trends in marriage/ cohabitation by education and gender, 1978–2019**



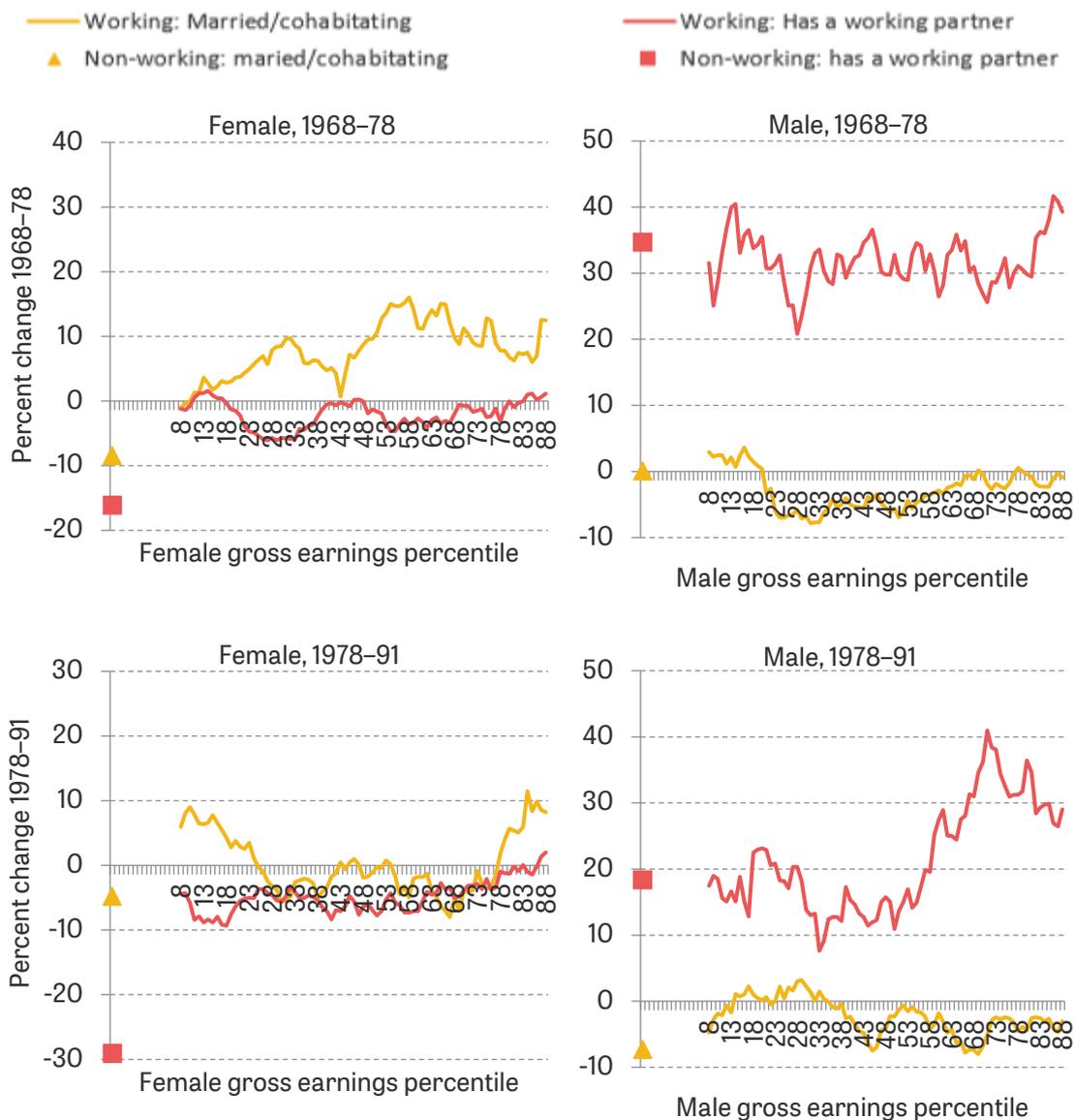
Note: Sample is individuals aged 25–74 who have completed full-time education. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

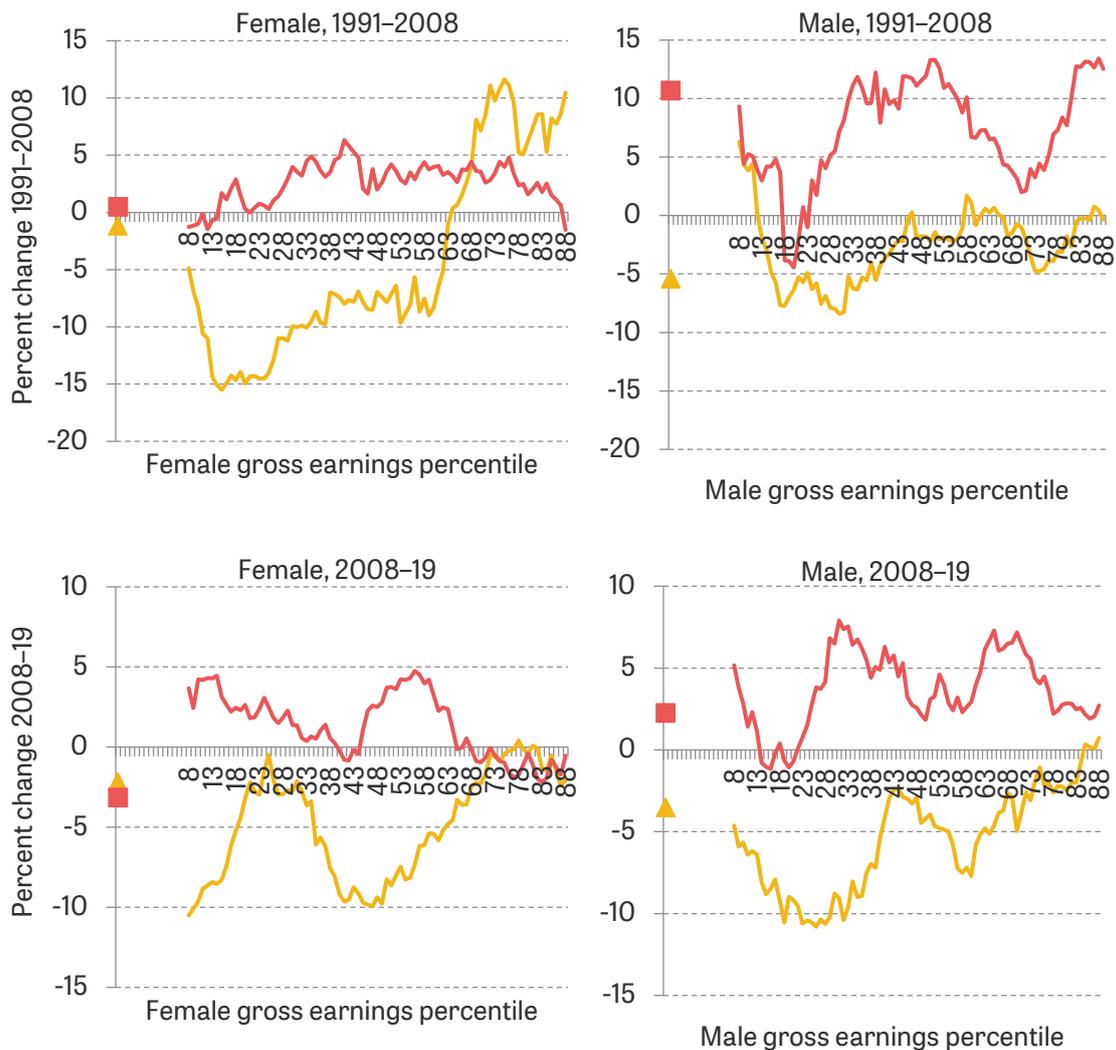
Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

Figure A.31 builds on this by showing how the probability that an adult lives with another adult in a couple has changed over time, as well as the changing probability that this partner is in work; it does this separately for men and women, broken down by the position of their rank in the earnings distribution. More specifically, the yellow line in, for example, the top-left panel shows the change between 1968 and 1978 in the probability that women at different points in the earnings distribution live with a partner, with the solid triangle on the vertical axis indicating the same change for women who were not themselves in work. The red line in the top-left panel shows the change between 1968 and 1978 in the probability that women at different points in the earnings distribution who live in a couple have a working partner (with the red square indicating

the same change for women who were in a couple but not in work themselves). Given the amount of information in this figure, we now discuss what it shows in some detail.

**Figure A.31. Change in the proportion who are married or cohabiting, and the change in the proportion of those in a couple who have a working partner, by gross earnings percentile, 1968–2019**





Note: Sample is individuals aged 25–74. Married/cohabiting also includes civil partnerships. Growth rates are plotted as fifteen-percentile moving averages across the earnings distribution, excluding the bottom and top 1% of the gender-specific earnings distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

The top two panels show that working women were more likely to live with a partner in 1978 than 1968, with the biggest change for high-earning women, and that non-working women were less likely to live with a partner in 1978 than 1968. There were much smaller changes in living patterns among men over the same period, with just a small decline in the probability that low-earning men lived in a couple. The red series show a trend towards two-earner couples. The top-left panel shows that working women with partners were, if anything, less likely to have a partner in work in 1978 than 1968 (and non-working women with partners were a lot less likely to have a partner in work in 1978 than 1968). But the biggest change over this period is that men with partners were considerably more likely to have a partner in work in 1978 than 1968 (and this happened uniformly across the male earnings distribution, and among non-working men). This reflects the trend towards higher female employment over this period.

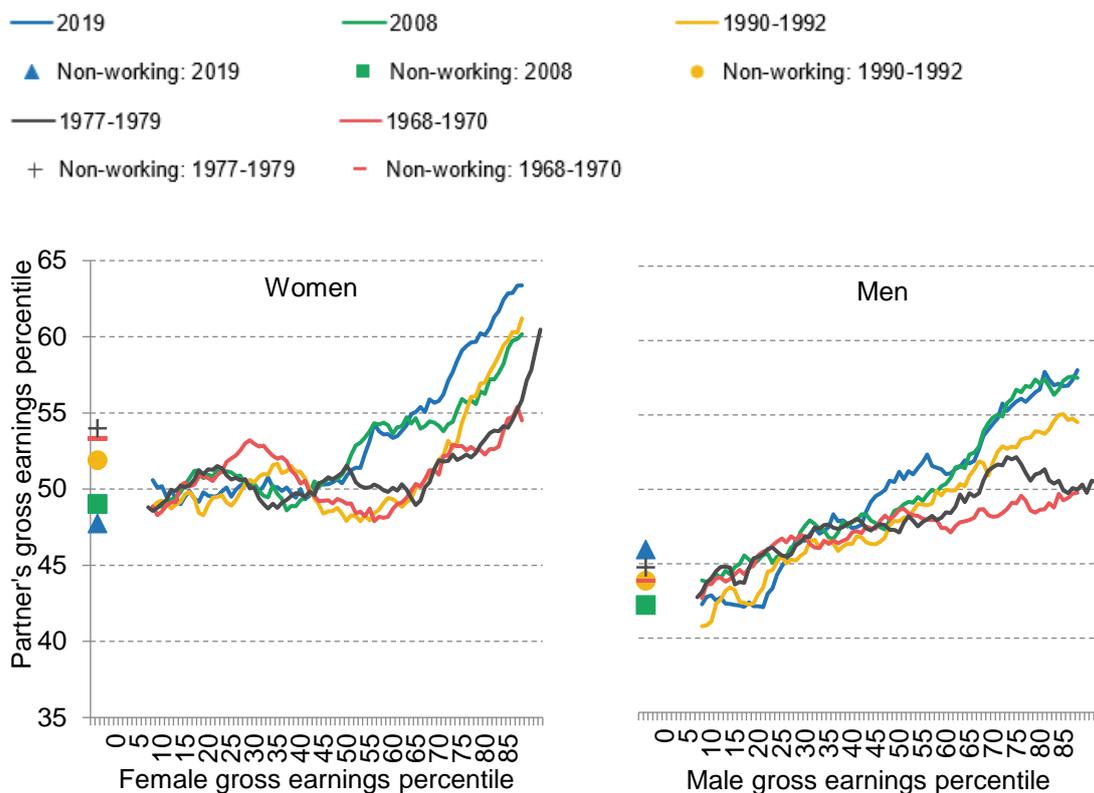
Between 1978 and 1991, high-earning and low-earning women became slightly more likely to have a partner. Working women with partners became less likely to have a partner in work, and this was slightly skewed towards low-earning women. Non-working women became less likely to have a partner (partly reflecting the rise in lone motherhood over this period), and if they did, he was considerably less likely to be in work. Men became slightly less likely to live with a partner over this period, and this was greatest for non-working and higher-earning men. Men with partners were, as in the 1970s, considerably more likely to have a partner in work in 1991 than in 1978; unlike the change in the 1970s, the change in the 1980s was considerably greater among high-earning men. These trends, then, show how the labour market changes at the time were translating into greater household inequality: the decline in male employment over this period was seen more in lower-income families, and the rise in female employment was seen more in higher-income families (the so-called polarisation of employment within couples; see Gregg and Wadsworth, 2001).

From 1991 to 2008, we can see a new trend among women: over this period, the likelihood that a woman in the bottom two-thirds of the earning distribution had a partner fell, and the likelihood that a woman in the top third of the earning distribution had a partner rose, something that we might expect to push up inequality in household earnings. Men continued to see small falls in the likelihood that they lived with a partner, and a continued rise in the likelihood that their partner was in work, but this latter change was much smaller than seen over previous decades.

In the final period (2008–19), women became less likely to live with a partner (although not among the highest-earning women); where they did have a partner, their partner was more likely to be in work by 2019 than in 2008 (and this was slightly skewed towards low-earning women). Men saw the largest fall of all four periods in the likelihood they are living with a partner (although this was not seen among high-earning men); where they did have a partner, there was a rise in the likelihood that their partner was in work.

We now go further and look just at couples to examine changes in the within-couple correlation between gross earnings (obviously such an exercise is affected by the changing composition of couples over time). Figure A.32 ranks individuals by their gross earnings and plots the average earnings percentile of their partners, and it does this in 1968, 1991, 2008 and 2019 separately (pooling years for the 1968 and 1991 time point). The squares and triangles represent the average gross earnings percentiles of the partners of non-working men and women. It shows that, where both members of a couple are in work, there has always been a positive correlation between one's own and one's partner's average earnings percentile. That is, people further up the individual gross earnings distribution tend to have partners who, if in work, are also further up the gross earnings distribution. But it also shows that the degree of assortativeness among those in work – just measured by the slope of the line – increased over time, especially in the top half of the earnings distribution. For example, within two-earner couples, the average earnings rank of the partner of someone at the 90<sup>th</sup> centile has risen by about 11 percentage points (ppt) for men and 10 ppt for women since 1968. In a related trend, out-of-work women are now less likely to have a high-earning partner than they were previously. Overall, these changes will have been pushing up inequality in household-level earnings.

**Figure A.32. Mean gross earnings percentile of partner, based on own location in the earnings distribution, two-earner couples**



Note: Sample is individuals aged 25–74. Married/cohabitating also includes civil partnerships. Series show five-percentile moving averages across the earnings distribution, excluding the bottom and top 1% of the gender-specific earnings distribution. Years refer to financial years. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

## A.6. Further details of the inequality decompositions

### Decomposition by income source

The following gives further details on the inequality decompositions whose results are summarised in Section 7. This work updates Brewer and Wren-Lewis (2016) and Jenkins (1995) to decompose equivalised household income inequality into the contributions made by various income sources, using decomposition methods set out in Shorrocks (1982).<sup>75</sup> This is a relatively simple approach that we use to provide an overview of the main changes over the past few decades.

The component inequality weight of source  $k$  is defined as  $S_k(Y)$  and is the covariance of this income source with total income, scaled by the total variance of income as follows:

$$s_k(Y) = \frac{\text{cov}[Y^k, Y]}{\sigma^2(Y)}. \tag{1}$$

<sup>75</sup> The following relies heavily on Shorrocks (1982) and Brewer and Wren-Lewis (2016).

We can apply these shares to all inequality measures that use all observations of a given distribution (so not, for example, decile ratios) and can trivially define the absolute contribution of income source  $k$  to a certain inequality measure  $I$  as  $S_k = s_k I$ . We can then decompose the change in inequality over a pre-defined period, with future values denoted by a prime, as

$$I' - I = \sum_k (s'_k I' - s_k I). \tag{2}$$

Shorrocks (1982) shows that when using half the coefficient of variation squared as the measure of inequality,

$$I_2 = \frac{1}{2n} \sum_i \left[ \left( \frac{Y_i}{\mu} \right)^2 - 1 \right] = \frac{\sigma^2}{2\mu^2},$$

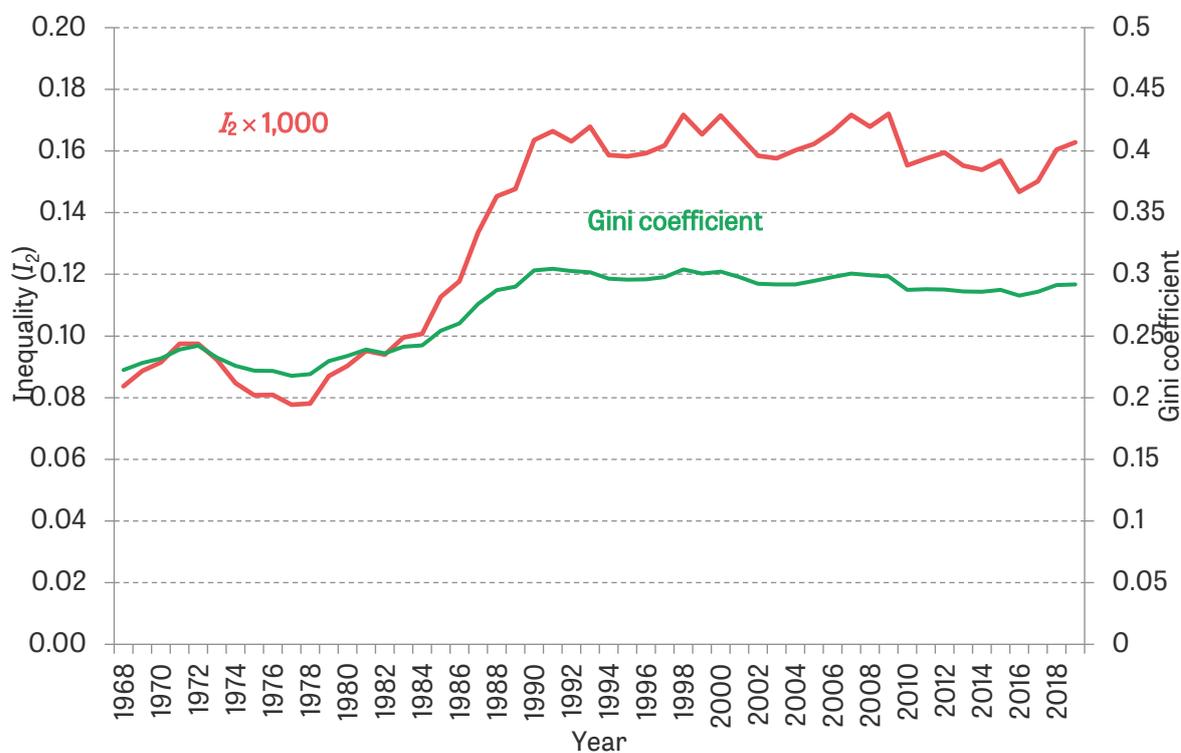
this can be further decomposed. In this case, the absolute share of source  $k$  in total inequality can be expressed as the sum of two terms as

$$S_k = \frac{\text{cov}(Y^k, Y)}{2\mu^2} = \frac{\sigma^2(Y^k)}{4\mu^2} + \frac{2\text{cov}(Y^k, Y - Y^k)}{4\mu^2}, \tag{3}$$

where the first term contains the inequality of the particular income source considered alone and the second includes the correlation of that source of income with other income sources. We therefore use half the coefficient squared as our measure of income inequality for this analysis.

Figure A.33 shows two measures of overall household income inequality – the Gini coefficient and half the coefficient squared (denoted as  $I_2$ ) – from 1978 to 2019. (We exclude the top and bottom 1% of the household income distribution due to well-known issues in the measurement of these incomes discussed earlier, and because, for early years, we do not have adjustments for the individual components of household income for the very top of the distributions as we do for household income itself.)

**Figure A.33. Inequality in household income ( $I_2 \times 1,000$  and Gini coefficient), 1968–2019**



Note: The top and bottom 1% of the household income distribution are excluded. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

The income sources we consider, and that make up disposable household income, include male and female gross employment earnings, employment taxes (i.e. income tax and national insurance paid on earnings), net self-employment earnings, net pensions,<sup>76</sup> net investments, 'other income',<sup>77</sup> payments<sup>78</sup> and benefits received by (i) pensioner households (including the state pension), (ii) households with children and (iii) other households. Figure A.34 shows how these income sources have changed importance over time across the income deciles.

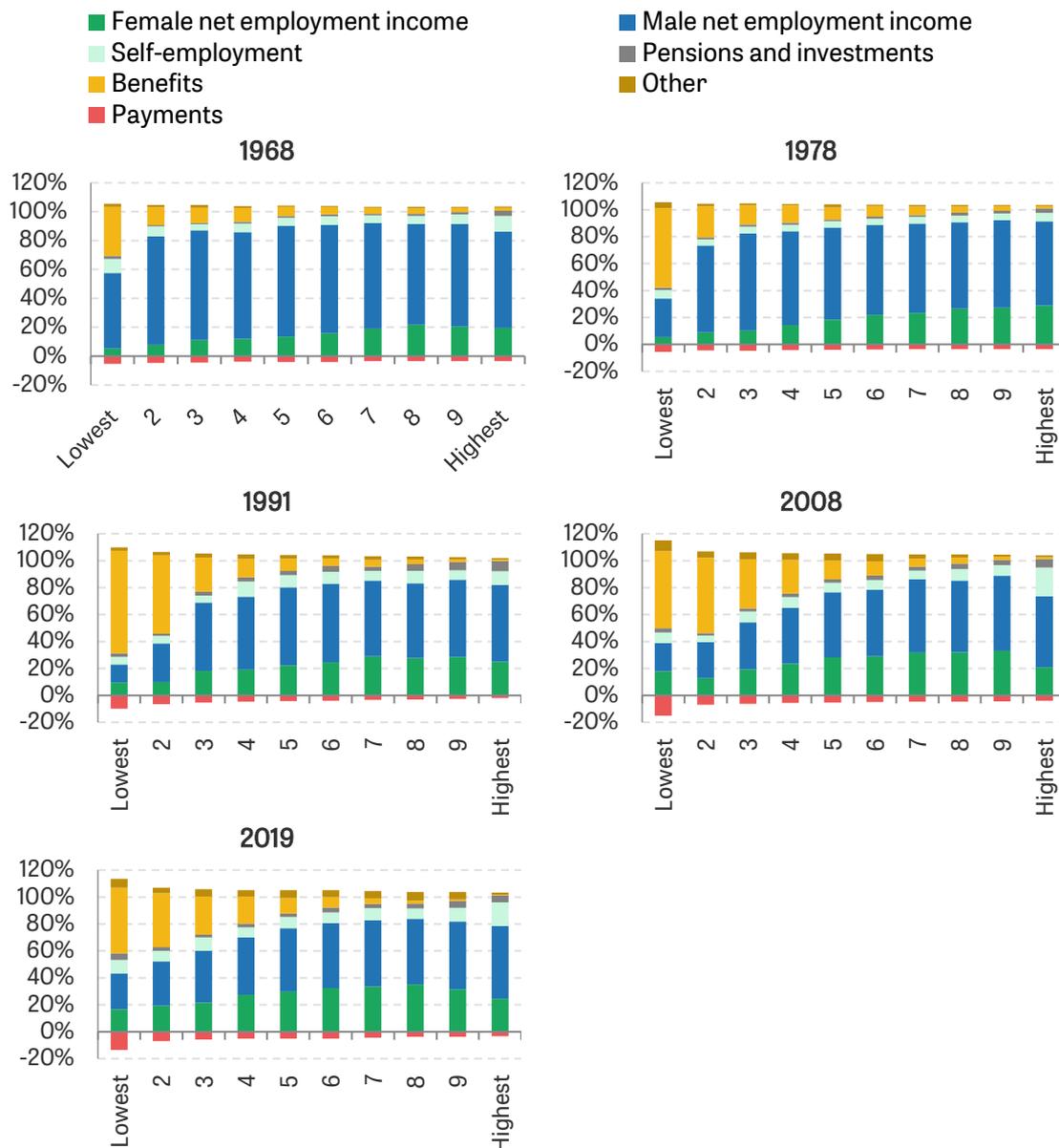
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<sup>76</sup> Net pensions include private and occupational pensions, but not state pensions, which are included under benefits received by pensioner households. Note, that HBAI includes personal pensions under investment income. From 1994 onwards, we take this out of investment income and add it to pensions income. However, this is unfortunately not (easily) feasible for earlier years.

<sup>77</sup> 'Other income' includes, for example, free TV licenses, free school meals, educational grants, student loans or student parental income.

<sup>78</sup> Payments include items other than income tax and national insurance, that are subtracted from net income. These include, for example, local tax, student loan repayments or child support payments.

**Figure A.34. Income sources by income decile for working-age households, selected years**



Note: The top and bottom 1% of the equivalised disposable household income distribution are excluded. 'Other' includes, for example, free television licences, free school meals, educational grants, student loan or student parental income. 'Payments' includes items subtracted from net income (other than income tax and National Insurance) such as local tax, student loan repayments and child support payments. Prior to 1994–95, personal pensions are under 'investments'; from 1994–95 onwards, they are under 'pensions'. Any state pension income is under 'benefits'. Working-age households are defined as households containing no pensioners. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

**Figure A.35. Income sources by income decile for pensioner households, selected years**

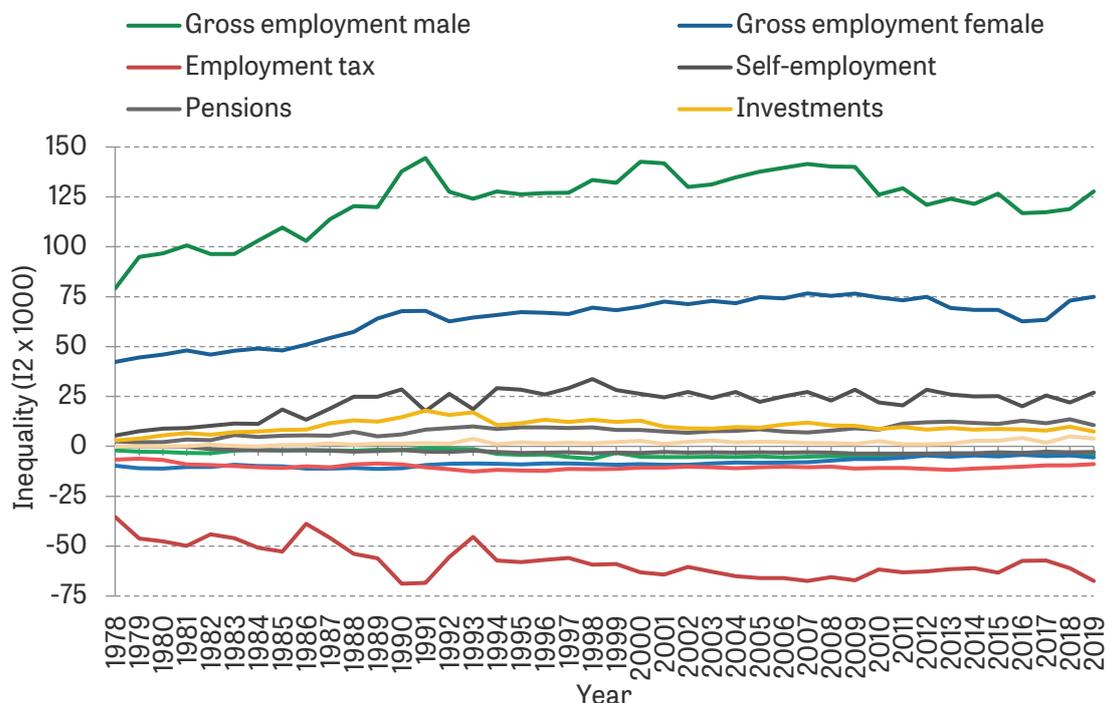


Note: The top and bottom 1% of the equivalised disposable household income distribution are excluded. 'Other' includes, for example, free television licences, free school meals, educational grants, student loan or student parental income. 'Payments' includes items subtracted from net income (other than income tax and National Insurance) such as local tax, student loan repayments and child support payments. Prior to 1994–95, personal pensions are under 'investments'; from 1994–95 onwards, they are under 'pensions'. Any state pension income is under 'benefits'. Pensioner households are defined as households containing at least one pensioner. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1968–93 and the FRS for 1994–2019.

Figure A.36 displays the absolute contribution of each income source to this measure of household income inequality (relative contributions for selected years are shown in Table A.2).<sup>79</sup>

**Figure A.36. Absolute contributions of each income source to household income inequality ( $\pounds \times 1,000$ ), 1978–2019**



Note: The top and bottom 1% of the equivalised disposable household income distribution are excluded. 'Other' includes, for example, free television licences, free school meals, educational grants, student loan or student parental income. 'Payments' includes items subtracted from net income (other than income tax and National Insurance) such as local tax, student loan repayments and child support payments. Prior to 1994–95, personal pensions are under 'investments'; from 1994–95 onwards, they are under 'pensions'. Any state pension income is under 'pensioner benefits'. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

Full results from the decomposition for the key years – 1978, 1991, 2008 and 2019 – are shown in Tables A.1 and A.2. Table A.1 reports the share of each income source in average income, the percentage of households that receive some income from each source as well as the inequality of each particular income source when considered separately. Table A.2 then shows the share that each income source contributes to total inequality (relative contribution to total income inequality), the income sources' absolute contribution to total inequality (as in Figure A.36), as well as how both changed over the three time periods.

<sup>79</sup> These calculations can be performed using the Stata package `ineqfac` (Jenkins, 1999).

Our summary of what the decompositions tell us about how or why inequality changed between these years is as follows.

- The income source that makes the greatest contribution to inequality is men's gross employment earnings, followed by women's gross employment earnings, and net self-employment earnings (of men and women combined). The category 'employment tax' (i.e. those direct taxes paid on employment income) has the largest equalising effect.
- The absolute contribution of men's gross employment earnings to overall income inequality rose rapidly from 1978 to 1991 (this reflects both the huge rise in inequality in gross earnings, and a large fall in the male employment rate, which meant that the proportion of households with zero male gross employment income rose by 13 ppt), and has since declined. The absolute contribution of women's gross employment earnings to overall income inequality also rose rapidly in the 1980s, and has continued to rise, but much more slowly since. The absolute contribution of self-employment earnings also rose rapidly in the 1980s, and has continued to rise since.
- However, although men's gross employment earnings was the income source that contributed the most to the rise in inequality in the 1980s in absolute terms, its share of inequality *fell* over that period, with almost all other income sources seeing their share of inequality rise: in fact, self-employment, investment and pensions incomes together explain 38% of the total rise in inequality over the 1980s, despite representing 10% of total income in 1978 and 19% in 1991. Self-employment income became more common among households, and became a greater share of mean income, although it became less unequally distributed considered in its own right. The inequality of investment and pensions incomes considered by themselves also fell over this period, so their increasing share of income inequality likely reflects that a larger number of mostly richer households received these incomes.
- The contribution made by state benefits to reducing income inequality has fallen since 1978 in absolute terms for pensioners, and in absolute and relative terms for other households too.
- In the period 2008–19, which was not studied in Brewer and Wren-Lewis (2016), there was a small fall in the I2 measure of inequality. The absolute contribution of male gross employment earnings in inequality continued to fall over this time period, while that of female gross employment earnings remained unchanged. What prevented inequality from falling was the contribution of self-employment income and pension income, which both became more widespread and/or a greater share of mean income, and of state benefits to pensioners, which continued a (slow) decline in the extent to which they reduce inequality.<sup>80</sup>

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<sup>80</sup> The increasing contribution of self-employment income and a declining contribution of male employment income may reflect the general shift towards self-employment among men in this period. See Clarke and Cominetti (2019), Giupponi and Machin (2021) and Cominetti et al (2022), for example.

**Table A.1. Shares of mean income, share with non-zero source of income and inequality of each income source**

		Total	Gross employment		Tax	Self-employment	Pensions	Investments	Payments	Benefits received by			Other
			Male	Female						Pensioners	Households with children	Other	
Share of mean income (%)	1978	100	79	26	-29	5	3	2	-4	9	6	2	1
	1991	100	66	29	-29	8	5	6	-4	9	6	3	2
	2008	100	56	32	-23	7	6	3	-6	10	8	2	3
	2019	100	54	34	-22	9	8	2	-5	10	6	2	4
% with non-zero source of income	1978	0	71	48	81	19	12	57	100	21	51	6	17
	1991	0	58	49	72	24	19	73	100	23	44	10	24
	2008	0	54	51	68	17	21	65	98	24	43	9	28
	2019	0	55	53	68	20	21	52	97	22	36	6	31
Inequality of income source ( $I_2 \times 1,000$ )	1978	78	388	1,229	816	8,508	8,435	6,538	293	2,142	2,082	11,485	16,220
	1991	166	797	1,298	1,164	6,151	5,393	4,591	104	2,027	2,191	7,460	13,836
	2008	168	911	1,183	915	8,078	4,431	9,523	720	2,188	1,850	10,236	8,800
	2019	163	970	1,168	1,196	6,387	4,207	11,158	898	2,243	2,737	12,305	8,851

Note: The top and bottom 1% of the household income distribution are excluded. 'Other' includes, for example, free television licences, free school meals, educational grants, student loan or student parental income. 'Payments' includes items subtracted from net income (other than income tax and National Insurance) such as local tax, student loan repayments and child support payments. Prior

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to

1994–95, personal pensions are under 'investments'; from 1994–95 onwards, they are under 'pensions'. Any state pension income is under 'pensioner benefits'. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

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**Table A.2. Changes in inequality ( $I_2$ ) decomposed by income source**

		Total	Gross-employment		Tax	Self-employment	Pensions	Investments	Payments	Benefits received by			Other
			Male	Female						Pensioners	Households with children	Other	
Share of income inequality (%)	1978	100	101	54	-45	7	3	4	-3	-12	-9	0	0
	1991	100	87	41	-41	11	5	11	-1	-6	-6	-2	1
	2008	100	83	45	-39	14	5	6	-3	-4	-6	-2	1
	2019	100	78	46	-41	17	6	5	-3	-3	-5	-2	2
Change in share of income inequality (ppt)	1978-91	0	-14	-13	4	4	2	7	2	7	2	-1	1
	1991 to 2008-09	0	-3	4	2	3	0	-4	-2	1	0	0	0
	2008-09 to 2019-20	0	-5	1	-2	3	2	-2	0	1	1	0	1
Absolute contribution to inequality ( $I_2 \times 1,000$ )	1978	78	79	42	-35	5	3	3	-2	-10	-7	0	0
	1991	166	144	68	-68	18	8	18	-1	-9	-10	-3	2
	2008	168	140	75	-66	23	8	11	-5	-7	-10	-3	2
	2019	163	128	75	-67	27	11	7	-4	-5	-9	-3	4
Change in absolute contribution to income inequality ( $I_2 \times 1,000$ )	1978-91	88	65	26	-33	12	6	15	1	0	-4	-2	2
	1991 to 2008-09	2	-4	7	3	5	-1	-7	-4	2	0	0	0
	2008-09 to 2019-20	-5	-13	0	-2	4	3	-3	1	2	1	0	2

Note: The top and bottom 1% of the household income distribution are excluded. Negative values of share of income inequality mean the income source is, on average, a negative contributor to mean income or income inequality. 'Other' includes, for example, free television licences, free school meals, educational grants, student loan or student parental income. 'Payments' includes items subtracted from net income (other than income tax and national insurance) such as local tax, student loan repayments and child support payments. Prior to 1994-95, personal pensions are under

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'investments'; from 1994–95 onwards, they are under 'pensions'. Any state pension income is under 'pensioner benefits'. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

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### Decompositions by subgroups

The following relies heavily on Mookherjee and Shorrocks (1982), Jenkins (1995) and Brewer and Wren-Lewis (2016).<sup>81</sup>

In a first step, we partition the population into non-overlapping subgroups  $k$  (e.g. pensioner versus non-pensioner households). We then calculate inequality in equivalised disposable household income observed in each year. If we use an inequality measure  $I$  that is part of the generalised entropy family, we are further able to express overall inequality as a sum of two components, (i) inequalities within each group and (ii) the inequality that exists between the groups:

$$I_{Total} = I_{Between} + I_{within}. \quad (4)$$

Here,  $I_{Between}$  denotes between-group inequality, that is, the inequality that would arise if each individual were to receive the mean income of its subgroup. In turn,  $I_{within}$  represents within-group inequality, that is, the weighted sum of inequality within each group, where in general the weights will depend on the income and population shares of each group.

We chose the mean log deviation (MLD),

$$I_0 = \frac{1}{n} \sum_i \ln\left(\frac{\mu}{Y_i}\right)$$

as our measure of income inequality, so that we can take advantage of its additive decomposability. It can be decomposed into between and within components as follows:

$$I_0 = \sum_k v_k I_{0k} + \sum_k v_k \ln\left(\frac{1}{\lambda_k}\right). \quad (5)$$

where  $I_{0k}$  is the MLD of income for group  $k$  as a standalone,  $\lambda_k = \mu_k/\mu$  is group  $k$ 's mean income relative to the population mean and  $v_k = n_k/n$  is the population share of group  $k$ .

Using the MLD as our measure of income inequality and following Mookherjee and Shorrocks (1982) and Jenkins (1995) we can then further decompose changes (denoted with  $\Delta$ ) in overall inequality into four components as set out in the following equation:

$$\Delta I_0 \approx \underbrace{\sum_k \bar{v}_k \Delta I_{0k}}_{\text{Term I}} + \underbrace{\sum_k \bar{I}_{0k} \Delta v_k}_{\text{Term II}} + \underbrace{\sum_k (\bar{\lambda}_k - \overline{\ln(\lambda_k)}) \Delta v_k}_{\text{Term III}} + \underbrace{\sum_k (\bar{\theta}_k - v_k) \Delta \ln(\mu_k)}_{\text{Term IV}}. \quad (6)$$

Here,  $\mu_k$  is subgroup  $k$ 's mean income and  $\theta_k = v_k \lambda_k$  is group  $k$ 's share of total population income. A bar over variables indicates the mean of the base and reference period. Term I is then the change in inequality resulting from inequality within some or all of the subgroups (within group inequality),

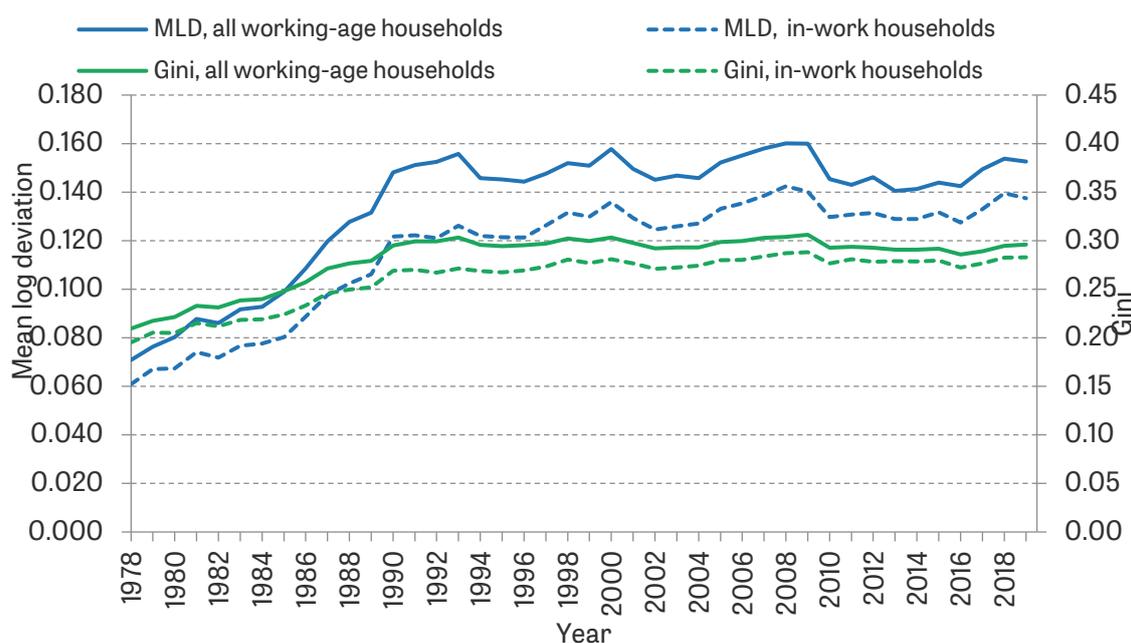
terms II and III are the changes in within and between inequality resulting from the changes in the population shares, and term IV is the change in inequality that results from changes in the relative income of different groups (between group inequality).

<sup>81</sup> These calculations can be performed using the Stata package `ineqdeco` (Jenkins, 1999).

### Out-of-work working-age households

Figure A.37 shows two measures of disposable household income inequality – the Gini coefficient and the MLD – among all working-age households as well as for the subgroup of working-age households that are in work. Naturally, inequality is higher when we include out-of-work households. However, trends in income inequality over time are also starker when we also consider out-of-work households. Clearly, therefore, it is important to understand how the incomes of out-of-work households have fared compared with those of in-work households in order to understand trends in overall income inequality.

**Figure A.37. Inequality in equivalised disposable household income among working-age households**



Note: Sample is individuals of working-age households (defined as households without any pensioners). We exclude households in the bottom and top 1% of disposable household income distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

In the following analysis, we now partition working-age households (defined as having no pensioner in the household) into two non-overlapping subgroups: those with at least one household member in work and those with no working household members. We then decompose changes in the MLD among non-pensioner households into four components: i) the change in within-group inequalities, ii) the effect of changes in the population shares of the age groups on the 'within-group' components, iii) the effect of changes in the population shares of the age groups on the 'between-group' components and iv) the change in the relative income of the two subgroups (between-group inequality).

Table A.3 shows the results. It is worth noting that, throughout the period (1978 to 2019), within-group inequalities make up a much larger component of aggregate inequality than between-group inequalities, and between-group inequalities have played a consistently smaller role since the early 1990s. A rise in between-group inequality contributed to the increase in overall income

inequality between 1978 and 1991 (specifically: the income of out-of-work households fell relative to the economy-wide mean, and there was a rise in household worklessness), but that the opposite happened in the following two period: between 1991 and 2008, the fall in between-group inequality was driven by a rise in the relative income of out-of-work households (likely linked to the generous increases in benefits for those with children over this period), and a fall in household worklessness, and this continued in the 2008–19 period, with a further rise in the relative mean income for out-of-work households (reflecting the weak growth in earnings over this period), combined with a further fall in the extent of worklessness.

**Table A.3. Decomposition of MLD ( $\times 1,000$ ) in household income, working and non-working non-pensioner households****Panel 1**

	Change in income inequality within subgroups (MLD $\times 1,000$ )		Change in population shares (ppt)		Change in relative means (ppt)	
	Non-pensioner in-work households	Non-pensioner out-of-work households	Non-pensioner in-work households	Non-pensioner out-of-work households	Non-pensioner in-work households	Non-pensioner out-of-work households
1978–91	61	58	-7	7	5	-6
1991 to 2008–09	20	21	2	-2	-2	6
2008–09 to 2019–20	-5	33	2	-2	-2	3

**Panel 2**

	Aggregate change in inequality (MLD $\times 1,000$ )	Contribution to change in MLD due to changes in...			
		within-group inequality	effect of changes in population shares on...		between-group inequality
			within-group inequality	between-group inequality	
1978–91	80	61	-2	13	8
1991 to 2008–09	9	20	1	-3	-9
2008–09 to 2019–20	-7	-1	0	-3	-4

Note: The top and bottom 1% of the overall household income distribution are excluded. Sample includes all non-pensioner households. Relative means are the subgroup population mean income relative to the overall population mean. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

**Pensioners**

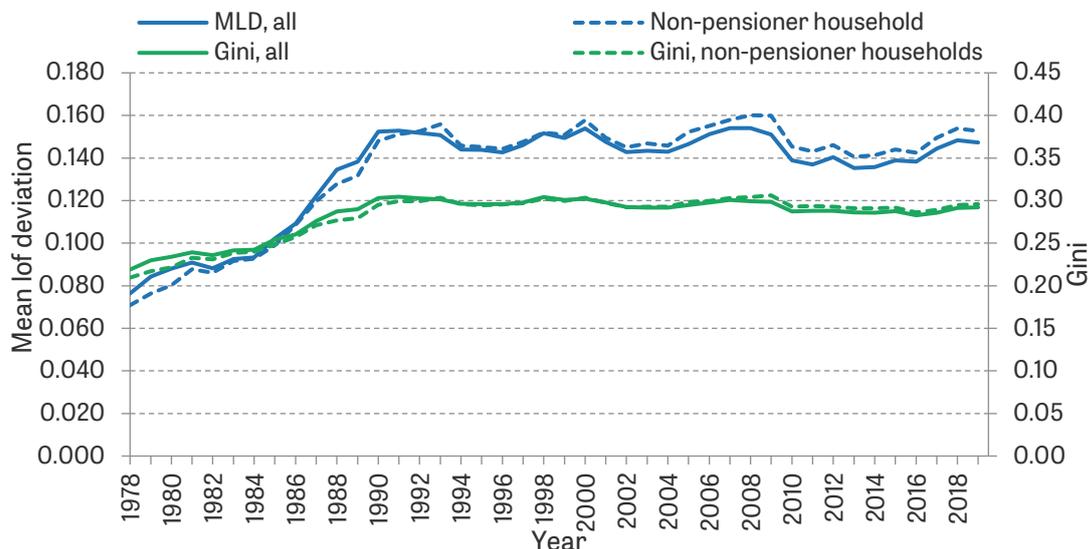
Figure A.38 shows two measures of disposable household income inequality – the Gini coefficient and the MLD – among all households (though excluding the top and the bottom 1% of the household income distribution) and for non-pensioner households only. Adding in pensioners slightly increases inequality from 1978 to the early 1990s, and slightly reduces it in the latest years.

We now partition all households into two non-overlapping subgroups – this time working-age households and pensioner households – and decompose changes in total inequality into our four components. Table A.4 shows the subgroup decomposition results for changes in the MLD over time. As with the previous decomposition, it is worth noting that within-group inequalities again make up a much larger component of aggregate inequality than between-group inequalities, and that between-group inequalities have played a shrinking role since the early 1990s.

The huge increase in overall income inequality between 1978 and 1991 was almost fully driven by an increase in within-group inequality. This was driven by an increase in income inequality among both working-age households as well as pensioner households. However, there was also a (smaller) increase in between-group inequalities caused by both an increase in the share of

pensioner households (1 ppt) as well as pensioner household incomes falling further behind those of non-pensioner households. The fact that pensioner households fell further behind those of non-pensioner households is due to the strong earnings growth over this period that, inevitably, disproportionately benefited working-age households.

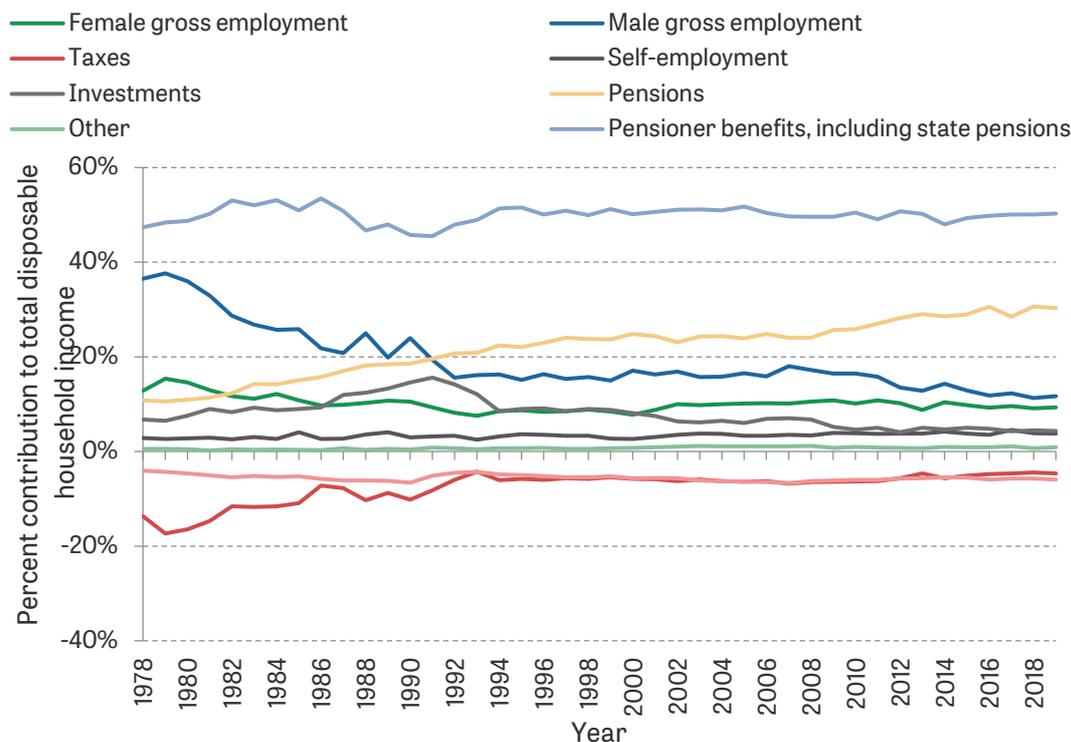
**Figure A.38. Inequality in equivalised disposable household income among all households (excluding top and bottom 1%)**



Note: We exclude households in the bottom and top 1% of disposable household income distribution. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

**Figure A.39. Composition of pensioner households' disposable household incomes**



Note: Sample is individuals in pensioner households (defined as a household with at least one member who is a pensioner). All incomes have been equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in Great Britain before 2002–03 and of households in the UK from 2002–03 onwards.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.

There was little change in overall income inequality as measured by the MLD from 1991 to 2008. This was the net result of two contrasting trends: a slight rise in within-group inequality, and a slight fall in between-group inequality. The latter can be explained by an increase in the relative income of pensioners, likely due to strong private pensions income growth. Finally, 2008–19 saw a slight fall in inequality, with falls in both within-group inequality and between-group inequality. The latter can be explained by the fact that the incomes of pensioner households were not only unaffected, mostly, by the sharp falls in real earnings in the aftermath of the Great Recession, but also saw an increasingly generous state pension, with the introduction of the Basic State Pension 'triple lock' in 2010.

**Table A.4. Decomposition of MLD ( $\times 1,000$ ) in household income, non-pensioner and pensioner households**

**Panel 1**

	Change in income inequality within subgroups (MLD $\times 1,000$ )		Change in population shares (ppt)		Change in relative means (ppt)	
	Non-pensioner households	Pensioner households	Non-pensioner households	Pensioner households	Non-pensioner households	Pensioner households
1978–91	80	55	-1	1	1	-4
1991 to 2008–09	9	-15	0	0	-1	4
2008–09 to 2019–20	-7	-3	2	-2	-1	2

**Panel 2**

	Aggregate change in inequality (MLD $\times 1,000$ )	Contribution to change in MLD due to changes in...			
		within-group inequality	effect of changes in population shares on...		between-group inequality
			within-group inequality	between-group inequality	
1978 to 1991	76	74	0	0	2
1991 to 2008–09	1	3	0	0	-2
2008–09 to 2019–20	-7	-6	1	0	-1

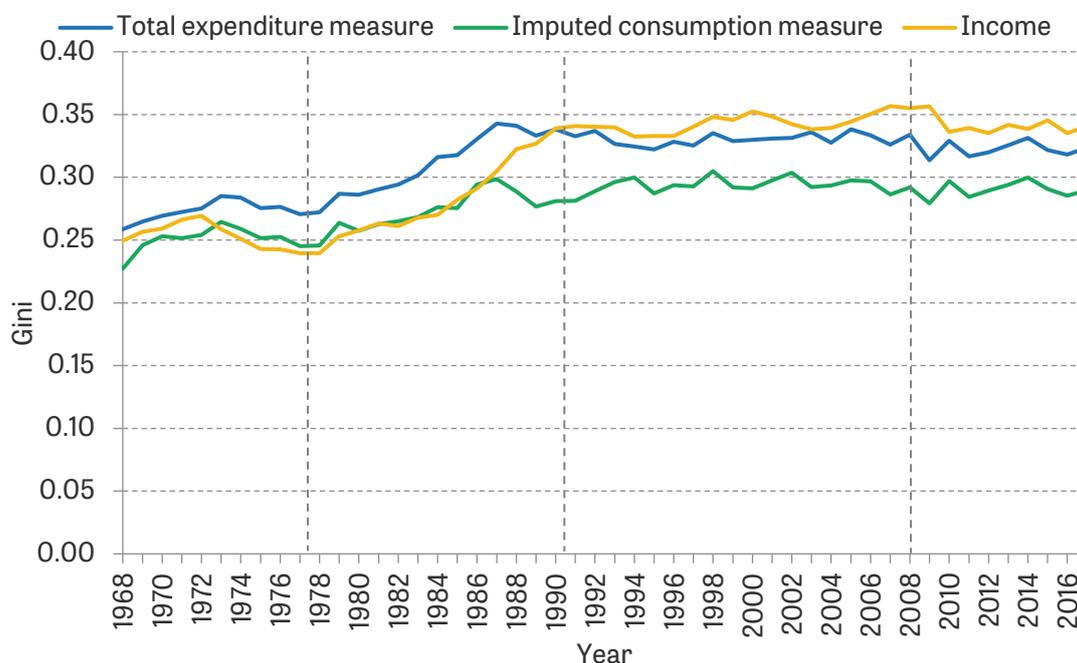
Note: The top and bottom 1% of the overall household income distribution are excluded. Relative means are the subgroup population mean income relative to the overall population mean. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Data are representative of households in the UK from 2002–03 onwards and in Great Britain for earlier years.

Source: Authors' calculations using the FES for 1978–93 and the FRS for 1994–2019.



## A.7. Results using household consumption and expenditure

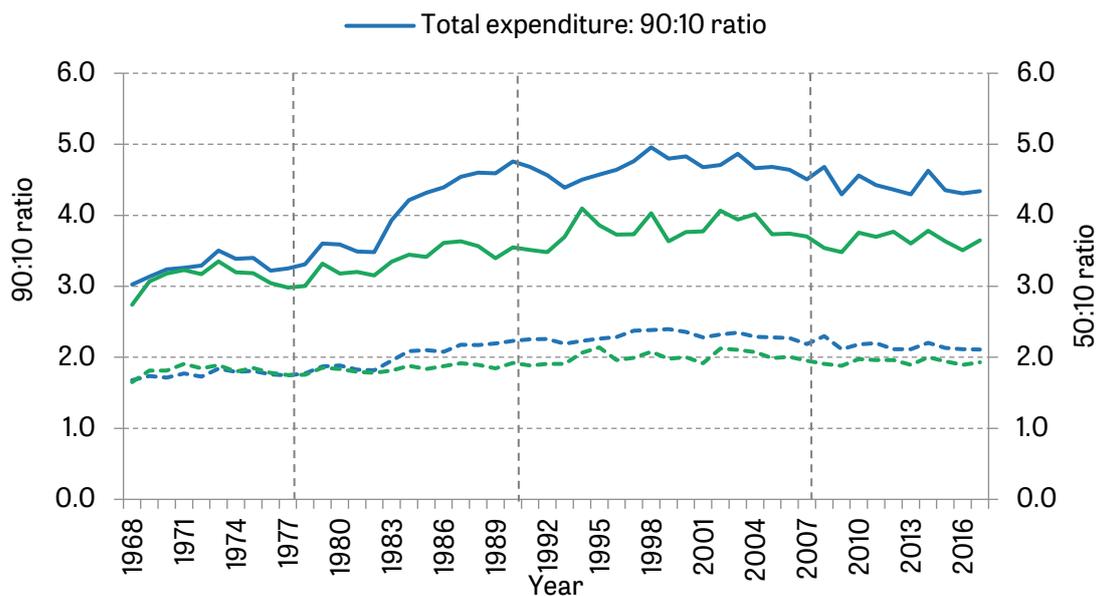
**Figure A.40. Gini coefficient for measures of consumption and household net income, 1968–2017**



Note: Consumption has been equalised using the modified after housing costs OECD equivalence scale. The 'imputed consumption measure' is constructed using a measure of cash outlays, subtracting spending on vehicles and housing (viewing these outlays as investments), and adding in an imputed consumption value for the two items. Incomes have been measured net of taxes and benefits but before housing costs have been deducted and are expressed in 2019–20 prices. All incomes have been equalised using the modified OECD equivalence scale. Years refer to calendar years up until 1993 and financial years from 1994 onwards. Data are representative of households in Great Britain before 1994 and of households in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1968–2017 for spending and consumption, and the FES for 1968–93, the FRS for 1994–2019, and a 'top incomes' adjustment using administrative tax data, for income.

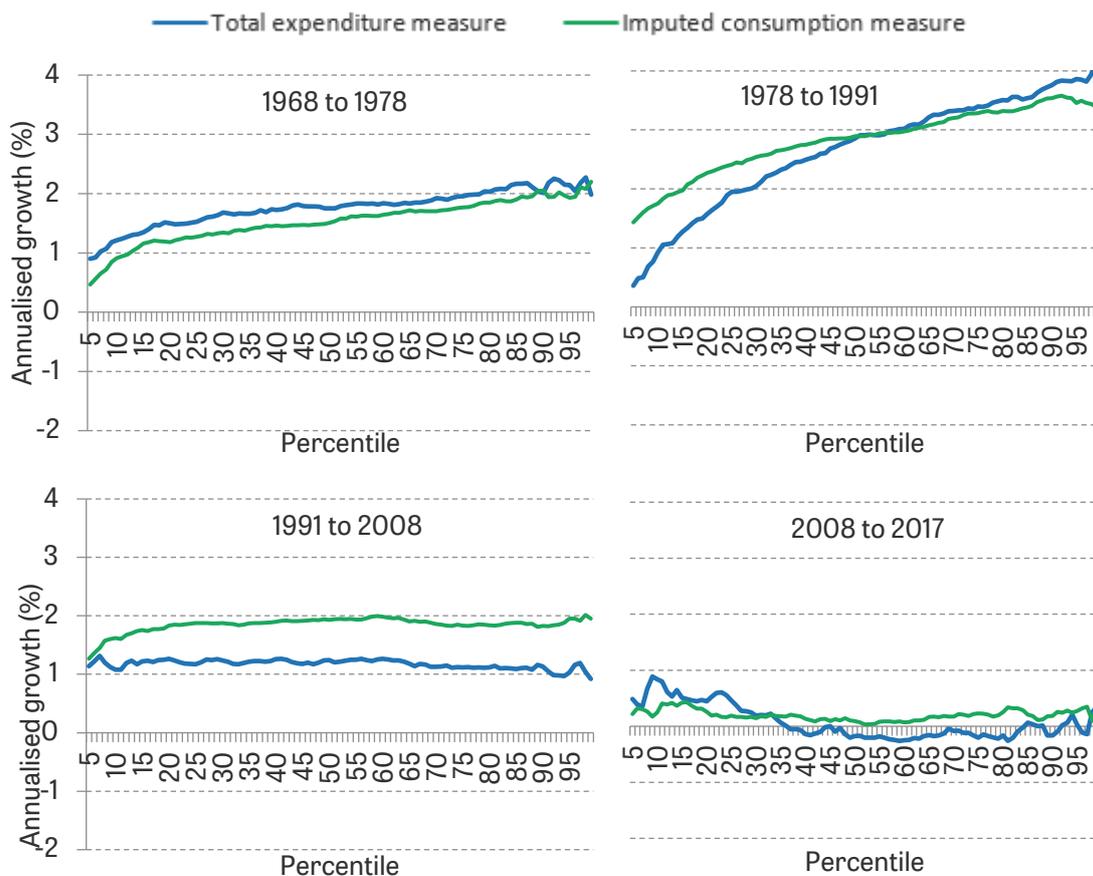
**Figure A.41. The 90:10 and 50:10 ratios of household expenditure and consumption, 1968–2017**



Note: Consumption has been equalised using the modified after housing costs OECD equivalence scale. The measure of consumption is constructed using a measure of cash outlays, subtracting spending on vehicles and housing (viewing these outlays as investments), and adding in an imputed consumption value for the two items. Years refer to calendar years up until 1993 and financial years from 1994 onwards. Data are representative of households in Great Britain before 1994 and of households in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1968–2017.

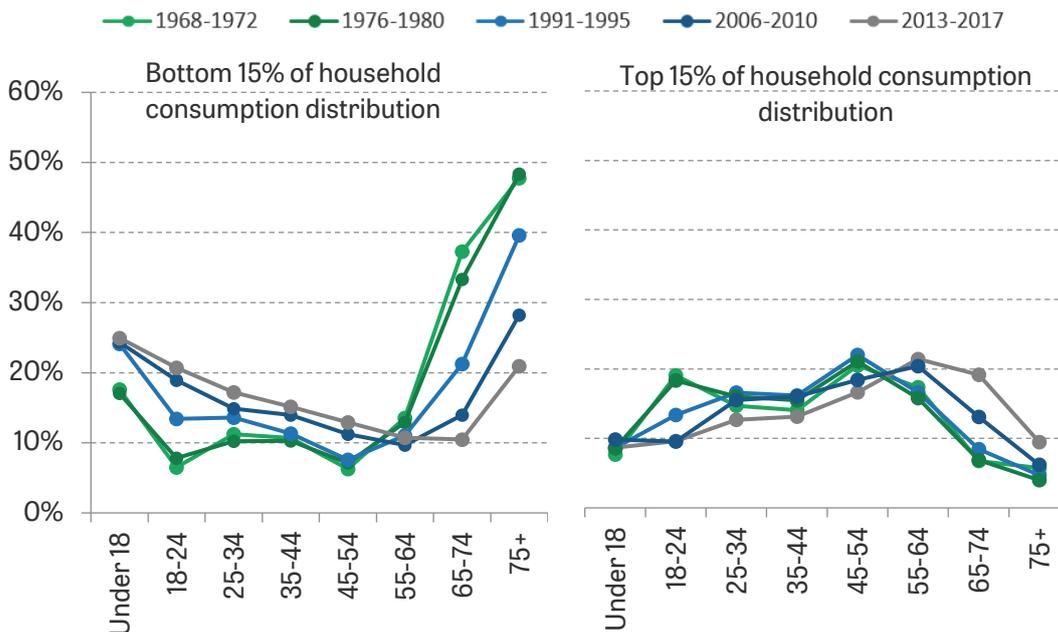
**Figure A.42. Annualised growth in household expenditure and consumption by consumption/ expenditure percentile, various periods**



Note: Consumption and expenditure have been equivalised using the modified after housing costs OECD equivalence scale. The measure of consumption is constructed using a measure of cash outlays, subtracting spending on vehicles and housing (viewing these outlays as investments), and adding in an imputed consumption value for the two items. Years refer to calendar years up until 1993 and financial years from 1994 onwards. Data are representative of households in Great Britain before 1994 and in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1968–2017.

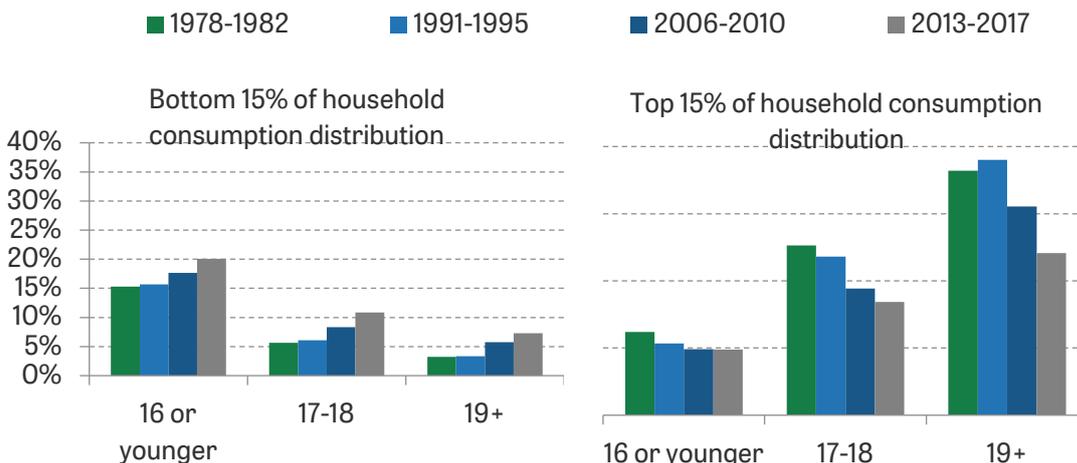
**Figure A.43. Proportion of individuals in the bottom and top 15% of the household consumption distribution by age**



Note: Consumption has been equivalised using the modified after housing costs OECD equivalence scale. The measure of consumption is constructed using a measure of cash outlays, subtracting spending on vehicles and housing (viewing these outlays as investments), and adding in an imputed consumption value for the two items. We show the five-year rolling average. Years refer to calendar years up until 1993 and financial years from 1994 onwards. Data are representative of households in Great Britain before 1994 and of households in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1968–2017.

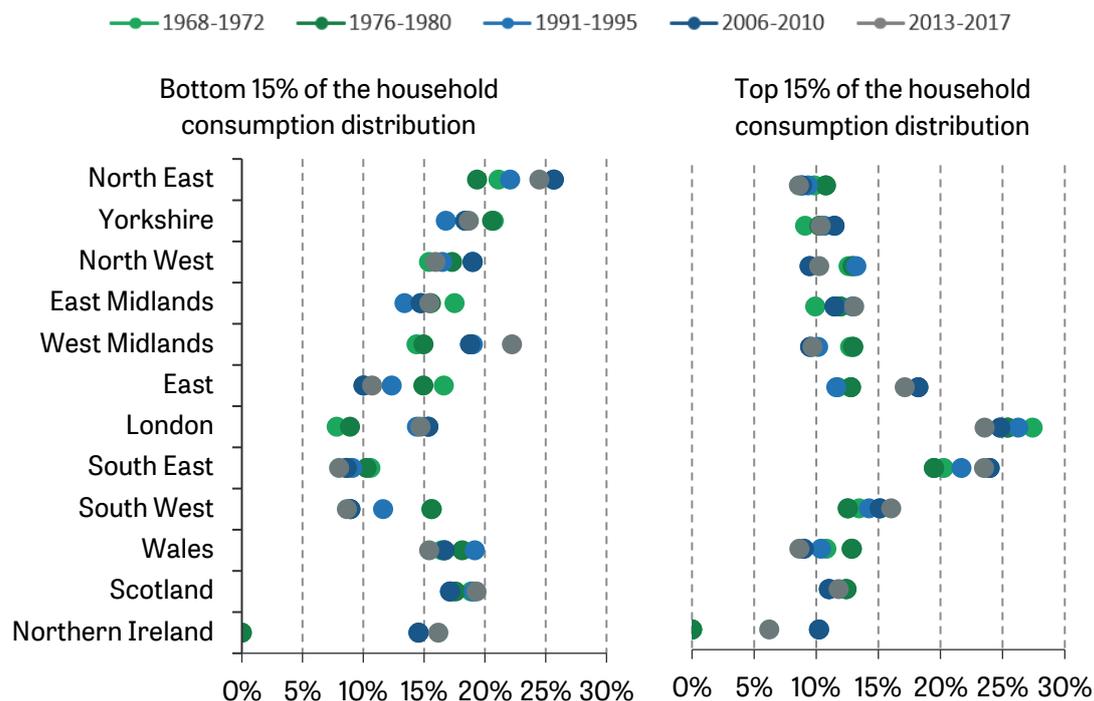
**Figure A.44. Proportion of individuals in the bottom and top 15% of the household consumption distribution by age left education**



Note: Consumption has been equivalised using the modified OECD equivalence scale. The measure of consumption is constructed using a measure of cash outlays, subtracting spending on vehicles and housing (viewing these outlays as investments), and adding in an imputed consumption value for the two items. We show the five-year rolling average. Years refer to calendar years up until 1993 and financial years from 1994 onwards. Data are representative of households in Great Britain before 1994 and of households in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1968–2017.

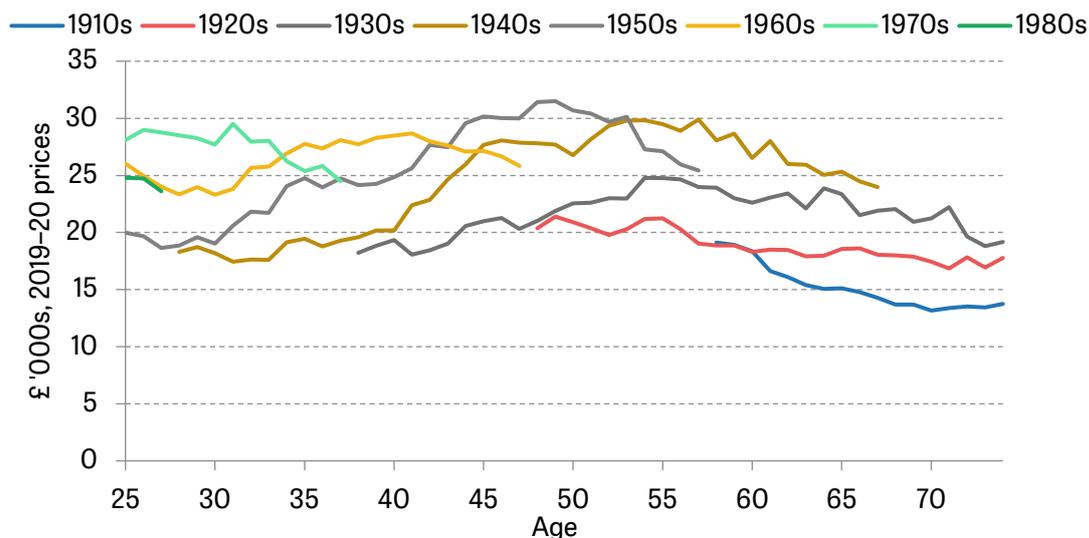
**Figure A.45. Proportion of individuals in the bottom and top 15% of the household consumption distribution by region and nation of the UK**



Note: Consumption has been equivalised using the modified OECD equivalence scale. The measure of consumption is constructed using a measure of cash outlays, subtracting spending on vehicles and housing (viewing these outlays as investments), and adding in an imputed consumption value for the two items. We show the five-year rolling average. Years refer to calendar years up until 1993 and financial years from 1994 onwards. Data are representative of households in Great Britain before 1994 and of households in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1968–2017.

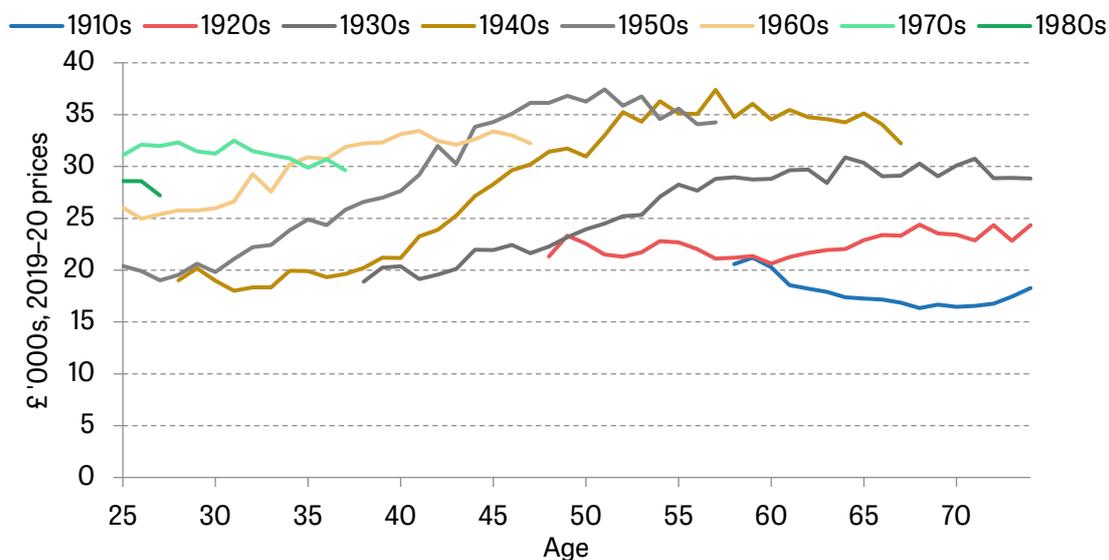
**Figure A.46. Median real household expenditure, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Expenditure adjusted to 2019-20 prices. Data are representative of households in Great Britain before 1994 and of households in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1974–2017.

**Figure A.47. Median real household consumption, for people born in different decades**



Note: Cohort of birth is approximated based on age and year of interview. Age is not the age recorded in the microdata, but the average age of the cohort in the year observed to allow the most recent data for each cohort. Consumption adjusted to 2019–20 prices. Data are representative of households in Great Britain before 1994 and of households in the UK from 1994 onwards.

Source: Authors' calculations using the FES for 1974–2017.

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*We analyse several data sets in this chapter, cited below.*

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