Institute for Fiscal Studies

Living standards, poverty and inequality in the UK: 2018

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Preface

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1. Introduction

This report examines changes in the distribution of household incomes in the UK, and the determinants and consequences of recent trends. This includes analysing changes not only in average living standards but also in household income inequality and measures of income poverty and deprivation.

The analysis is based on data from two main UK household surveys. The first is the Family Resources Survey (FRS), a survey of around 20,000 households a year, which contains detailed information on different sources of household incomes. We use household income variables derived from the FRS by the UK government's Department for Work & Pensions (DWP). These measures of incomes underlie the DWP's annual statistics on the distribution of income, known as 'Households Below Average Income' (HBAI). The FRS/HBAI data are available for the years from 1994–95 to 2016–17. They are supplemented by HBAI data derived from the Family Expenditure Survey (FES) for the years up to and including 1993–94.

In addition, we use information from Understanding Society. This is a longitudinal survey that follows the same people from one wave to the next, which allows us to examine changes in individuals' incomes and economic circumstances. Robust data on household incomes in Understanding Society are available from 2010–11 to 2015–16.

The main outcomes of interest in this report are measures of household income. We use the measure of income that is used in the HBAI statistics. Further details regarding the methodology of HBAI can be found in Appendix A, but a few key points are worth summarising here:

- Income is measured at the household level, i.e. as the total income of all individuals living in the same household. A household for these purposes is not the same as a family, which is defined simply as a single adult or couple and any dependent children they have. For instance, young adults living together (other than as a couple) would be classified as in the same household but not in the same family.

- Income is rescaled ('equivalised') to take into account the fact that households of different sizes and compositions have different needs.

- Income is measured after deducting income tax, employee and self-employed National Insurance contributions, and council tax, and it includes income from state benefits and tax credits.

- Income is measured both before housing costs have been deducted (BHC) and after they have been deducted (AHC).

- All cash figures are presented in 2016–17 prices and all income growth rates are given after accounting for inflation. We adjust for inflation using measures of inflation based on the Consumer Prices Index, which are the same measures as are used by DWP in the government's official HBAI statistics.

Although it is derived from a different survey, the measure of household income in Understanding Society is measured in broadly the same way as that in the HBAI data, although there is no comparable measure of income after housing costs have been deducted in Understanding Society.

Because the data on household incomes are produced and released with some lag, we complement the results using two other data sets – the Annual Survey of Hours and Earnings (ASHE) and the Labour Force Survey (LFS), for which the latest available data cover 2017. Although these data sets do not measure household income, they provide high-quality information on the UK labour market, trends in which are key in determining living standards. They allow us to present results that are more up-to-date than those using household income data alone.

Since all the analysis is based on a sample from the population, all estimated statistics are subject to sampling error. Therefore it is important to gauge whether changes are large enough that we can be confident they reflect real changes in the population as a whole, rather than random variation in the sample from one year to another. We therefore frequently test whether estimated changes are 'statistically significant'. In our analysis, being 'statistically significant' implies that an estimate is statistically significantly different from zero at the standard 5% significance level.

The rest of this report proceeds as follows. Chapter 2 contains our analysis of changes in living standards, the determinants of recent trends, and how pensioners have fared relative to non-pensioners. Chapter 3 analyses how income growth has differed across the income distribution and what implications this has had for income inequality. Chapter 4 analyses changes in income poverty and in other measures of deprivation. It also examines changes in the housing costs of low-income households with children and shows how these trends have caused different measures of poverty to gradually diverge over the last 15 years. Chapter 5 examines the extent to which working-age adults in poor health live in poverty. It describes the characteristics and labour market outcomes for those with and without long-standing illnesses, and analyses how their poverty and living standards differ. Different types of health conditions are examined, with a particular focus on mental health. Finally, Chapter 6 examines to what extent low-paid workers' pay, and their household living standards, have risen after the introduction of the National Living Wage in 2016. It also examines the characteristics of people who are most directly affected by a higher minimum wage and how these compare with those of people affected by recent changes in benefits and tax credits.

2. Living standards

Key findings

Median (middle) income has grown modestly over the recovery since 2011–12, with a 1.8% increase in 2016–17 (latest data).

Since the beginning of the recovery (2011–12), real median household income has grown at an average of 1.6% per year – slower than the average 2.0% rate seen in the four decades before the recession. Median income now stands 5.6% higher than its 2007–08 level.

Weak earnings growth has slowed average income growth – though this has been partly offset by rises in employment.

Real median employee earnings are still 2–3% below their 2007–08 level. The effect of this decline on living standards has been partially offset by strong growth in the employment rate, which has increased by around 1½ percentage points since 2007–08.

The Great Recession saw a fall in living standards as sharp as during the 1980s recession and a recovery as weak as during the 1990s recession.

Median income fell by 3.5% between 2009–10 and 2011–12 – similar to the fall in the early 1980s recession (4.7%) but worse than in the early 1990s recession (0.3%). In the first five years of the most recent recovery, incomes grew by 8% – similar to the 1990s recovery (7%), but much slower than the 1980s (22%).

Incomes for pensioners and non-pensioners have grown at about the same speed over the recovery – though pensioners fared much better during and immediately after the recession.

Since 2011–12, median income for pensioners has risen by 8.3% and that for non-pensioners by 7.9%. However, since 2007–08, the picture is very different: pensioners have seen incomes rise by 13.5%, but non-pensioners by just 3.6%. Measured before deducting housing costs, median pensioner income is now about 10% below that of non-pensioners (having been 25% below in 2002–03). But measured after deducting housing costs, pensioner incomes are slightly higher than non-pensioners'.

If forecasts for weak real earnings growth turn out to be correct, it spells further slow growth in living standards.

Data for 2017–18 indicate little growth in real earnings, and the Office for Budget Responsibility forecasts slow earnings growth for the next four years. If this is right – or at least in the right ballpark – slow average income growth is likely to continue over the next few years.

This chapter analyses trends in the living standards of UK households by looking at changes in average household incomes. We use the Households Below Average Income (HBAI) data, the latest version of which covers the financial year 2016–17, to document how average incomes have changed in recent years. We also draw on the Labour Force Survey (LFS) to give us up-to-date information on the state of the labour market. To understand the pattern of average income growth in recent years, we analyse how different sources of income, such as earnings from employment and state benefits and tax credits, have contributed to changes in total income. We focus in particular on how living standards have grown during recovery from the Great Recession (i.e. since 2011–12) and how this recovery has compared with past ones.

There are several points worth noting about the measures of household income we focus on throughout this chapter; a longer description of the measurement of household income can be found in Appendix A.

Unless otherwise stated, all figures in this chapter relate to 'net' income, which measures total household income after income tax, National Insurance contributions and council tax have been paid and after state benefits and tax credits have been received. Household incomes can be measured either before or after housing costs have been deducted (referred to respectively as 'BHC' and 'AHC'). Unless otherwise stated, we report incomes in this chapter on a BHC basis. When using income as an indicator of household living standards, it is important to account for differences in household size and composition. We therefore report measures of 'equivalised' incomes (which are adjusted for household size and structure) and express all incomes as the equivalent amount for a childless couple. Throughout this report, many statistics will be presented for the whole of the UK; however, for those series looking at longer-term trends, we present statistics for Great Britain (GB) only, as Northern Ireland has only been included in the HBAI data since 2002–03.

When comparing how living standards change over time, it is important to account for inflation – because rising prices reduce the purchasing power of any given level of cash income. Following the Department for Work & Pensions (DWP), we therefore express all incomes in 2016–17 prices after adjusting for inflation using a measure based on the Consumer Prices Index (CPI) that includes mortgage interest payments. All income growth rates are reported after accounting for this measure of inflation.[1]

This chapter proceeds as follows. Section 2.1 summarises average living standards in the UK and how they have evolved over the recent past, and compares the latest recovery with the recoveries from the 1980s and 1990s recessions. Section 2.2 explores the determinants of household incomes and their trends over recent years, while Section 2.3 compares the recovery in living standards for pensioners and non-pensioners. Section 2.4 discusses prospects for living standards and Section 2.5 concludes.

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[1] Further information on the adjustments that DWP makes for inflation can be found in Department for Work & Pensions (2018a). A series of the deflators that we use in this analysis can be found in IFS's Living Standards, Inequality and Poverty Spreadsheet (https://www.ifs.org.uk/uploads/publications/bns/bn19_figs.xlsx).

2.1   Average living standards in the UK

Figure 2.1 presents the distribution of income in the UK in 2016–17. It shows the number of people in the UK living in households with different (equivalised) income levels, grouped into £10 weekly income bands, except for the rightmost bar which groups into one band the long tail of the 1.7 million individuals in households with an income of over £1,500 per week.[2] In 2016–17, a childless couple needed an income of £494 per week to be at the median of the income distribution and £594 per week to be at the mean.

Figure 2.1. The UK income distribution in 2016–17
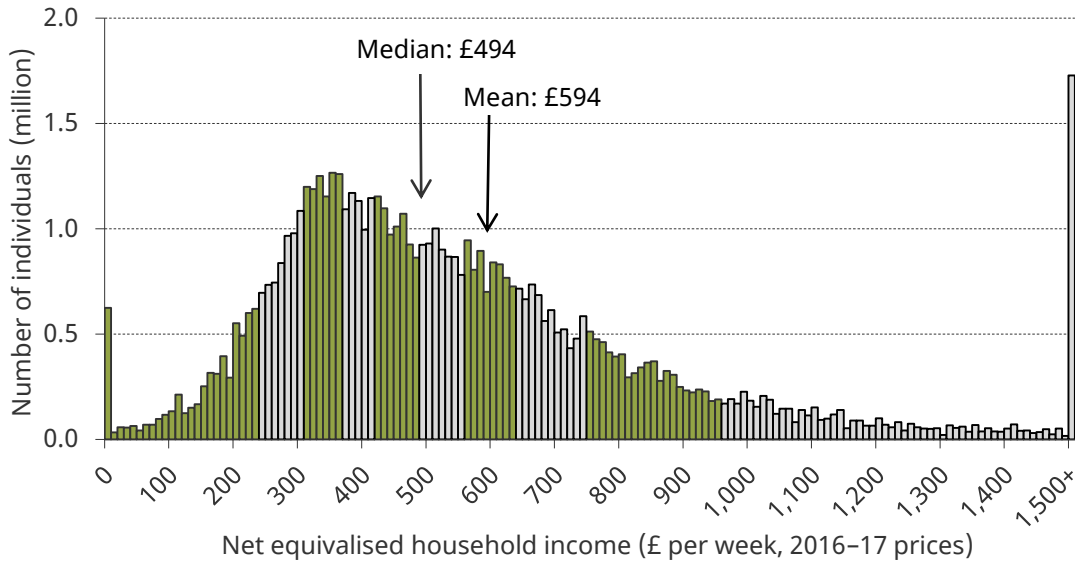
Net equivalised household income (£ per week, 2016–17 prices)

Note: Incomes have been measured before housing costs have been deducted. All incomes have been equivalised using the modified OECD equivalence scale and are expressed in terms of equivalent amounts for a childless couple. The rightmost bar represents incomes of at least £1,500 per week. Bars are coloured to indicate income deciles.

Source: Authors' calculations using the Family Resources Survey, 2016–17.

The alternately green and grey bars indicate income deciles (tenths of the population), with the leftmost green bars covering the 10% of the population with the lowest household incomes and the rightmost grey bars covering the 10% of the population with the highest household incomes. The deciles are noticeably narrower around the median than at the extremes, indicating the high density of individuals with incomes near the middle of the distribution.

To analyse how living standards have changed over recent years, Figure 2.2 shows the mean and median income since 2002–03 (the first year for which we have data for the whole of the UK). Both mean and median income rose steadily, if rather slowly compared with the historical average since the 1960s, in the run-up to the recession. Measures of average income continued to rise in the immediate aftermath of the 2007–08 crisis, before falling sharply between 2009–10 and 2011–12 (2012–13 in the case of mean income). From 2011–12, the recovery in median income began slowly at first, with weak growth in the first

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[2] In the HBAI data, households with negative incomes – due to, for example, self-employment losses – have their income set to £0. The 2016–17 data show around 600,000 individuals with an income in the £0–10 band.

two years. It has since grown somewhat more quickly, and in 2016–17 it grew by 1.8%. This means that over the first five years of the recovery (since 2011–12), median income grew on average at 1.6% per year – faster than the 1.2% recorded over the five years before the recession, though slower than the 2.0% average seen in the four decades before. Median income in 2016–17 stood 5.6% higher than its pre-crisis (2007–08) level.

Figure 2.2. Average real UK household income (measured BHC)
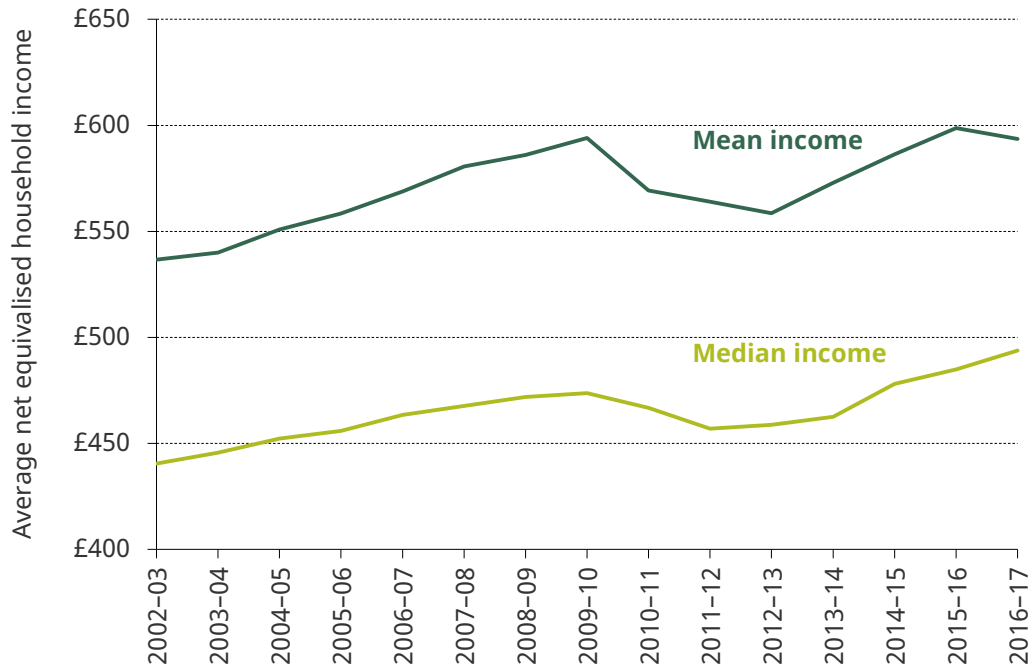
Note: Incomes have been measured before housing costs have been deducted. All incomes have been equivalised using the modified OECD equivalence scale and are expressed in terms of equivalent amounts for a childless couple.

Source: Authors' calculations using the Family Resources Survey, 2002–03 to 2016–17.

Mean income has taken a similar path to median income in recent years, although in the last year (2016–17) mean income fell slightly. The Department for Work & Pensions (2018a) noted in its publication of the data in March 2018 that this is due to large falls in dividend income among high-income individuals that HM Revenue & Customs (HMRC) has projected between 2015–16 and 2016–17. These were in part driven by individuals shifting their dividend income forward from 2016–17 into 2015–16 in response to increases in dividend taxation in April 2016. This shifting boosts incomes in 2015–16 and reduces them in 2016–17. This means we should be wary about drawing firm conclusions regarding changes in mean incomes in the last few years.

How does the recent recovery compare with previous ones? Figure 2.3 shows real median income across recessions and recoveries for the 1980s, 1990s and Great Recession (GB only). The decline in median income in the wake of the Great Recession was similar to that of the 1980s recession, with incomes falling by 3.5% (4.7% for the 1980s recession), and worse than that of the 1990s recession, when incomes barely fell at all. However, whereas the 1980s recovery was marked by very strong median income growth (22% over five years), the recovery from the Great Recession has been more like that of the 1990s

recession, with an 8.1% increase over five years (7.3% for the 1990s recession).[3] In broad terms, therefore, the Great Recession had a fall as sharp as the 1980s, but a recovery as weak as the 1990s. This has resulted in incomes five years into the recovery from the Great Recession being just 4.3% above the 2009–10 peak – whereas the 1980s and 1990s recessions had by this point exceeded their pre-recession peaks by 16% and 7% respectively.

Figure 2.3. Real median income over selected recessions, indexed to trough in median income = 100, GB
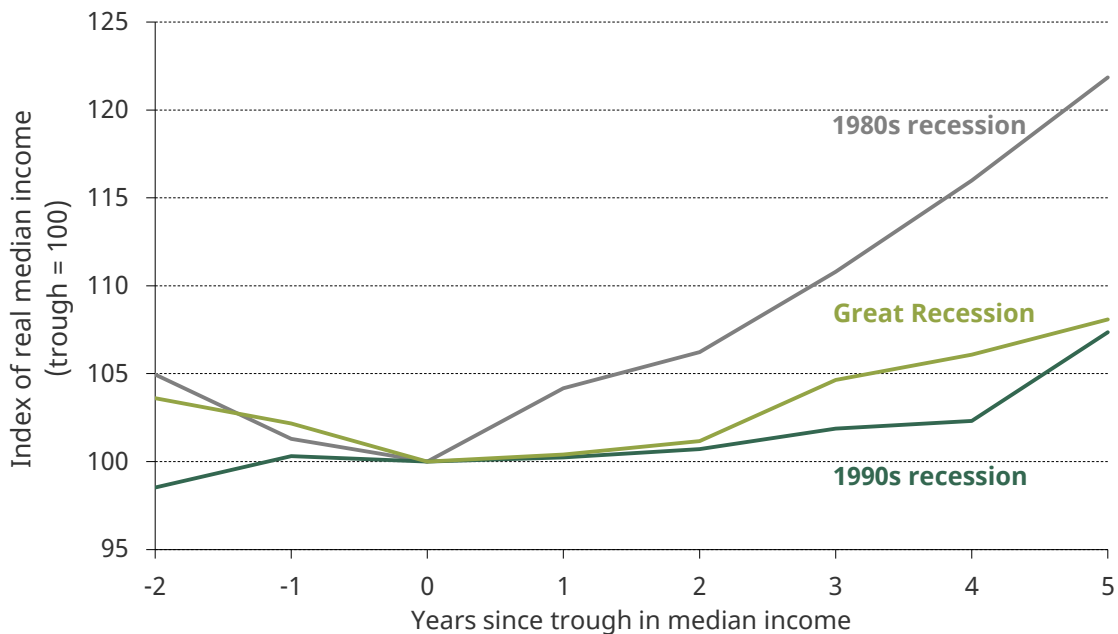
Source: Authors' calculations using the Family Resources Survey and Family Expenditure Survey, various years.

These trends, of course, only relate to average incomes across the whole population. As shown in Figure 2.1, the average masks great variation in incomes across different groups in the population. We look further into how the recovery has affected the incomes of different demographic groups in Section 2.3, and in Chapter 3 we focus on trends in income growth across the income distribution and how those trends affect income inequality.

2.2   Determinants of average income growth in recent years

Earnings from employment are the largest income source for households on average. In this section, we show how the employment rate and earnings of employees have changed in recent years, before examining how these trends, together with changes in other income sources, have driven growth in average incomes.

Figure 2.4 shows the employment rate in the HBAI data and the Labour Force Survey – the source for the government's headline labour market statistics. The HBAI data recorded a 72.9% employment rate in 2016–17 and the LFS a 74.6% rate. Both series showed an

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[3] The 8.1% is growth in median income over the recovery for Great Britain only. The growth rate for the UK as a whole (referred to elsewhere in this report) was 8.0%.

increase of around 0.6–0.7ppts on the previous year, contributing to positive average income growth. Looking at trends since 2002–03, despite some variation from year to year, the overall patterns look relatively similar between the HBAI and LFS series, with both showing a decline in employment in the wake of the recession, followed by robust growth. In 2017–18, the 16–64 employment rate (LFS) stood at 75.2% – above the pre-crisis employment rate of around 73%, and the highest rate since records began in 1971.

In terms of their impact on household living standards, the strong employment statistics have been somewhat offset by much weaker growth in real earnings, as shown by Figure 2.5. Having fallen sharply in the recession, real median employee earnings in the latest data remain substantially below their peak (4% and 3% below in LFS and HBAI respectively), although they have grown since 2011–12 (by 2.2% in LFS and 5.1% in HBAI).

Figure 2.4. Employment rate (ages 16–64) in HBAI and LFS (UK)
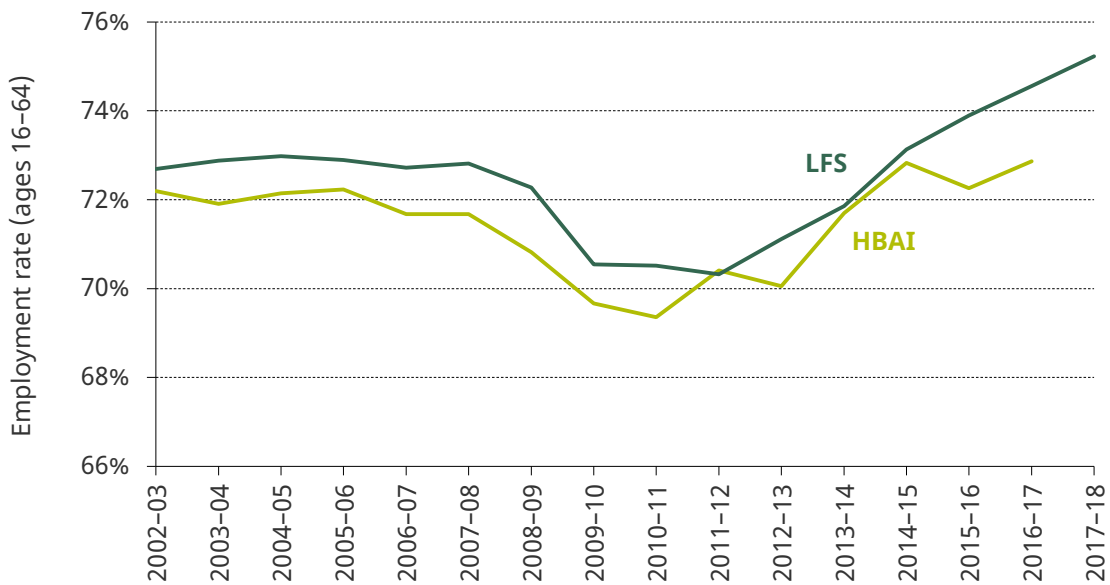
Source: Authors' calculations using the Family Resources Survey and Labour Force Survey, 2002–03 to 2017–18.

Figure 2.5. Real median weekly earnings of employees in HBAI and LFS (UK)
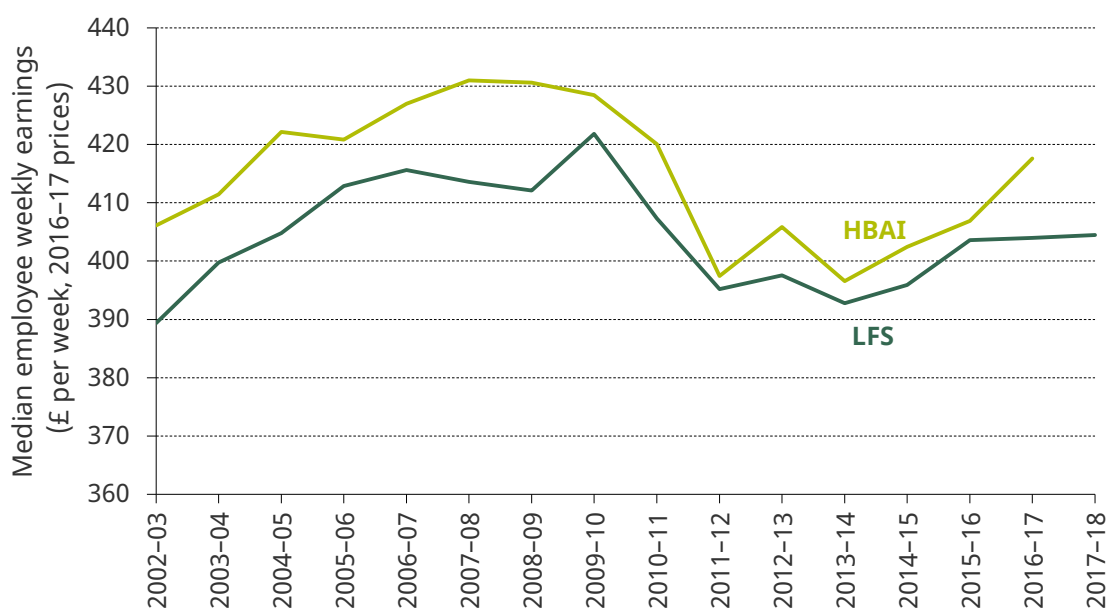
Source: Authors' calculations using the Family Resources Survey and Labour Force Survey, 2002–03 to 2017–18.

The LFS and HBAI give similar indications of the path that real earnings have taken since 2007–08: a large fall during the recession, followed by little change between 2011–12 and 2014–15, and moderate earnings growth in 2015–16 (between 1% and 2% in both series). However, the series diverged somewhat in 2016–17. Whereas in the LFS real median earnings were little changed, in HBAI they grew by 2.6%. A third source – the Annual Survey of Hours and Earnings (ASHE) – recorded a growth rate somewhere between, at 1.8%.[4] The relatively strong growth in earnings seen in HBAI this year has played an important role in delivering the moderate rate of median income growth.

These trends in pay and employment are, of course, only part of the story of what has happened to household incomes over the recovery. To understand the full picture, we need to analyse these trends alongside those in other income sources, such as benefits and tax credits, and private pensions, which form significant parts of average incomes. Because the relative importance of different income sources varies across groups such as rich and poor, this also provides useful background to later chapters that turn to trends in inequality and poverty.

Table 2.1 splits total household income into several components. As discussed in Section 2.1, mean income fell in 2016–17 in HBAI due to HMRC's projection for falling dividend income for very high-income households. Since this projection is highly uncertain, Table 2.1 excludes the very high-income households who are subject to this or similar adjustments (about 1% of the population) – leaving mean income growth among the rest of the population at 0.4% (this number is therefore not the same as the change in overall mean HBAI income, which, as discussed above, fell by 0.9%). We separately examine each

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[4] ASHE records earnings in April of each year. To turn this into fiscal-year estimates, we calculated the average of the rate recorded in the Aprils at the beginning and end of the fiscal year.

component of gross (pre-tax) 'private' incomes (such as employee earnings), alongside benefits and deductions such as direct taxes and council tax.

The first row of Table 2.1 shows that earnings from employee incomes are by far the most important income source on average. Four other income sources – self-employment earnings, benefits and tax credits for working-age families, pensioner benefits, and private pension and investment incomes – are all approximately equally important, contributing around 10% of net income. Taxes are a substantial negative contribution to net incomes, and will tend to go up when gross incomes rise.

The rest of the table shows how each of these components has changed over time and what contributions these changes have made to mean income.

There are three main things to note from Table 2.1. First, over the past year, average (mean) income from employees' earnings fell slightly in real terms, but this was partially offset by an increase of 1.7% in self-employment income. This pattern is one that has played out over the recovery as a whole: since 2011–12, growth in income from employee earnings has been relatively small (3.6%), but self-employment income has grown by nearly 15%. This is entirely driven by an increasing number of people in self-employment, rather than by increasing earnings for the self-employed. Over the recovery period, the share of adults with some self-employment income has increased by over 20%, but the average amount they receive has actually fallen by around 6% in real terms.[5]

Second, the slow growth in incomes from employee earnings over the recovery means that they remain around 3% below their pre-crisis (2007–08) level and have only grown by 3.9% since 2002–03. Note that these figures relate to income from employees' earnings averaged across all individuals, not just employees, and so include the impact of employment rises. The fact that incomes from employee earnings remain below their pre-crisis level despite the strong growth in employment over the period (see Figure 2.4) underlines the significance of the falls in real average earnings: they have been enough to more than offset the rises in employment. Part of the reason for the slowness in employee income growth during the recovery is that higher-earning employees have seen their earnings fall, bringing down the overall average.

Third, over the recovery, there has been a 10% fall in incomes from benefits and tax credits going to working-age families – explained both by cuts to the generosity of the benefit system and by rising employment and earnings. This fall leaves working-age benefit receipt a little lower than it was around the beginning of the recession, though still substantially above its 2002–03 level. In contrast, pensioner benefit receipt has increased somewhat over the recovery. This rise is explained both by increases in the generosity of pensioner benefits (including the triple lock to the state pension, which ensures that the state pension rises in line with the highest of inflation, earnings growth and 2.5%) and by the ageing of the population. Real pensioner benefit income stands about 10% higher than it was at the beginning of the recession.

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[5] As with Table 2.1, these figures refer to those who do not live in a household subject to the top incomes adjustment.

Table 2.1. Changes in income sources and contributions to mean income growth, excluding households subject to the top incomes adjustment

	Gross employee earnings	Gross self-employment income	Benefits and tax credits to working-age families	Benefits to pensioner families	Gross income from savings, investments and private pensions	Other income	Direct taxes and other deductions from income	Total net income
Share of net income (2016–17)	83.5%	10.2%	10.1%	9.3%	12.5%	3.6%	−29.3%	100.0%
2015–16 to 2016–17								
Growth of income source	−0.4%	1.7%	−2.0%	0.4%	2.3%	8.5%	−0.7%	0.4%
Contribution to total income growth	−0.4ppt	0.2ppt	−0.2ppt	0.0ppt	0.3ppt	0.3ppt	0.2ppt	0.4ppt
2011–12 to 2016–17								
Growth of income source	3.6%	14.8%	−10.2%	3.7%	11.7%	49.4%	1.9%	5.6%
Contribution to total income growth	3.0ppt	1.4ppt	−1.2ppt	0.4ppt	1.4ppt	1.3ppt	−0.6ppt	5.6ppt
2007–08 to 2016–17								
Growth of income source	−3.3%	2.9%	−1.7%	10.1%	12.6%	42.1%	−7.7%	3.1%
Contribution to total income growth	−2.9ppt	0.3ppt	−0.2ppt	0.9ppt	1.4ppt	1.1ppt	2.5ppt	3.1ppt
2002–03 to 2016–17								
Growth of income source	3.9%	1.3%	9.6%	20.5%	30.4%	48.5%	3.1%	9.8%
Contribution to total income growth	3.4ppt	0.1ppt	1.0ppt	1.7ppt	3.2ppt	1.3ppt	−1.0ppt	9.8ppt

Note and Source to Table 2.1

Note: The table relates to a subsample of households in HBAI that excludes those with negative incomes and excludes those whose incomes have been adjusted by the SPI (see Appendix A). All incomes have been equivalised and are measured at the household level and before housing costs have been deducted. 'Benefits to pensioner families' are defined as benefits received by households containing at least one pensioner. This will include some benefits that can also be received by working-age people (e.g. housing benefit) and some benefits actually received by working-age individuals who live with pensioners.

Source: Authors' calculations using the Family Resources Survey, various years.

2.3   The recovery in living standards for pensioners and non-pensioners

Given what we have seen about household incomes over the recovery so far – modest growth in employment incomes, combined with falls in working-age benefit receipt and rises in pensioner benefit receipt – one might expect living standards for pensioners and non-pensioners to have evolved differently over the recovery. This is the issue to which we turn now.

Figure 2.6 shows an index of real median income for pensioners and for non-pensioners since 2007–08. In the period immediately following the crisis (2007–08 to 2009–10), non-pensioner income was flat while pensioners saw a 7% increase. This was followed by a slight decline for pensioners and a rather larger decline for non-pensioners, leading to non-pensioner incomes in 2011–12 standing 4% below where they were in 2007–08 and pensioner incomes 5% above. Over the period of recovery, trends have been much more similar, with pensioners and non-pensioners both seeing median income rises of around 8%. Part of the reason that growth in non-pensioner median income has kept up with that of pensioners (despite weakness in average earnings) is that growth in employee earnings has been stronger towards the middle of the household income distribution than at the top – as is discussed in more in detail in Chapter 3. Nevertheless, the result of these trends is to leave median pensioner income 13.5% above its 2007–08 level and non-pensioner income only 3.6% above.

Figure 2.6. Index of real median income (BHC) for pensioners and for non-pensioners, indexed to 2007–08 = 100
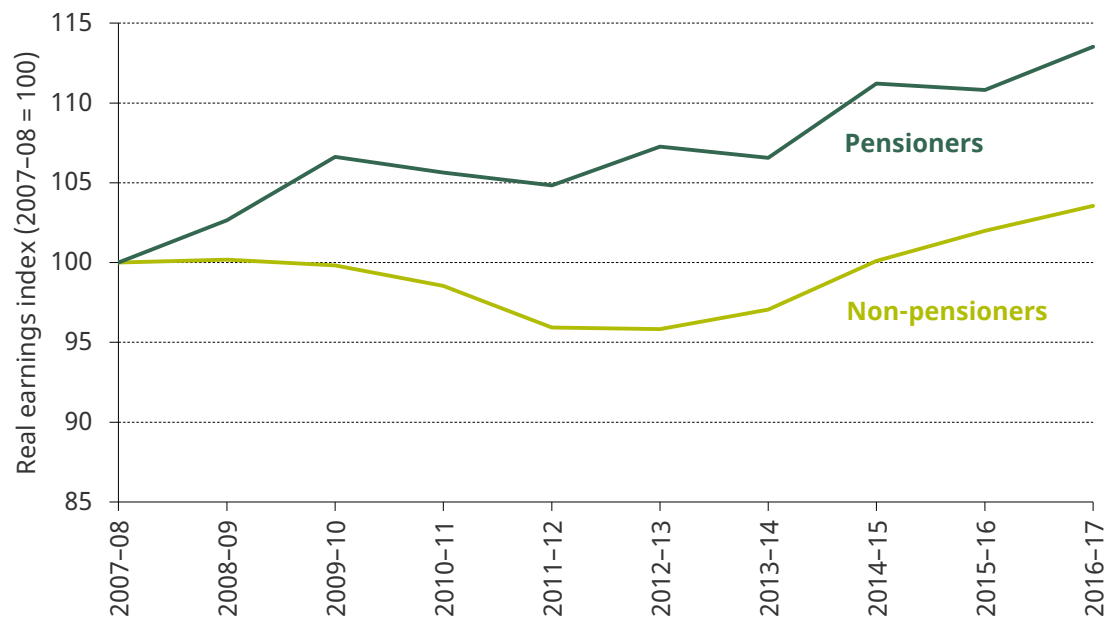
Note: Pensioners are here defined as men aged 65 or over and women aged 60 or over. Non-pensioners are everyone else (including children).

Source: Authors' calculations using the Family Resources Survey, 2007–08 to 2016–17.

Figure 2.7. Median pensioner income as a percentage of median non-pensioner income, after and before deducting housing costs (AHC and BHC)
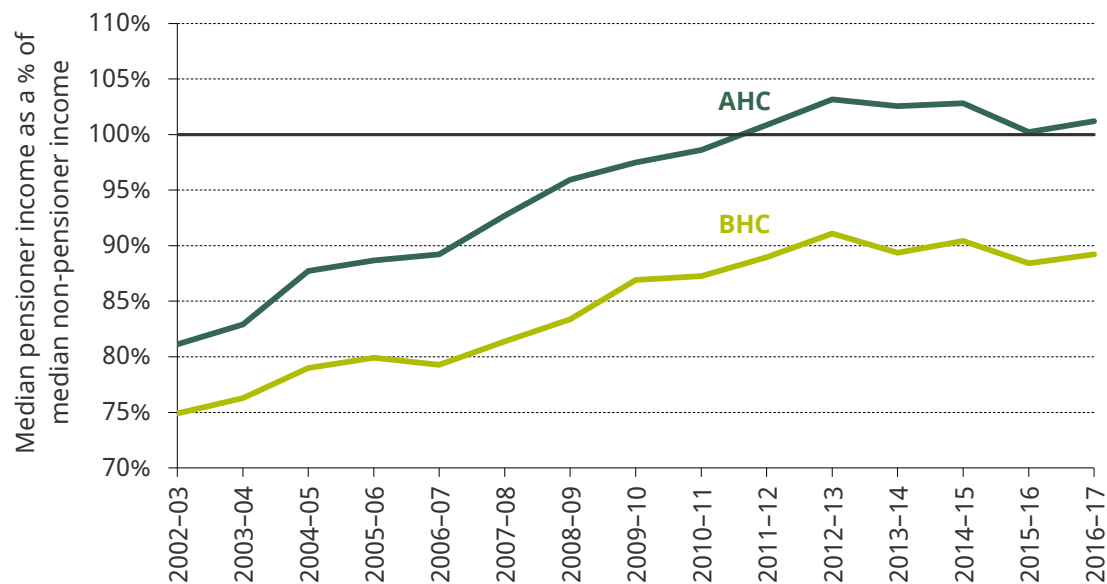
Note: Pensioners are here defined as men aged 65 or over and women aged 60 or over. Non-pensioners are everyone else (including children).

Source: Authors' calculations using the Family Resources Survey, 2002–03 to 2016–17.

The stronger median income growth among pensioners than among non-pensioners in the period since 2007–08 is in fact a continuation of the patterns seen in the five years leading up to the recession. Between 2002–03 and 2007–08, pensioner incomes increased by 13.8%, while non-pensioner incomes increased by only 4.7%. Thus, since 2002–03, pensioner incomes have caught up substantially with non-pensioner incomes. This can be seen in Figure 2.7, which charts median pensioner income as a percentage of median non-pensioner income, with incomes measured both before and after housing costs.

The trends are fairly similar if incomes are measured before or after deducting housing costs. However, the absolute levels are rather different. Whereas on a BHC basis median pensioner income is about 10% below median non-pensioner income, on an AHC basis it is actually slightly above. These are substantial changes from 2002–03, when median pensioner income BHC (AHC) was 25% (19%) below that of non-pensioners.

2.4   Prospects for living standards

The lags in the release of the official HBAI data mean that we can only analyse incomes up to 2016–17. Other, more timely, data sources can give an indication of what the HBAI data might show for 2017–18.

Between 2016–17 and 2017–18, employment continued to increase, with the LFS recording growth in the employment rate of 0.7ppts (see Figure 2.4). However, the LFS also indicates real median earnings growth of just 0.1% (see Figure 2.5), and another data source – the Average Weekly Earnings (AWE) index – suggests that mean employee earnings fell in real terms in 2017–18. Part of the reason for this weakness is rising inflation, with the devaluation of sterling in the second half of 2016 contributing to higher prices. National income, as measured by real gross domestic product (GDP), also showed a slowdown in 2017–18, growing by 1.6% in 2017–18: weaker than in the previous year (1.9%) and the three years before that (2.2–3.1%).[6] Most working-age benefits were also frozen in nominal terms over 2017–18 (and therefore fell in real terms), though the state pension increased in line with inflation.

Taken together, these factors suggest a slowdown in living standards growth. Median income is particularly dependent upon real earnings, and so the weakness seen in the LFS and AWE would suggest significantly lower median income growth in 2017–18 than in 2016–17.

What might we expect for the path of living standards beyond 2017–18? Again, the most important factor is the future path of real earnings from employment. The Office for Budget Responsibility (2018) expects Brexit-related uncertainty together with longer running weakness in productivity to result in average annual real earnings growth between 2017–18 and 2022–23 of just 0.7% per year. If median earnings in the HBAI data followed this path, it would represent slower growth than that seen over the five years of the recovery thus far. This would suggest a continuation of the weakness in living standards growth seen over the past decade.

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[6] From Office for National Statistics (ONS) series YBEZ. Data downloaded 14 May 2018. ONS GDP data are subject to revision.

Other factors suggest a further divergence in the prospects for income growth of pensioners compared with the rest of the population. First, there are substantial cuts to working-age benefits planned for the coming years. In particular, much of the move from the 'legacy' benefits system to the less generous universal credit is yet to occur, and the limiting of means-tested benefits to the first two children will be slowly rolled out over the coming years. Moreover, most working-age benefits will be frozen until March 2020. Second, the basic state pension is meanwhile still subject to the 'triple lock', rising with the highest of earnings growth, inflation and 2.5%. Third, the latest cohorts of pensioners are tending to work more and have greater private pension entitlements, meaning that they have higher incomes than the pensioners who die – thereby boosting pensioner incomes on average. Fourth, the forecast weakness in average earnings discussed above tends to affect working-age people more than pensioners as they get more of their income from employment.

2.5   Conclusion

Following a slow start to the recovery in living standards from 2011–12, income growth picked up somewhat, and median income in 2016–17 stood 8.0% above its trough in 2011–12. Earnings growth has been weak (and real median earnings remain below their 2007–08 level), but strong rises in employment, together with increases in benefits to pensioner families and in income from savings, investment and private pensions, have helped to drive the overall rise, though they have been somewhat offset by falls in working-age benefit receipt. Compared with the previous two recessions and recoveries, the Great Recession was marked both by a fairly large decline in median income following the recession, and a slow recovery after it. As a result, median income only stands around 5.6% above its pre-recession level, equating to average annual growth since 2007–08 of 0.6%.

Pensioners and non-pensioners have seen fairly similar increases in living standards over the recovery. This differs, however, from their experience during and in the run-up to the recession, where pensioners saw much faster income growth than non-pensioners. Median pensioner income is now only around 10% below median non-pensioner income if measured BHC, and above it if measured AHC.

Looking forward, the latest data from the LFS suggest weak growth in living standards in 2017–18, and the OBR's forecast paints a picture of continued slowness beyond that – though, of course, there is considerable uncertainty around this. As has been emphasised already, since employee earnings are the largest source of income, average income growth is heavily dependent on growth in the earnings of those in work. Since earnings growth is heavily dependent upon productivity growth, this is in turn linked to the so-called 'productivity puzzle' – the observation that productivity growth has been weak in the UK (and several other advanced economies) since and perhaps even shortly before the recession. When and whether growth in living standards is to return to the 2% or so seen over the 40 years before the Great Recession is thus to a large degree contingent upon the unwinding of the productivity puzzle. If in fact the slow growth in productivity is the 'new normal', then the same will be true for living standards growth.

3. Income inequality

Key findings

In the first five years of the recovery, incomes increased fastest around the middle of the income distribution.	Between 2011–12 and 2016–17, real incomes at the median (middle) increased by 8%. For those at the 10th and 90th percentiles of the income distribution, they increased by 4%. This has slightly reduced inequality in the top half the distribution and increased it in the bottom half.
Reductions in benefits for poorer households, and slow earnings growth for high earners, have contributed to this pattern.	Over the recovery, the employment rate increased fastest among low-income households, and low-earning employees saw the highest growth in earnings – but this was partially offset by reductions to benefit entitlements. For high-income households, employment income barely grew at all in real terms between 2011–12 and 2016–17.
Overall, income inequality is substantially higher than it was in the 1960s, but roughly unchanged from the 1990s.	Broadly stable income inequality since the 1990s, as measured by the Gini coefficient, is the result of two offsetting trends. The top 1% have received an increasing share of total income (growing from 5.7% in 1990 to 7.8% in 2016–17), but inequality among the bottom 99% of the distribution has fallen somewhat – partly due to slow income growth towards the top since the recession.
If the Office for Budget Responsibility's forecasts are correct, inequality is likely to increase in the next few years.	Planned benefit cuts will fall on lower-income households, increasing inequality. Moreover, the Office for Budget Responsibility expects real earnings to increase, albeit slowly, between now and 2022–23. Since high-income households get a larger share of their income from earnings, this would tend to increase inequality.

In Chapter 2, we discussed trends in average incomes and analysed how different demographic groups have experienced different prospects over the recovery. In this chapter, we focus on how trends in living standards have differed across the income distribution and what the implications of these trends have been for income inequality.

There are two key aspects of the measures of income inequality that we analyse in this chapter that are worth noting. First, we look only at inequality in household incomes across the population (rather than, say, inequality in wages or wealth, or inequalities between particular groups – e.g. between different genders or ethnic backgrounds). Second, we focus on measures of 'relative' inequality. This means we look at how many times greater the incomes of high-income individuals are than the incomes of low-income individuals, rather than looking at absolute differences in income. In other words, if everyone's income grew by 10%, inequality would remain unchanged; whereas if everyone's income grew by £10, inequality would fall, because this would be a larger proportional increase in income for those with lower income.

There are several summary measures of income inequality that attempt, in different ways, to collapse the whole income distribution into a single number that is indicative of the level of inequality. When looking at changes over the long run, we examine one such measure – the Gini coefficient – but for the most part we simply focus on how incomes have changed at each point of the income distribution. This allows us to provide a more detailed and intuitive description of how inequality has changed.

An important limitation of the HBAI data is that they do not provide robust, detailed information on the distribution of incomes among the very highest-income households. This constrains us to focus primarily on inequality within the bottom 99% of the UK household population for the majority of this chapter, rather than the much-discussed top 1%. This is particularly the case in data since the Great Recession, because the measurement of top incomes has been made more difficult by a series of changes to tax rates affecting many high-income individuals. This has created incentives for them to artificially shift the timing of their income in order to reduce their tax bill, meaning that it is very hard to draw strong conclusions about the underlying trends in top incomes over this period.

This chapter proceeds as follows. Section 3.1 documents income inequality in the UK in 2016–17 (the latest data currently available). Section 3.2 analyses how income inequality has changed during the recovery from the Great Recession and Section 3.3 puts these trends into the longer historical context of inequality over the past half-century. Section 3.4 discusses prospects for inequality and Section 3.5 concludes.

3.1   Income inequality in the UK in 2016–17

Figure 3.1 shows weekly net equivalised household income at every percentile point of the UK income distribution. These are the cash equivalents for a household with two adults and no children. The 90th percentile of the income distribution (the amount required to have an income higher than 90% of the population) was £962 per week in 2016–17. This was roughly double the median (middle) income (£494 per week), which in turn was roughly double the 10th percentile (£248 per week). The person at the 90th percentile, therefore, had an income approximately four times higher than the person at the 10th percentile.

Figure 3.1. Weekly net equivalised household income at each percentile point in 2016–17
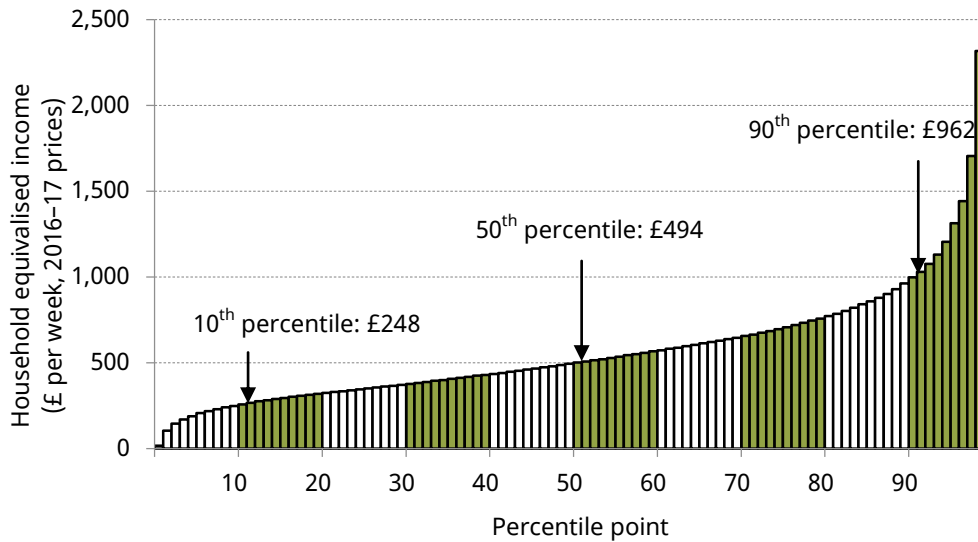
Note: Incomes have been measured net of taxes and benefits but before housing costs have been deducted. Cash figures are equivalents for a childless couple.

Source: Authors' calculations using the Family Resources Survey, 2016–17.

The figure also highlights the large degree of inequality *within* the top 10% of the income distribution. Income at the 95th percentile is around 25% higher than that at the 90th percentile, while income at the 99th percentile is almost double that at the 95th. There is also a high degree of inequality within the top 1% of the income distribution, which is not reflected in Figure 3.1 (nor captured by the HBAI data).

As noted above, and as is done throughout this report, incomes are 'equivalised', to take account of household size and composition (as described in Appendix A). To illustrate the incomes that different types of households need to have to be at particular points of the income distribution, Table 3.1 shows the annual net (after taxes and benefits) income at selected percentile points for different example households. As the table shows, equivalisation entails larger households requiring more income to reach the same point of the income distribution. This is because larger households need to spend more to achieve the same standard of living for its members. For example, while a couple with no children requires £25,700 per year to have a household income at the national median, a single adult only requires £17,200 and a couple with two young children requires £35,900.

Table 3.1. Annualised net household income at different percentile points of the 2016–17 distribution

Percentile	Single individual	Couple with no children	Couple with two children under 14
10th	£8,700	£12,900	£18,100
50th	£17,200	£25,700	£35,900
90th	£33,500	£50,000	£70,000
99th	£80,700	£120,500	£168,700

Note: Figures rounded to the nearest £100.

Source: Authors' calculations using the Family Resources Survey, 2016–17.

The table also highlights the household income required to be in the top 1% of the income distribution (those above the 99th percentile). The figures in this table are net of tax, and so of course the gross income required to reach the top 1% is appreciably higher than the numbers seen here. Nonetheless, while these figures are high, they are considerably below the very large sums that one might typically associate with the 'super-rich'. This underlines the point made earlier: that there is a high degree of inequality even within the top 1%, and so the super-rich who often appear to be the focus of public debate are in fact only a fraction of the top 1% of the income distribution.

3.2   Inequality during the recovery from the Great Recession

Having described overall income inequality in the UK in 2016–17, we now document how income inequality has changed since the recovery in living standards following the Great Recession began (i.e. since 2011–12).

Figure 3.2 shows how real incomes have changed across the income distribution between 2015–16 and 2016–17 as well as over the first five years of the recovery. Between 2015–16 and 2016–17, the middle of the income distribution saw slightly faster income growth than the top or the bottom of the distribution: whereas median income increased by 1.8%, income at the 10th and 90th percentiles rose by a little less than 1%. This reinforces a trend seen over the recovery as a whole: between 2011–12 and 2016–17, median income rose by 8.0%, but incomes at the 10th and 90th percentiles increased by around half that (4.2% and 4.3% respectively).[7]

As a result, over the first five years of the recovery, inequality has fallen in the top half of the income distribution, whereas it has risen in the bottom half. The net effect of these

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[7] The chart excludes the 98th and 99th percentiles of the income distribution, as they are likely to be heavily affected by the SPI adjustment (see Appendix A), which DWP's HBAI publication (https://www.gov.uk/government/statistics/households-below-average-income-199495-to-201617) suggests is particularly uncertain in the latest data. The estimate from the HBAI data is that between 2015–16 and 2016–17 incomes at the 98th and 99th percentiles fell by 5% and 7% respectively. Over the first five years of the recovery as a whole, they have increased by 1% and 0.2% respectively.

changes is that inequality between high- and low-income people has changed little: the ratio between incomes at the 90th and 10th percentiles remains at around 3.9.

Figure 3.2. Real income growth by percentile point, 2011–12 to 2016–17
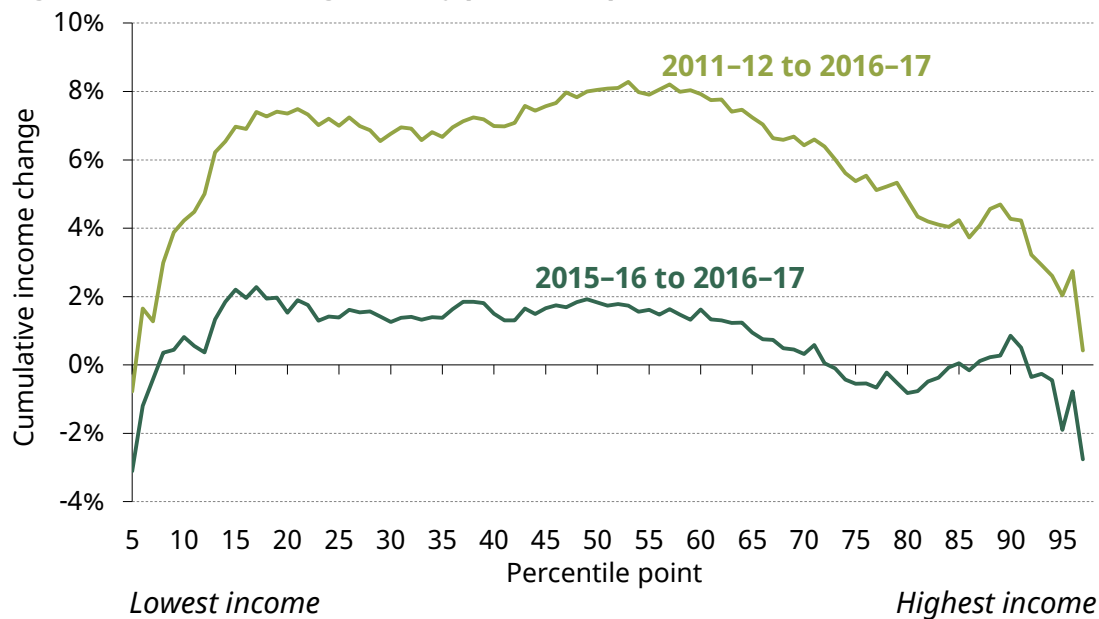
Note: Incomes have been measured net of taxes and benefits but before housing costs have been deducted. Percentiles 1–4 are excluded because of large statistical uncertainty. Percentiles 98 and 99 are excluded because they are substantially affected by the SPI adjustment, which is especially uncertain in the 2016–17 data.

Source: Authors' calculations using the Family Resources Survey, 2011–12, 2015–16 and 2016–17.

What explains the faster growth in middle incomes than in high or low incomes over the recovery? To understand this pattern, we first look at how the distribution of employment and earnings growth has changed over the period, before moving on to changes in benefit incomes.

Employment and earnings

Figure 3.3 shows the working-age employment rate at the beginning of the recovery (2011–12) and in the latest data (2016–17) for the lowest-, middle- and highest-income 20% ('quintile') of the population. Over the recovery, the employment rate among low- and middle-income individuals rose by 5 and 2 percentage points (ppts) respectively, while it fell slightly among high-income individuals. These differences are particularly significant given that lower-income individuals had a much lower employment rate to start with – so the differences in the *proportional* growth of employment are larger still.

Figure 3.3. Employment rate (16- to 64-year-olds) by income quintile

Source: Authors' calculations using the Family Resources Survey, 2011–12 and 2016–17.

Figure 3.4 shows the growth in employee earnings over the recovery by percentile point of the earnings distribution. It shows that earnings growth over the recovery has generally been greater for lower-earning employees. Earnings for the bottom 15% of the distribution were over 10% higher in real terms in 2016–17 than at the beginning of the recovery in 2011–12. Median employee earnings increased by about 5% over the period, while earnings between the 70th and 90th percentiles rose by less than 2%.

The introduction of the National Living Wage in April 2016 has contributed to the larger rises at the bottom of the distribution (see Chapter 6), but in broad terms a similar pattern of earnings growth emerges even when we look at growth up to 2015–16. The stronger growth among low earners than among higher earners between 2011–12 and 2015–16 will have been partly due to the National Minimum Wage rising by 3.5% in real terms over this period while real median *hourly* wages rose by only 0.6% (according to the Annual Survey of Hours and Earnings).

Using the right-hand axis, Figure 3.4 also shows, at each percentile of the *earnings* distribution, employees' average position in the *household income* distribution. It shows that, unsurprisingly, on average, higher-earning individuals are more likely to be in higher-income households. But it also shows that even relatively low-earning employees tend to be – on average – living in middle-income households. This is partly because many lower-income households do not have anyone in work (as indicated by Figure 3.3). This means that many middle-income households have benefited from the increases in earnings for relatively low earners. However, because this is only an average, it means that there will also be some low-income households and some high-income households that benefit from the earnings growth of low earners. This is discussed in more detail in Chapter 6.

Figure 3.4. Employee real weekly earnings growth by percentile point, 2011–12 to 2016–17, and average position in household income distribution in 2016–17
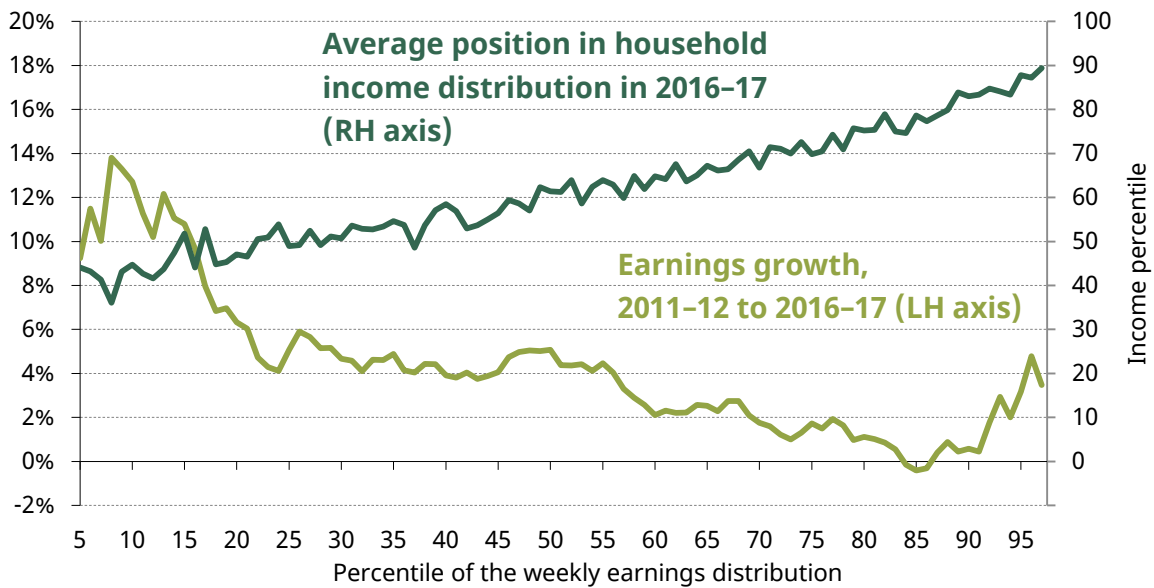
Note: The 'average position in household income distribution' line shows the average centile (100 equally sized groupings) in the household net income distribution that individuals are in. This is shown for the centile just above the earnings percentile on the x-axis. For example, earnings percentile point 50 on the x-axis shows the average position in the household net income distribution of individuals in the 51st earnings centile – i.e. those with earnings between the 50th and 51st percentile. It is shown for 2016–17.

Source: Authors' calculations using the Family Resources Survey, 2011–12 and 2016–17.

Taken together, Figures 3.3 and 3.4 suggest stronger growth in overall employment income at the bottom of the income distribution than at the middle or top. This is in fact exactly what the data show: real net employment incomes in the lowest income quintile (20%) of the population have increased by around 20% over the first five years of the recovery, compared with 10% in the middle income quintile and almost no change in the highest income quintile.

Benefits

Another important set of changes over the recovery has been those relating to the working-age benefit system. Total benefit receipt can vary both because of changes to the benefit system and because of changes in families' circumstances (e.g. increased earnings). To try to get a sense of how changes to the system alone have affected benefit incomes, Figure 3.5 shows percentage changes in mean benefit income for non-pensioners according to their total family earnings (expressed in 2016–17 prices), both since 2011–12 and since 2007–08. In other words, it shows changes in benefit receipt for families given their level of earnings.

The figure shows that over the recovery, receipt of benefit incomes among higher-earning families, as well as among families without any employment income, has fallen quite significantly. For families with earnings of over £500 per week, average benefit income fell by 23% – although because benefit incomes are relatively small for this group, this was a fall of £8 per week (£420 per year). The large proportional falls among higher-earning families are likely to be partly due to the removal of child benefit and the family element

of child tax credit for high-earning families, which for some would have been the only benefits they were entitled to.

The average proportional fall for families without any employment income has also been significant – at 6% since 2011–12. In cash terms, the falls in benefit income for this group are actually larger than the falls for any other group, at around £12 per week (£620 per year). The fact that families without any employment income tend to be the most reliant on benefits accounts for the larger cash falls in benefit receipt that they see, since reductions in the generosity of the benefit system affect them to a greater degree. Families in work with low earnings have seen relatively little change in their average benefit receipt over the recovery.

Figure 3.5 also charts the changes since before the recession (2007–08). Again we see that families with high or no earned income have experienced falls in their average benefit income, but benefit income among low-earning working families has increased substantially over the period, driven by substantial real increases in benefit rates, particularly tax credits, in the immediate wake of the recession. For example, the basic child element in child tax credit increased by 17% in real terms between 2007–08 and 2009–10.

Figure 3.5. Percentage change in mean benefit income among non-pensioners by family earnings
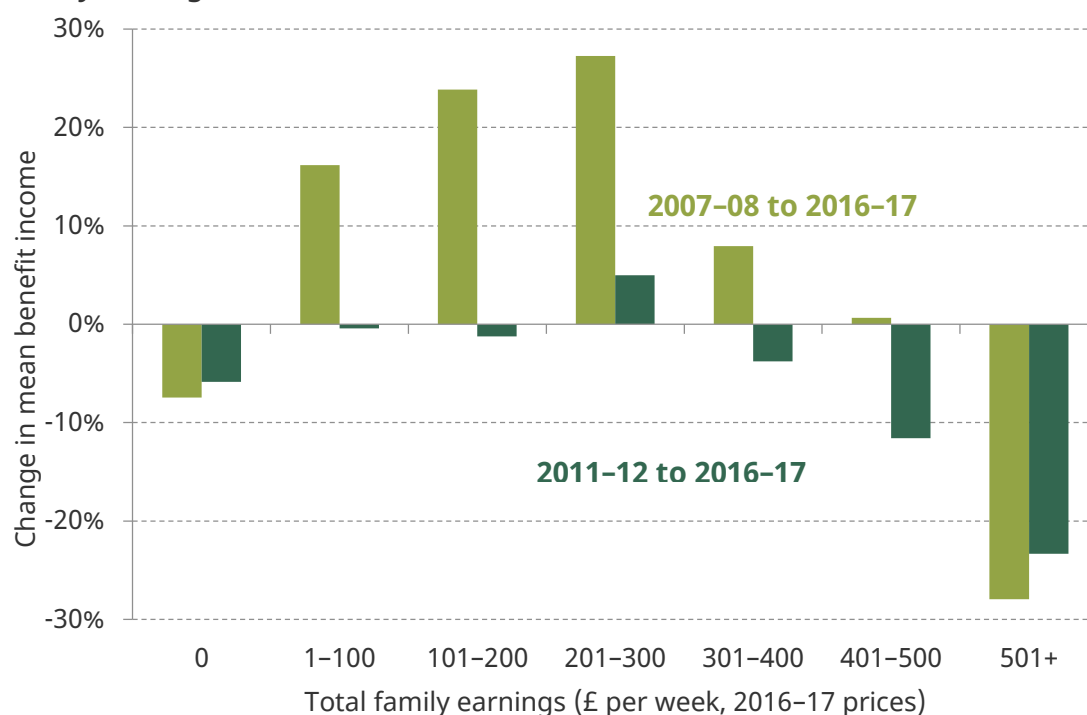
Note: Each bar shows the percentage change in mean benefit and tax credit income for non-pensioners who live in families with gross employment income in each £100 band, with the exception of the leftmost band, which contains those with zero or negative family income.

Source: Authors' calculations using the Family Resources Survey, 2007–08, 2011–12 and 2016–17.

Earnings, benefits and other income sources: bringing it all together

These changes in income from employment and benefits are, of course, only part of the story of what has happened to net household incomes over the recovery. To fully understand why middle incomes have risen faster than low or high incomes, we need to analyse the changes across all income sources.

Figure 3.6 decomposes the overall change in incomes over the recovery into several components. There are three things to note from the figure. First, the contribution of employment income to overall net income growth is similar in the bottom and middle income quintiles. This may seem surprising given that, as noted above, net employment income increased about twice as fast in the bottom quintile as in the middle. The explanation is that employment income makes up a relatively small share of overall net income in the bottom quintile (around 40%), and so even a large proportional rise in employment income only has a modest impact on overall net income.

Second, falls in benefit receipt reduced net incomes by 4% in the bottom quintile, compared with 2% in the middle quintile. The actual cash fall in benefit income was similar in the bottom and middle quintiles, but since benefits make up a larger share of incomes for those in the bottom quintile, it has a larger proportional effect on net income. This helps explain why, despite similar contributions from employment incomes, net income increased more slowly at the bottom of the distribution than around the middle. Rises in employment incomes will have contributed to these falls in benefit receipt, but, as was shown in Figure 3.5, families with no earnings – many of whom will be in the bottom income quintile – have seen large declines in benefit income.

Third, the absence of growth in employment income for individuals in the top quintile explains their slow growth in overall net incomes. Contributions from savings, private pension and 'other' income were not enough to compensate for the lack of growth in employment income.[8]

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[8] It is notable that the contribution from 'other net income and deductions' is relatively large for a very minor income source. This is largely driven by rising income from student loans and grants.

Figure 3.6. Contributions to net income growth by household income quintile, 2011–12 to 2016–17
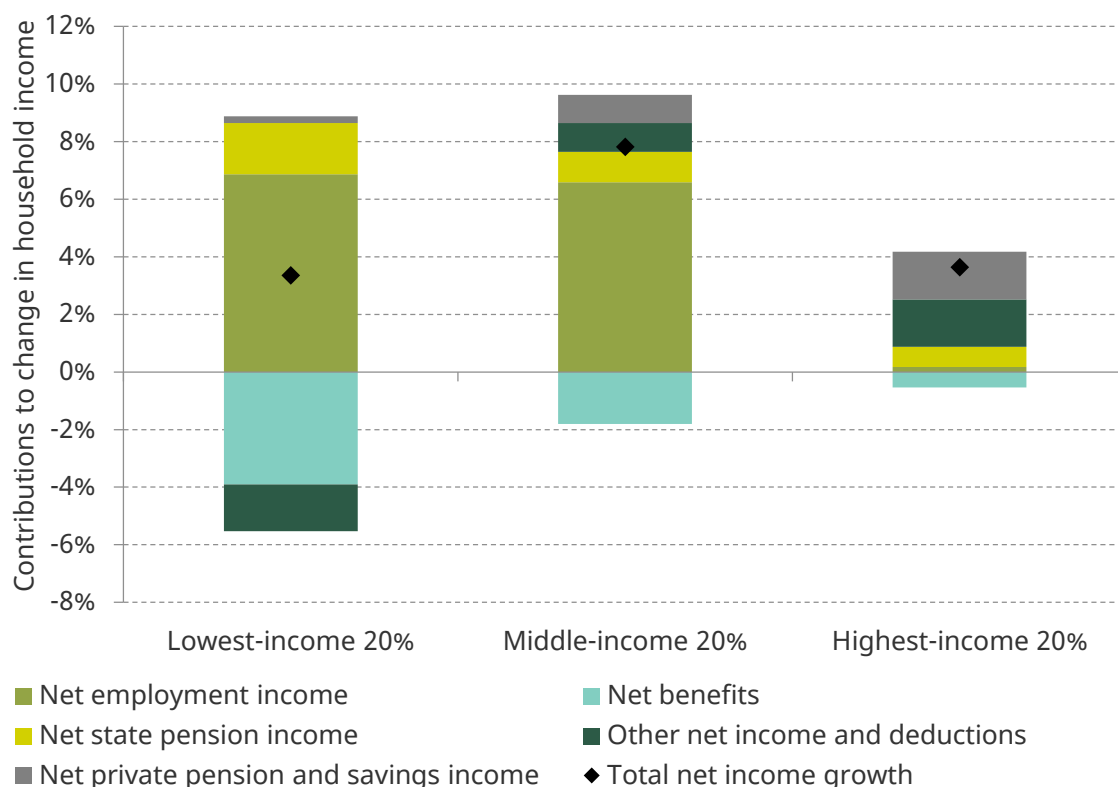
Source: Authors' calculations using the Family Resources Survey, 2011–12 and 2016–17.

3.3   Longer-term trends in inequality

The previous section described trends in and drivers of inequality across the recovery, with slight increases in inequality between the bottom and the middle of the distribution, and slight decreases between the middle and the top. In this section, we situate these trends in a historical perspective. We examine how inequality has changed since the early 1960s and compare the very recent trends in inequality with those in previous periods.

Figure 3.7 shows how the Gini coefficient has changed since 1961. The Gini coefficient is a headline measure of inequality which summarises inequality across the entire distribution into a single statistic between 0 and 1. It would be 0 if everyone in Great Britain received exactly the same income and 1 if all income went to only one person.

Figure 3.7. The Gini coefficient of income inequality (GB)
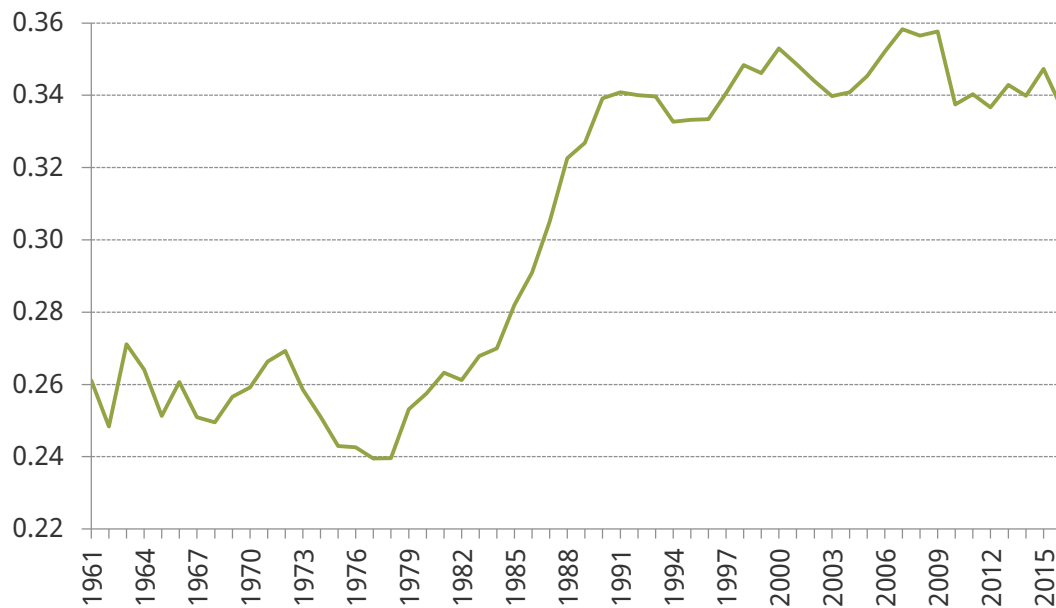
Note: Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards.

Source: Authors' calculations using the Family Expenditure Survey and Family Resources Survey, various years.

The figure shows that between 1961 and around 1980, inequality as measured by the Gini was roughly unchanged. It then sharply increased across the course of the 1980s and modestly increased between 1990 and the financial crisis. Since the Great Recession, it has fallen back to and remained at around the level it was at in the early 1990s. Thus, inequality as measured by the Gini coefficient is essentially the same as it was 25 years ago – but still substantially higher than in the late 1970s. It is worth noting that if pensioners are excluded from the analysis, trends are little changed: the increase between the mid 1970s and mid 1990s is slightly larger, but the change in the Gini since then is essentially the same.[9]

While the Gini coefficient summarises income inequality across the whole distribution, there is particular interest in income inequality at the very top of the income distribution. Figure 3.8 shows the percentage of income going to the highest-income 1% of the population. Between 1961 and around 1990, this statistic shows a similar trend to that of the Gini coefficient: little change until 1980, followed by a sharp increase. However, whereas the Gini coefficient changed little after 1990, the top 1%'s share continued to steadily rise until around 2000, by which point it had reached 8%. Since then, the top 1%'s share has remained roughly unchanged, though there was a sharp fall in the immediate wake of the financial crisis.

However, year-to-year trends in recent years have often been affected by changes in the timing of when high-income people take their income due to changes in tax rates that predominately affect those with very high incomes – the increase of the top rate of tax to 50% in 2010–11, its reduction to 45% in 2013–14 and, in 2016–17, increases in dividend

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[9] See section 3.2 of Belfield et al. (2015) for a discussion of how pensioner incomes have contributed to trends in inequality since the 1990s.

taxation. As a result, it is difficult to draw firm conclusions about year-on-year changes in the top 1%'s share since 2009–10.

Figure 3.8. The top 1%'s share of income (GB)
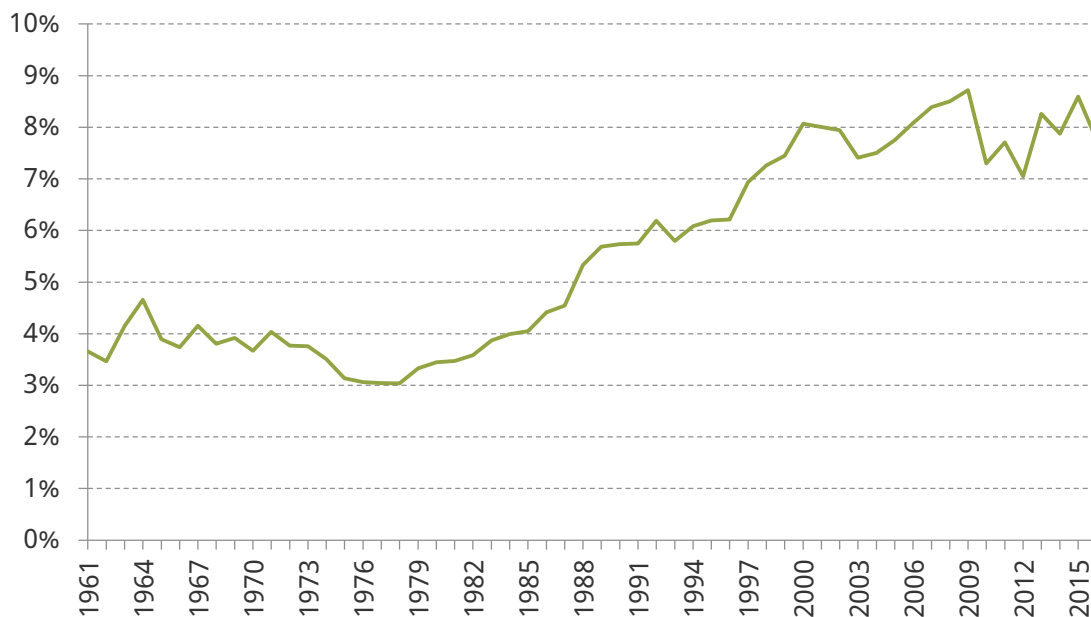
Note: Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards.

Source: Authors' calculations using the Family Expenditure Survey and Family Resources Survey and a 'top incomes' adjustment using administrative tax data (see Appendix A), various years.

Figures 3.7 and 3.8 showed single summary statistics of inequality. Figure 3.9 presents an alternative way of showing how different trends in inequality have been in different periods. It shows what has happened to incomes across the income distribution since 1979 – and splits the period since 1979 into two: one from 1979 to 1990 and the other from 1990 to 2016–17. There are two key things to note from the figure. First, the large increase in inequality between 1979 and 1990 was a result of income growth being considerably faster further up the income distribution. Whereas the 90th percentile increased by an average of 4.1% per year over the period, the 10th percentile increased by an average of just 0.9%. However, growth across most of the distribution was strong during that period, with the top 70% seeing faster growth in the 1980s than they have seen since. Between 1990 and 2016–17, incomes generally grew somewhat faster at the bottom of the income distribution.10 The 10th percentile grew by 1.8% per year over the period, while the 90th percentile grew by 1.3% per year.

Second, we can now see why Figure 3.7 showed the Gini coefficient remaining essentially unchanged since 1990. The top 1%'s share increased over that period (as seen in Figure 3.8), but as Figure 3.9 shows, inequality fell over the rest of the distribution. These results could be summarised by saying that inequality between the top 1% and the bottom 99% has increased since 1990 (as shown in Figure 3.8), but inequality within the bottom 99%

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[10] Burkhauser et al. (2018) use tax data to estimate top income shares. These data suggest a greater rise in inequality between the mid 1990s and late 2000s than the HBAI data indicate.

has fallen (as shown in Figure 3.9). These two effects have offset each other, leaving the Gini – which is a measure of inequality across the whole population – unchanged.

Figure 3.9. Average annual income growth by percentile since 1979 (GB)
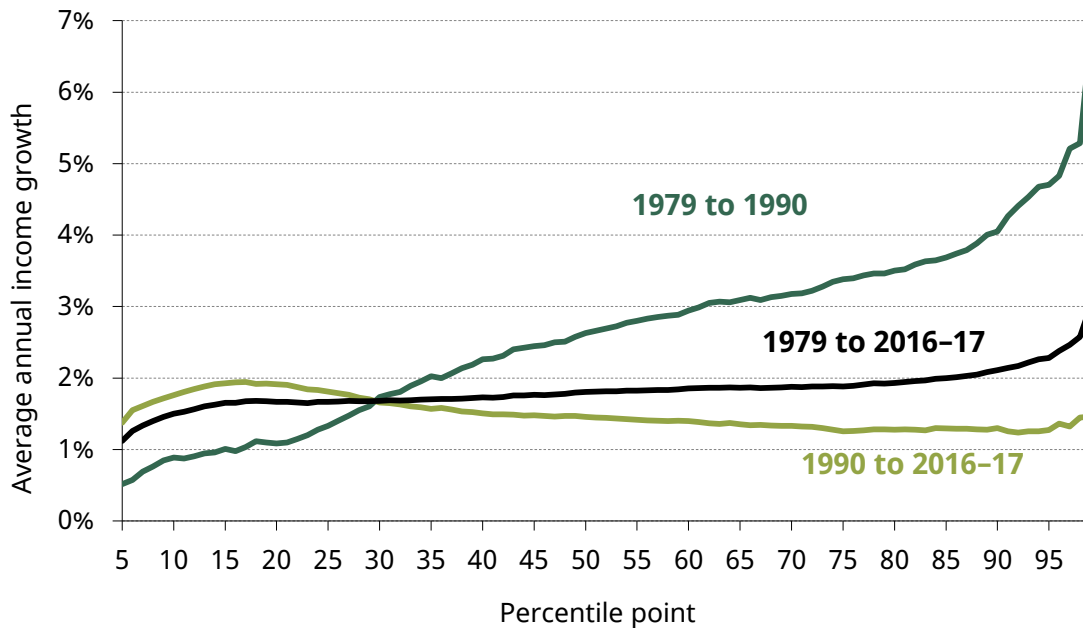
Note: Percentiles 1–4 are excluded.

Source: Authors' calculations using the Family Expenditure Survey and Family Resources Survey, various years.

We now look more closely at the trends in inequality since 1990 and show how different the most recent period is from the periods in the run-up to the Great Recession and during the Great Recession itself. Figure 3.10 shows income growth across the income distribution for several periods since 1990. Between 1990 and the beginning of the Great Recession (yellow line), inequality between the 15th and 75th percentiles fell, while incomes in the top 15% saw faster growth than the median. This led to inequality around the top of the distribution increasing.11

Following the recession, income inequality declined (light green line; 2007–08 to 2011–12): though median income fell by 0.6% per year on average, incomes in the top 15% fell more quickly still (around 1% per year).

The period of recovery (dark green line) has, as discussed in Section 3.2, been marked by middle incomes growing more quickly than high (or low) incomes. The trend of slightly increasing inequality in the bottom half of the income distribution during the recovery is a trend that differentiates this recovery from other periods since 1990 – which on average saw falling inequality between the bottom and the middle of the income distribution.

The recovery was also one in which inequality in the top half of the distribution fell – like the recession, but unlike the 1990 to 2007–08 period. In fact, Figure 3.10 also shows that

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[11] The 99th percentile is excluded from Figure 3.10 due to the high impact of the 2016–17 data on the growth estimate from 2011–12 to 2016–17. This is as a result of HMRC's projection of the shifting of dividend income across years due to changes in dividend taxation.

the fall in income inequality in the top quarter of the income distribution (excluding the top 1%) seen since 2007–08 has largely undone the increase that occurred between 1990 and 2007–08. This can be seen by comparing the periods 1990 to 2007–08 and 1990 to 2016–17 (yellow and black lines). The patterns of income growth over these two periods have roughly similar shapes except at the top, where the black line (1990 to 2016–17) does not have the spike for high incomes seen in the yellow line (1990 to 2007–08).

Figure 3.10. Average annual income growth by percentile since 1990 (GB)
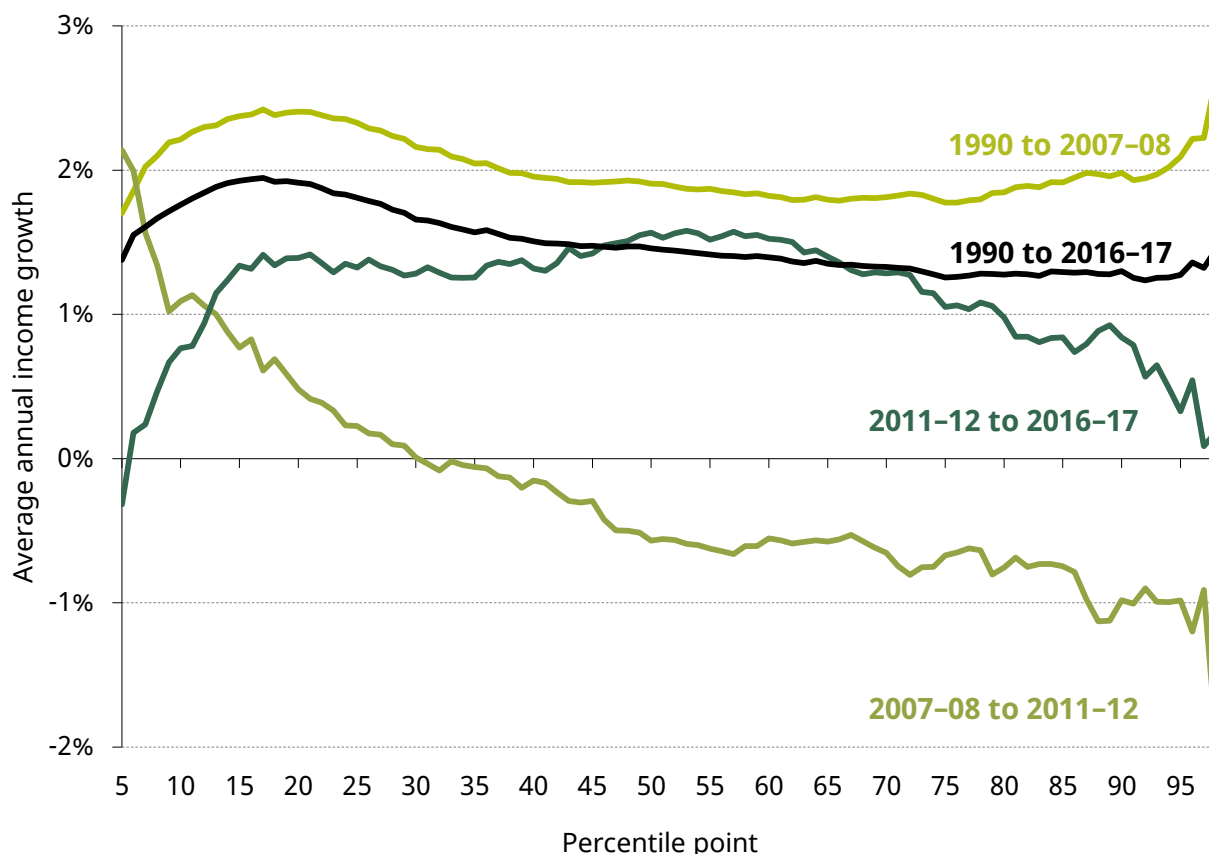
Note: Percentiles 1–4 and 99 are excluded.

Source: Authors' calculations using the Family Expenditure Survey and Family Resources Survey, various years.

3.4   Prospects for inequality

What might we expect for inequality over the coming years? Trends in inequality depend upon several factors. First, higher average real earnings growth tends to increase inequality as earnings make up a larger share of incomes for middle- and high-income households. Second, the distribution of earnings growth matters: if, as has been the case over the recovery, earnings growth is tilted towards low-earning individuals, inequality is more likely to fall – though this is complicated by the fact that (as shown in Figure 3.4) many low earners live in middle-income households. Third, while employment growth has an ambiguous effect, the kind of growth that we have seen over recent years tends to reduce inequality. Fourth, real reductions to benefit and tax credit entitlements typically increase inequality, as benefits make up a larger share of incomes for households at the bottom of the income distribution.

Forecasting all of these things is difficult. In particular, independent forecasters have been repeatedly surprised by the performance of the labour market in recent years. The forecasts from the Office for Budget Responsibility (OBR) suggest relatively slow, but nonetheless positive, real earnings growth over the next four years, together with little change in employment. A substantial majority of the benefit cuts announced by the Conservative government either came into effect in 2016–17 (the latest year for HBAI data) or are being rolled out over the next few years.12 These factors tend to point to an increase in inequality over coming years. Indeed, Hood and Waters (2017b), using the OBR's forecasts and the government's tax and benefit plans from March 2017, projected the ratio between the 90th and 10th percentiles of the income distribution to increase from 3.9 to 4.4 between 2015–16 and 2021–22. Since the release of those projections, the OBR has reduced its forecast for real earnings growth and increased its forecast for employment again, both of which would, all else equal, act to slow down any rise in income inequality.

There are two important caveats here. First, the OBR's forecasts – as with all macroeconomic forecasts – come with a considerable degree of uncertainty attached, and therefore so do any projections based upon them. In recent years, earnings have underperformed relative to the OBR's forecasts, while employment has consistently overperformed compared with expectations. Should that pattern repeat itself, inequality would increase more slowly than would otherwise be expected. Second, the OBR does not forecast the distribution of earnings growth. If earnings continue to grow faster at the bottom of the distribution, inequality would increase more slowly, while if they grew faster at the top, inequality would increase more quickly.

3.5   Conclusion

Over the first five years of the recovery from the Great Recession, incomes have increased faster around the middle of the income distribution than at the top or bottom. The slower growth at the bottom of the distribution is due to benefit cuts partly offsetting strong growth in employment incomes, while the slower growth at the top is down to falling employment and weak earnings growth among high-earning employees. These trends leave inequality as measured by the ratio between the 90th and 10th percentiles unchanged since the beginning of the recovery.

Taking the longer view, inequality as measured by the Gini coefficient has increased since the 1960s, but is around the level it was in 1990. This is the result of two offsetting trends: the share of income going to the top 1% has increased since 1990 (from 5.7% to 7.8%), but inequality among the bottom 99% of the distribution has fallen somewhat. Trends in income growth over the recovery have played a role in the fall in inequality among the bottom 99%: that middle-income households have seen faster income growth than high-income ones has, together with the recession, undone the increase in inequality among the top part of the distribution that occurred between 1990 and 2007–08.

Looking forward, the official OBR forecasts and the government's plans for tax and benefit policy point to an increase in inequality. However, as ever, a substantial degree of uncertainty surrounds these macroeconomic forecasts. Previous projections of increasing

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[12] See Hood and Waters (2017a).

income inequality in recent years – based on what would happen if the macroeconomic forecasts were correct – did not materialise because the forecasts were too pessimistic about employment and too optimistic about earnings. Should earnings continue to disappoint relative to forecast, employment continue to grow substantially more than expected or earnings growth be distributed much more progressively, inequality may increase by much less, if at all.

4.   Poverty

Key findings

Absolute income poverty (using incomes measured after housing costs have been deducted – AHC) was 19% in 2016–17, down from 22% in 2011–12 and 2007–08.

Absolute poverty is defined as having AHC income less than 60% of the median AHC income in 2010−11 (e.g. £139 per week for a single adult with no children and £335 per week for a couple with two young children). The 2½ percentage point (ppt) reduction in absolute poverty since 2011–12 is broadly similar to the fall in absolute poverty that occurred in the five years prior to the recession and is mirrored in changes in material deprivation. However, recent reductions in poverty have been much slower than during the late 1990s and early 2000s.

Relative income poverty (measured AHC) has increased slightly over recent years, rising from 21% in 2011−12 to 22% in 2016−17.

While incomes of poorer households have been growing, they have not grown as fast as middle incomes since 2011–12. The longer-term picture is that overall relative poverty has been broadly flat (at around 21–22%) for the last 15 years – lower than the 25% seen in the mid 1990s, but above the levels of around 15% seen in the 1970s.

Increases in employment have been a key driver in recent reductions in absolute child poverty.

Absolute child poverty fell from 28% in 2011−12 to 26% in 2016−17, surpassing the 1ppt reduction that occurred in the five years preceding the recession. Over 40% of the reduction since 2011–12 is due to falls in worklessness for families with children and rising numbers living with two or more working adults in the household.

Since 2002−03, average housing costs have risen four times faster for children in low-income families than for those with middle incomes.

Between 2002−03 and 2016−17, real mean housing costs among households with children in the bottom 20% of the AHC income distribution rose by 47% (from £67 to £98), compared with an increase of 11% (from £58 to £64) among children in the middle income quintile. Changes in housing costs not covered by housing benefit have also been much higher for low-income children than for middle-income children.

Increasing social rents are a key driver of the large rise in average housing costs of low-income households with children.	Real mean housing costs among children in the bottom 20% of the (AHC) income distribution living in social rented housing rose by 35% from £64 in 2002–03 to £87 in 2016–17. Average housing costs not covered by housing benefit among this group rose from £21 to £41 over the period.
Marked increases in private renting among low-income households with children have also pushed up their average housing costs.	In 2002–03, 15% of children living in the poorest 20% of households lived in private rented accommodation, and this figure rose to 36% in 2016–17. This has pushed up average housing costs because private renting is the tenure with the highest housing costs. Mean housing costs among this group of private renters stood at £136 in 2016–17 (£92 net of housing benefit), in comparison with £115 (£53) in 2002–03.
Changes in housing costs have caused poverty rates measured before and after housing costs to diverge since 2002–03, especially for children.	In 2002–03, the relative AHC child poverty rate was 7ppts higher than relative BHC child poverty, whereas by 2016–17 this gap had widened to 11ppts. For at least three reasons (including the changes in housing tenure), AHC measures of poverty give a better indication of income poverty than BHC measures.

The previous chapters have examined living standards and inequality across the entire population. In this chapter, we focus specifically on individuals in low-income households by looking at the prevalence of income poverty and what explains recent changes in poverty rates.

There are several ways of measuring poverty. Throughout this chapter, we refer to two main measures that identify poverty based on individuals' household income. The first is the 'absolute poverty rate', which measures the fraction of the population who have a household income below a 'poverty line' level that is fixed in real terms. We follow the Department for Work & Pensions (DWP)'s official Households Below Average Income (HBAI) statistics in defining the absolute poverty line as 60% of median income in 2010–11. As with all income amounts referred to in this report, we uprate the absolute poverty line in line with a measure of inflation based on the Consumer Prices Index (CPI). The second income-based measure of poverty is the 'relative poverty rate'. This measures the fraction of individuals whose household income is lower than 60% of median income in the same year. Any real income rises among the poor will lead to falls in the rate of absolute poverty, but the income rises need to be faster than increases in median income for a reduction in relative poverty to be recorded.

Poverty rates can be calculated using either income before or after housing costs are deducted (BHC or AHC poverty respectively). Section 4.1 focuses on AHC poverty, which provides a much better indication of recent changes in the prevalence of those facing very low living standards.[13] In Section 4.2, we compare trends in AHC and BHC poverty and seek to explain what has been driving the gradual divergence between these different measures of poverty.

Whether measured before or after housing costs are deducted, incomes are adjusted ('equivalised') to account for differences in the size and composition of households, which means the level of the poverty line depends on household type. To give a sense of monetary amounts, in 2016–17 the absolute poverty line (after deducting housing costs) for a single person was £139 per week, while it was £335 for a couple with two young children. The relative poverty lines were £148 and £357 respectively. Table B.1 in Appendix B shows the weekly net household income that different-sized families would need to avoid being classified as in poverty under the different definitions.

The amount of pre-tax earnings necessary for a household to be classified as not in poverty will depend on individual circumstances that determine benefit entitlement and tax liability. For example, a single person living in private rented housing (paying the average rent among low-income single private renters) would need to earn around £330 per week (£17,200 per year) to be classified as not in absolute AHC poverty in 2016−17. A private-renting couple with two young children (paying the average rent among private renters of the same household type) would have to earn around £675 per week (£35,100 per year) if one adult worked, or around £265 per week each (£13,800 per year) if both adults worked.[14] Those with more or older children or with higher housing costs would have to earn more, and those with lower housing costs or fewer children would have to earn less, to be classified as not in poverty. This highlights that it is possible to earn well above the minimum wage and still be classed as in poverty, particularly for adults with several children.

Although the current absolute and relative poverty lines are similar, the two indicators provide different information about changes in the living standards of low-income households, particularly over time. For example, absolute poverty rises when the incomes of low-income people are falling in real terms, meaning that more people are living in households below the fixed (in real terms) poverty line. In contrast, relative poverty can rise even if the real incomes of low-income households rise, if median income rises faster than the incomes of low-income households.

It is useful to track how both relative and absolute poverty have changed over time. Because society's view about what is an acceptable standard of living evolves over time, we judge it particularly appropriate to use a relative poverty measure when looking at long-run trends. In the short run, however, there is less reason to think that social norms change in real time with year-to-year volatility in median income and there is often more interest in whether people are getting better or worse off in absolute terms. For these

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[13] A more in-depth explanation of why we focus on AHC poverty is provided in chapter 4 of Belfield et al. (2015).

[14] All three examples are assumed to live in Greater Manchester; place of residence determines entitlement to housing benefit.

reasons, we tend to focus on absolute poverty when looking at short-run trends and relative poverty when examining how poverty has changed over several decades.

Household income is clearly a major determinant of household living standards. However, other factors that influence living standards mean the link between deprivation and low household income is not perfect. For example, households might have different levels of essential costs (e.g. those associated with disability), and some might be able to maintain their living standards despite low incomes if they only temporarily have a low income. We therefore also examine 'material deprivation' as an alternative indicator of low material living standards. This material deprivation measure is calculated by asking families whether they can afford a range of items (e.g. warm winter coats for any children in the household) and activities (e.g. taking children to a regular leisure activity). A household is classified as materially deprived if it cannot afford a certain (weighted) number of these items.[15]

The main sections in this chapter are as follows. Section 4.1 analyses how poverty and material deprivation have developed over recent years and how the changes over this period of recovering average living standards compare with both those during the recession itself and pre-recession trends. Section 4.2 examines changes in housing costs and tenure among children in low-income households to explain why BHC and AHC child poverty rates have diverged over the last 15 years. Section 4.3 discusses the prospects for poverty in the coming years and Section 4.4 concludes.

4.1   Recent trends in poverty and deprivation

Figure 4.1 shows the absolute AHC poverty rate in the UK between 2002−03 and 2016−17 (the most recent year of data available), for the whole population and for major demographic groups.[16] Absolute poverty in the entire population fell slightly between 2015−16 and 2016−17, from 20% to 19% (although this change is not statistically significant). This is the lowest absolute poverty rate seen over the last 15 years and compares with 22% in both 2011−12 (the year that average living standards reached their post-recession low) and 2007-08 (the year immediately prior to the recession). The figure also highlights that absolute poverty rates differ substantially across different demographic groups. In 2016−17, 26% of children were in poverty, which is double the 13% poverty rate among pensioners.

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[15] Interested readers can find more details on the construction of these measures in chapter 6 of Cribb, Joyce and Phillips (2012) and chapter 5 of Belfield et al. (2015).

[16] We start in 2002−03 as this is the first year when the whole of the UK was included in the FRS data.

Figure 4.1. Absolute poverty rates (AHC) since 2002–03: overall and by demographic group
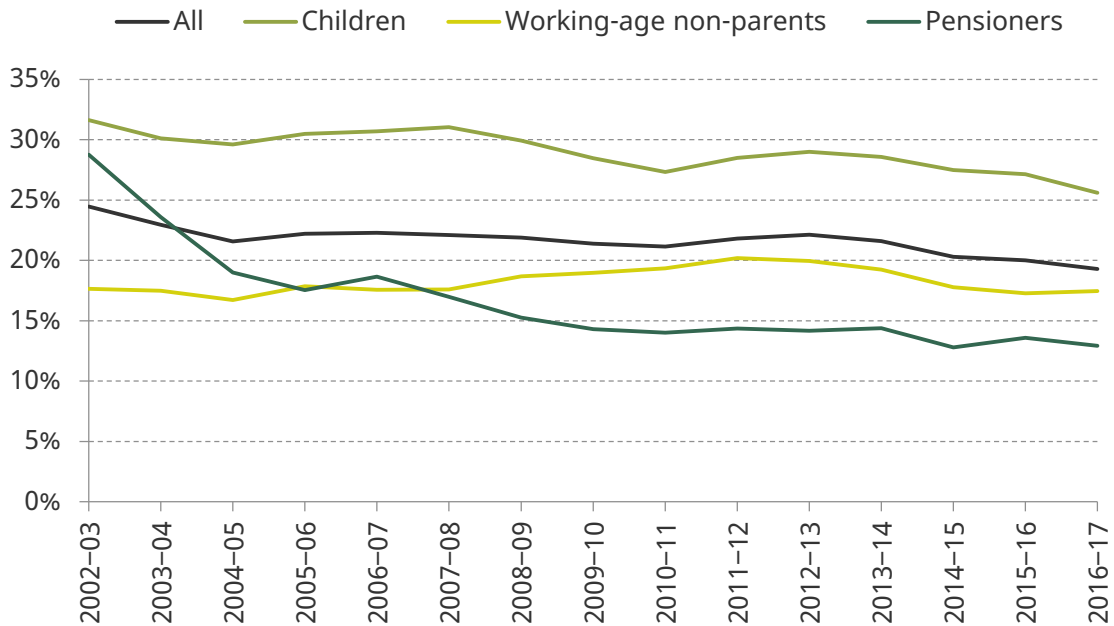
Note: The absolute poverty line is defined as 60% of median income in 2010–11. Incomes are measured after housing costs have been deducted. 'Working-age non-parents' is a shorthand for adults of working age who are not living in the same household as any of their dependent children.

Source: Authors' calculations using the Family Resources Survey, 2002–03 to 2016–17.

As discussed in Chapter 2, average living standards returned to positive growth in 2011−12 after falling in the years following the global financial crisis and subsequent recession. To show more clearly how absolute poverty has changed over this five-year recovery period, and how it has changed for different demographic groups, Figure 4.2 plots the percentage point (ppt) change in absolute poverty that occurred between 2011−12 and 2016−17. This shows that overall poverty declined by 2½ppts, with children and working-age adults without dependent children experiencing slightly greater reductions than the average for the whole population.

The figure also shows how reductions in absolute poverty over the most recent five years of data compare with the changes that occurred in the five years prior to the recession (2002−03 to 2007−08) and in the period during and immediately after the recession (2007−08 to 2011−12). The reduction in overall poverty between 2011−12 and 2016−17 was much larger than the reduction during the recession period (0ppt) and similar to that over the five years preceding the recession.

Perhaps the most striking point from Figure 4.2, however, is that the magnitude of recent falls relative to those that occurred in earlier periods differs substantially across demographic groups. Reductions in poverty among children and working-age adults without dependent children were greater between 2011−12 and 2016−17 than between 2002−03 and 2007−08, whereas the recent change in pensioner poverty is far smaller than the changes that occurred over the pre-recession period.

Figure 4.2. Changes in absolute poverty rates (AHC) by period: overall and by demographic group

Note: The absolute poverty line is defined as 60% of median income in 2010–11. Incomes are measured after housing costs have been deducted. 'Working-age non-parents' is a shorthand for adults of working age who are not living in the same household as any of their dependent children.
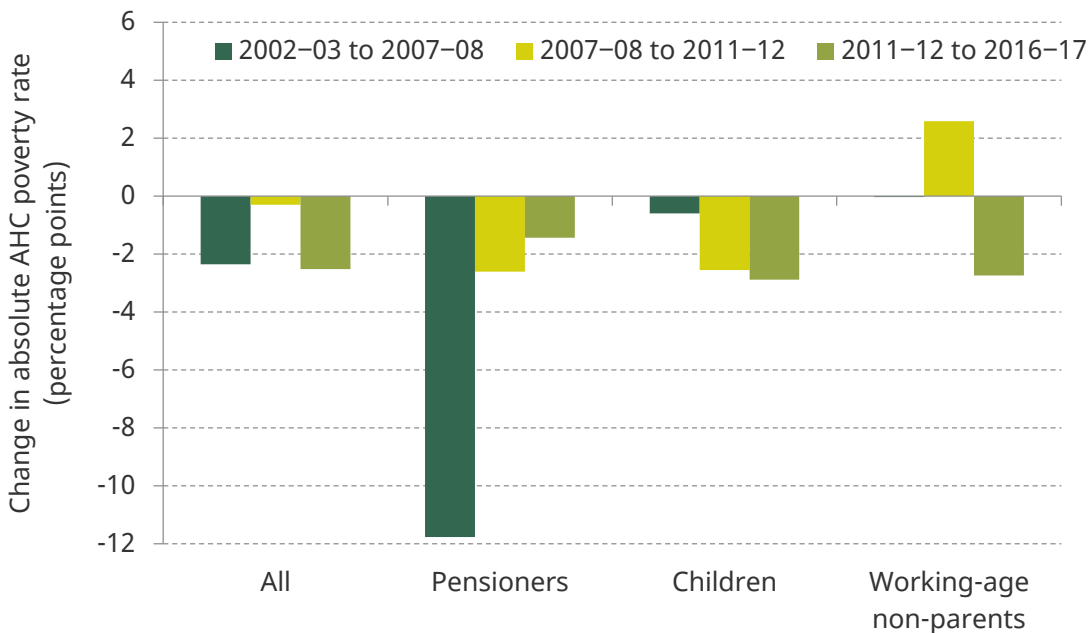
Source: Authors' calculations using the Family Resources Survey, various years.

To examine whether the recent reductions in absolute poverty are borne out by other measures of low living standards, Figure 4.3 shows how material deprivation among children and pensioners has changed since it was first measured in the FRS data (in 2004–05 for children and 2009–10 for pensioners).[17] In general, these trends mirror the recent changes in absolute poverty shown in Figures 4.1 and 4.2: material deprivation among children has fallen significantly in recent years from a high of 24% in 2012–13 to 18% in 2016–17, while material deprivation among pensioners has also fallen but by a more modest amount. Child material deprivation also moves in line with changes in absolute child poverty in the years before the recession, which provides confidence that income-based measures of poverty are a useful guide to trends in low material living standards.

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[17] This figure should be interpreted with particular care for two reasons. First, child and pensioner rates should not be compared as pensioners and working-age families with children are asked a different set of questions regarding what they can afford. Second, the methodology underlying the calculation of child material deprivation changed in 2010 (the material deprivation questions referred to a different set of items in 2009–10 and before), and therefore child material deprivation rates are not directly comparable before and after this date.

Figure 4.3. Child and pensioner material deprivation rates since 2004–05
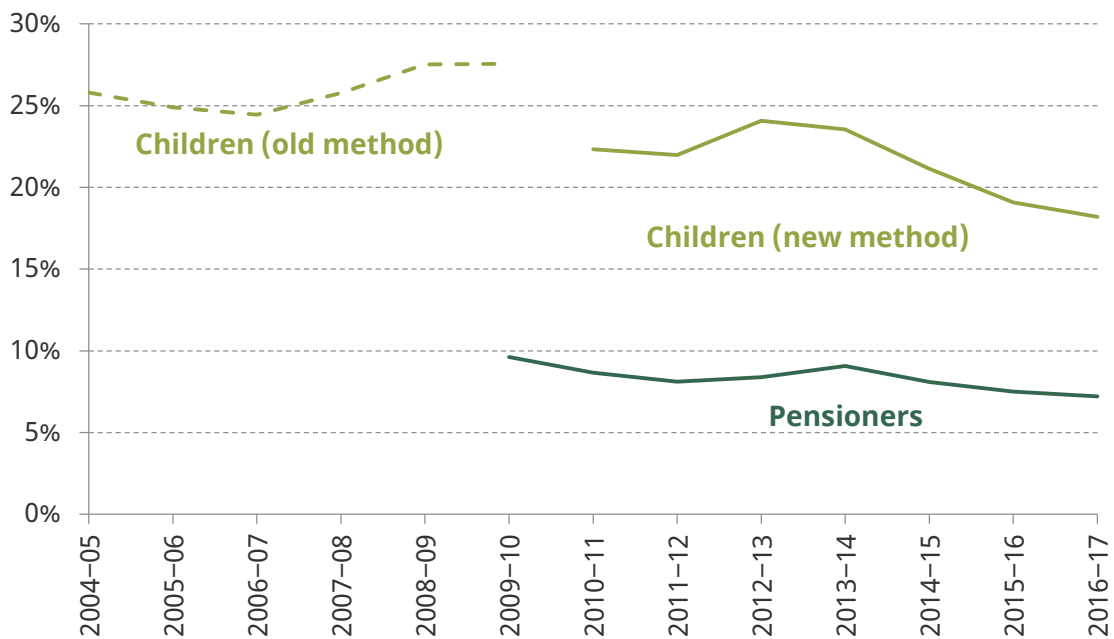
Source: Authors' calculations using the Family Resources Survey, 2004–05 to 2016–17.

Pensioner poverty

There are two key reasons why falls in pensioner poverty over recent years have been much smaller than the reductions during earlier periods. First, a substantial fraction of pensioners in 2002–03 had incomes only slightly below the poverty line. This is made clear in Figure 4.4, which shows the fraction of the pensioner population with a given level of household income (measured after deducting housing costs). For example, 9% of pensioners in 2002–03 had incomes that were £20 per week (in 2016–17 prices) below the absolute AHC poverty line, compared with only 4% in 2007–08 and 2011–12. This means that only quite modest income growth was needed to push the incomes of large numbers of pensioners over the poverty line in the period immediately after 2002–03. In contrast, in 2007–08 and 2011–12, there were many fewer pensioners with incomes just below the poverty line, for whom modest income growth might bring them above the poverty line.

Figure 4.4. Pensioner population share by real AHC income band
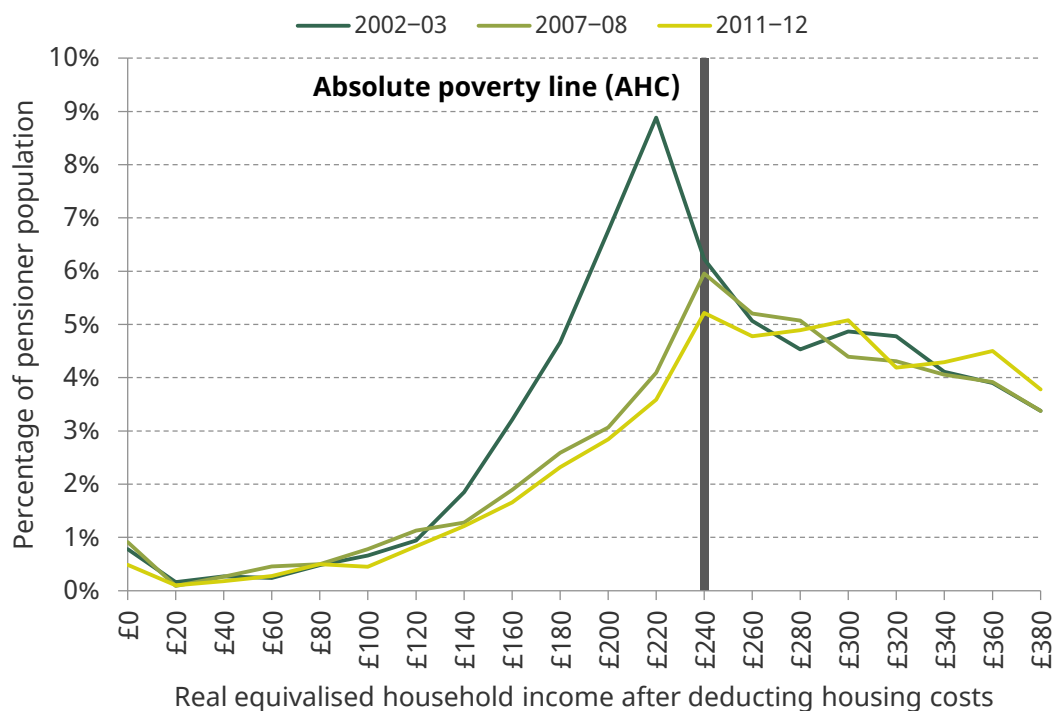
Note: The absolute poverty line is defined as 60% of median income in 2010–11. Negative incomes have been set to £0. AHC income bands have a width of £20. A pensioner is allocated to a particular income band if their AHC income is greater than or equal to the lower bound of the band and less than the upper bound of the band. The value on the horizontal axis gives the lower bound of each income band. The proportion with equivalised household income of at least £400 per week AHC is not shown.

Source: Authors' calculations using the Family Resources Survey, 2002–03, 2007–08, 2010–11 and 2011–12.

Second, income growth among low-income pensioners has slowed in recent years. Table B.2 in Appendix B shows that average income among the lowest-income 20% of pensioners grew by 1.4% between 2011–12 and 2016–17 in comparison with growth of 6.8% between 2007–08 and 2011–12 and 8.2% between 2002–03 and 2007–08. One important reason for the slower growth of AHC income for poorer pensioners since 2011 has been an increase in their housing costs. Average housing costs among low-income pensioners grew by almost 18% between 2011–12 and 2016–17, which suppressed income growth by 5.5ppts. Almost 70% of this increase in housing costs is due to rising social rents, which have caused mean housing costs of low-income pensioners in the social rented sector to grow by 19% in real terms, from £108 in 2011–12 to £129 in 2016–17. Although housing costs also grew during the earlier periods, these increases were much smaller and had a much less negative impact on income growth.

Child poverty

In contrast to the trends for pensioners, falls in child absolute poverty have been slightly larger since 2011–12 than in the period preceding the recession. One reason for this is that changes in child poverty are closely related to changes in the employment rate for children's parents. Figure 4.5 shows child absolute poverty rates by household work status alongside the fraction of children living in each household type. Table 4.1 quantifies how these trends have impacted the overall rate of child poverty over three periods. The table shows that the reduction in poverty between 2011–12 and 2016–17 was driven by two

main factors. First, falls in the fraction of children living in workless households and rises in the fraction living in households with more than one worker reduced child poverty by 1.2ppts. Second, falls in poverty among households containing one worker contributed a further 1.0ppt reduction in child poverty.

Table 4.1 shows that changes in the fraction of children living in the different household types also had a large poverty-reducing impact between 2007−08 and 2011−12, reducing absolute child poverty by 1.1ppts. This was accompanied by a sizeable reduction in poverty among workless households, which fell from 79% in 2007−08 to 70% in 2011−12 (as benefit and tax credit rates were increased substantially), although this was slightly offset by a small increase in poverty among households with more than one worker. By contrast, the only poverty-reducing factor over the 2002−03 to 2007−08 period was a reduction in poverty among workless households, which fell from 85% in 2002−03 to 79% in 2007−08. In other words, the reduction in child poverty during the run-up to the crisis was driven almost entirely by benefit increases, whereas since 2011−12 increases in employment have been a much more important factor.

These conclusions are supported by a similar decomposition exercise looking at child material deprivation (shown in Figure B.1 and Table B.3 in Appendix B), showing that the drivers of child material deprivation in recent years are similar to those for child absolute poverty.

Figure 4.5. Child absolute poverty (AHC) and population share by number of paid workers in the household
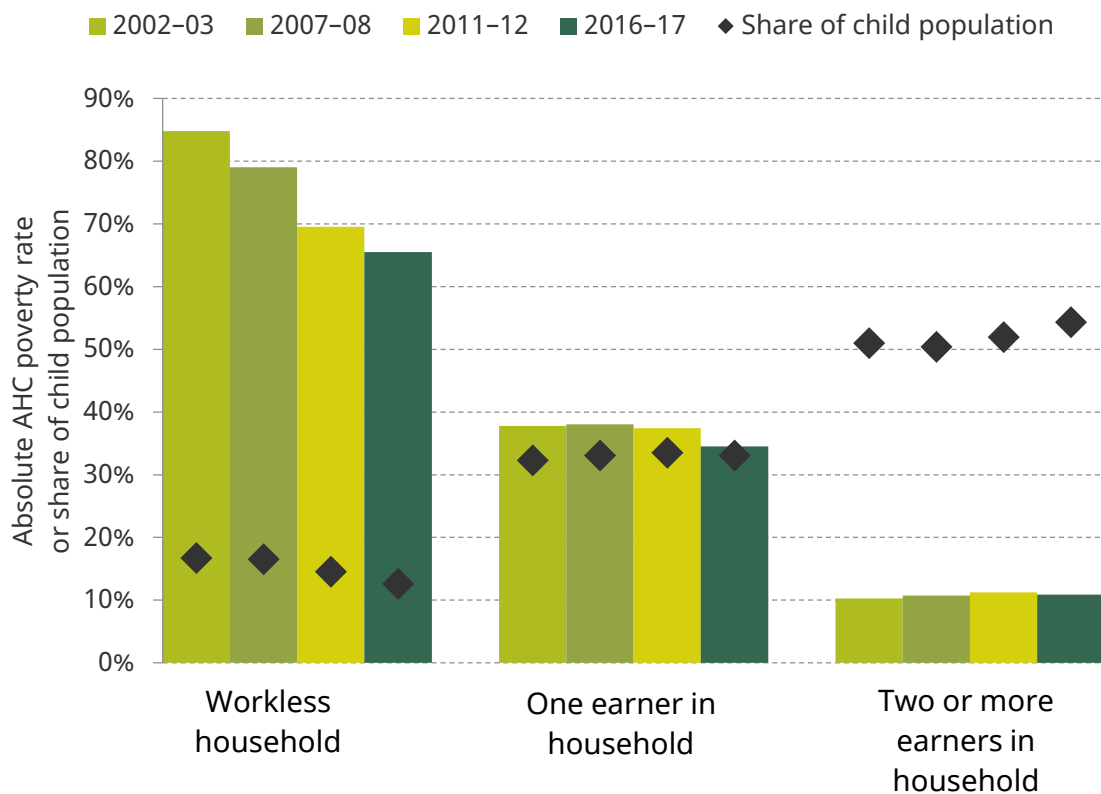
Note: The absolute poverty line is defined as 60% of median income in 2010−11. Incomes are measured after housing costs have been deducted.

Source: Authors' calculations using the Family Resources Survey, various years.

Table 4.1. Decomposition of change in child poverty (absolute AHC) by household work status

	Overall change in child poverty (ppts)	Change in child poverty rate (ppts) due to change in:			
		Workless household poverty rate	One-earner household poverty rate	Multi-earner household poverty rate	% of households with different numbers of workers
2002–03 to 2007–08	−0.6	−1.0	0.1	0.2	0.1
2007–08 to 2011–12	−2.5	−1.5	−0.2	0.3	−1.1
2011–12 to 2016–17	−2.9	−0.5	−1.0	−0.2	−1.2

Note: The absolute poverty line is defined as 60% of median income in 2010–11. Incomes are measured after housing costs have been deducted.

Source: Authors' calculations using the Family Resources Survey, various years.

Relative poverty

So far, we have focused on how absolute poverty has changed in recent years and how this compares with changes over the recession and the run-up to the recession. It is also important to place these recent trends in a longer-run context and look at changes in relative poverty, which is a potentially more sensible measure of poverty for making comparisons over several decades. Figure 4.6 plots the relative poverty rate (measured using AHC income) since 1961 in the population as a whole and among broad demographic groups. The figure shows relative poverty has increased since 2011–12, particularly among children and pensioners. This implies that while the incomes of low-income households have risen in real terms – as indicated by reductions in absolute poverty – they have grown more slowly than the average, particularly for households containing children and for pensioners.

The figure also highlights that relative poverty in the entire population has been remarkably stable over the most recent 15 years of data and, despite increasing slightly from 21% in 2013–14 to 22% in 2016–17, it remains below its pre-recession level and below the highs of the mid 1990s (around 25%). However, the steep rise in relative poverty that occurred during the 1980s (and the large increase in inequality discussed in Chapter 3) has not been unwound, with the result that relative poverty is still considerably higher than it was in the 1960s and 1970s.

The figure also shows that the comparison of recent trends in relative poverty with historical trends varies considerably across the different demographic groups. While increases in relative poverty since 2011–12 have been more marked among children and pensioners, these increases have taken child poverty close to immediate pre-recession levels (although still below levels of the mid 1990s) whereas pensioner poverty remains very low compared with earlier periods. By contrast, even though relative poverty among working-age adults without dependent children is lower than in 2011–12, relative poverty

among this group is high by historical standards, standing at 19% in 2016−17 compared with rates of around 15% in the 1990s.

Figure 4.6. Relative poverty rates (AHC) since 1961: overall and by demographic group (GB)
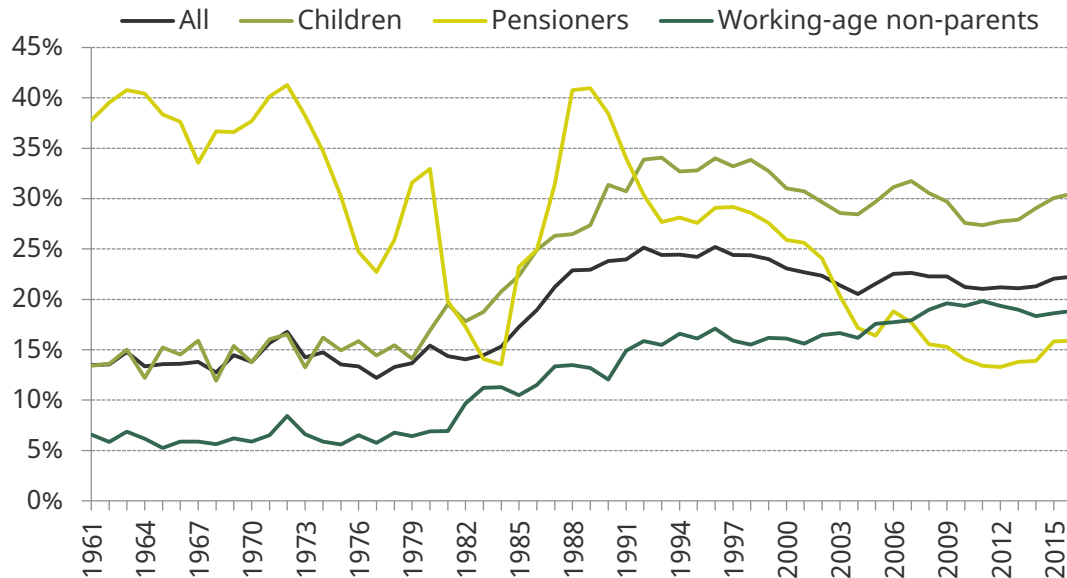
Note: The relative poverty line is defined as 60% of median AHC income in each year. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. 'Working-age non-parents' is a shorthand for adults of working age who are not living in the same household as any of their dependent children.

Source: Authors' calculations using the Family Expenditure Survey and Family Resources Survey, various years.

4.2 Measuring child poverty and the effects of changing housing costs

The analysis of income poverty so far has focused entirely on incomes measured after housing costs have been deducted ('AHC'). However, the existence of several different measures of poverty (including 'AHC' and 'BHC' measures) can make poverty statistics quite confusing. While different measures provide different information to those seeking to understand low living standards, the variety of measures available also raises the risk that different parties or individuals will choose to focus on the measure that most suits their particular agenda.

The choice of which poverty measure to use becomes particularly pertinent when poverty measures move in different directions. For example, Figure 4.7 shows that relative child poverty measured using BHC income fell by 3ppts between 2002−03 and 2016−17, whereas it rose by 1ppt when measured using AHC income. The measurement is particularly important because, under the Child Poverty Act 2010 which brought into law the Labour government's previous pledge to reduce child poverty from its levels in 1998−99,[18] there was a target for BHC child relative poverty to reach 10% by 2020. On the

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[18] See Brewer, Goodman and Shephard (2003).

BHC measure, a lot of progress was made – at least until 2013–14 – but on an AHC basis, there has been little overall change.

Figure 4.7. Relative AHC and BHC child poverty rates since 2002−03
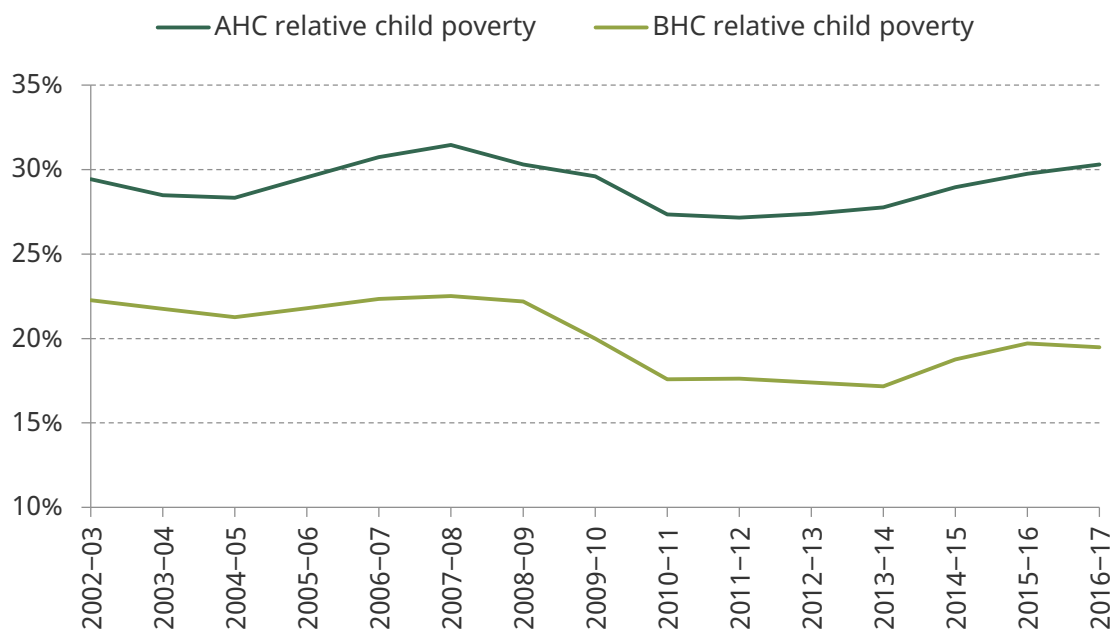
Note: The relative AHC/BHC poverty line is defined as 60% of median AHC/BHC income in each year.

Source: Authors' calculations using the Family Resources Survey, 2002–03 to 2016–17.

As a result of the trends shown in Figure 4.7, the gap between AHC and BHC relative child poverty has widened over time. This is made clearer in Figure 4.8, which shows the difference between AHC and BHC relative poverty overall and for different demographic groups. The difference between AHC and BHC relative poverty in the entire population grew from 4.4ppts in 2002−03 to 5.9ppts in 2016−17 and among children it grew from 7.2ppts to 10.8ppts. Drawing on these data, one could claim that either relative child poverty had fallen by 3% or risen by 1% between 2002−03 and 2016−17 (equal to 210,000 fewer or 340,000 more children in relative poverty). Given the political sensitivity of these statistics, it is therefore important to understand what has driven the differential trends and, based on this, which is the most appropriate poverty measure to use.

We address this question in this section, with a specific focus on child poverty because this is the group for which the AHC–BHC gap between poverty rates is greatest and for which that gap has grown the most. We also focus on relative poverty as the gap between AHC and BHC poverty rates has gradually grown over a 15-year period, although Figure B.2 in Appendix B shows that a similar divergence has occurred between absolute measures of AHC and BHC poverty.

Figure 4.8. Difference between relative AHC and BHC poverty rates since 2002–03: overall and by demographic group
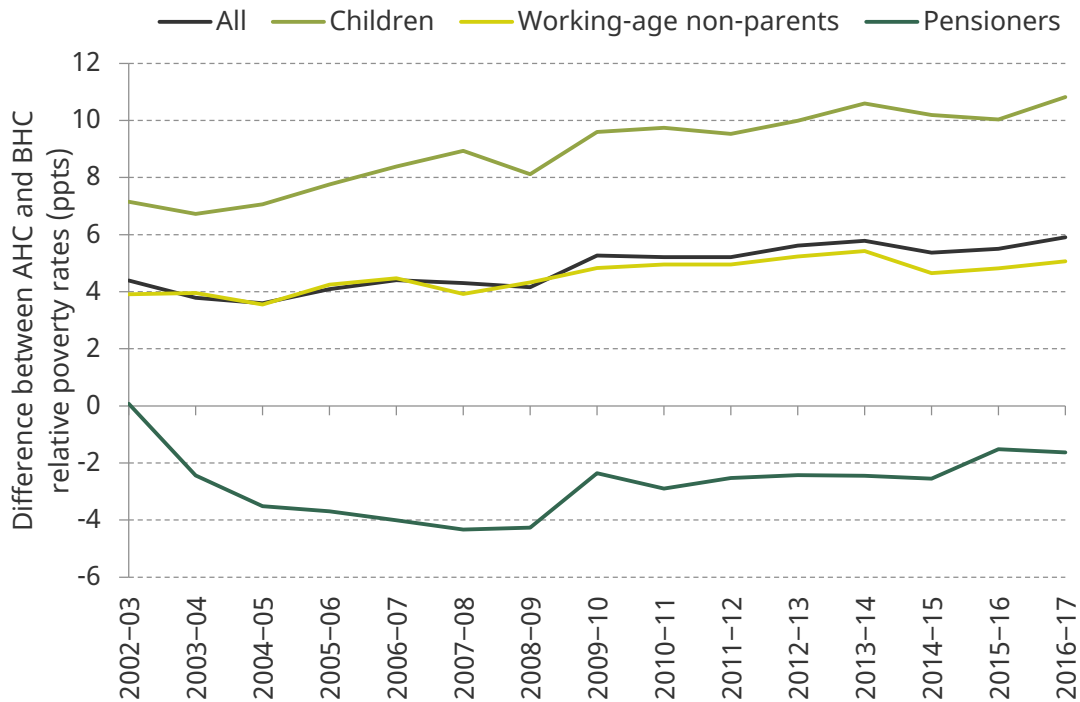
Note: The relative AHC/BHC poverty line is defined as 60% of median AHC/BHC income in each year. 'Working-age non-parents' is a shorthand for adults of working age who are not living in the same household as any of their dependent children.

Source: Authors' calculations using the Family Resources Survey, 2002–03 to 2016–17.

The fall in relative BHC child poverty implies that low-income households with children saw faster growth in their BHC income than middle-income households, whereas the rise in AHC relative poverty implies the reverse is true for growth in incomes after housing costs have been deducted. This means that changes in housing costs are key to understanding what has caused the different trends in AHC and BHC relative poverty.[19]

Specifically, the fact that relative AHC poverty has not fallen by as much as BHC poverty implies that low-income households with children have experienced faster increases in their total housing costs than average. This can be seen in Figure 4.9, which shows how 'real' (after adjusting for inflation in non-housing items) mean housing costs grew for each quintile (20%) of the AHC income distribution for families with children. Mean housing costs rose by 47% between 2002–03 and 2016–17 among children in the bottom 20% of the (AHC) income distribution – more than four times faster than the 11% increase among children living in households in the middle of the income distribution and over three times as fast as the 15% growth in the population as a whole. Children in the second

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[19] Although low-income renting households receive housing benefit to help meet their housing costs, housing benefit payments are counted as part of a household's total net income. This means that total housing costs are what matter for explaining the divergence between AHC and BHC poverty rates, rather than the portion of housing costs not covered by housing benefit.

AHC income quintile have also seen relatively large increases, with mean housing costs among this group increasing by 37% in real terms over the same period.

Figure 4.9 also shows how changes in three distinct periods (2002–03 to 2007–08, 2007–08 to 2011–12 and 2011–12 to 2016–17) have contributed to increases in housing costs. It shows that when housing costs increased for households with children on average (between 2002–03 and 2007–08 and from 2011–12 onwards) they increased at a relatively fast pace among low-income households with children, and when housing costs fell on average (between 2007–08 and 2011–12) they fell by less among low-income households with children.[20]

Figure 4.9. Change in real housing costs among children since 2002−03, by AHC income quintile
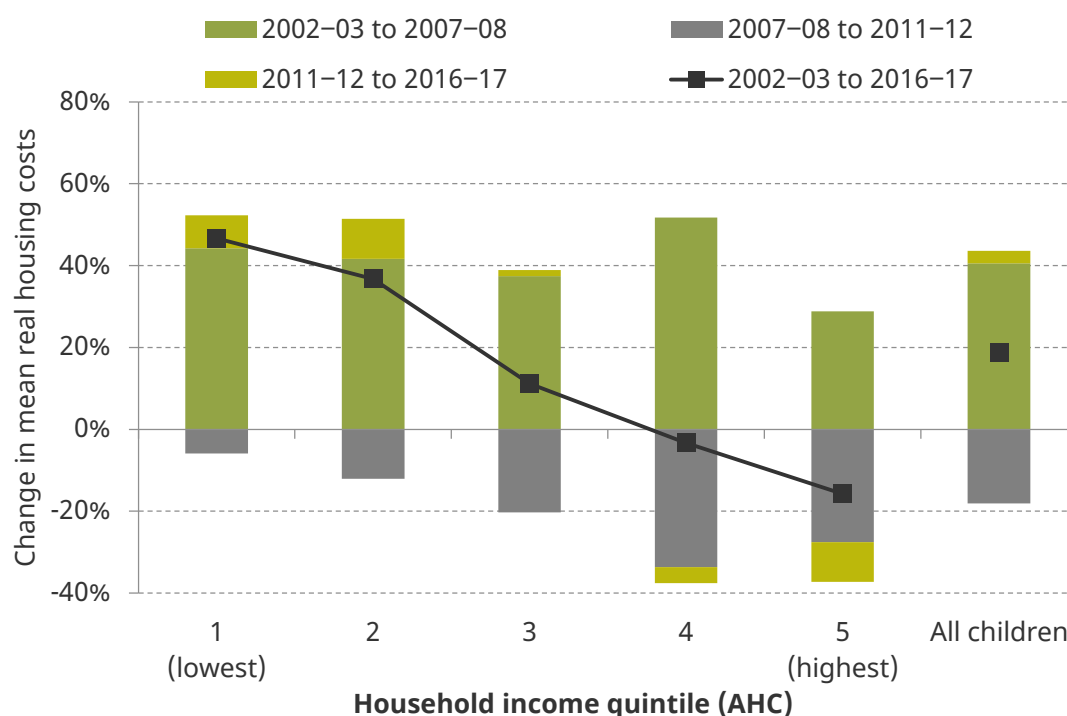
Note: Real housing costs are equivalised using the modified OECD before-housing-costs equivalence scale and deflated using an after-housing-costs deflator. Income quintiles are defined among the entire population using income after housing costs have been deducted.

Source: Authors' calculations using the Family Resources Survey, 2002–03, 2007–08, 2011–12 and 2016–17.

Why have lower-income households with children seen such large increases in real housing costs? To answer this question, it is important to understand how housing tenure is related to income among households with children, and how this has changed over time. Figure 4.10 plots the fraction of children living in different types of accommodation in 2002–03 and 2016–17 for each income quintile.

There are three key facts about the tenure of children in low-income households:

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[20] Figure B.3 in Appendix B shows a similar pattern for changes in housing costs net of housing benefit.

- First, they are much more likely to live in social rented housing than children in middle-income or high-income households.

- Second, they are less likely to live in owner-occupied housing than children in middle- or high-income households.

- Third, the increase in the number of children living in private rented housing has been largest for those with the lowest incomes. Between 2002−03 and 2016−17, the fraction of children in private rented housing increased from 15% to 36% among the lowest income quintile, from 7% to 27% in the second income quintile and from 4% to 16% in the middle income quintile.

Figure 4.10. Housing tenure composition of children in 2002−03 and 2016−17, by AHC income quintile
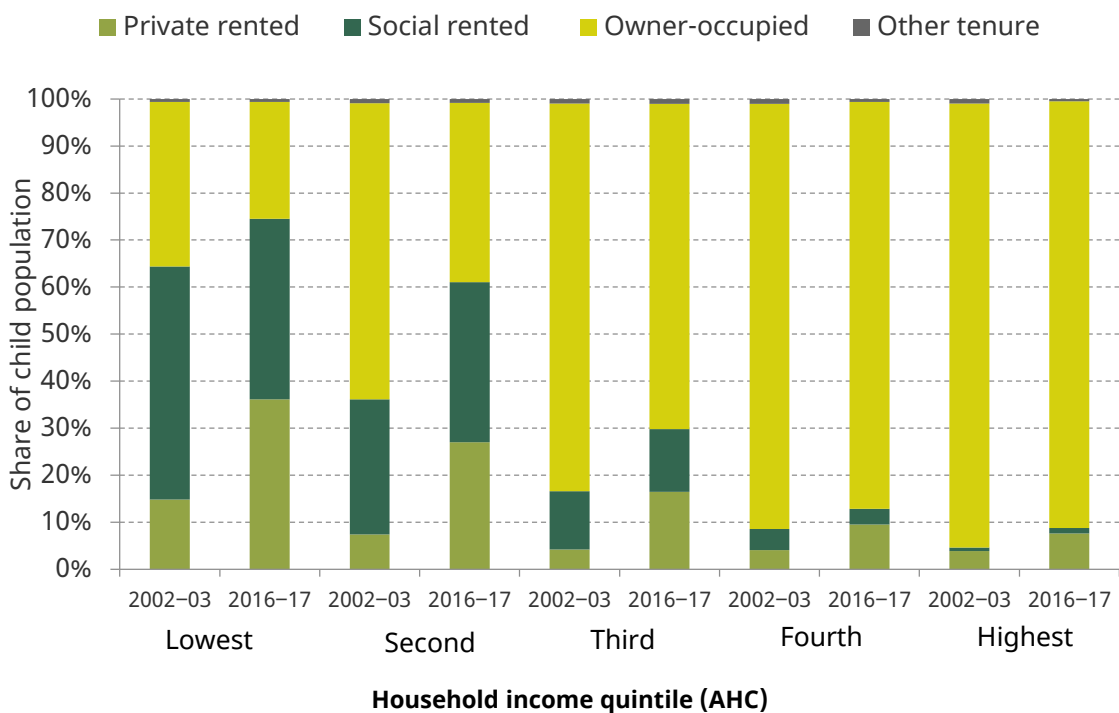
Note: Income quintiles are defined among the entire population using income after housing costs have been deducted.

Source: Authors' calculations using the Family Resources Survey, 2002−03 and 2016−17.

These three observations help to explain the relatively high housing cost growth that has occurred among low-income households with children, because housing costs differ between tenures and have followed different trajectories over the last 15 years. This is illustrated in Figure 4.11, which shows that between 2002−03 and 2016−17, real average housing costs increased by 20% among private renters and 34% among social renters, whereas they fell by 14% among owner-occupiers due to large reductions in mortgage

interest rates between 2008 and 2010.[21] Children in low-income households are concentrated in the two sectors where costs grew most.

Figure 4.11 also shows that average housing costs are considerably higher among private renters than among social renters or owner-occupiers. For example, in 2016–17, average housing costs were £135 for households with children in private rented housing, £84 for those in social rented housing[22] and £55 for those in owner-occupied housing.[23] This means that the more pronounced shift towards the private rented sector that has occurred among low-income households with children will have acted to increase their average housing costs.

Figure 4.11. Mean real housing costs for families with children since 2002–03 by housing tenure
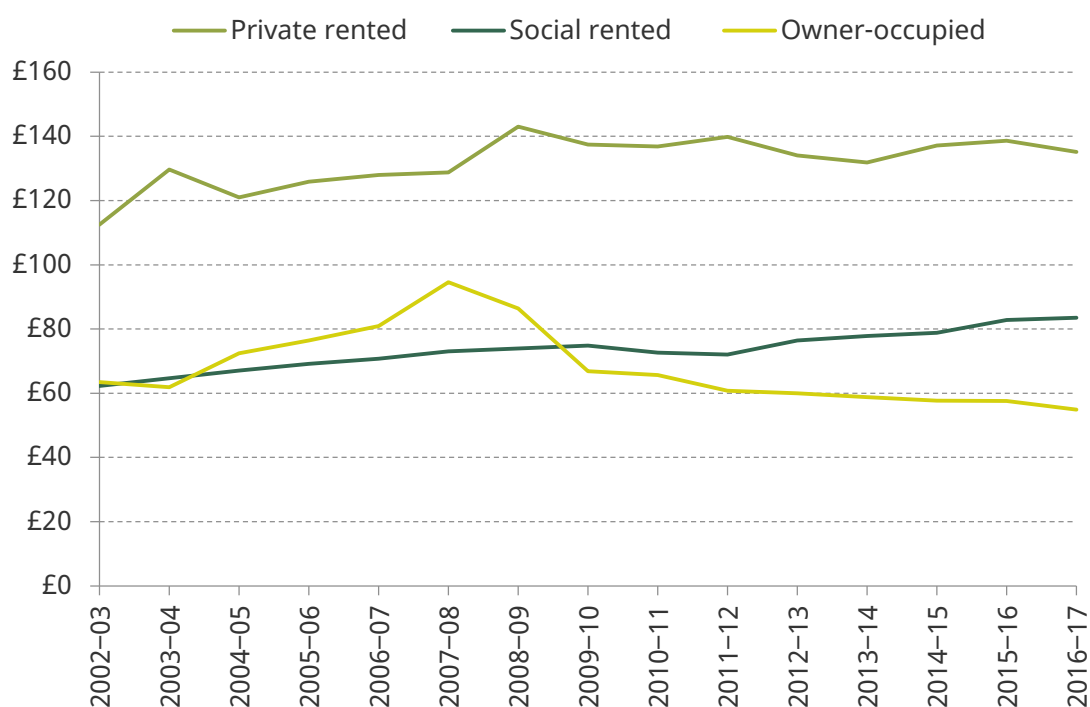
Note: Real housing costs are equivalised using the modified OECD before-housing-costs equivalence scale and deflated using an after-housing-costs deflator.

Source: Authors' calculations using the Family Resources Survey, 2002–03 to 2016–17.

[21] Real mean housing costs net of housing benefit increased over the same period by 59% among children in social rented housing and by 40% among children in private rented housing. Owner-occupiers are not eligible for housing benefit and therefore the change in mean housing costs net of housing benefit among owner-occupiers is the same as the change in their total housing costs.

[22] The equivalent figures for housing costs net of housing benefit are £102 for children in private rented housing and £45 for children in social rented housing.

[23] Owner-occupied housing costs include mortgage interest payments but not repayment of the capital value of the mortgage. This is because the capital value repayment involves the purchase of an asset and is therefore essentially a form of saving rather than a housing cost. Mortgage interest repayments, on the other hand, do not lead to any asset accumulation and are therefore analogous to private and social rents.

Table 4.2 shows how the interactions between changes in tenure and changes in housing costs within each tenure have impacted average housing costs among children in each income quintile. It shows that 40% of the rise in housing costs (19ppts of the overall 47% increase) within the bottom income quintile is due to the changes in housing tenure. Changes in tenure are even more important in the second income quintile, accounting for nearly three-quarters of the 37% increase in mean housing costs. Rising social rents have also played an important role in increasing the housing costs of low-income families with children: real mean housing costs among children in the lowest-income 20% of households and living in social rented housing increased by 35% from £64 in 2002−03 to £87 in 2016−17 (net of housing benefit they rose from £21 to £41).[24] By contrast, falling costs for owner-occupiers have reduced housing costs for high-income families with children.

Table 4.2. Decomposition of change in mean housing costs between 2002−03 and 2016−17, by tenure and AHC income quintile

AHC income quintile	Overall change in mean housing costs (%)	Percentage point change in housing costs due to change in:				
		Social rented costs	Private rented costs	Owner-occupied costs	Other housing tenure costs	Housing tenure composition
1	47%	15	8	5	1	19
2	37%	11	8	−9	0	27
3	11%	5	5	−13	0	14
4	−3%	2	7	−17	0	5
5	−16%	0	0	−20	0	4

Note: Real housing costs are equivalised using the modified OECD before-housing-costs equivalence scale and deflated using an after-housing-costs deflator.

Source: Authors' calculations using the Family Resources Survey, 2002−03 and 2016−17.

To see the importance of changes in tenure directly, Figure 4.12 shows the actual gap between relative AHC and BHC poverty alongside two 'counterfactual' scenarios. The first scenario keeps the AHC and BHC poverty rates for each housing tenure (social rented, private rented, owner-occupied and other tenure) at their 2002−03 level but allows the tenure composition of households with children to change. The second scenario keeps the housing tenure composition of the child population the same as it was in 2002−03 but allows poverty rates within each tenure group to change. This exercise reveals that changes in the relative sizes of the social rented, private rented and owner-occupied sectors entirely explain the growing gap between relative AHC and BHC child poverty.

[24] For comparison, real mean housing costs among children in the lowest-income 20% of households and living in private rented housing increased by 18% from £115 in 2002−03 to £136 in 2016−17 (net of housing benefit they rose from £53 to £92), whereas among children in the lowest-income 20% of households and living in owner occupied housing they increased by 20% from £52 in 2002−03 to £62 in 2016−17.

Figure 4.12. Difference between relative AHC and BHC child poverty rates since 2002–03: actual and counterfactuals
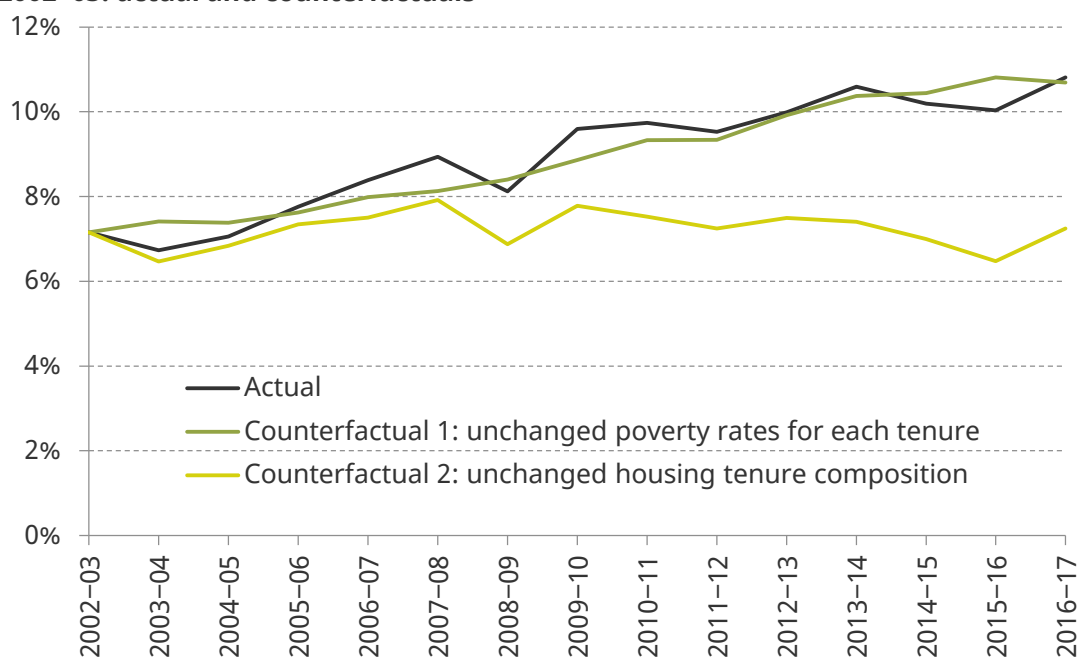
Note: The relative AHC/BHC poverty line is defined as 60% of median AHC/BHC income in each year. The Counterfactual 1 gap is calculated by fixing tenure-specific child poverty rates at their 2002–03 levels and allowing the fraction of children living in each tenure group to change as observed in the data. The Counterfactual 2 gap is calculated by fixing the fraction of children living in each tenure group at the 2002–03 levels and allowing the tenure-specific child poverty rates to change as observed in the data.

Source: Authors' calculations using the Family Resources Survey, 2002–03 to 2016–17.

Child poverty and housing costs in the UK's regions and nations

Given that there are large differences in housing costs across the UK, it is interesting to see to what extent changing housing costs have affected measures of poverty across the nations and regions of the UK. Table 4.3 shows that relative child poverty measured using both AHC and BHC income varies across the regions and nations of the UK (ranked according to the change in the gap between AHC and BHC poverty between 2002–03 to 2004–05 and 2014–15 to 2016–17).[25] The table shows that while relative AHC child poverty in the UK as a whole was 30% over the 2014–15 to 2016–17 period, it ranged from a low of 24% in Scotland to a high of 37% in London. The table also shows that AHC and BHC child poverty have diverged in all regions and nations of the UK since the 2002–03 to 2004–05 period, as relative AHC child poverty has either fallen by less or increased by more than relative BHC child poverty.

Relative AHC and BHC child poverty rates have generally diverged by more in regions where average housing costs among children in low-income households have grown relatively fast. In London, for example, the gap between relative AHC and BHC child poverty increased by 7ppts between 2002–2004 and 2014–2016, with mean housing costs among children in low-income households increasing by 43% over the same period. In Northern Ireland, by contrast, mean housing costs among children in low-income

[25] In this subsection, we consider poverty rates over three-year periods to ensure adequate sample sizes within each region and nation and to overcome survey volatility.

households increased by 13% between 2002–2004 and 2014–2016 and the AHC–BHC gap increased by only 1ppt.[26]

Table 4.3. Relative AHC and BHC child poverty rates and real mean housing costs among children in low-income households in 2002–2004 and 2014–2016 by UK region and nation[a]

	Relative child poverty (2002–2004)		Relative child poverty (2014–2016)		Real mean housing costs among children in 'low-income' households	
	AHC	**BHC**	**AHC**	**BHC**	**2002–2004**	**2014–2016**
UK	29%	22%	30%	19%	£69	£90
London	39%	26%	37%	17%	£100	£143
North East	34%	31%	33%	24%	£52	£69
West Midlands	31%	25%	34%	24%	£55	£73
Wales	31%	25%	28%	19%	£54	£73
East Midlands	28%	23%	29%	22%	£60	£71
North West	30%	24%	32%	23%	£57	£71
East of England	23%	15%	26%	16%	£77	£97
South East	22%	13%	26%	15%	£94	£113
Scotland	26%	23%	24%	19%	£56	£71
Yorks and the Humber	30%	25%	30%	23%	£56	£66
Northern Ireland	26%	25%	26%	23%	£45	£50
South West	26%	17%	25%	15%	£73	£93

[a] Regions and nations are ranked according to the change in the gap between AHC and BHC poverty between 2002–03 to 2004–05 and 2014–15 to 2016–17.

Note: Years refer to financial years. The relative AHC/BHC poverty line is defined as 60% of median AHC/BHC income in each year. Real housing costs are equivalised using the modified OECD before-housing-costs equivalence scale and deflated using an after-housing-costs deflator. 'Low-income' is defined as being in the lowest-AHC-income 30% of the entire UK population.

Source: Authors' calculations using the Family Resources Survey, various years.

Figure 4.13 shows that, as in the UK as a whole, the majority of the divergence between relative AHC and BHC child poverty across the UK's regions and nations is due to changes in the fraction of low-income children living in different tenures. The figure plots the actual divergence in relative AHC and BHC child poverty in each region and nation between 2002–2004 and 2014–2016 alongside the divergence that would have occurred if the fraction of children living in each housing tenure had remained unchanged since 2002–2004. This shows that the increase in the gap between relative AHC and BHC child poverty in each part of the UK would have been substantially smaller had there been no change in the types of housing that children live in. In some regions, the gap between

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[26] These figures are derived using unrounded average housing costs and AHC and BHC poverty rates and therefore differ slightly from those implied by the statistics shown in Table 4.3, which have been rounded.

relative AHC and BHC child poverty would actually have narrowed had housing tenure not changed.[27]

Figure 4.13. Change in gap between relative AHC and BHC child poverty rates, 2002–2004 to 2014–2016, by UK region and nation
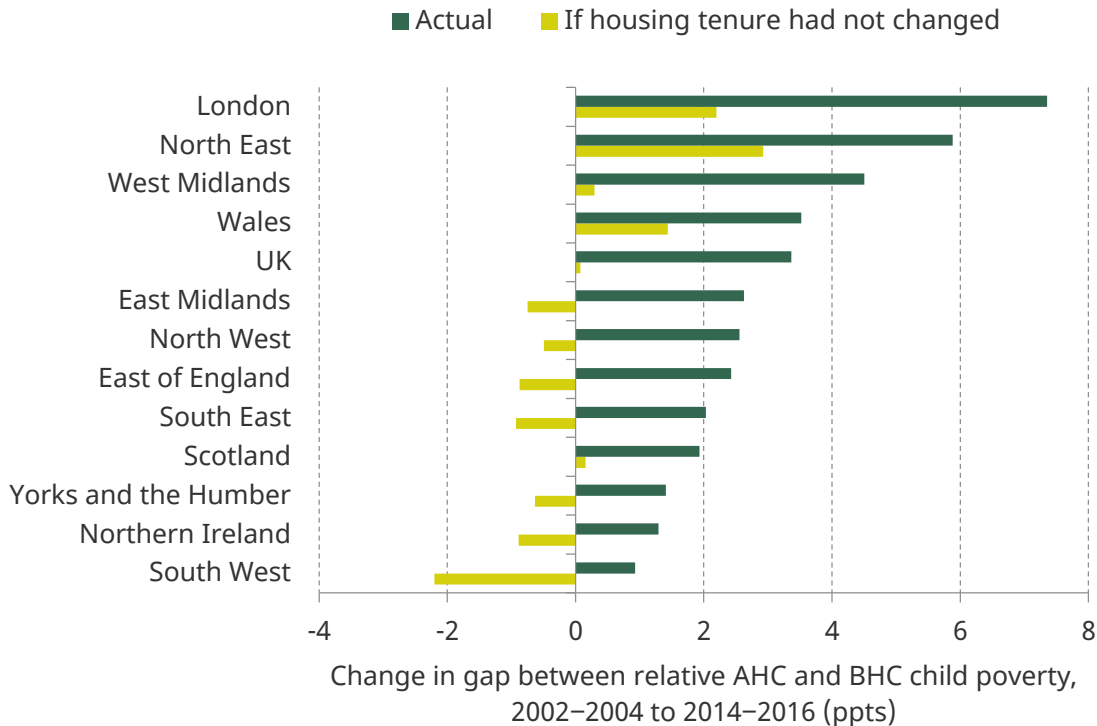
Change in gap between relative AHC and BHC child poverty, 2002−2004 to 2014−2016 (ppts)

Note: Years refer to financial years. The relative AHC/BHC poverty line is defined as 60% of median AHC/BHC income in each year. The gap in 2014–2016 under the 'fixed tenure' scenario is calculated by fixing the fraction of children living in each tenure group in each region at the level in 2002–2004 and allowing child poverty rates within each tenure and region to change as observed in the data.

Source: Authors' calculations using the Family Resources Survey, various years.

Implications for measuring poverty

Given the divergence in AHC and BHC measures of poverty, not only nationally but in all regions and nations of the UK, this raises the question of which measure should be used to look at trends in poverty. The answer is almost certainly that one should look at incomes after housing costs. The specific reasons for this are as follows:

- First, housing benefit is counted as part of BHC income, which means that increases in housing costs that are met by increases in housing benefit can act to reduce BHC

[27] Table B.4 in Appendix B shows how mean housing costs among low-income households with children would have changed in each region and nation of the UK if the fraction of low-income children living in each tenure (social rented, private rented, owner-occupied and other) had remained fixed at the level in 2002–2004. The table shows that in each part of the UK, real mean housing cost growth among low-income households with children is far lower under this scenario than the growth that actually occurred. In some parts of the UK, average housing costs of low-income households with children would have grown by *less* than average growth in the entire population (10%) if there had been no change in their tenure composition. These are the regions and nations in Figure 4.13 where the AHC–BHC gap narrows under the counterfactual 'fixed tenure' scenario.

poverty without any change in the material living standards of low-income households.

- Second, falls in mortgage interest payments since the recession have boosted the real value of BHC incomes (by lowering prices on average), even though in reality this change has only benefited owner-occupiers with mortgages.

- Third, changes in housing tenure have led to relatively fast growth in housing costs among low-income households compared with the average. These changes are likely to have reduced the material living standards of low-income households – they largely reflect reduced availability of social housing and increased difficulty buying a house, rather than any changes in households' preferences over housing or improvements in its quality. Yet they are overlooked in BHC measures of income poverty.

4.3   Prospects for income poverty

How is poverty likely to change over the coming years? As with the prospects for living standards or inequality discussed in previous chapters, it is hard to say how poverty will change in coming years, partly due to great uncertainty over changes in the macroeconomy and the labour market.

However, several working-age benefit reforms will suppress the incomes of low-income households in the coming years. Since the data analysed in this chapter have been released, the ongoing 'benefits freeze', which keeps the value of most working-age benefits fixed in cash terms, has already reduced the real value of affected benefits by 1% between 2016−17 and 2017−18, with further reductions of 5% expected between 2017−18 and 2019−20.[28] In addition, the 'two-child limit', which limits child elements in tax credits and universal credit to the first two children, will begin to affect more families (as the policy only applies to new claimants or to existing claimants with children born after the policy was introduced in April 2017).

On the other hand, in coming years, the Office for Budget Responsibility (OBR) also expects some modest growth in earnings for employees (although this comes after falls in average *real* earnings in 2017–18), boosting the incomes of working households. Further increases in the National Living Wage are likely to lead to relatively faster earnings growth among low-wage workers (though many low-wage workers live in middle- or even high-income households). These factors will act to reduce absolute poverty. Less positively, the OBR expects little employment growth in the coming years and – as shown in this chapter – rising employment has been a key reason for lower absolute poverty in recent years.

Hood and Waters (2017b), using OBR forecasts from March 2017, projected overall absolute (AHC) poverty would remain essentially unchanged between 2016–17 and 2021–22, although absolute child poverty would increase by around 4 percentage points, primarily due to the planned benefit reforms. However, these projections can be wrong, and have been in the past, as the economy has changed in different ways from expected. The OBR forecasts for inflation, earnings and employment are key areas of uncertainty.

[28] See supplementary economy table 1.7 of the Office for Budget Responsibility's March 2018 Economic and Fiscal Outlook.

If absolute poverty did stay flat overall and rise for children, low-income households would be likely to fall behind middle-income households, leading to increases in relative poverty – though this too will depend on how the economy evolves and, in particular, how fast earnings grow.

4.4   Conclusion

Between 2011−12 and 2016−17, absolute poverty (measured using income after deducting housing costs) fell by 2½ percentage points to 19%, which is broadly similar to the reduction that occurred in the five years prior to the recession. Growth in employment over this period caused absolute child poverty to fall by 3 ppts to 26%, surpassing falls seen in the pre-recession period. Reductions in pensioner poverty have been more modest. However, pensioners are still considerably less likely to be in poverty than other demographic groups after accounting for housing costs, with their 2016−17 absolute poverty rate standing at 13%.

While the incomes of low-income households have risen in real terms over recent years – as indicated by reductions in absolute poverty – they have grown more slowly than the average. As discussed in Chapter 3, benefit cuts are a key factor that has dragged down income growth among low-income households. As a result, relative (AHC) poverty has increased slightly, from 21% in 2011−12 to 22% in 2016−17, with relative poverty among children rising more quickly, from 27% to 30% over the same period. Relative poverty in the entire population has been broadly flat for the last 15 years and remains below the levels seen in the mid 1990s but well above the levels of the 1960s and 1970s.

We have examined in more detail one confusing aspect of the measurement of poverty in recent years. AHC and BHC poverty rates have diverged gradually, particularly for families with children. This can cause some confusion, meaning that interested parties can claim that evidence shows falling or rising relative poverty, depending on which measures they choose. There are several reasons why AHC measures give a better indication of trends in the material living standards of low-income households than BHC measures, and the fact that the recent divergence in AHC and BHC measures has been driven by changes in housing tenure adds further support to this case.

5. Poverty among working-age adults in poor health

Key findings

Between 2007–08 and 2016–17, government spending on working-age health-related benefits rose by 18% in real terms.

At the same time, there has been gradual growth in the proportion of 25- to 54-year-olds with a long-standing illness (one lasting at least 12 months), which reached 26% in 2016–17. Recent increases have been driven by more people reporting mental health conditions.

The employment gap between people with and without a long-standing illness varies substantially by education.

In 2016–17, 70% of 25- to 54-year-olds with a long-standing illness were in paid work, compared with 88% of those without – a gap of 18 percentage points (ppts). But this gap is 10ppts for those who left education at or after age 18 and 24ppts for those who left education earlier. In fact, high-education people with a long-standing illness have an employment rate only 8ppts below that of healthy low-education people.

People aged 25–54 with long-standing mental health problems have particularly poor labour market outcomes.

Only 53% of those with a long-standing mental health problem are in employment, compared with 70% of all individuals with a long-standing illness and 88% of those without one. The average weekly pay for those in work with mental health problems is 13% and 23% below the average for all unwell and healthy individuals respectively. People with mental health issues are also on average significantly younger than those with another long-standing illness.

Those with a long-standing illness are much more likely to have been out of work for a long time.

Around a quarter of 25- to 54-year-olds with a long-standing illness have been out of work 'long-term' (i.e. for at least three years), compared with 7% of healthy people. The difference is particularly large for men: almost three-quarters of long-term workless men (aged 25–54) are in ill health and about a quarter have mental health problems.

Income poverty rates are higher for those in poor health, but these do not tell the whole story. Ill people are even more likely to be in persistent poverty and material deprivation.

People aged 25–54 with a long-standing illness are about 50% more likely to be in relative income poverty than healthy 25- to 54-year-olds (18% versus 12%). But this is highly likely to understate the difference in their living standards, since illness and disability can lead to higher costs of living. In addition, ill people are about 70% more likely to be on a persistently low income (10% versus 6%) and are nearly twice as likely to be 'materially deprived' (32% versus 17%).

As well as having low employment rates, people with mental health conditions are particularly likely to have low living standards.

Those with a mental health condition have considerably higher poverty and material deprivation rates than the unwell population at large. This is especially true for those with at least one other condition, who are more than three times as likely to be materially deprived as the healthy population (56% versus 16%).

In Chapter 2, we discussed recent trends in average living standards, and how these vary by several demographic groups. In this chapter, we analyse how living standards differ between those with and without long-standing health problems. There are many ways in which health and living standards may interact. First, poor health may reduce an individual's living standards as they have to spend more money on goods or services to mitigate the impact of their health condition. Second, poor health may restrict the amount of paid work that an individual may do (if they can do any at all), or restrict the type of work that they can do, reducing their earnings. Third, being on a low income may itself worsen certain health problems. Fourth, poor health and low incomes might both be caused by similar factors, such as low educational qualifications. Fifth, being unwell may directly reduce someone's living standards in a broad sense, even if it does not affect their material standard of living. For all of these reasons, one might expect the living standards of those in poor health to be lower than those of the general population.

These issues are of increasing policy interest for (at least) three reasons. First, as is shown below, spending on benefits related to health has become an increasingly large share of working-age benefit expenditure and is expected to continue to grow significantly. Second, long-term sickness or disability is the second most common reason for 25- to 54-year-olds to be out of work (after looking after family) and is (now) a significantly more important reason than simply being unable to find a job despite searching for one (i.e. 'unemployed' according to the technical definition). Third, the government has set a target to halve the gap in the employment rate between those with a disability and those without (Department for Work & Pensions and Department of Health & Social Care, 2017).

In the analysis in this chapter, we focus on a group that is often termed 'prime-working-age' individuals – those aged 25–54. This is partly because determinants of living standards for retired people are quite different from those for working-age individuals. Further, the decision over when to retire is itself likely to be influenced by health (e.g.

French, 2005). This is an important issue in its own right, but a rather different one. Younger adults (18–24) are relatively unlikely to have a health condition, and again the determinants of their living standards are rather different from those for people of 'prime working age', since many are still in full-time education or live with parents.

As in the other chapters, we rely primarily on data from the Family Resources Survey, though we also use information from the Labour Force Survey and Understanding Society surveys too. In all these surveys, the main measure of ill health that we use is whether the individual reports having a physical or mental health condition that has lasted or is expected to last at least 12 months. This is to some extent a subjective measure, and individuals may differ on precisely what constitutes a 'physical or mental health condition'. We refer to this measure as having a 'long-standing illness' (though some 'physical and mental health conditions' – such as being blind or deaf – may not technically be 'illnesses'). While there are multiple ways of measuring whether individuals are in poor health, analysis of a range of other measures of health, including self-reported assessments of health and reporting a disability, showed similar patterns across demographic groups and employment statuses, suggesting that our findings are not specific to one particular measure of health.

It is important to note that the 'long-standing illness' measure that we use is different from the 'disability' measure that the government's employment gap targets.[29] An individual is defined as disabled if they have a long-standing illness *and* that illness reduces their ability to carry out day-to-day activities. In terms of the impact on employment, the disability measure is arguably more relevant since it attempts to capture whether or not the condition limits day-to-day activities. However, it is possible that people with the same health condition might report that it affects their day-to-day life differently based on their other circumstances. For example, when answering the survey, people who are out of work might report that their health condition affects their day-to-day life more than if they were in work, as a justification for being out of work. In addition, while some government statistics (e.g. 'disabled' poverty rates in the HBAI data) refer to people living in a family where someone is disabled, we focus purely on the outcomes of those individuals with a long-standing illness, rather than anyone living in a family where someone has a long-standing illness.

The remainder of this chapter proceeds as follows. Section 5.1 looks at trends in the frequency of poor health and in spending on health-related benefits. Section 5.2 analyses the characteristics of 25- to 54-year-olds in poor health, including the illnesses they suffer from, and Section 5.3 examines their labour market outcomes and how they differ from those of the healthy population. Section 5.4 looks at how these differences relate to the living standards of those in poor health and discusses which measures of living standards are most appropriate for these people. Section 5.5 concludes.

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[29] Though the government's employment target is focused on the narrower disability measure, one of the Department for Work & Pensions's objectives is to 'improve outcomes and ensure financial security for disabled people and people with health conditions' (see https://www.gov.uk/government/publications/department-for-work-and-pensions-single-departmental-plan/department-for-work-and-pensions-single-departmental-plan-2018).

5.1 Trends in poor health and in spending on health-related benefits

How frequent is poor health among prime-working-age people and how has this changed in recent years? Figure 5.1 shows the proportion with a long-standing illness, as well as the proportion reporting a disability. It presents the rates recorded in the Family Resources Survey (FRS) and the Labour Force Survey (LFS) between 1997–98 (first year in which a comparable 'long-standing illness' question is asked in the LFS) and 2016–17 (latest FRS data). Changes in the survey questions (indicated by breaks in the lines) somewhat limit what we can learn regarding long-term trends, particularly in the LFS, where there have been two survey changes in the last 10 years. Despite this, there are three things we can say from the figure. First, the rates of long-standing illness and disability were roughly constant from 2002–03 to 2008–09. Second, there appears to have been an increase in the rates of both disability and long-standing illness since at least 2013–14, though that increase is substantially larger (and commences around 2008–09) in the FRS. Third, in 2016–17, around a quarter of the population aged 25–54 had a long-standing illness and about one in six had a disability.

Figure 5.1. Long-standing illness and disability rates for 25- to 54-year-olds, FRS and LFS, Great Britain
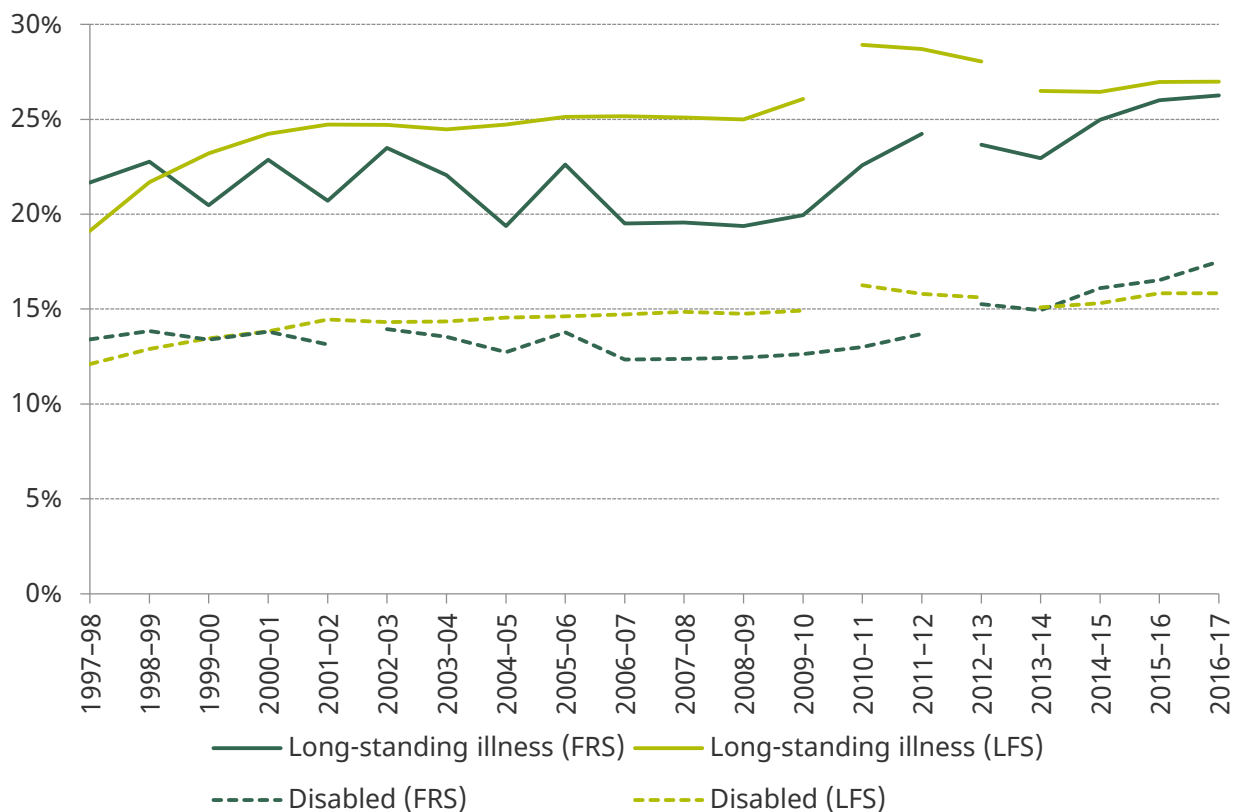
Note: Gaps in lines indicate structural breaks in the series due to changes in the surveys. Trends before and after breaks cannot be directly compared.

Source: Authors' calculations using Labour Force Survey and Family Resources Survey, 1997–98 to 2016–17.

Health issues are important for a government that is interested in getting more people into work. As was shown in Chapter 2, there has been a substantial increase in

employment in recent years, but a lot of that increase has come from falling unemployment and a falling proportion of people (mostly women) who are not in paid work because they are looking after their families. Figure 5.2 uses LFS data to show the proportion of 25- to 54-year-olds who are out of work for various reasons. In 2017, 3.9% of the prime-working-age population were out of paid work due to being long-term sick or disabled. This was higher than the 2.8% who were unemployed, but lower than the 5% rate seen around 2000. For men aged 25 to 54 in 2017, being long-term sick or disabled is the most common reason for being out of paid work (3.7% of the population), with unemployment the next most common (2.8%).

Figure 5.2. Percentage of 25- to 54-year-olds who are out of work because they are unemployed, are looking after family or are long-term sick or disabled, Great Britain
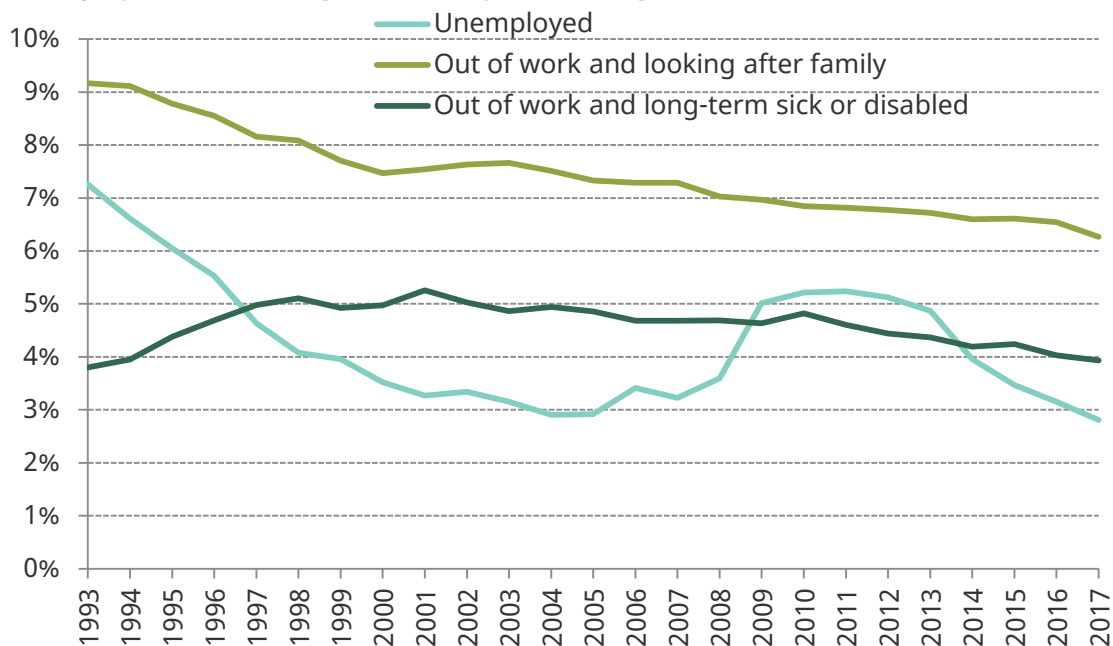
Source: Authors' calculations using Labour Force Survey, 1993 to 2017.

The patterns shown in Figure 5.2 are replicated when we look at trends in spending on health-related benefits. Figure 5.3 shows real spending on several types of benefits since 1978–79. Three of them – unemployment benefits, income support and incapacity benefits – are income replacement benefits, targeted at those who have a low income due to being out of work. Unemployment benefits are paid to those who are looking for work but cannot find any, income support to those who are not expected to be able to work due to family commitments (looking after a dependent child as a lone parent or caring for an ill family member), and incapacity benefits to those who are unable to work due to poor health. The figure also shows spending on disability benefits, which are designed to compensate those who have higher living costs because of a disability.

There are three key things to note from Figure 5.3. First, spending on unemployment benefits and income support has fallen since the mid 1990s, while spending on incapacity benefits has remained roughly constant in real terms. Incapacity benefits have thus made up an increasingly large share of the spending on income replacement benefits. Second, spending on disability benefits has continually increased in real terms since 1978–79. Third, between 2007–08 and 2016–17, spending on health-related benefits (incapacity and disability benefits) increased by 18% in real terms (largely driven by rises in disability

benefit spending). Over this same period, spending on other working-age benefits rose by 12%. The difference is forecast to be starker in future years: between 2016–17 and 2022–23, spending on health-related benefits is expected to increase by 15%, while spending on other working-age benefits is expected to fall by 5%. Health-related benefits are therefore becoming increasingly important in fiscal terms. It is also worth noting that, as shown by Emmerson, Joyce and Sturrock (2017), in recent years the caseload of and spending per claimant on health-related benefits have consistently exceeded forecasts, sometimes by large margins. Were this pattern to repeat itself, spending on health-related benefits over the next few years could increase by more than Figure 5.3 suggests.

Figure 5.3. Expenditure on working-age income replacement and disability benefits in Great Britain, historical and forecast, 2018–19 prices
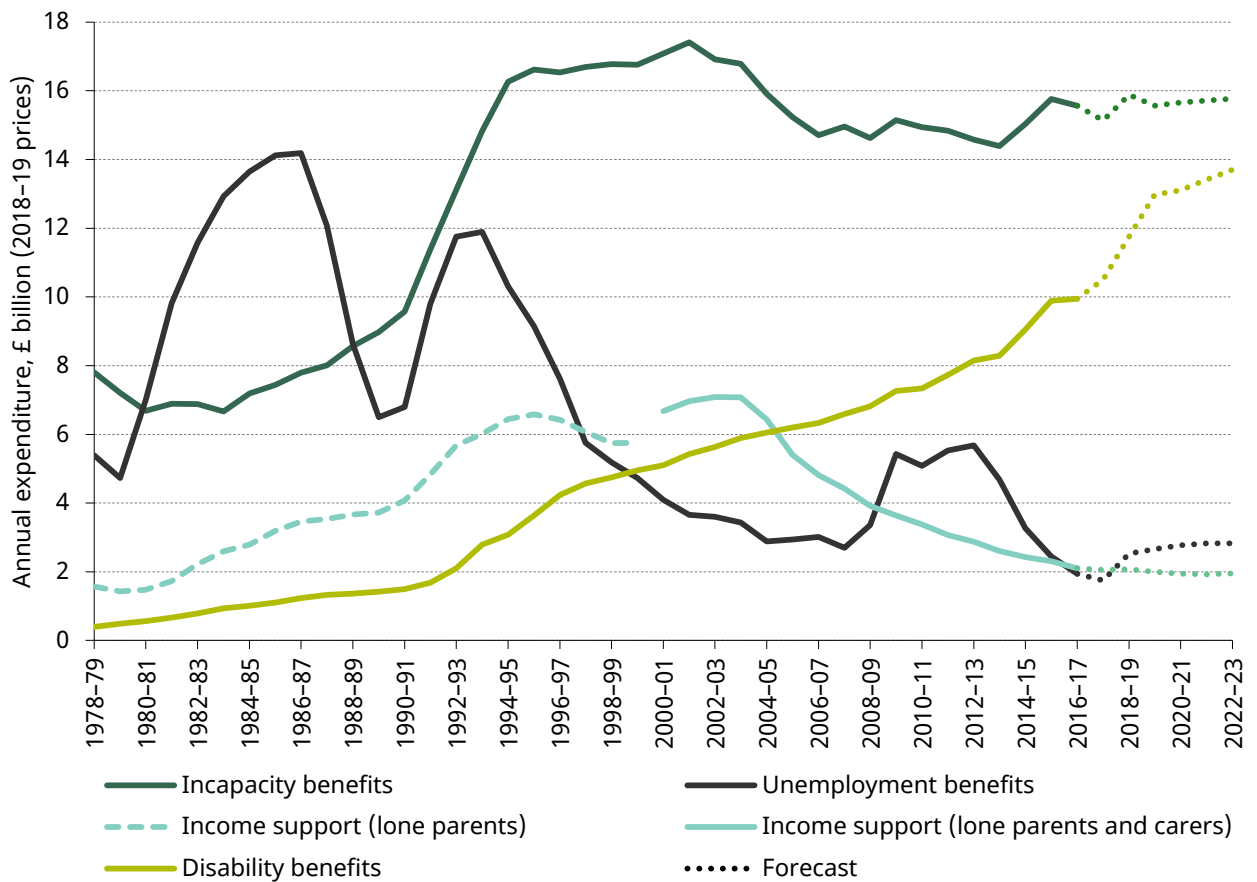
Note: Incapacity benefits include employment & support allowance, incapacity benefit, severe disablement allowance, invalidity benefit, sickness benefit, and income support on the grounds of disability. Disability benefits include disability living allowance, personal independence payment, attendance allowance and mobility allowance. Income support for lone parents between 1978–79 and 1999–2000 (dashed line) includes only those not also receiving the disability premium. Figures for 2017–18 to 2022–23 are based on the Office for Budget Responsibility (OBR)'s March 2018 forecast for benefit spending.

Source: Authors' calculations using Department for Work & Pensions, 'Benefit expenditure and caseload tables', Spring Statement 2018.

5.2   The characteristics of those in poor health

Given the prevalence of long-standing illness among 25- to 54-year-olds, together with the increasing fiscal importance of health-related benefits, it is important to know what type of people have a long-standing illness. This section therefore explores the demographic characteristics of those with long-standing health problems and describes the frequency of different types of problems.

Figure 5.4 shows the main health problem that individuals with a long-standing illness report (using the LFS). Because of the changes in the surveys referred to above, the figure only runs from 2013–14 to 2017–18 (over which time the questions are consistent). However, even over that relatively short period, there is a clear trend of increasing prevalence of mental health problems. In just four years, the share of those with a long-standing illness reporting mental health as their main problem rose from 15.3% to 20.0%.

There is evidence from the LFS and other sources that this is a continuation of a longer-running trend. Prior data from the LFS recorded a 4 percentage point (ppt) increase in the share reporting mental health as their main health problem between 1997–98 and 2012–13. The FRS (which records a slightly different measure of health problems) shows a strong increase in the frequency of mental health conditions between 2012–13 and 2016–17. Between 2000 and 2017, the share of claims for incapacity benefit, severe disablement allowance, and employment & support allowance that were on the grounds of mental or behavioural disorders increased from around a third to a half.[30]

Compared with the increase in mental health problems, other changes over the period are relatively small. The largest is a decline in the proportion of people reporting problems or disabilities associated with the back, neck and limbs, from 25½% to 23%.

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[30] Authors' calculations using data from Nomis (https://www.nomisweb.co.uk/). This point has been noted by Banks, Blundell and Emmerson (2015), who find that this trend holds true across all ages and for men and women.

Figure 5.4. Main health problem among 25- to 54-year-olds with a long-standing illness, Great Britain
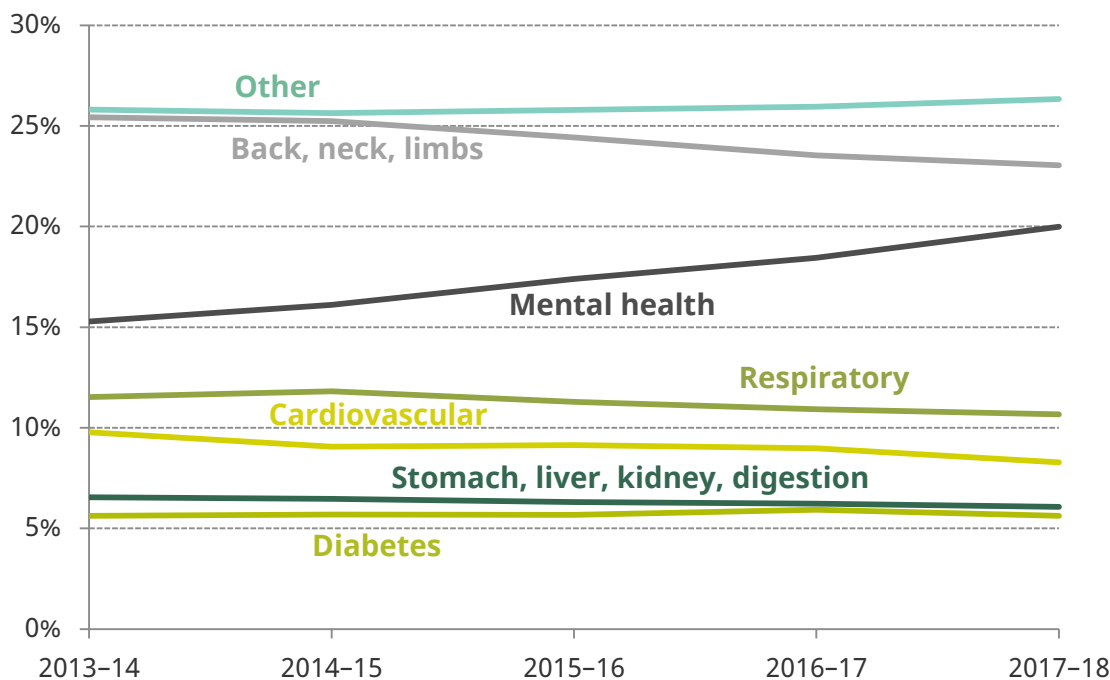
Note: 'Other' includes difficulties in seeing and hearing, speech impediments, skin conditions, epilepsy, learning difficulties and progressive illnesses.

Source: Authors' calculations using Labour Force Survey, 2013–14 to 2017–18.

Figure 5.5 shows the proportions of 25- to 54-year-olds who have a long-standing illness for different demographic groups. Given the recent rise in the fraction reporting mental health as their main long-standing health problem, the figure also splits those with a long-standing illness by whether they have a mental health or other illness.[31] It shows that poor health is correlated with certain family structures: single people and those without dependent children are more likely to have a long-standing illness. Single people are also about three times as likely as those in couples to have a mental illness. Those who stayed in education until at least the age of 18 are less likely to be unwell than those who did not, with a third of the latter group reporting a long-standing illness. Women are slightly more likely than men to have a long-standing illness and a long-standing mental illness. A particularly notable finding is that while younger people are less likely to have a long-standing illness, they are just as likely to have a mental health problem. Mental illness is therefore more prevalent among the young unwell population than among the older unwell population.

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[31] Table C.1 in Appendix C shows the proportion of those with and without a long-standing illness (split by mental health and other) that fall into each of the demographic groups shown in Figure 5.5.

Figure 5.5. Percentage of 25- to 54-year-olds with a long-standing illness (mental health and other) by demographic group, 2016–17, Great Britain
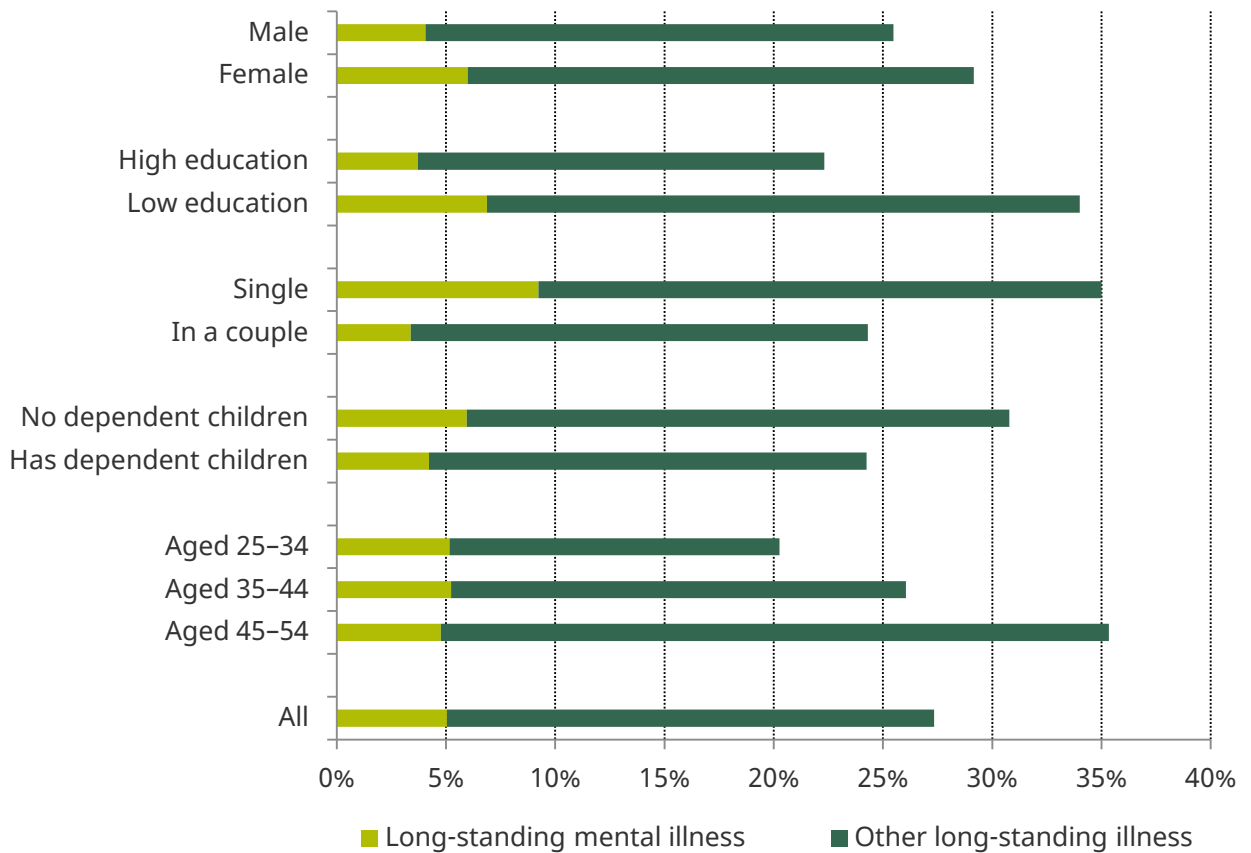
Note: 'Low education' refers to those who finished full-time education below the age of 18; others are 'high education'. An individual with a long-standing illness is categorised according to what they identify as their 'main' illness.

Source: Authors' calculations using Labour Force Survey, 2016–17.

5.3   The labour market outcomes of those in poor health

Since employment prospects have a substantial impact upon individuals' living standards, this section investigates how the labour market outcomes of those with a long-standing illness differ from those without. Figure 5.6 shows the difference in the proportion of people in paid employment (the 'employment gap') between 25- to 54-year-olds with and without a long-standing illness – in the LFS and the FRS. Note that the government's official target relates to the employment gap between disabled and non-disabled individuals, whereas Figure 5.6 shows the employment gap between individuals with and without a long-standing illness.

As in the previous section, changes in the survey questions do somewhat limit analysis of long-term trends in this employment gap, but we can note several things from the figure. First, the difference in employment rate between those with and without a long-standing illness now stands at around 20ppts. Healthy prime-working-age individuals have an employment rate of around 87–88%, while those with a long-standing illness have one of 67–70% (depending on the exact data source). Second, this gap has fallen since 2013–14,

though the FRS indicates a larger fall than the LFS (4ppts and 2ppts respectively). Third, the gap appears to be lower than it was pre-recession.

The *disability* employment gap (which the government's official target relates to) stood at 32ppts (among all working-age individuals) in 2016–17 – somewhat larger than the gap seen in Figure 5.6. This is not particularly surprising since the disability measure only includes those who say their condition affects their day-to-day activities (see discussion in the introduction to the chapter), and so are particularly likely to be out of work. It is worth noting that, as shown by Emmerson, Joyce and Sturrock (2017), meeting the government's target of halving the disability employment gap would require about a third of the out-of-work disabled to move into work, assuming there is no change in the employment rate of those who are not disabled.

Figure 5.6. Employment gap between 25- to 54-year-olds with and without a long-standing illness, FRS and LFS, Great Britain
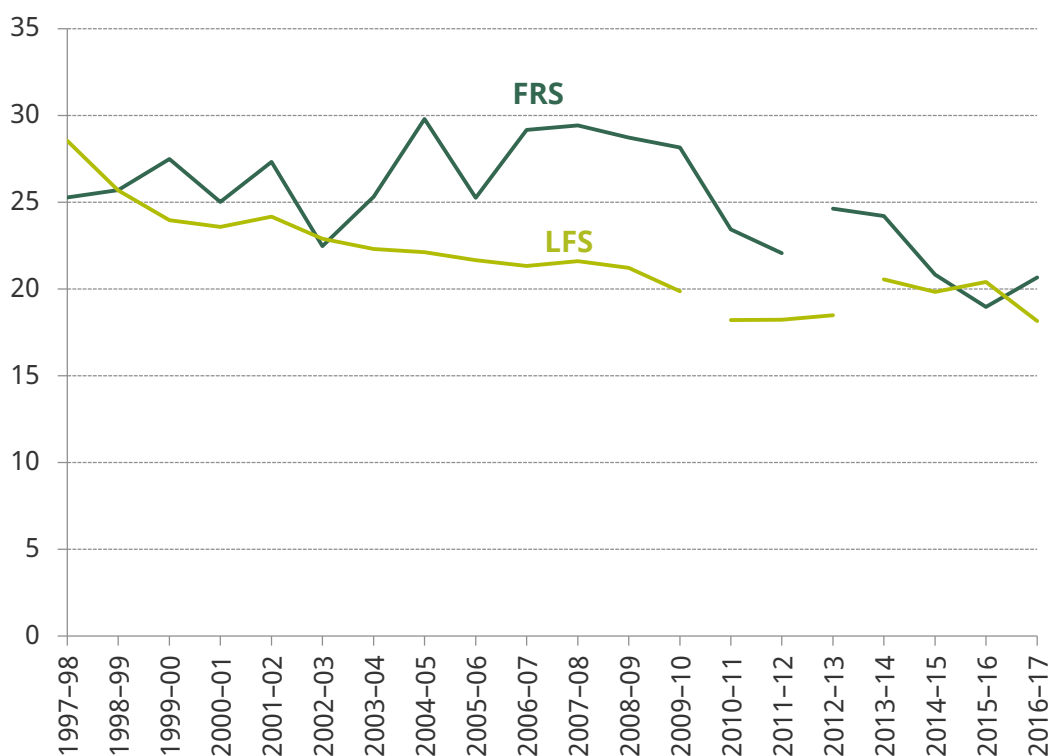
Note: Gaps in lines indicate structural breaks in the series due to changes in the surveys. Trends before and after breaks cannot be directly compared.

Source: Authors' calculations using Labour Force Survey and Family Resources Survey, 1997–98 to 2016–17.

This overall employment gap varies considerably for different groups. Figure 5.7 shows full- and part-time employment rates for different demographic groups for those with and without a long-standing illness (termed here for convenience 'unwell' and 'healthy') among the 25- to 54-year-old population. The figure shows that the employment gap is much larger among the low-educated. The gap for high-education individuals (those who finished full-time education aged 18 or over) is 10ppts, whereas for the low-educated (who finished before age 18) it is 24ppts. In fact, the employment rate of those with high

education and a long-standing illness is only 8ppts less than the rate for low-educated individuals without such an illness.

The figure also shows that, of those who are employed, people with a long-standing illness are more likely to work part-time than those without one. This indicates that poor health affects the *amount* of work individuals do, as well as whether or not they work at all.

Figure 5.7. Employment status of 25- to 54-year-olds with and without a long-standing illness, 2016–17, Great Britain
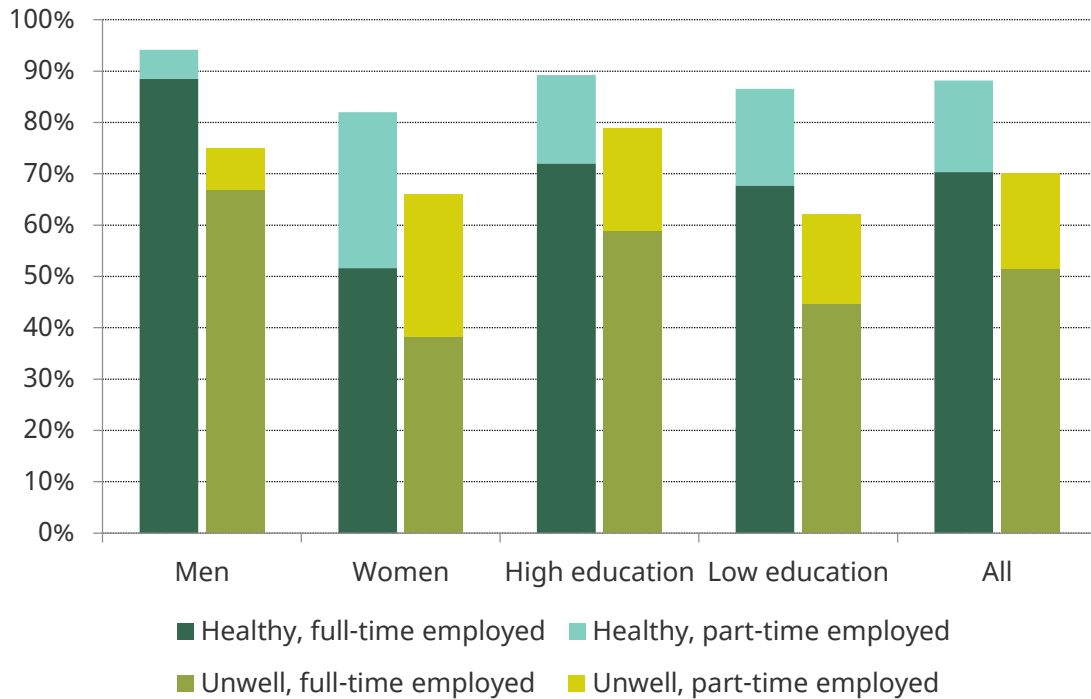
Note: 'Low education' refers to those who finished full-time education below the age of 18; others are 'high education'.

Source: Authors' calculations using Labour Force Survey, 2016–17.

These differences in employment rates raise the question of how long those not in paid employment spend out of work. Figure 5.8 shows the proportion of those out of work for a short and long period among the same demographic groups, where an individual is classed as 'short-term' out of work if they have been employed in the last three years and as 'long-term' out of work if they have not been employed in the last three years.[32]

The figure shows that being out of work for a long period is more prevalent for those with a long-standing illness. Around 75% of those with a long-standing illness who are not in paid work have been out of work for at least three years, compared with about 60% for healthy individuals. That means that nearly a quarter of all individuals with a long-standing illness are 'long-term' out of work, whereas only 7% of healthy individuals are.

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[32] Clearly, being out of paid work for almost (but not quite) three years is not a short time to spend out of the labour force. However, given the large proportion of people with long-standing illnesses who are out of work for more than three years, this seems a pertinent definition in this context.

This pattern is particularly noticeable for men – in part because remaining out of work for a long time to look after family and home is relatively prevalent among women. Just 2% of healthy men are out of work long-term, whereas 18% of men with a long-standing illness are. There are also some differences by education: around 30% of the low-educated with a long-standing illness are long-term out of work – three times the figure for their healthy counterparts.

Figure 5.9 focuses on the composition of the long-term out of work. It shows that out of all men who have been out of work for at least three years, almost three-quarters have a long-standing illness and about a quarter have a mental health problem. Again we see differences by education: two in three of those with low education who are long-term out of work have a long-standing illness and one in five have a mental illness – in both cases, considerably higher than the proportions for those with high education (two in five and one in ten respectively).

Figure 5.8. Out-of-work rates among 25- to 54-year-olds with and without a long-standing illness, 2016–17, Great Britain

Note: 'Low education' refers to those who finished full-time education below the age of 18; others are 'high education'. A person is defined as 'short-term workless' if they have been employed within the last three years and as 'long-term workless' if they have not been employed within the last three years.
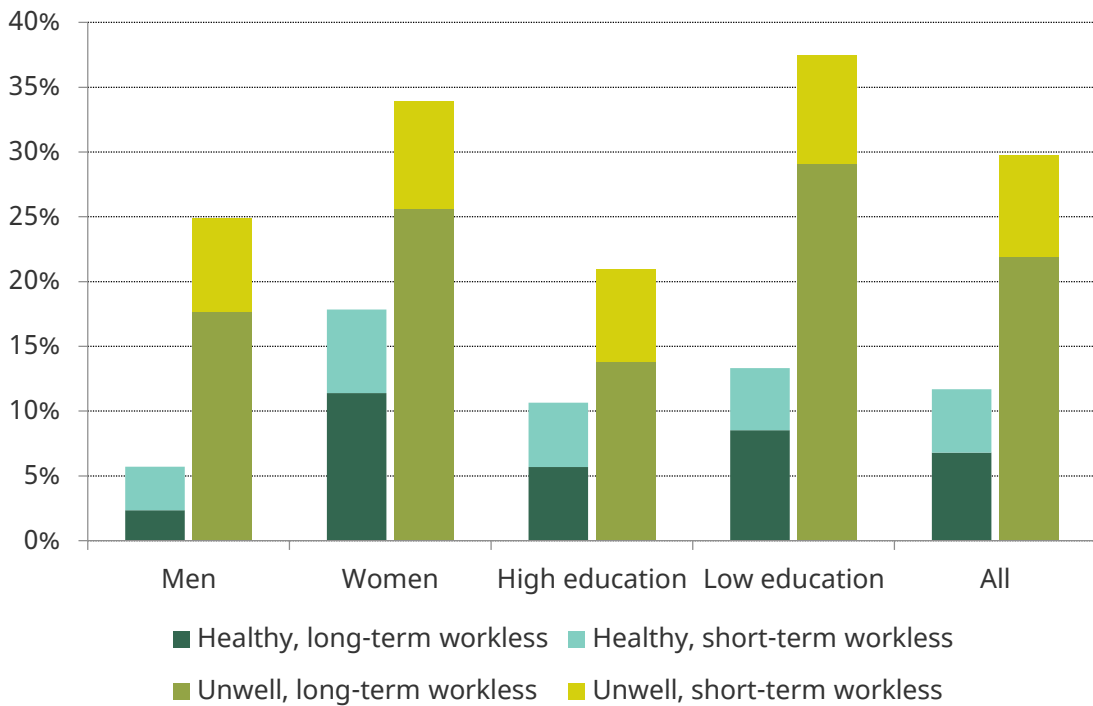
Source: Authors' calculations using Labour Force Survey, 2016–17.

Figure 5.9. Composition of 25- to 54-year-olds who are long-term out of work, 2016–17, Great Britain
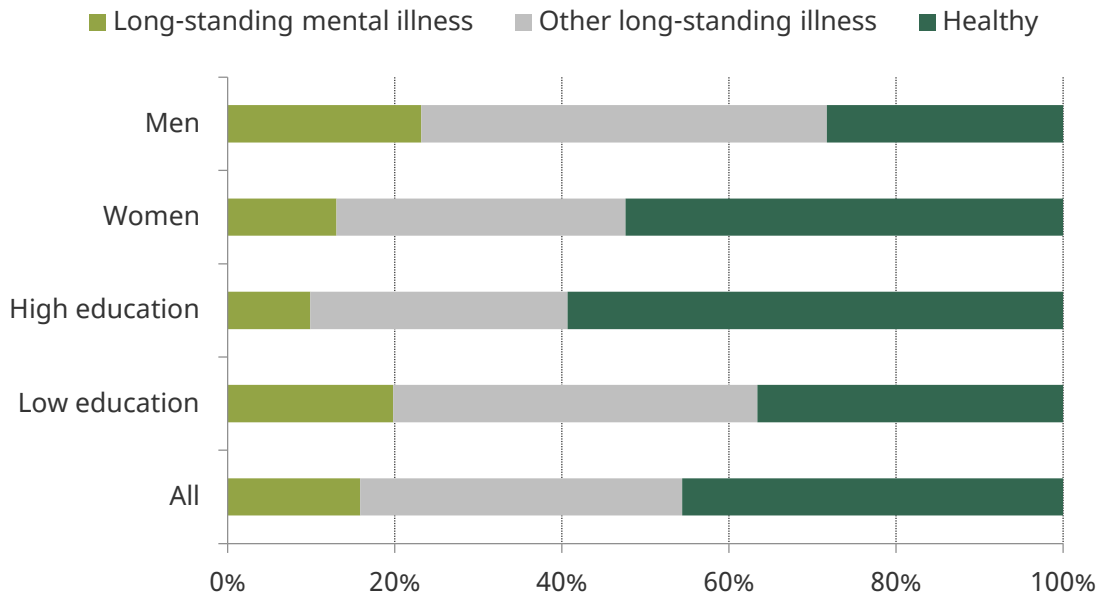
Note: 'Low education' refers to those who finished full-time education below the age of 18; others are 'high education'. A person is defined as 'long-term out of work' if they have not been employed within the last three years. An individual with a long-standing illness is categorised according to what they identify as their 'main' illness.

Source: Authors' calculations using Labour Force Survey, 2016–17.

Thus far we have mostly considered the employment status of unwell individuals as a group. However, it is likely that people with different illnesses will have very different rates of labour market attachment. Table 5.1 explores this by showing what proportion of unwell individuals have different problems as their main illness, together with their employment rate, median earnings and mean hours (the last two are conditional on being in paid work as an employee).

The table shows that the three most common illness categories (problems with back, neck and limbs; mental illness; 'other') are also the three with the lowest employment rates, earnings levels and hours. These groups account for much of the average difference in employment between ill and healthy individuals. Conversely, the other four categories (respiratory; cardiovascular; diabetes; stomach, liver, kidney, digestion) all show employment rates only about 5–10ppts below those of healthy individuals, median earnings only 1–4% below, and similar mean hours.

The most striking findings from the table are the statistics for those with mental health problems. They have an employment rate 17ppts below the average for those with a long-standing illness and 36ppts below that of healthy people.[33] Similarly, their median earnings are 13% and 23% below the average for unwell and healthy individuals respectively – a difference driven by both lower hourly wages and fewer hours worked. These differences

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[33] These results are consistent with findings from TUC research that adults with a disability due to mental illness have lower employment rates that other disabled people with physical health conditions (TUC, 2017).

in labour market outcomes are of particular importance given that, as seen in Figure 5.4, people with mental health problems are making up an increasingly large share of those with a long-standing illness. Were this trend to continue, and the labour market statistics of this group not improve, it would make it more difficult for the government to meet its disability employment gap target. That said, it should be noted that between 2013–14 and 2016–17 – a period over which mental health problems have become increasingly common – the employment rate for this group increased substantially, from 43% to 53% (and in 2017–18 it has risen further, to 57%). It is possible that there is a compositional effect at play here, with individuals with more minor mental health issues (which have less of an impact on their labour market prospects) increasingly reporting their problem as a long-standing illness. This would tend to push up the number of people recorded as having mental health problems while also improving the employment rate statistics among this group.[34]

The low employment rate seen among those with a mental health problem also helps explain why, as noted in Section 5.2, mental and behavioural disorders make up half of the incapacity benefits caseload, even though they only account for around 20% of the ill population: since those with mental health conditions are particularly likely to be out of work, they are also particularly likely to be eligible for incapacity benefits. That employment rates among those with mental health problems appear to be increasing also suggests that the rising share of mental health and behavioural disorders among the incapacity benefits caseload is accounted for by a general increasing prevalence of mental health problems, rather than by a falling employment rate for people with them.

Table 5.1. Employment rate, earnings and hours of 25- to 54-year-olds by main health problem, 2016–17, Great Britain

Main health problem	Share of unwell population	Employ-ment rate	Median earnings of employees (£ per week)	Mean weekly hours of employees
Respiratory	11%	83%	475	38
Cardiovascular	9%	81%	462	39
Diabetes	6%	80%	462	39
Stomach, liver, kidney, digestion	6%	78%	467	37
Back, neck, limbs	24%	71%	423	37
Other	26%	67%	413	36
Mental health	18%	53%	369	34
All with long-standing illness	**100%**	**70%**	**423**	**37**
All without long-standing illness		**88%**	**479**	**39**

[34] Given that those with mental health problems are more likely to be in certain demographic groups (e.g. female and low education – see Table C.1 in Appendix C), and since employment rates vary across demographic groups, one might wonder whether the low level of employment among those with mental health problems is merely a result of their different demographics. However, if we control for sex, age, education, presence of children and presence of a partner, the employment gap between those with mental health conditions and those with other conditions remains, with a magnitude about three-quarters of that seen in Table 5.1.

Note to Table 5.1: 'Other' includes difficulties in seeing and hearing, speech impediments, skin conditions, epilepsy, learning difficulties and progressive illnesses. The sample sizes for median earnings are not particularly large for some of the smaller groups, and so the numbers presented should be treated as indicative.

Source: Authors' calculations using Labour Force Survey, 2016–17.

In summary, compared with the healthy population, those with a long-standing illness are generally older, less educated, more likely to be single and without dependent children, and less likely to be in work. Those who are in work are more likely to be working part-time, while those who are out of work are likely to have been out of work for at least three years. The employment rate and earnings of the ill population vary considerably according to what illness is involved, with those reporting a mental illness particularly likely to be out of work, or to have low earnings if they are in work. This may be especially concerning given the increased prevalence of mental health problems seen in recent years.

## 5.4   Living standards of those with long-standing illnesses

Given that the employment rate of people with long-standing illnesses is substantially below that of the healthy population, an important question is how their living standards compare and how they have changed over time. Importantly, as discussed in the introduction to the chapter, health problems often bring with them higher living costs, which would lead living standards to be even worse than expected given incomes.

The Department for Work & Pensions presents measures of income poverty among the disabled that exclude disability benefits from income, on the basis that these are simply there to compensate for higher costs. This has advantages and may well yield a better comparison between the living standards of the disabled and non-disabled. On the other hand, if disability benefit receipts do not perfectly track the costs of disability, the comparison will be imperfect. The measures may be particularly limited for following trends over time as they will, by construction, ignore the impact of changes to disability benefits. As trends are a key focus of this chapter, we therefore examine a range of alternative measures of living standards in this analysis.

Figure 5.10 shows, for those aged 25–54, the relative poverty rates (defined as having a household income below 60% of the median) measured before and after deducting housing costs ('BHC' and 'AHC' respectively) for those with and without a long-standing illness. Trends using an absolute poverty line (not shown) are very similar after 2003–04.

Poverty rates are consistently about 5–10ppts (8–14ppts) higher among those with a long-standing illness than among those without when measured on a BHC (AHC) basis, with little clear trend over time. The only period that shows a clear change is the years immediately following the recession (2007–08 to 2011–12), when the gap narrowed by about 4ppts. This is because the recession had a substantial impact on employee incomes, and since the healthy population are more likely to be in work, they were more likely to be affected.

Figure 5.10. Relative poverty rates for 25- to 54-year-olds with and without a long-standing illness, Great Britain
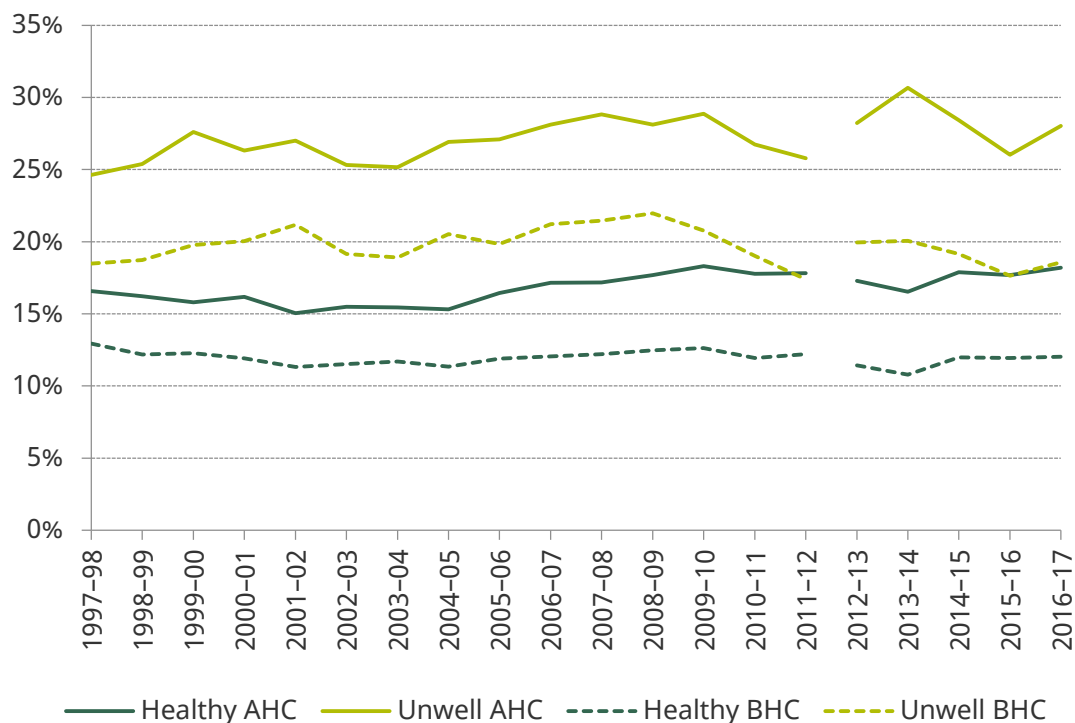
Note: 'AHC' and 'BHC' refer to incomes measured after and before housing costs respectively. Gaps in lines indicate structural breaks in the series due to changes in the surveys. Trends before and after breaks cannot be directly compared.
Source: Authors' calculations using Family Resources Survey, 1997–98 to 2016–17.

Given that those with a long-standing illness have a lower employment rate and average earnings level, it is not surprising that their poverty rate is higher. However, these poverty rates are based upon measuring household incomes at a single point in time (a 'snapshot'), and there are two key reasons why such poverty rates are particularly unlikely to accurately capture the material living standards of those in ill health. First, these people may have expenses associated with mitigating the effects of their illness. This means that they need a greater income in order to achieve the same standard of living as those who do not have such costs. Second, their low incomes may be considerably more persistent. We saw in the previous section how those in ill health are more likely to be out of work for at least three years. People on low income for just a short period may be able to draw on savings or borrow in order to maintain their standard of living. But this option may not be available to those who find themselves with low income for many years.

As well as the 'snapshot' poverty rates seen above, Figure 5.11 presents two alternative measures of low living standards for those with and without a long-standing illness: persistent income poverty and material deprivation. Persistent poverty is measured using the Understanding Society data, which allow us to see the same individuals at different points in time. A person is deemed in persistent poverty if they are in snapshot poverty in at least three out of the four years between 2012–13 and 2015–16.[35] Material deprivation is

[35] For more on persistent poverty in the UK, see Cribb et al. (2017).

discussed further in Chapter 4 but, broadly, material deprivation scores are based upon asking families what goods and services they feel they are able to afford (e.g. whether they can afford to keep their home in a decent state of decoration, or whether they can save £10 a month). Inability to afford items contributes to higher scores. For the purposes of this chapter, we define a family as materially deprived if its material deprivation score is in the highest 20% of those for 25- to 54-year-olds based on the nine 'adult' material deprivation questions contained in the FRS data.[36]

Figure 5.11. Poverty and material deprivation rates for 25- to 54-year-olds with and without a long-standing illness, 2015–16, Great Britain
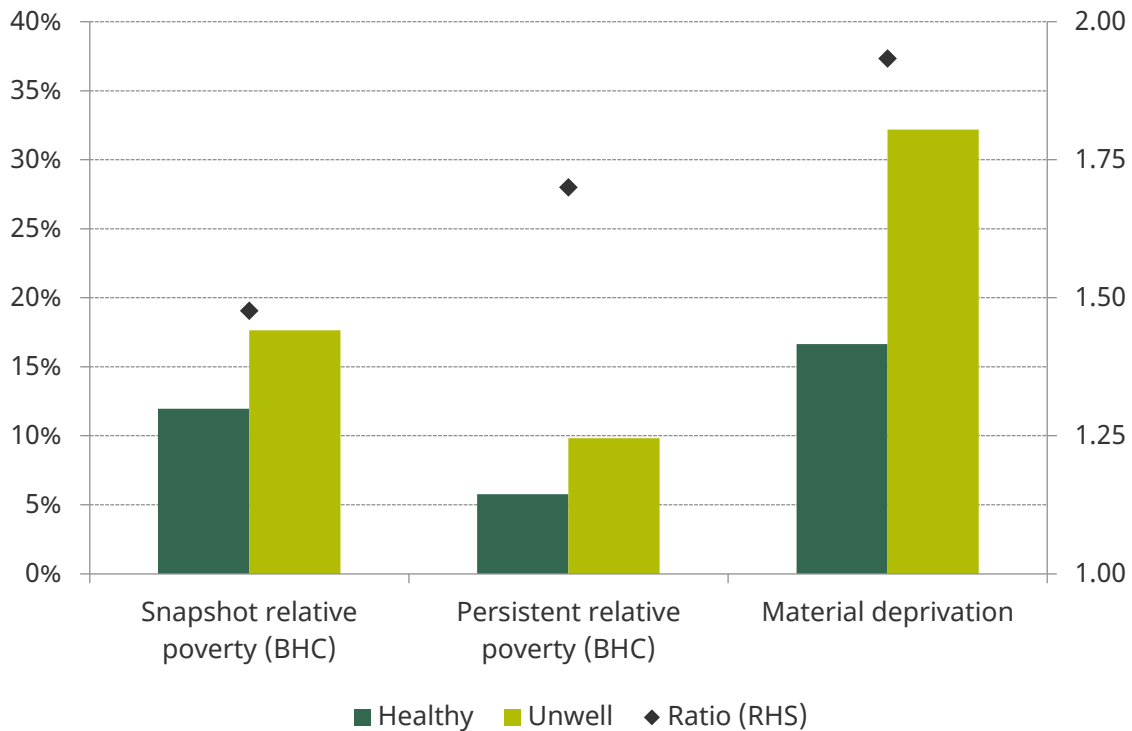
Note: The snapshot relative poverty and material deprivation rates are from the Family Resources Survey, 2015–16. The persistent relative poverty rate is from Understanding Society, 2012–13 to 2015–16. For this figure, a family is defined as in material deprivation if its material deprivation score is in the highest 20% of the sample. This does not correspond to the official material deprivation statistics.

Source: Authors' calculations using Family Resources Survey, 2015–16 and Understanding Society, 2012–13 to 2015–16.

The figure shows that these alternative measures of low living standards indicate a greater difference between those with and without a long-standing illness than the snapshot poverty measure. Those with a long-standing illness have a snapshot poverty rate of 18%, compared with a 12% rate for healthy individuals – a ratio of 1.5. For persistent poverty, this ratio rises to 1.7, with 10% of those with a long-standing illness being in persistent poverty compared with 6% of those without. On the material

[36] There is no official material deprivation measure for non-pensioner adults without children. For this exercise, we use the responses to the material deprivation questions to construct a material deprivation score for adults aged 25–54. The 'weights' placed on each question are derived using the responses given by families where the adults in the family are all under the age of 60.

deprivation measure, the ratio rises again, to 1.9, with 32% of those with a long-standing illness being materially deprived, compared with 17% of the healthy 25- to 54-year-old population.

This confirms that, unsurprisingly, snapshot income poverty underestimates the low living standards of those in poor health. The higher rate of persistent poverty among those with a long-standing illness than among those without may explain part of the difference between these two – those who are persistently on a low income may, as suggested previously, find it harder to borrow or use savings to avoid material deprivation than those who are just temporarily on a low income. Material deprivation should, in addition, pick up the impacts of the higher living costs of those in ill health.

Figure 5.12 further illuminates the link between snapshot incomes, ill health and material deprivation. It shows the proportion of people in each quintile of the snapshot income distribution who are in material deprivation, split by whether or not they have a long-standing illness (within an income quintile, healthy and unwell individuals have, on average, about the same level of income). Not surprisingly, those in higher income quintiles are less likely to be materially deprived. But the figure also shows that, within each income quintile, those who are in ill health are considerably more likely to be materially deprived than those who are healthy. In fact, ill individuals in the second quintile are actually slightly more likely to be in material deprivation than healthy individuals in the poorest quintile, despite having on average an income that is 70% higher. Again, both the higher persistence of low income among individuals with a long-standing illness and their higher costs are likely to be at work here.[37]

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[37] Belfield et al. (2015) showed that certain characteristics – such as being a renter – are associated with a higher degree of material deprivation even among those who are in poverty. Those with a long-standing illness are more likely to be in these groups, which likely explains some of the higher rate of material deprivation seen in Figure 5.12. However, even within demographic groups, those in poverty with a long-standing illness are considerably more likely to be materially deprived than those without an illness, suggesting that illness itself increases material deprivation.

Figure 5.12. Material deprivation rates for 25- to 54-year-olds with and without a long-standing illness, by income quintile, 2016–17, Great Britain
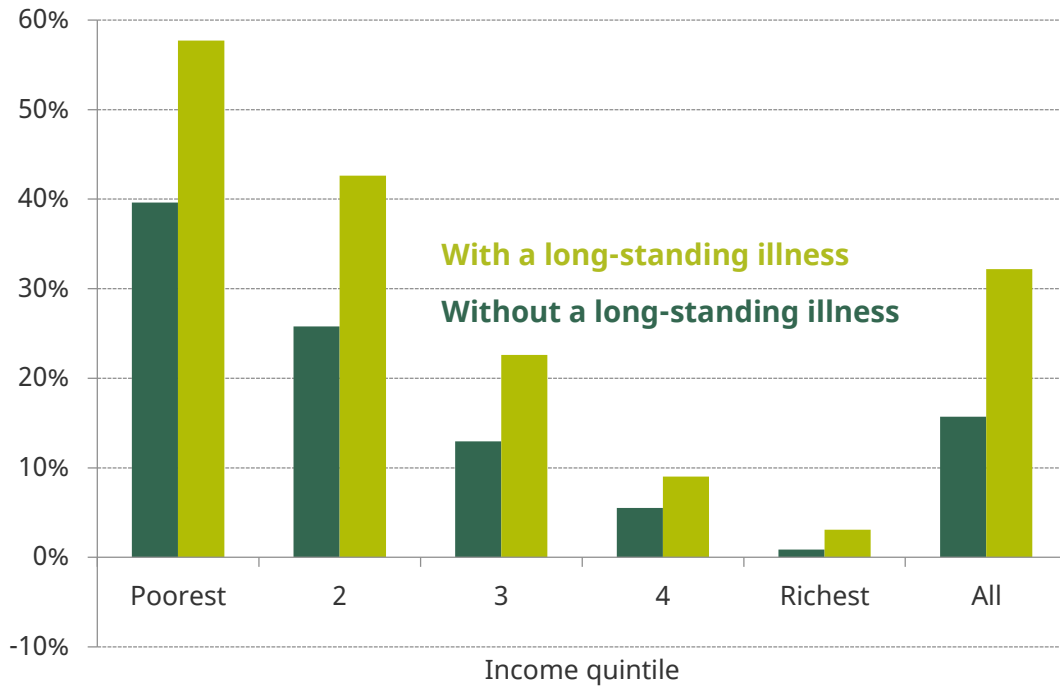
Note: For this figure, a family is defined as in material deprivation if its material deprivation score is in the highest 20% of the sample. This does not correspond to the official material deprivation statistics.

Source: Authors' calculations using Family Resources Survey, 2016–17.

We saw in the previous section that labour market outcomes vary by type of illness. We now examine whether these differences feed through to living standards. Table 5.1 showed that people with mental health problems are considerably less likely to be in employment than others with a long-standing illness and that those who are in work are likely to be paid less. Figure 5.13 analyses whether these labour market outcomes translate into lower living standards. For this we use the FRS, which asks respondents to list all the health problems they have, rather than identifying a 'main' problem (as the LFS does). As a result, the figure groups individuals according to whether they report just one illness, or two or more, and whether or not they list mental health as one of those illnesses. Table C.2 in Appendix C shows the proportions of the unwell population that fall into each category.

The figure shows that those with at least two illnesses (who make up about a third of the unwell 24- to 54-year-old population) tend to have considerably worse employment rates and living standards than those with just one. More than half of those with two or more illnesses are out of work, compared with about a quarter of individuals with one illness. Those with at least two illnesses are also about 60% more likely to be in poverty than those with only one illness, and almost twice as likely to be materially deprived.

Second, the low employment rate of those with mental health problems does seem to feed through to lower living standards. Overall, people with mental health problems have relative poverty and material deprivation rates of 40% and 50% respectively. The figure specifically shows the poverty and deprivation rates for those who *only* have a mental health problem, and also the rates for those with at least one illness in addition to a mental health problem. Among those who only have one illness, the relative poverty and material deprivation rates are roughly two-thirds higher for those with mental health problems than for those with another illness. Among those with at least two illnesses, those who list mental health as one of them have poverty and material deprivation rates about a third higher than those who do not list mental health. This means that individuals with mental health problems and at least one other problem (16% of the unwell population) have a relative poverty rate of 43% and a material deprivation rate of 56% – considerably above the averages for the unwell population as a whole (28% and 33% respectively), and even further above the averages for the healthy population (18% and 16% respectively).

Figure 5.13. Material deprivation, relative AHC poverty and out-of-work rates for 25- to 54-year-olds with a long-standing illness, 2012–13 to 2016–17, Great Britain

Note: For this figure, a family is defined as in material deprivation if its material deprivation score is in the highest 20% of the sample. This does not correspond to the official material deprivation statistics. 'AHC' refers to incomes measured after housing costs.
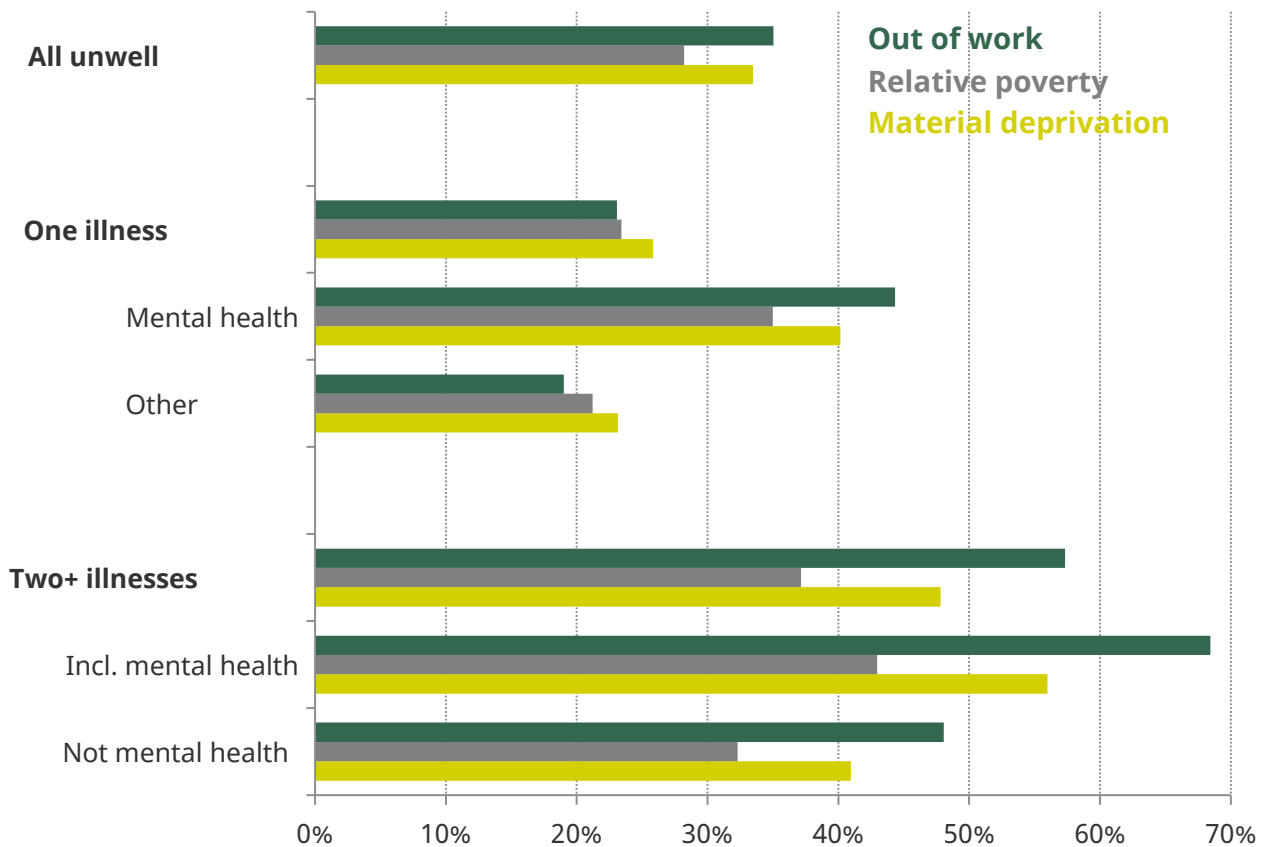
Source: Authors' calculations using Family Resources Survey, 2012–13 to 2016–17.

5.5   Conclusion

There is some indication that certain kinds of poor health are on the rise in the prime-working-age population, and certainly spending on health-related benefits is likely to increase over the next few years – a period when other working-age benefit expenditure is expected to fall. At the same time, the government has set a target to cut the 'disability employment gap' by half: a very ambitious target, which would require roughly one in three disabled people who are out of work to move into employment.

The employment gap between 25- to 54-year-olds with and without a long-standing illness currently stands at around 20 percentage points. Much of the employment gap is down to the lower employment rates seen among those reporting mental health and back, neck and limb problems. The overall gap has shown some signs of reducing in recent years. However, prospects for future falls may be hampered by the increasing share of the ill population with mental health problems, since their employment rate (and average earnings) is well below that of the healthy population. Those with mental health problems are disproportionately likely to be female, single and less educated, and are on average younger than people with other illness. Individuals with a long-standing illness are also more likely to be out of work for a long period, with about a quarter of them workless for at least three years. People with mental health problems make up about one in six of the long-term out-of-work prime-working-age population, a share that rises to one in four for men.

This chapter has provided evidence that 25- to 54-year-olds with long-standing illnesses have significantly lower material living standards than those in better health. Income poverty rates, measured using incomes at a particular point in time, are about 50% higher among the ill population than among the healthy. Those with a long-standing illness are about 70% more likely to be in persistent poverty and this – together with higher living costs – contributes to them being almost twice as likely to be in material deprivation. Even among people with similar current incomes, those in ill health are much more likely to be materially deprived.

The living standards of those with long-standing mental health conditions are particularly poor. This is especially true for those with another condition in addition to mental health problems, who have a material deprivation rate about three-and-a-half times as high as the healthy population. If the recent trend of greater frequency of mental health conditions continues, then worse outcomes seen among this group are particularly concerning.

6. Living standards and the National Living Wage

Key findings

The National Living Wage (the minimum wage for employees aged 25+) is set to rise to 60% of median wages by 2020.

The introduction of the National Living Wage (NLW) in April 2016 saw a sharp rise in the minimum wage paid to employees aged 25 and over. This caused the proportion of employees aged 25+ paid at the legal minimum to jump from 4% in April 2015 to almost 7% in April 2017. Under current forecasts, the NLW is set to reach £7.85 by 2020 (after adjusting for inflation) and cover 12% of employees aged 25+.

The introduction of the NLW in April 2016 was followed by strong wage growth among low-wage employees.

Hourly wages among employees aged 25+ grew by 9.6% between April 2015 and April 2017 at the 5th wage percentile and by 7.4% at the 10th percentile (after adjusting for inflation). This compared with growth of 2.4% in the middle of the wage distribution and 3.7% at the 90th percentile.

There has been little change in hours of work for low-paid employees since 2015.

As a result, weekly earnings grew at a similar rate to hourly wages. For those with the lowest 10% of hourly wages, real weekly earnings grew by 10.5% between April 2015 and April 2017.

Growth in average living standards (i.e. household incomes) has been much more muted than growth in wages or earnings for those most affected by the NLW.

Average pre-tax weekly pay among the lowest-wage 20% of employees grew by 5.7% between 2015–16 and 2016–17, whereas their average household net income grew by just 0.4%. This is because of higher taxes and lower benefit entitlements as earnings rise, and because the earnings of higher-earning partners fell in 2016–17.

Despite this, absolute poverty rates for low-paid employees fell in 2016–17, while they increased for higher-paid employees.

The absolute poverty rate for the lowest-paid 20% fell by 1.6 percentage points between 2015–16 and 2016–17, compared with small rises in absolute poverty for higher-paid employees. This reflects modest (2%) growth in the average living standards of low-wage employees living in households with below-average incomes.

Only a quarter of low-wage workers who are most affected by the NLW are members of low-income households.

Although 22% of employees in the bottom fifth of the hourly wage distribution live in low-income households (poorest 20%), 25% are members of middle-income households (middle 20%). This makes minimum wages a relatively blunt instrument if the objective is to target low-income households, including those who bore the brunt of the benefit cuts announced alongside the NLW in July 2015.

The National Living Wage (NLW) announced by George Osborne in July 2015 has been an ambitious change to the level and structure of minimum wages in the UK. Upon its introduction in April 2016, the minimum wage for employees aged 25 and over was increased substantially to £7.20 (it had been £6.50 upon announcement in July 2015). The government also committed to continue raising the minimum wage for those aged 25 and over to reach 60% of median hourly earnings in 2020 (HM Treasury, 2015). This target marks a notable departure from the past practice of minimum wage setting, whereby increases were decided on a year-to-year basis following recommendations made by the Low Pay Commission (LPC) that aimed to balance the positive impacts of a higher minimum against the potential risk of reduced employment.[38]

Increases in the minimum wage boost the hourly wages of workers previously paid below the new minimum, and possibly some of those on higher wages too via 'spillover effects', provided they remain in employment. But the impact on the living standards of the lowest-paid workers is less clear than the impact on their hourly wages. This is because their living standards will be influenced by a range of additional factors such as the number of hours worked per week, the amount of taxes paid on their earnings, the benefits and other income sources they receive and the incomes of other people in the household in which they live.

This chapter examines how the hourly wages, weekly earnings and living standards of people with low hourly wages have changed in the years after the introduction of the NLW. This is not the same as the direct impact of the policy, because we do not know how wages or living standards would have grown had the NLW not been introduced; these

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[38] Prior to the introduction of the NLW, the basic rate applied to workers aged 21 and over, with lower rates set for workers aged 18–20, aged under 18 and apprentices. The rationale for these lower wages is that younger age groups and apprentices may be especially vulnerable to job loss due to minimum wages.

things tend to change irrespective of minimum wage policy. Nevertheless, by analysing how household incomes changed for different groups in 2016–17, we can show to what extent the wage growth that occurred alongside the NLW's introduction has led to increases in employees' living standards and which factors have magnified or muted this impact. Of course, focusing only on those individuals who are in low-paid work comes at the cost of ignoring those who may have lost their job as a result of a higher minimum wage and those who have remained in unemployment longer than they otherwise would have.

In this chapter, we use the Annual Survey of Hours and Earnings (ASHE) to examine changes in the hourly wages, weekly working hours and weekly gross (pre-tax) earnings of employees. These data are available up to April 2017, which encompasses the introduction of the NLW in April 2016 and the further rise in April 2017. The ASHE data are a random 1% sample of GB employees (with around 180,000 respondents) and are regarded as the most accurate source of information on wages and gross earnings. However, ASHE does not contain any household-level information or information on any other form of income. We therefore use the Family Resources Survey (FRS) to look at changes in post-tax earnings, household incomes and income poverty rates. The FRS is a random sample of around 20,000 UK households and is regarded as the best source of information on household incomes.

Unless otherwise stated, real (inflation-adjusted) monetary amounts are deflated using a version of the Consumer Prices Index (CPI) that includes mortgage interest payments. We restrict our analysis to employees aged 25 and over as this is the group that is directly impacted by the National Living Wage. We do not directly consider impacts on younger employees, apprentices or the self-employed, although it is possible they have been indirectly affected.

The rest of this chapter proceeds as follows. Section 6.1 documents changes in hourly wages and weekly earnings in 2016 and 2017. Section 6.2 looks at how measures of household living standards have changed for employees with low hourly wages in 2016–17 (the first full year after the NLW was introduced). Section 6.3 examines which types of workers and households have been most directly affected by raising the minimum wage. It also compares these employees with those who stand to lose most from the suite of benefit reforms that were announced in the July 2015 Budget alongside the National Living Wage. Section 6.4 concludes.

6.1 Changes in pay following the introduction of the National Living Wage

The introduction of the National Living Wage in April 2016 raised the minimum wage for workers aged 25 and over by 10.8% (in nominal terms) from £6.50 (its level in July 2015 when the policy was announced) to £7.20 in April 2016. At the time of writing in June 2018, it has been increased twice more, to £7.50 in April 2017 and to £7.83 in April 2018. To put these nominal increases in context, Figure 6.1 plots the real (inflation-adjusted) value of the minimum wage rate for workers aged 25 and over since the introduction of the National Minimum Wage in 1999. This highlights how the increase due to the introduction of the NLW resulted in the sharpest increase in the minimum wage in real terms (i.e. after adjusting for inflation) since 2001.

The figure also shows that the proportion of employees aged 25 or older paid at the legal minimum increased markedly from 4.3% in April 2015 to 6.7% in April 2016, which is the biggest jump in the proportion of workers covered by the minimum wage since its introduction in 1999. In April 2017, the proportion dipped slightly to 6.4%.[39] Under current projections, the real value of the NLW is set to rise to £7.85 by 2020 (a 5.4% increase above its level in 2018−19), with the proportion of workers covered almost doubling to 12.2%. These 'coverage' rates disguise how minimum-wage employment is more prevalent among certain types of workers. For example, in April 2017, 4.7% of male employees aged 25 or older were paid at or below the NLW compared with 8.1% of women (Low Pay Commission, 2017). The characteristics of those directly impacted by the minimum wage are discussed in more detail in Section 6.3.

Figure 6.1. Real value of the minimum wage (in 2016–17 prices) and percentage of employees aged 25+ paid the minimum wage
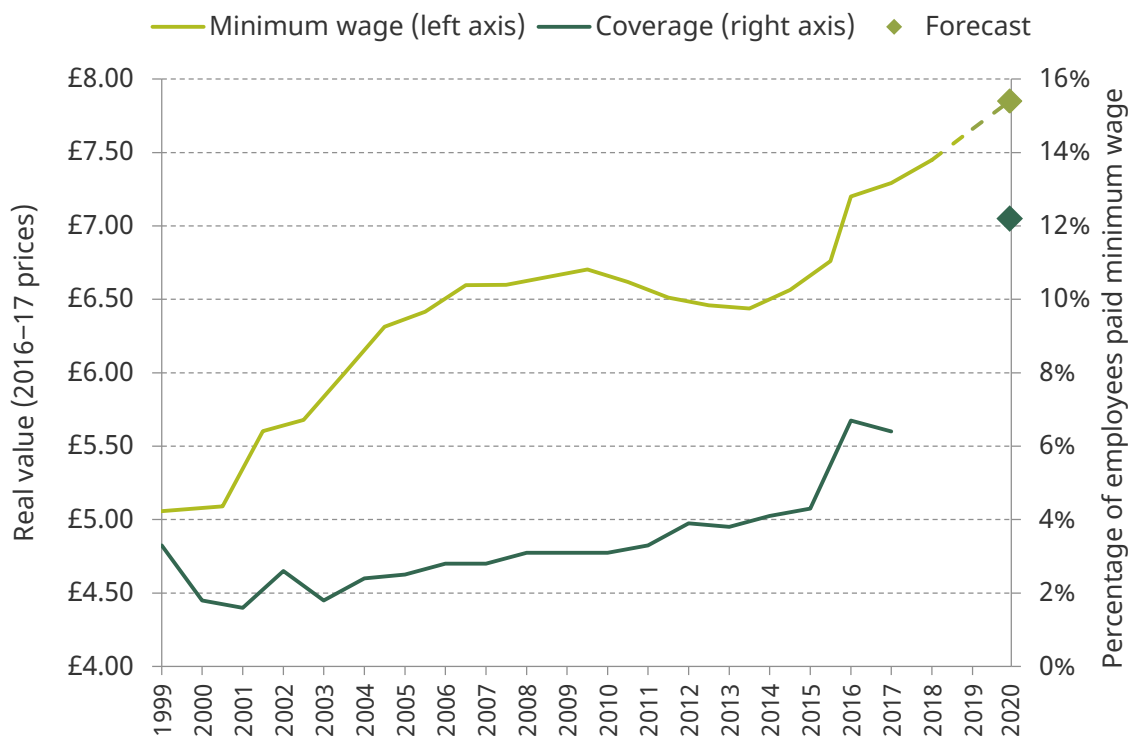
Note: Deflated using a variant of CPI inflation that includes mortgage interest payments between 1999 and 2016 and forecast CPI inflation between 2016 and 2020. 'Minimum wage' refers to the National Minimum Wage basic rate for 1999–2015 and to the National Living Wage from 2016 onwards. Coverage is measured in April of each year. 'Employees paid minimum wage' also includes workers with observed pay less than their minimum wage rate. It excludes apprentices in the first year of their apprenticeship.

Source: Low Pay Commission Autumn Report (personal correspondence) and supplementary economy tables 1.7 and 1.18 of Office for Budget Responsibility's March 2018 Economic and Fiscal Outlook.

[39] This is likely due to the fact that the ASHE data were collected in the same month that the NLW was introduced. As a result of this, pay information for some employees in the ASHE sample was reported for a period before the NLW was introduced, which may have overstated the April 2016 coverage figure. For more information, see paragraphs 2.91 and 2.102 of Low Pay Commission (2017).

Changes in the minimum wage can also impact workers on higher rates of pay than the new minimum – for example, if firms change the wages of higher-paid employees to maintain pay differentials between different types of workers. To get a comprehensive view of hourly wage changes following the NLW's introduction, Figure 6.2 shows how hourly wages grew, after adjusting for inflation, between April 2015 and April 2016 when the NLW was introduced and between April 2016 and April 2017 when the NLW was further increased. We also compare these growth rates with the average annual wage growth between April 2011 and April 2015 (this is the period that corresponds to the start of the recovery in the labour market after the Great Recession: 2011 marked the start of rising employment; the largest wage falls had already occurred by then).[40]

Figure 6.2. Average annual real growth in wages by percentile of hourly wage distribution (GB, employees aged 25+)
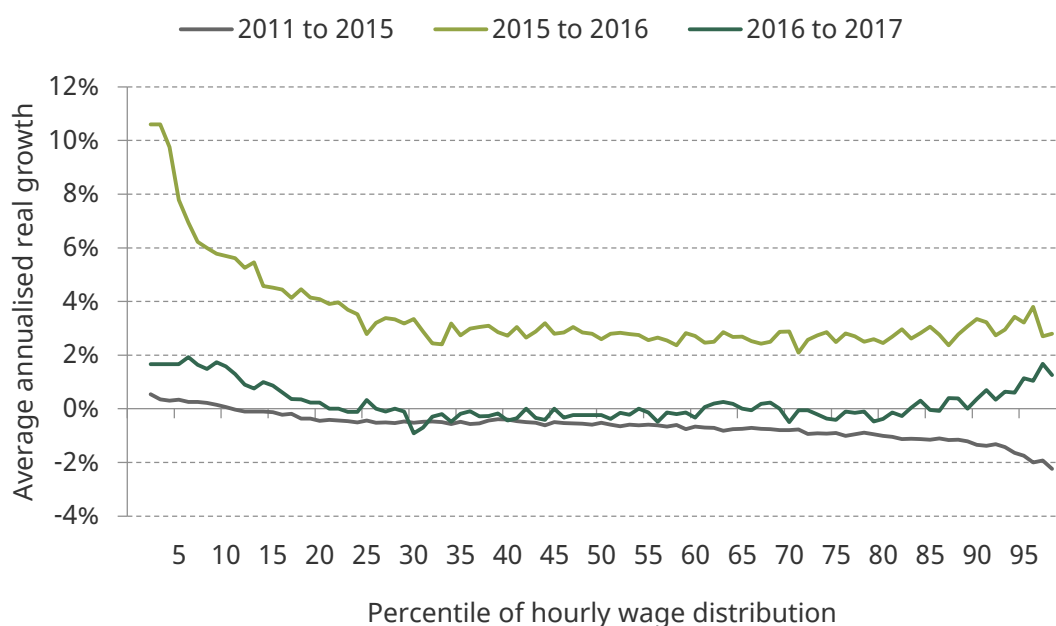
Note: Wage percentiles are measured in April of each year and expressed in April 2016 prices. Real wages are rounded to two decimal places if they are less than £25 and to one decimal place if they are greater than or equal to £25. Sample includes employees aged 25 and over on adult rates of pay whose pay was not affected by absence. Figure excludes percentiles 1 and 99.

Source: Authors' calculations using the Annual Survey of Hours and Earnings, 2011, 2015, 2016 and 2017.

There are three main points to take from Figure 6.2. First, wage growth between April 2015 and April 2016 (following the introduction of the NLW) was far greater at the bottom of the wage distribution than at the middle or top of the wage distribution. Wages at the 5th and 10th percentiles grew by 7.8% and 5.7% respectively between 2015 and 2016, compared with growth of 2.6% at the median and 3.3% at the 90th percentile. While real wage growth was weaker between 2016 and 2017, largely due to significantly higher inflation, real wages at the 5th and 10th percentiles grew by 1.7% and 1.6% respectively,

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[40] The pattern of wage growth shown in Figure 6.2 has been documented and discussed in other publications such as Low Pay Commission (2017) and D'Arcy (2018). The novel element of our analysis is that we focus on how this pattern of wage growth has had a knock-on effect on the earnings and household incomes of low-wage workers.

compared with −0.2% at the median and 0.4% at the 90th percentile. As a result of these changes, real hourly wages in 2017 at the 10th, 50th (median) and 90th percentiles were £7.70, £13.00 and £27.90 respectively, whereas the 5th percentile was £7.30 (which is equal to the value of the NLW in 2016–17 prices).

Second, while the largest wage increases occurred at the very bottom of the wage distribution, wage growth was stronger across the bottom 20% of the distribution than it was further up. One possible driver of this is 'spillover' impacts on the wages of workers who are paid slightly above the legal minimum.

Finally, the pattern of higher wage growth for low-wage earners observed since 2015 is a much more exaggerated version of that observed between 2011 and 2015. In the four years prior to the introduction of the NLW, wage growth was slightly higher towards the bottom of the wage distribution, although the difference in growth rates was smaller than that observed between 2015 and 2016. Wages at the 10th percentile grew at an average annual rate of 0.1% between 2011 and 2015, in comparison with growth of −0.5% at the median.

The pattern of real wage growth shown in Figure 6.2 followed a period of falling real wages in the years during and immediately after the 2008 recession. This can be seen in Figure 6.3, which shows how selected percentiles of the hourly wage distribution have changed in real terms (i.e. after adjusting for inflation), since April 2008. This shows that while the median hourly wage in 2017 was 2.6% lower than in 2008, wages at the 5th and 10th percentiles were 8.4% and 5.2% higher respectively. Focusing on the period since the NLW was introduced shows that the 5th percentile grew by 9.6% between 2015 and 2017, whereas the 10th percentile grew by 7.4%. These recent increases considerably outpace growth over any two-year period in the mid and late 2000s and are similar to those that were observed in the early 2000s, when overall wage growth was strong and the National Minimum Wage had been introduced.

Figure 6.3. Change at percentiles of the real hourly wage distribution since 2008 (GB, employees aged 25+)
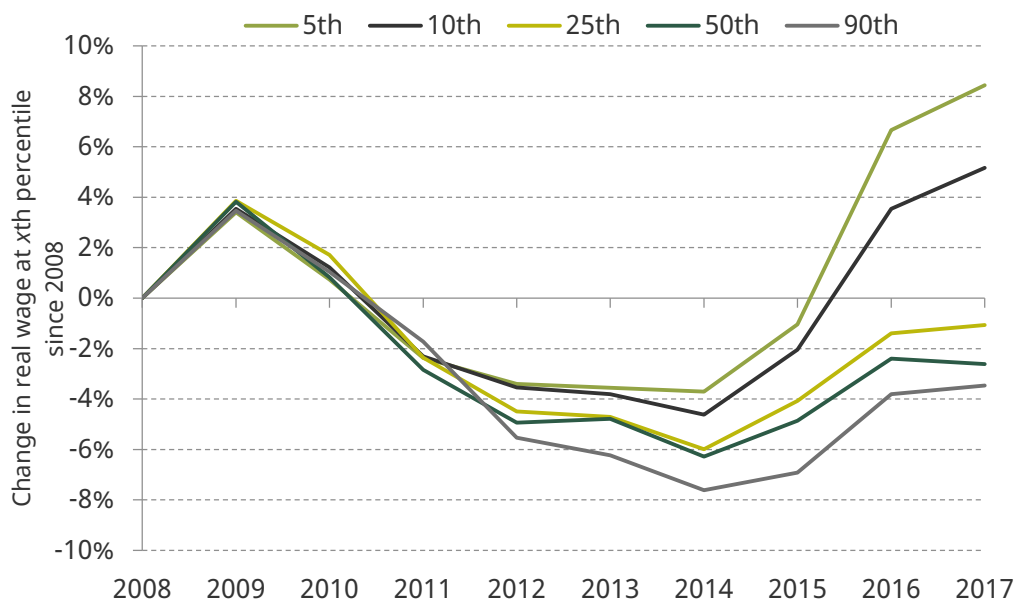
Note: Wage percentiles are measured in April of each year. Real wages are rounded to two decimal places if they are less than £25 and to one decimal place if they are greater than or equal to £25. Sample includes employees aged 25 and over on adult rates of pay.

Source: Authors' calculations using the Annual Survey of Hours and Earnings, 2008 to 2017.

Although Figures 6.2 and 6.3 have shown that hourly wages rose significantly for low-wage employees in 2016 and 2017, this may not have led to higher weekly earnings if they work fewer hours (potentially as a result of the higher minimum wage). Figure 6.4 shows how the changes in hourly wages shown in Figure 6.2 compare with changes in weekly earnings – specifically by looking at whether employees with low hourly wages have seen increases in their weekly pay. The figure splits employees aged 25 and over into 10 equally sized groups according to their hourly wage rate (wage deciles) and plots the growth in mean hourly wages and weekly earnings among each group.[41] Again, we compare growth in the first two years of the NLW (2015 to 2017) with growth in the preceding four years (2011 to 2015).

The figure shows that weekly earnings have grown at a similar rate to hourly wages for employees at the bottom of the wage distribution following the introduction of the NLW. Mean gross weekly earnings among workers in the lowest wage decile grew at an average yearly rate of 5.1% between 2015 and 2017 compared with growth of 4.8% in their hourly wages. The similar rate of growth in weekly earnings and hourly wages for low-paid employees is the result of little change in their average hours of work from 2015 to 2017. The figure also shows that weekly earnings growth for low-wage workers has been much stronger (in real terms and compared with higher-earning employees) since 2015 than in the preceding years, although between 2011 and 2015, average hours of work among the low-paid grew, after falling steeply during the recession.

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[41] Weekly earnings are capped at the 5th and 95th percentiles of the weekly earnings distribution to avoid a few extreme values driving changes in the averages shown in Figure 6.4.

Figure 6.4. Real growth in mean hourly wages and weekly earnings by hourly wage decile (GB, employees aged 25+)
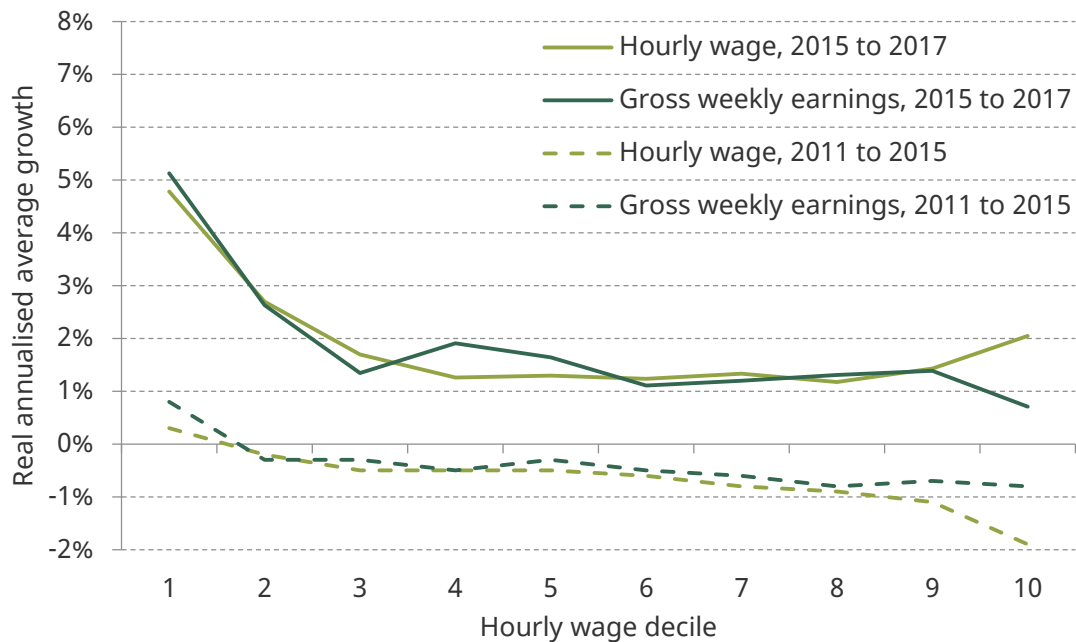
Note: Average wages and earnings are measured in April of each year. Sample includes employees aged 25 and over on adult rates of pay. Weekly earnings are capped (Winsorised) at the 5th and 95th percentiles of the weekly earnings distribution.

Source: Authors' calculations using the Annual Survey of Hours and Earnings, 2011, 2015 and 2017.

Although we cannot quantify precisely the causal effects of the NLW from this descriptive analysis, the data presented so far indicate fairly strongly that its introduction has significantly boosted both the hourly wages and the weekly earnings of many low-wage workers. However, one reason that a higher minimum wage would be damaging for the living standards of low-wage workers is if it leads to some low-paid workers being made unemployed and/or means that unemployed people spend longer out of work as it is harder for them to find a job. Indeed, the Office for Budget Responsibility (OBR) predicts the NLW will result in 60,000 more people being unemployed in 2020 than would otherwise be the case, which is equivalent to roughly a 0.2 percentage point increase in unemployment.[42] Although there is no evidence to date that minimum wages in the UK have had significant adverse employment effects, it will be important to keep track of changes in employment as the minimum wage continues to increase over the coming years.

In summary, the analysis so far has shown that, in the first two years of the National Living Wage, hourly wages and weekly earnings have grown substantially more for the lowest-wage employees than for middle- or higher-earning employees. This is the starting point for the analysis that follows, where we relate these trends in individual earned incomes to trends in net household incomes – which will, much of the time, be a better proxy for living standards. We split this analysis into broadly two parts. We first continue to focus on low-wage workers but trace through the trends in their earnings to the trends in their net

[42] See annex B of Office for Budget Responsibility (2015).

household incomes. Second, we examine the characteristics of these low-wage workers in more detail, including where they are in the net household income distribution.

6.2   Living standards and the National Living Wage

The real growth in hourly wages (and weekly earnings) for low-paid employees since 2015 has been substantial. However, this does not necessarily mean that low-wage workers have seen equivalent improvements in their living standards as measured by their household incomes. This is because living standards are influenced by many additional factors, such as taxes, the earnings of other household members and other types of income such as state benefits and tax credits. We now address this directly and examine how the living standards of employees have changed following the introduction of the National Living Wage.

To look at how employees' living standards have changed following the introduction of the NLW, we need to draw on data that contain information on sources of income other than just earnings from employment. The best, and most up-to-date, source of such data is the Family Resources Survey. The latest version of the FRS covers the 2016–17 financial year, which means we have to restrict our analysis to the first full year of the NLW. In comparison with the Annual Survey of Hours and Earnings data used in the preceding section, the FRS provides much richer information on household characteristics and incomes but is very likely to contain more inaccuracies in the recording of employees' hourly wages.

Despite the imperfect wage information in the FRS, we do see faster growth in wages at the bottom of the distribution following the introduction of the NLW, and a large increase in the number of people earning around the new minimum wage.[43] We therefore think that the data are accurate enough to provide insightful information about changes in the living standards of low-wage employees, even though, if just the best measure of wages (and not incomes) were wanted, ASHE would be the preferable source. However, the FRS consistently records a greater fraction of employees paid less than the minimum wage than is observed in ASHE, which is primarily due to some measurement error in reported working hours.[44] The FRS has a much smaller sample size, so the analysis in this section splits employees into five 'quintiles' based on their hourly wages, rather than the ten 'deciles' used in the previous section.

There are various factors that can determine how changes in wages affect individuals' living standards as measured by their household incomes. A first key factor is the direct

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[43] Figure D.1 in Appendix D shows growth across the wage distribution observed in the FRS. Because the FRS is collected over the duration of a financial year, whereas ASHE is recorded in April each year, the pattern of wage growth observed in the FRS will not align with that observed in ASHE. Strong wage growth in the bottom of the distribution is observed in both data sets, which gives us confidence the FRS can be used to examine trends in living standards of low-wage workers following the introduction of the NLW (although the trends for higher earners are slightly different).

[44] Figures D.2 and D.3 plot the bottom part of the wage distribution observed in ASHE and the FRS respectively. They show that 2.0% of employees aged 25 and over were paid below the legal minimum according to the April 2016 ASHE data, compared with 13.2% according to the 2016–17 FRS. Although illegal underpayment of the NLW does occur, best estimates suggest it is far less prevalent than the scale of underpayment observed in the FRS. For example, see Mor and Brown (2018).

tax system. To illustrate this, Figure 6.5 plots growth between 2015–16 and 2016–17 in gross (pre-tax) weekly earnings and net (post-tax) weekly earnings for each quintile of the wage distribution.[45]

The main point to take from Figure 6.5 is that most, but not all, of the boost to gross weekly earnings has led to higher net weekly earnings (or 'take-home pay') of low-wage workers. For example, gross weekly earnings grew by 5.7% in the lowest wage quintile (equal to £585 per year) whereas net weekly earnings grew by 4.7% (£434 per year). However, net weekly earnings growth in 2016–17 was still materially faster for low-wage employees than for those on average wages.

Figure 6.5. Real growth in mean gross weekly earnings and net weekly earnings between 2015–16 and 2016–17, by hourly wage quintile (UK, employees aged 25+)
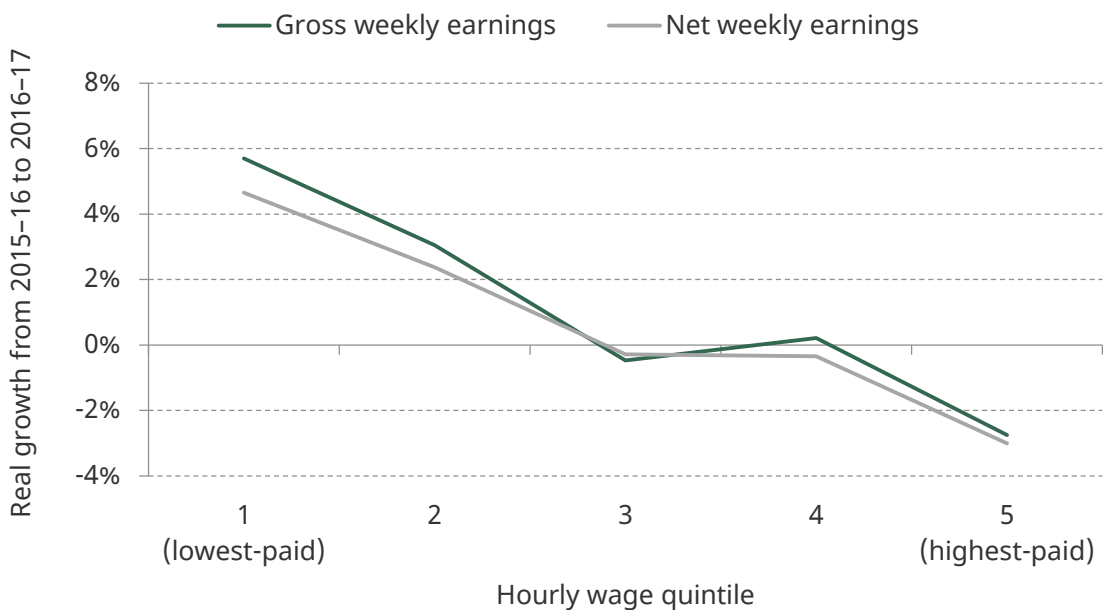
Note: Gross and net weekly earnings are capped (Winsorised) at the 5th and 95th percentiles. Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution.

Source: Authors' calculations using the Family Resources Survey, 2015–16 and 2016–17.

While there has been significant growth in individual post-tax earnings among low-wage employees, this does not necessarily mean there has been equivalent growth in their living standards (measured by their total household net income).

Figure 6.6 examines growth in households' (post-tax) earnings from employment and households' total net incomes (including benefits and tax credits). The figure shows that accounting for the earnings of other household members slightly suppresses the impact of relatively strong individual earnings growth among low-wage workers. While average individual net earnings grew by 4.7% in the bottom wage quintile between 2015–16 and

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[45] To prevent very high and low incomes from driving the results, we 'cap' (or 'Winsorise') earnings and incomes at the 5th and 95th percentiles of their distributions, and look at the average change after doing this.

2016–17, household net earnings grew at the slower rate of 2.2%. Figure 6.6 also shows that growth in equivalised net household incomes for low-wage workers was much lower than growth in individual or household net earnings. Average living standards among workers in the lowest-paid 20% of employees aged 25 and over increased by 0.4% (equal to £90 per year) between 2015–16 and 2016–17, compared with falls of between 0.3% and 0.5% among workers in the higher wage quintiles.

There are a number of reasons for the muted impact that strong earnings growth has had on the average net incomes of low-wage employees. First, individuals' net earnings from employment are only a small fraction (32%) of total household income among low-paid workers. This means that growth in their net earnings will have a smaller impact on growth in their household income than for higher earners for whom earnings make up a larger fraction of their income. Second, as well as higher direct taxes, increases in earnings will have led to lower benefit entitlements for some low-wage employees. Third, other sources of income fell in 2016–17 among low-paid employees – in particular, the pay (including self-employment income) of higher-earning partners – pushing down average living standards.

Figure 6.6. Real growth in mean individual and household net weekly earnings and net household income (BHC) between 2015–16 and 2016–17, by wage quintile (UK, employees aged 25+)
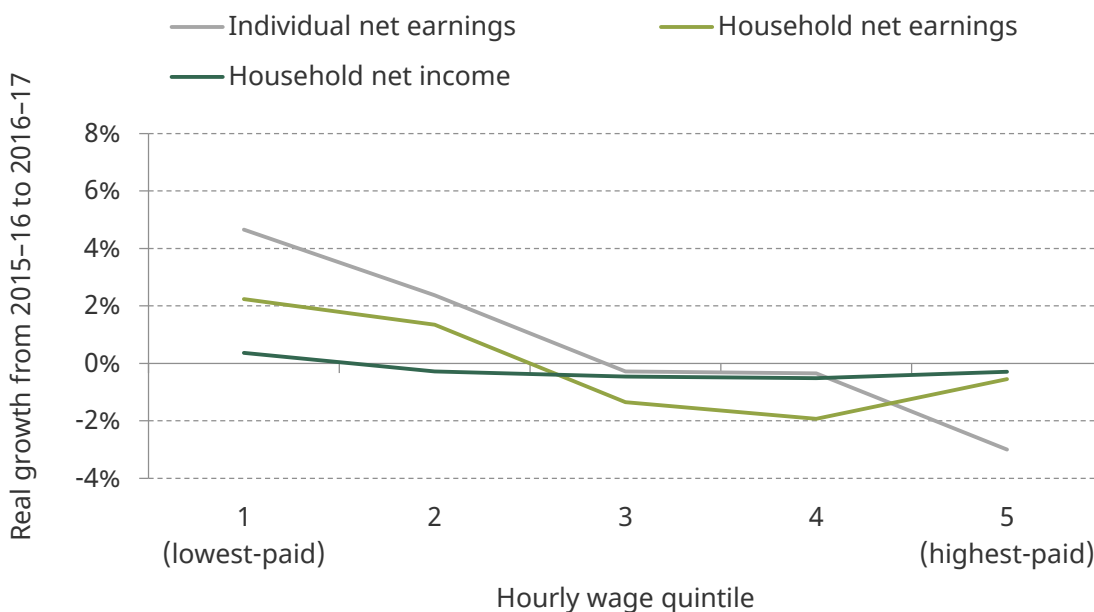
Note: Individual net earnings are Winsorised at the 5th and 95th percentiles. Household net earnings and income are Winsorised similarly and equivalised using the modified OECD scale. Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution. Household income is measured net of taxes, benefits and tax credits but before housing costs have been deducted (BHC).

Source: Authors' calculations using the Family Resources Survey, 2015–16 and 2016–17.

The fact that falls in earnings (including from self-employment) for higher-earning partners suppressed living standards of low-wage employees in 2016–17 means that if we focus on low-wage workers in low-income households (who are less likely to have high-

earning partners), the trends are more positive. Indeed, the living standards of low-wage employees with below-average household income grew by 1.9% in 2016–17 in contrast to growth of –2.1% among low-wage employees with above-average household income.

Improvements in the living standards of low-wage workers in the lowest-income households can also be seen in falls in absolute poverty among low-wage employees. This is shown in Figure 6.7, which plots the absolute (AHC) poverty rate for employees. The figure shows that the prevalence of absolute poverty among employees in the lowest wage quintile decreased from 24% in 2015−16 to 22% in 2016−17, whereas it rose for employees with higher wages (who saw lower wage growth in 2016–17). Figure D.4 in Appendix D shows that relative (AHC) poverty among workers in the bottom wage quintile fell between 2015−16 and 2016−17 from 26.4% to 26.0%, whereas it increased slightly among workers in higher wage quintiles. This is not conclusive evidence that the higher minimum wage reduced poverty for low-wage employees. However, it is striking that the poverty rate has fallen for those who appear to have been most affected by the higher minimum wage, while it has risen for higher-earning employees, who were much less affected. It will therefore be interesting to see whether these trends continue in coming years as the NLW continues to rise faster than average earnings.

Figure 6.7. Absolute AHC poverty rates by wage quintile (UK, employees aged 25+)
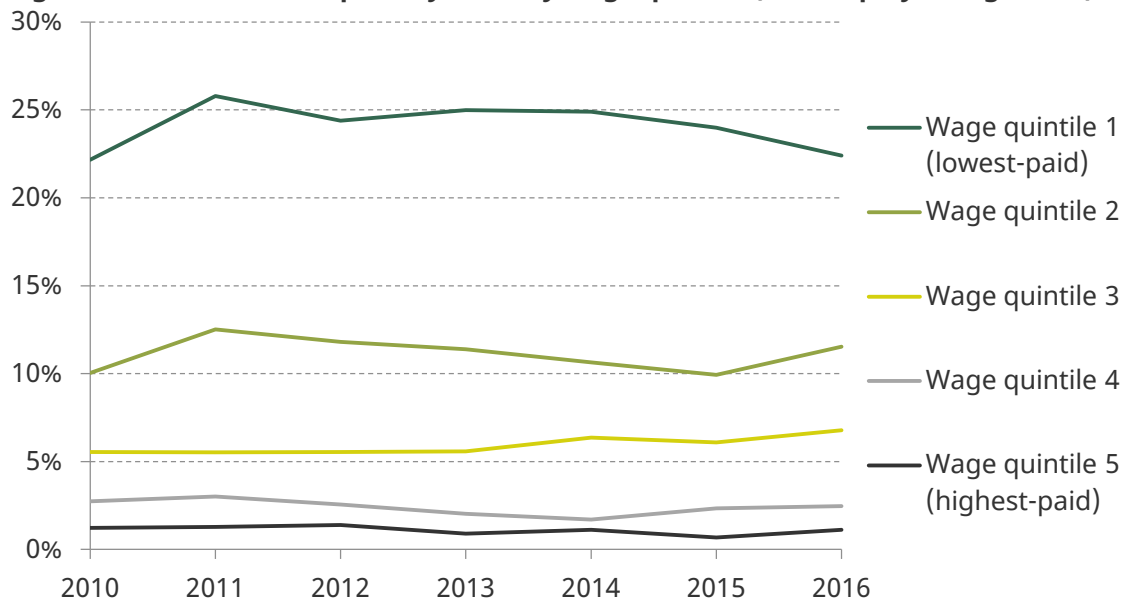
Note: Years refer to financial years. The absolute poverty line is defined as 60% of median income (measured after housing costs have been deducted – AHC) in 2010–11. Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution.

Source: Authors' calculations using the Family Resources Survey, 2010–11 to 2016–17.

In summary, growth in hourly and weekly pay for workers on low wages was strong after the introduction of the National Living Wage. But the growth in net household incomes for those workers was much more muted, and little different from the growth seen for those on higher wages. Although this may seem counterintuitive, it is in fact in line with what we should expect from previous analysis of the issue, conducted without the benefit of data on what actually happened after the NLW was introduced (e.g. Elming et al., 2015). There are three key reasons. First, the fact that a low-earning individual's earnings are typically only a small part of their total household income means that the proportional impact of an

earnings rise on total income tends to be diluted. Second, as earnings rise, benefit entitlements can be reduced and tax liabilities can increase, offsetting some of the impacts on net income. Third, there were falls in other sources of income in 2016–17 for low-paid employees with above-average incomes – in particular, the pay (including self-employment income) of higher-earning partners – which led to small falls in their average living standards. In contrast, there were modest improvements in the average living standards of low-wage employees with below-average incomes in 2016–17, which led to a slight reduction in the fraction of low-wage workers in poverty.

6.3   Which groups have been most affected by the introduction of the NLW?

To help understand which types of people have been most affected by the increase in wages for low-wage employees, Figure 6.8 presents a range of characteristics for employees who report being paid low wages (the lowest 20%) alongside all employees. The figure suggests that women were affected to a greater extent by the introduction of the NLW than men: 64% of employees in the bottom wage quintile are women, compared with 50% among all employees. A majority of employees in the bottom wage quintile have a working partner (although this is slightly less common than among employees as a whole, accounting for 56% of low-paid employees versus 63% of all employees). Mothers, and lone parents in particular, are also over-represented among low-paid employees, which is likely related to the fact that part-time workers tend to have lower hourly wages.[46]

Figure 6.8. Characteristics of employees aged 25+ in 2016–17 (UK)
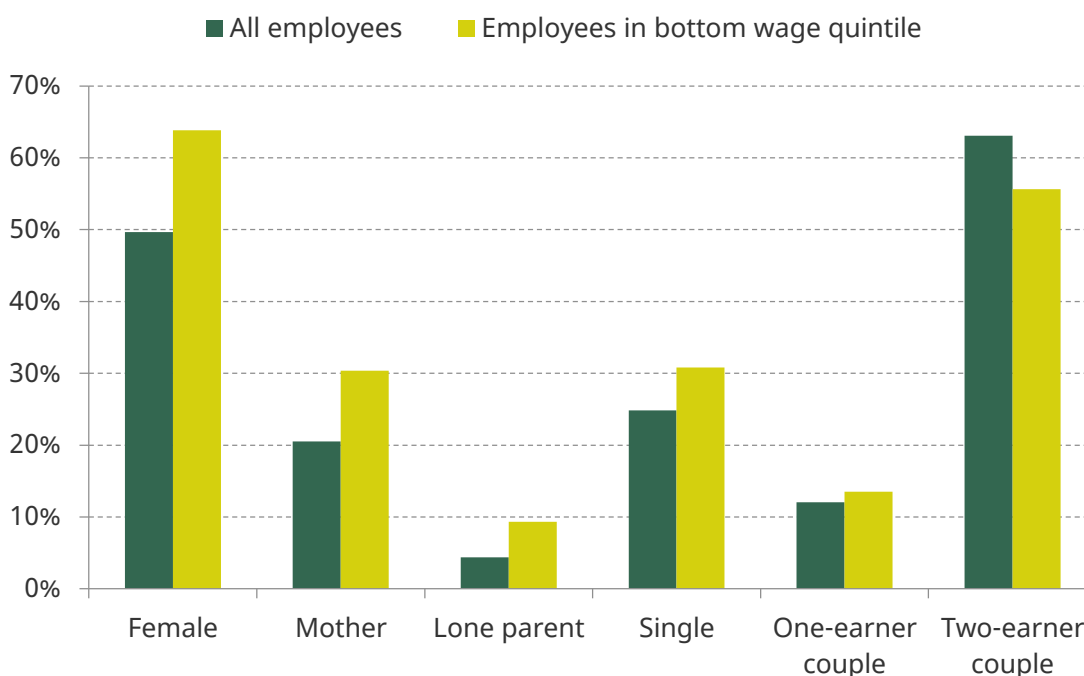
Note: Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution.

[46] For example, 38.4% of employees in the bottom wage quintile in 2016–17 worked part-time in comparison with 20.3% of all employees.

The effects of the NLW are also likely to vary across the different regions and nations of the UK because of differences in the prevalence of low-wage employment. This can be seen in Figure 6.9, which plots the fraction of employees (aged 25+) in each region and nation that are in the lowest-paid 20% of UK employees in 2016–17. The figure shows that employees in the Midlands, the North of England, Wales and Northern Ireland are more likely to be in the bottom 20% of the wage distribution than employees on average. This suggests that the NLW has affected and will continue to affect a greater portion of the labour market in these parts of the country, and less in southern England and Scotland, where low-paid work is less prevalent.[47]

Figure 6.9. Fraction of employees aged 25+ in the bottom wage quintile in 2016−17, by region and nation of the UK

Note: Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution.

Source: Authors' calculations using the Family Resources Survey, 2016–17.

The distinction between low individual wages or earnings and low household income is often glossed over, but can be crucial in understanding the distributional effects of policy – as was shown in the previous section when examining how changes in individual wages compared with changes in household incomes. However, the National Living Wage was announced alongside several cuts to the generosity of working-age benefits, which have a negative impact on the incomes of low-income households. The then Chancellor, George Osborne, said that 'taken together with all the welfare savings and the tax cuts in [the July 2015] Budget, [the NLW] means that a typical family where someone is working full time

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[47] Another way to assess the relative impact of the NLW across UK regions and nations looks at the NLW as a share of median earnings within each region and nation. In general, this measure suggests the NLW has a greater impact in the same parts of the UK as those highlighted in Figure 6.9. (For example, see figure 2.3 of Low Pay Commission (2017).)

on the minimum wage will be better off'.[48] There are undoubtedly some households where this is the case. The extent to which it is true more generally, however, will depend on whether low-paid employees are members of low-income households.

To look at this, Figures 6.10a and 6.10b plot the fraction of employees with the lowest 20% of hourly wages in the FRS that belong to each decile of the *household* net income distribution. In Figure 6.10a household net income deciles are defined over working-age adults only, whereas in Figure 6.10b they are defined over the entire population (i.e. children and pensioners are also included). Figure 6.10a shows that while 23% of workers in the bottom wage quintile were also among the lowest-income 20% of the working-age population in 2007–08, by 2016–17 this had risen to 26%. Low-wage workers and low-income adults have therefore become slightly more synonymous since the recession.

Figure 6.10b similarly shows that low-wage workers have also become more synonymous with low-income households in the population as a whole, with the fraction of low-wage workers in the bottom quintile of the household net income distribution rising from 17% to 22%. In all likelihood, this is as a result of the large increases in employment seen since 2011–12 (as shown in Chapter 3), which have disproportionately been concentrated among low-income households. This means that the NLW is slightly better targeted at low-income households now than had it been introduced in 2007, and it is likely to continue to become more targeted at low-income households if the employment rate in these households continues to rise. However, Figure 6.10b also shows that a large fraction of workers in the bottom wage quintile are members of middle- and high-income households. For example, 25% of employees in the bottom wage quintile belong to the middle 20% of the income distribution and 38% have above-average household income. One reason for this is that many low-wage workers have a working partner (as shown in Figure 6.8) and most two-earner couples are in the middle or top of the income distribution.

Figure 6.10a. Fraction of employees in bottom wage quintile in each household income decile (UK, working-age population only)
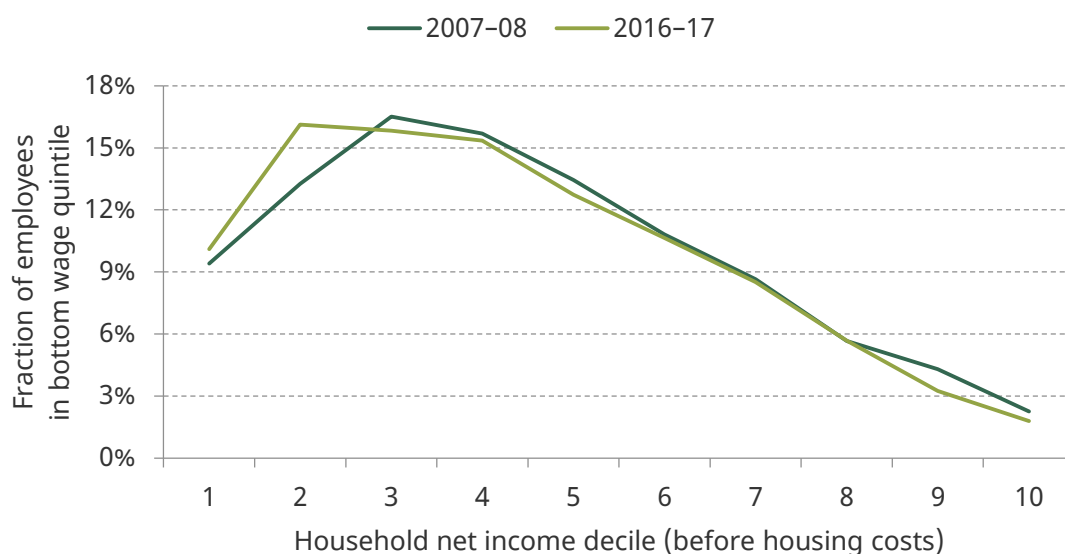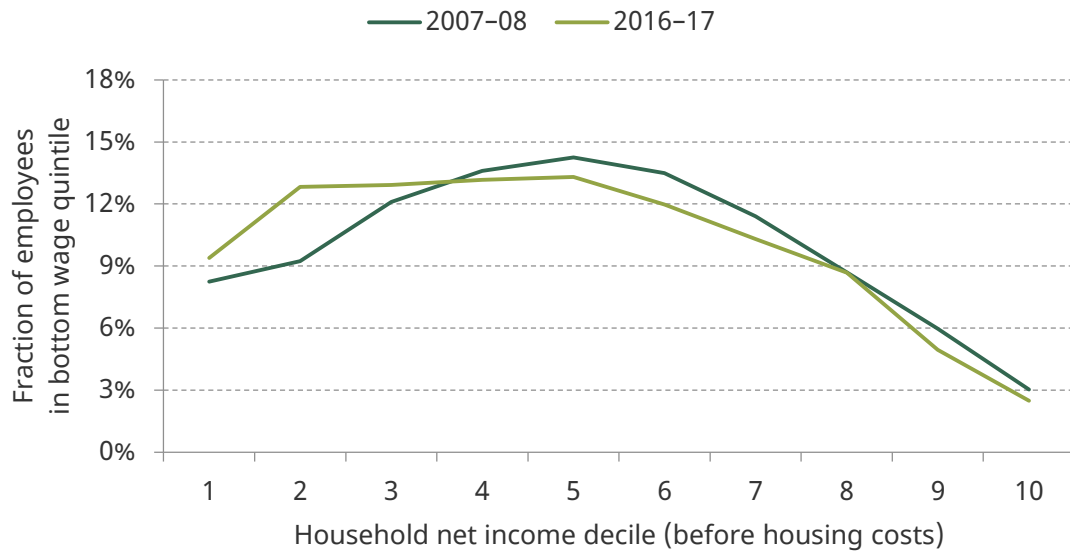
Note: Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution. Household income deciles are calculated over working-age adults only.

Source: Authors' calculations using the Family Resources Survey, 2007–08 and 2016–17.

Figure 6.10b. Fraction of employees in bottom wage quintile in each household income decile (UK, entire population)

Note: Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution. Household income deciles are calculated over the entire population.

Source: Authors' calculations using the Family Resources Survey, 2007–08 and 2016–17.

Figure 6.11 shows the simulated impact of the personal tax and benefit reforms announced since July 2015 on the average net incomes in each decile of the (BHC) net income distribution and in the entire population. While these reforms are estimated to reduce average income by 1% in the population as a whole, the negative impact on incomes is much greater among lower-income households, with average losses in the bottom, second and third income deciles estimated at 11%, 8% and 5% respectively. Comparing this with Figure 6.10b makes it clear that only a minority of those who are likely to gain most from the NLW are in the low-income households that stand to lose the most from the benefit reforms since July 2015. In other words, minimum wages are far less tightly targeted on those with low household incomes than are working-age benefits. In particular, this makes any suggestion of minimum wages 'compensating' for benefit cuts rather tenuous, as has previously been shown by Elming et al. (2015).The reasoning is clear: entitlements to means-tested benefits can be, and are, explicitly related to family incomes, in a way that minimum wages cannot be.

Figure 6.11. Long-run impact of personal tax and benefit reforms since 2015
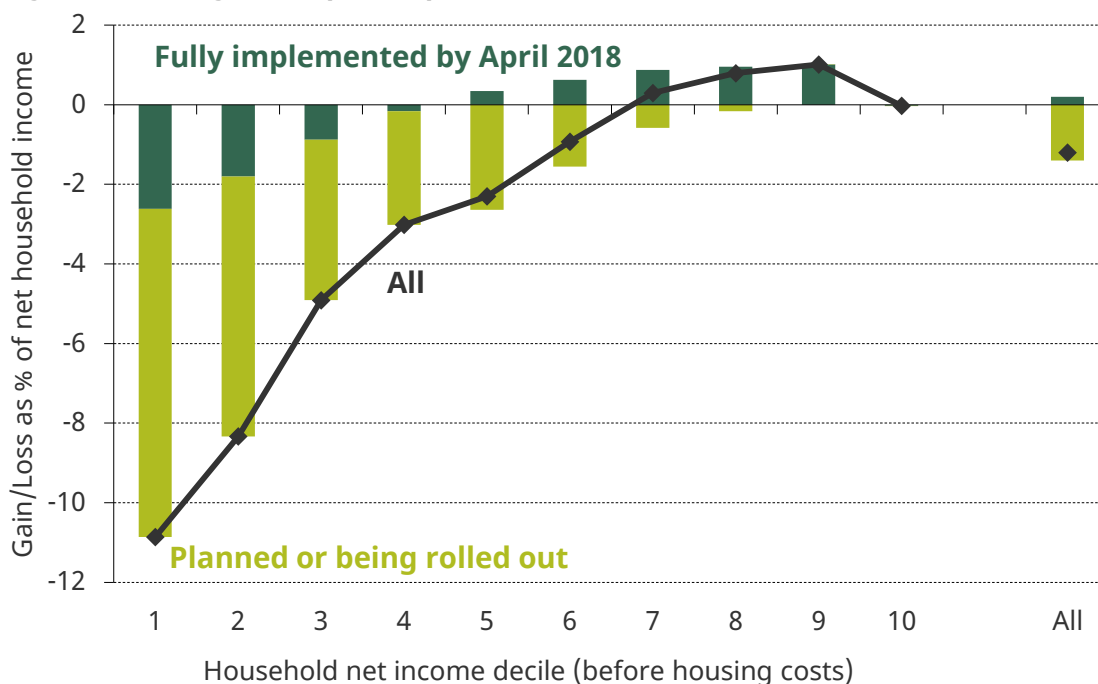
Note: Reforms assessed relative to following the default uprating rules in place at the start of the 2015 parliament. Baseline incomes are also those that would have applied under the system in place at the start of the 2015 parliament. Reforms 'being rolled out' include: the transition from disability living allowance (DLA) to personal independence payment (PIP); the abolition of the work-related activity group in employment & support allowance (ESA); the introduction of the two-child limit and removal of the family element in tax credits and universal credit; and the transition to universal credit.

Source: Authors' calculations using IFS microsimulation model, TAXBEN, run on uprated data from the 2015–16 Family Resources Survey and 2014 Living Costs and Food Survey.

6.4   Conclusion

This chapter has presented evidence that the hourly wages and weekly earnings of low-wage employees have grown substantially in the years after the introduction of the National Living Wage. Changes in the average household incomes of low-wage employees (a measure of their material standard of living) have been more muted, although this group has seen greater reductions in poverty than higher-wage employees.

The analysis in this chapter makes a number of further key points. First, if policymakers wish to lift the incomes of the lowest-paid employees, then a higher minimum wage might be an effective strategy, as long as they do not set the minimum wage so high as to substantially lower the employment rate of these people.

However, the minimum wage is not particularly well targeted at low-income households, as many low-wage workers are members of middle-income households and many of the poorest in society are not in work at all. Although it is better targeted now than had it been introduced in 2007, only around a quarter of those most affected by the NLW are in the poorest 20% of households and, for many poor households, ongoing reductions to benefit and tax credit entitlements will push down their incomes by much more than the higher minimum wage is able to boost them.

Finally, it is worth reiterating that the NLW still has to increase from the current £7.83 rate to reach its 2020 target rate, of £8.57 according to latest estimates (a 5.4% rise in real terms).[49] As well as taking the UK's minimum wage to an unprecedentedly high level relative to average earnings, these rises will occur during the unique economic context of Britain leaving the EU. This means that even though there is no evidence *so far* that the NLW has had a significant negative impact on employment, there is no guarantee that this will continue to be the case, particularly as the minimum wage rises. One reason to be more concerned about future minimum wage rises is that the minimum wage will increasingly affect employees who are more likely to be working in jobs undertaking tasks that are more 'routine' and therefore more easily automated under current technologies (Cribb, Joyce and Norris Keiller, 2018). With an increasing minimum wage, if significant negative employment effects did materialise, there would be a strong case for the NLW to be reassessed to prevent the policy harming the group of low-wage workers it was designed to help.

[49] See the supplementary economy tables of the OBR's March 2018 Economic and Fiscal Outlook.

Appendix A. The Households Below Average Income (HBAI) methodology

Income as a measure of living standards

Most people would consider that well-being consists of more than a simple measure of material circumstances. However, even if we wanted to, it would be extremely hard to define an objective index of well-being, let alone to measure it. The main approach to measuring living standards taken in the government's HBAI document (and in this report) is to focus solely on material circumstances and, for the most part, to use household income as a proxy for that.

For families with children and pensioners, 'material deprivation' indicators are also used, to complement the information on living standards provided by income. These indicators are based on questions that effectively ask people whether they can afford to do particular things, with the precise procedure differing between families with children and pensioners. Chapter 4 provides analysis of changes in material deprivation according to these indicators. We also use these questions in Chapter 5, to construct an indicator of material deprivation for working-age adults (with or without children), in order to analyse the living standards of those in poor health.

Even as a measure of material living standards, the HBAI income measure has some important limitations. There is some evidence of under-reporting of income in the HBAI data, particularly among those households with extremely low reported incomes.[50] Even for those households whose income is measured correctly, HBAI provides a 'snapshot' measure – reflecting actual, or in some cases 'usual', income at around the time of the Family Resources Survey interview. Measuring income in this way means the HBAI income statistics capture both temporary and permanent variation in income between individuals, but the latter would generally be regarded as a better measure of their relative welfare. For example, having a temporarily low income is unlikely to have severe consequences for current material living standards if individuals are able to draw on previously accumulated wealth. Statistics based upon current incomes will attribute the same level of welfare to people with the same current income, regardless of how much savings or other assets they have, or how much they spend. Consumption would arguably make a better measure of material well-being, but reliable data can be harder and more expensive to collect. Using consumption as the measure of well-being can change our interpretation of who is 'poor' and how rates of poverty have changed over time.[51]

The treatment of housing costs

The government's HBAI publication provides information on two measures of income. One measure captures income before housing costs are deducted (BHC) and the other is a measure after housing costs have been deducted (AHC). The key housing costs captured

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[50] See Brewer, Etheridge and O'Dea (2017).

[51] See Brewer, Goodman and Leicester (2006), Brewer and O'Dea (2012), Brewer, Etheridge and O'Dea (2017) and Office for National Statistics (2018).

in the HBAI data are rent payments and mortgage interest payments, but they also include water rates, community water charges, council water charges, structural insurance premiums for owner-occupiers, and ground rents and service charges. Mortgage capital repayments are not included, on the basis that these represent the accumulation of an asset (they increase net housing wealth) and are therefore better thought of as a form of saving than as a cost of housing. Costs such as maintenance, repairs and contents insurance are also not included.

When looking at changes in average living standards across the population as a whole, there is usually a strong case for focusing on income measured BHC. This is because most individuals exercise a considerable degree of choice over housing cost and quality, at least in the medium and long term, and for those individuals housing should be treated as a consumption good like any other (i.e. the amount that households choose to spend on it should not be deducted from income). For instance, consider two households with the same BHC income, one of which decides to spend a larger fraction of that income on a larger house in a better neighbourhood, while the other has different preferences and chooses to spend the difference on other things. On an AHC basis, the former household would be considered poorer, but their living standards may be comparable.

There are, however, a number of reasons to focus on income measured AHC in certain circumstances.

First, income measured AHC may provide a better indicator of the living standards of those who do not face genuine choices over their housing, particularly if housing cost differentials do not accurately reflect differences in housing quality. This is likely to be the case for many in the social rented sector, where individuals tend to have little choice over their housing and where rents have often been set with little reference to housing quality or the prevailing market rents.

Second, the existence of housing benefit means that measuring income AHC has an advantage over BHC as a measure of living standards for housing benefit recipients. This is because housing benefit reimburses individuals specifically for their rent. Consider a household with no private income whose rent increases by £10 per week. This might trigger a £10 increase in housing benefit entitlement to cover the rent increase. Hence, AHC income would remain unchanged but BHC income would increase by £10 per week. Therefore, where rent changes do not reflect changes in housing quality – for example, when they simply reflect changes in the rules governing social rents – the subsequent changes in BHC (but not AHC) income can give a misleading impression of the change in living standards of households on housing benefit.

Third, measuring income AHC may be more appropriate than BHC when comparing households that own their home outright (and so pay no rent or mortgage interest costs) with those that do not. On a BHC basis, an individual who owns their house outright will be treated as being as well off as an otherwise-identical individual who is still paying off a mortgage; an AHC measure, though, would indicate that the former was better off.[52] This is particularly important when comparing incomes across age groups – pensioners are much more likely to own their homes outright than working-age adults.

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[52] A conceptually better solution to this problem would be to impute an income from owner-occupation and add this to BHC income. Unlike the AHC measure, this would also capture the benefits to individuals of living in better-quality housing. See Brewer and O'Dea (2012) for an example of such an imputation procedure.

Fourth, comparing changes in AHC incomes may provide better information about relative changes in living standards when some households have seen large changes in their housing costs that are unrelated to changes in housing quality. This is particularly relevant when looking at the period between 2007–08 and 2009–10, as rapid falls in mortgage interest rates reduced the housing costs of those with a mortgage significantly, while the housing costs of those who rent their homes (or own them outright) were not directly affected. When incomes are measured BHC, changes over time in the incomes of all households are adjusted for inflation using a price index that accounts only for *average* housing costs. This will understate the effect of falling housing costs on living standards for those with a mortgage and overstate it for those without a mortgage. Changes in income measured AHC do not suffer from this issue, since changes in housing costs are accounted for by subtracting each household's actual housing costs from its income. This difference is important to bear in mind when looking at changes in poverty and inequality. Those towards the bottom of the income distribution (around the poverty line), as well as the youngest and oldest adults, are less likely than average to have a mortgage.

Income sharing

To the extent that income sharing takes place within households, the welfare of any one individual in a household will depend not only on their own income, but also on the incomes of other household members. By measuring income at the household level, the HBAI statistics implicitly assume that all individuals within the household are equally well off and therefore occupy the same position in the income distribution. For many households, this assumption provides a reasonable approximation – for example, many couples benefit roughly equally from income coming into the household, no matter who the income is paid to. For others, it is unlikely to be appropriate. Students sharing a house are one probable example. Perfect income sharing is by no means the only 'reasonable' assumption that one could make: for example, one could effectively assume that there is complete income sharing *within* the different benefit units[53] of a household but not *between* them, by measuring incomes at the benefit unit level rather than at the household level (and making an assumption about how housing costs are split across benefit units). However, given the data available, perfect income sharing is one of the least arbitrary and most transparent assumptions that could be made.

Comparing incomes across households

Controlling for household size and structure is important when comparing living standards across households. If two households, one composed of a single adult and the other composed of a couple with two children, both have the same total income, the living standard of the couple with children will usually be significantly lower than that of the single adult, as the larger household normally has a greater need for material resources. Therefore, if household income is to reflect the standard of living that household members experience, and if we are to compare these incomes across different household

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[53] Benefit units are the level at which benefits are paid to people. A benefit unit can be either a single person or a couple, plus any dependent children of that single person or couple. For this reason, a benefit unit is frequently described as a 'family'. However, people living together who are related can be in two separate benefit units. For example, a household composed of a couple living with one of their parents would be two separate benefit units, as would a household composed of two adult siblings living together.

types, then some method is required to adjust incomes for the different needs that different households face.

Table A.1. Modified OECD equivalence scales

	BHC equivalence scale	AHC equivalence scale
First adult	0.67	0.58
Spouse	0.33	0.42
Other second adult	0.33	0.42
Third and subsequent adults	0.33	0.42
Child aged under 14	0.20	0.20
Child aged 14 and over	0.33	0.42

The official HBAI income statistics currently use the modified OECD equivalence scale for BHC incomes, and an AHC variant from the Department for Work & Pensions (DWP), shown in Table A.1. These equivalence scales are used to adjust incomes on the basis of household size and composition. For example, when income is measured before housing costs, the OECD scale implies that a single person would require 67% of the income that a childless couple would require to attain the same standard of living. So, to get the equivalent income of that single person, we divide their actual income by 0.67. This process is referred to as 'income equivalisation'. Having equivalised household incomes, cash income figures are expressed as the equivalents for a childless couple, i.e. a household's income is expressed as the amount that a childless couple would require to enjoy the same standard of living as that household.

The modified OECD scale only takes into account the ages and number of individuals in the household, but there may be other characteristics affecting a household's needs. An important example of these would be the disability or health status of household members. The conventional methodology in HBAI would place a household receiving disability benefits higher up the income distribution than an otherwise-equivalent household without such benefits. But if this higher level of income only compensates the household for the greater needs it has or the extra costs it faces, then the standard of living of this household may be no higher. These issues are examined further in Chapter 5.[54]

Sample weighting, and adjusting the incomes of the 'very rich'

The incomes analysed in this report are derived from the Family Resources Survey (FRS) and, prior to 1994–95, the Family Expenditure Survey (FES). These surveys are designed to provide a broadly representative sample of households in Great Britain until 2001–02, and in the whole United Kingdom from 2002–03 onwards. However, because they are voluntary surveys, there is inevitably a problem of households not answering them, and such non-response may differ according to family type and according to income. This 'non-response bias' is dealt with in two ways. First, weights are applied to the data to ensure that the composition of the sample (in terms of age, sex, partnership status, region

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[54]   See also section 5.3 of Brewer et al. (2008).

and a number of other variables) reflects the true UK population.[55] For example, if there are proportionately fewer lone parents in the sample than there are in the population, then relatively more weight must be placed upon the data from those lone parents who actually do respond.

Second, a special adjustment is applied to correct for the particular problems in obtaining high response rates from individuals with very high incomes and for the volatility in their reported incomes. This adjustment uses projected data from HMRC's Survey of Personal Incomes (SPI) – a more reliable source of data for the richest individuals based on income tax returns.[56] Individuals with an income above a very high threshold are assigned an income level derived from the SPI, which is an estimate of the average income for people above that threshold in the population (the threshold and replacement income value are set separately for pensioners and non-pensioners). Note that this procedure will therefore not capture the *inequality* within the very richest section of the population. The weights referred to above are also adjusted to ensure that the number of households containing very high-income individuals in the weighted data is correct. There is no corresponding correction for non-response, or for misreporting of incomes, at the lower end of the income distribution, meaning caution should be used when considering people with the very lowest incomes.

Adjusting for inflation

All of the description of the HBAI methodology so far sets out how we, following the government's HBAI methodology, measure living standards in any one year. However, because of inflation, the same cash incomes do not bring the same purchasing power over time. It is therefore necessary to adjust for inflation and express all figures in real terms, which we do in the prices of the latest year of data (2016–17 in this report).

We account for inflation using variants of the Consumer Prices Index (CPI). For comparing BHC measures of income over time, we use a variant of the standard CPI that includes owner-occupiers' housing costs (mortgage interest payments, and insurance and ground rent for owner-occupiers); for AHC measures, we use a variant of the CPI that excludes all housing costs (including rent and water costs, which are part of the standard CPI). These variants are available from the Office for National Statistics back to 1996 and 2000 respectively.[57] Before that, we use an approximation to those indices generated by combining RPI-based indices that are available back to 1961 with an estimate of the historic 'formula effect' (the amount by which the Retail Prices Index overstates inflation).[58]

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[55] See Department for Work & Pensions (2018a).

[56] See Burkhauser et al. (2018) for an analysis of the limitations of this adjustment and a discussion of alternatives.

[57] See https://www.ons.gov.uk/economy/inflationandpriceindices/adhocs/007202consumerpriceindicesseriesexcludingrentsmaintenancerepairsandwaterchargesfortheperiodjanuary1996tomay2017alsoanexperimentalcpiseriesincludingmipsgroundrentanddwellinginsurancefortheperiodjanuary2000tomay2017.

[58] For more details on the construction of this series, see Department for Work & Pensions (2018a). The resulting 'deflators' are available online at https://www.ifs.org.uk/uploads/publications/bns/bn19_figs.xlsx.

The income measure summarised

In the analysis in this report, our main measure of living standards is *household equivalised income after deducting taxes and adding benefits and tax credits*, expressed as the equivalent income for a couple with no dependent children and in average 2016–17 prices. For brevity, we often use this term interchangeably with 'income'.

Measuring household income in Understanding Society

In Chapter 5 of this report, we also use data on household income from Understanding Society (USoc), a longitudinal household survey. We use a measure of net household income in USoc that is broadly similar to the one obtained using the HBAI methodology outlined above. Here we briefly summarise the measure of income in USoc, noting where it differs slightly from the HBAI measure.

Consistent with the HBAI methodology, income is measured at the household level. We equivalise household income using the modified OECD equivalence scale and deflate income based on the month and year of the household interview (using the same before-housing-costs variant of the CPI described above). However, the measure of housing costs available in USoc is not comparable to the measure of housing costs in the HBAI data owing to differences in the way mortgage repayments are calculated. Because of this, we only use the USoc data to analyse BHC incomes. Unlike the SPI adjustment in the HBAI data, there is no adjustment made to incomes in USoc to account for under-coverage of very high-income individuals. This is not a significant concern as we do not use USoc to examine trends in mean income, summary measures of inequality or high-income individuals (all of which require accurate information on the top of the income distribution).

To calculate median income in USoc (which we need to do in order to estimate relative poverty), we use the cross-sectional survey weight in wave 2 and the wave-specific longitudinal weight in all subsequent waves, for consistency with DWP's official Income Dynamics statistics.

For all other analysis of the USoc data, we restrict our sample to households for which we observe income, household composition and interview date in all of waves 2–7. We weight this sample using the wave 7 longitudinal weights, which account for differences in sampling probability and for attrition that occurs across the waves. The sample restrictions and the weights we use are broadly consistent with the methods underlying DWP's official Income Dynamics statistics.[59]

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[59] For more information on the Income Dynamics methodology, see Department for Work and Pensions (2018b).

Appendix B. Additional figures and tables for Chapter 4

Table B.1. Cash values of poverty lines for example families in 2016−17 (£ per week)

	Childless couple	Single adult	Lone parent, one child	Couple, one child	Couple, two children
After housing costs					
Absolute poverty line	240	139	187	288	335
Relative poverty line	255	148	199	306	357
Before housing costs					
Absolute poverty line	280	188	243	336	392
Relative poverty line	296	198	257	355	415

Note: Children are assumed to be aged 13 or younger. For families with older children, the poverty lines are slightly higher. The absolute poverty line is defined as 60% of median income in 2010–11 and the relative poverty line as 60% of median income in 2016–17.

Source: Authors' calculations using the Family Resources Survey, 2010–11 and 2016–17.

Table B.2. Changes in income sources and contributions to mean AHC income growth among pensioners in the bottom AHC pensioner income quintile

	Gross employee earnings	Gross self-employment income	Benefits	Gross income from private pensions	Gross income from savings and investments	Other income	Direct taxes and other deductions from income	Housing costs	Total net income
Share of net income (2016–17)	6.0%	2.4%	129.0%	11.2%	6.3%	1.3%	−20.5%	−35.9%	100.0%
Share of gross income (2016–17)	5.0%	2.0%	107.1%	9.3%	5.3%	1.1%	−17.0%	−29.8%	83.0%
2002–03 to 2007–08									
Growth of income source	81.1%	80.1%	5.4%	28.0%	79.1%	11.0%	42.4%	9.7%	8.2%
Contribution to total income growth	2.8ppt	0.8ppt	6.8ppt	3.2ppt	4.3ppt	0.2ppt	−6.7ppt	−3.1ppt	8.2ppt
2007–08 to 2011–12									
Growth of income source	1.0%	−1.4%	6.8%	−1.3%	−26.7%	−2.8%	−9.7%	3.0%	6.8%
Contribution to total income growth	0.1ppt	0.0ppt	8.3ppt	−0.2ppt	−2.4ppt	0.0ppt	2.0ppt	−1.0ppt	6.8ppt
2011–12 to 2016–17									
Growth of income source	12.9%	64.8%	7.5%	−8.2%	4.3%	−2.0%	18.0%	17.6%	1.4%
Contribution to total income growth	0.7ppt	1.0ppt	9.2ppt	−1.0ppt	0.3ppt	0.0ppt	−3.2ppt	−5.5ppt	1.4ppt

Note: All columns except the last relate to a subsample of households in HBAI that excludes those with negative BHC incomes. All incomes have been equivalised and are measured at the household level and after housing costs have been deducted. Income quintiles are defined among the pensioner population using income after housing costs have been deducted.

Source: Authors' calculations using the Family Resources Survey, 2002–03, 2007–08, 2011–12 and 2016–17.

Figure B.1. Child material deprivation rate and population share by number of paid workers in the household
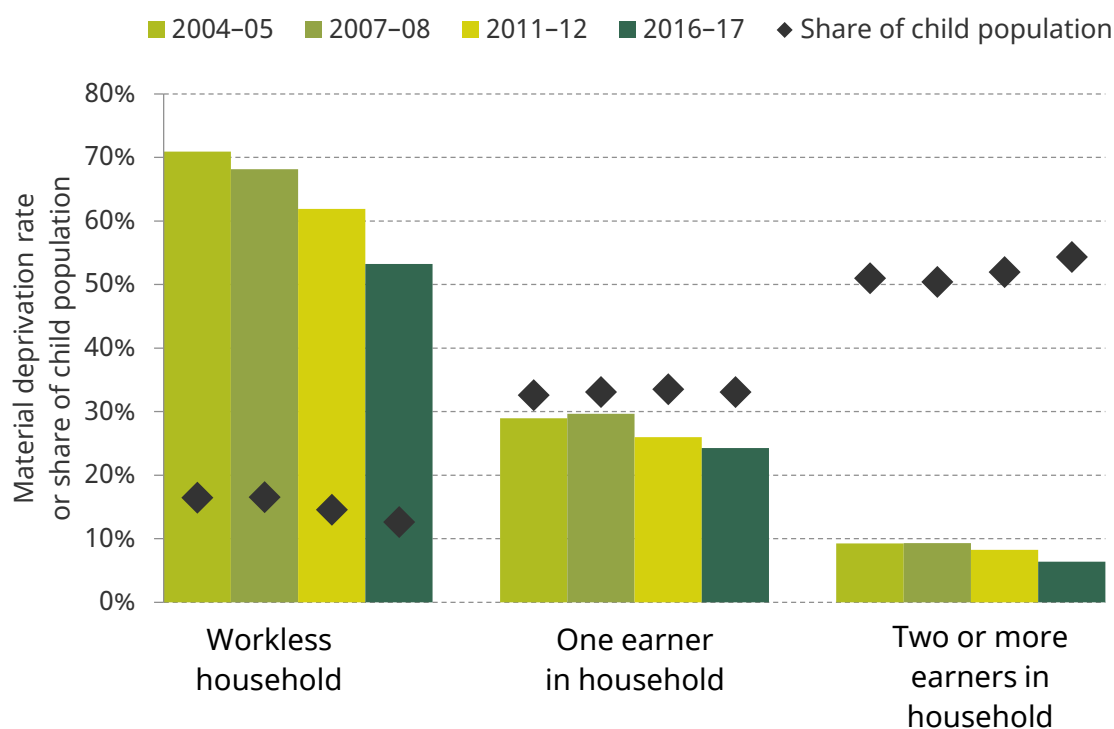
Note: Child material deprivation is only observed from 2004–05 onwards. The methodology used to calculate child material deprivation changed in 2010 and therefore child material deprivation rates are not directly comparable before and after this date.

Source: Authors' calculations using the Family Resources Survey, 2004–05, 2007–08, 2011–12 and 2016–17.

Table B.3. Decomposition of change in child material deprivation by household work status

	Overall change in child material deprivation rate (ppts)	Change in child material deprivation (ppts) due to change in:			
		Workless household deprivation rate	One-earner household deprivation rate	Multi-earner household deprivation rate	% of households with different numbers of workers
2004–05 to 2007–08	–0.0	–0.5	0.2	0.0	0.1
2011–12 to 2016–17	–3.8	–1.2	–0.6	–1.0	–1.1

Note: Child material deprivation is only observed from 2004–05 onwards. The methodology used to calculate child material deprivation changed in 2010 and therefore child material deprivation rates are not directly comparable before and after this date. For this reason, we do not analyse the change over the 2007–08 to 2011–12 period.

Source: Authors' calculations using the Family Resources Survey, 2004–05, 2007–08, 2011–12 and 2016–17.

Figure B.2. Difference between absolute AHC and BHC poverty rates since 2002−03: overall and by demographic group
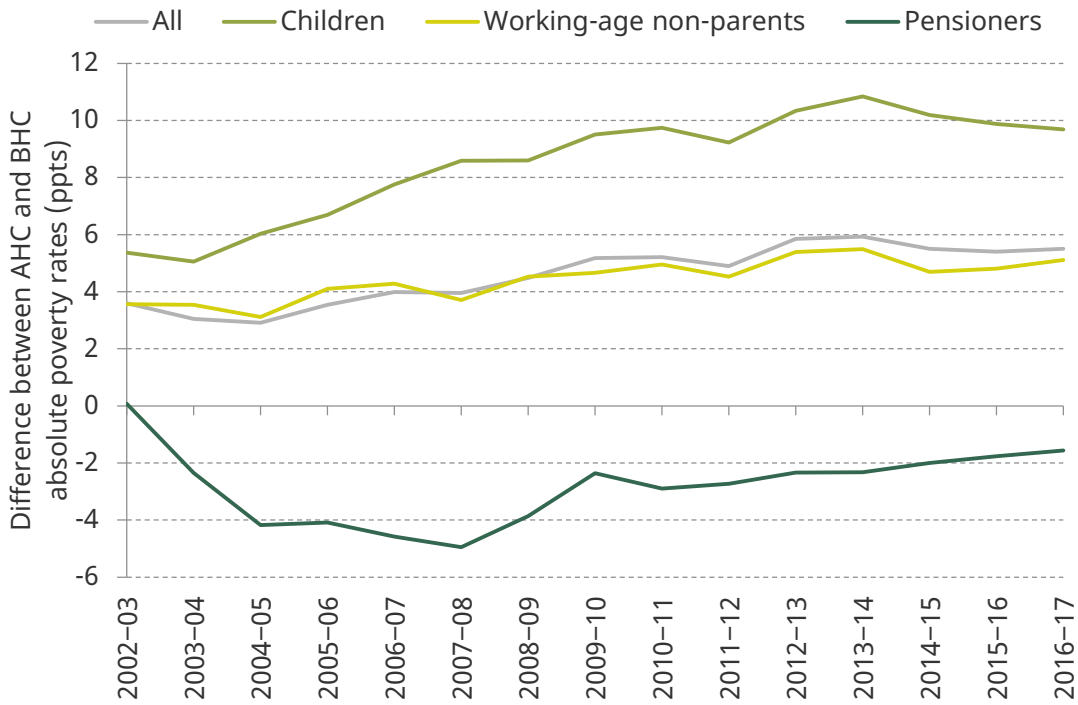
Note: The absolute AHC/BHC poverty line is defined as 60% of median AHC/BHC income in 2010−11. 'Working-age non-parents' is a shorthand for adults of working age who are not living in the same household as any of their dependent children.

Source: Authors' calculations using the Family Resources Survey, 2002−03 to 2016−17.

Figure B.3. Change in real housing costs net of housing benefit among children since 2002−03, by AHC income quintile
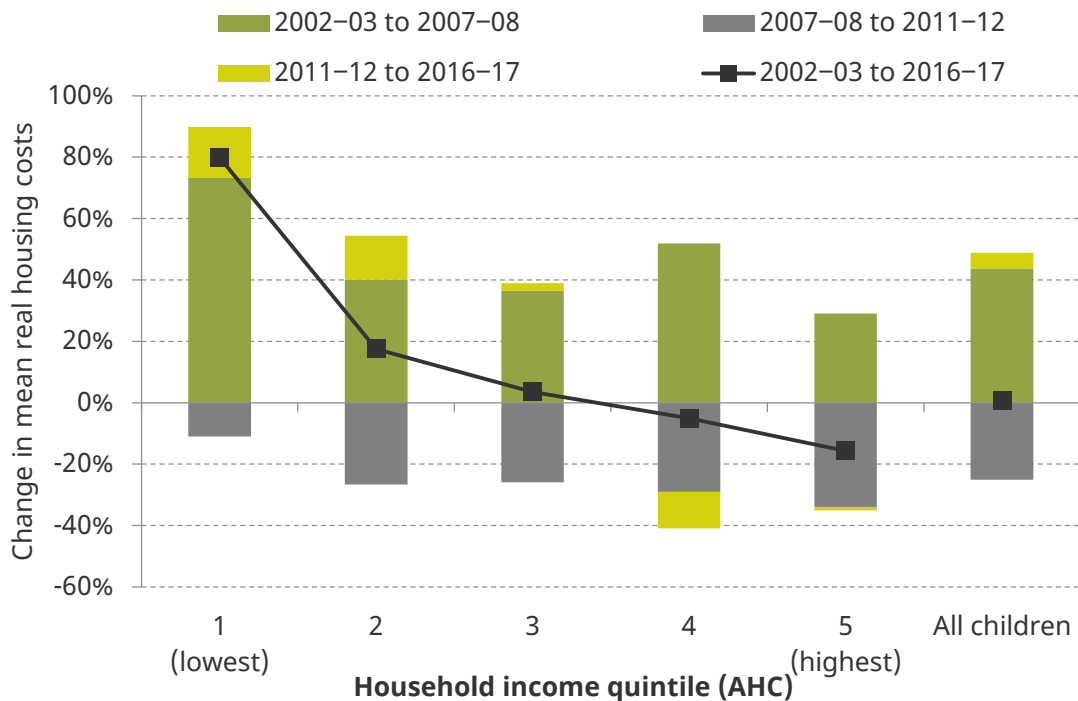
Note: Real housing costs are equivalised using the modified OECD before-housing-costs equivalence scale and deflated using an after-housing-costs deflator. Income quintiles are defined among the entire population using income after housing costs have been deducted.

Source: Authors' calculations using the Family Resources Survey, 2002–03, 2007–08, 2011–12 and 2016–17.

Table B.4. Real mean housing costs among children in low-income households, 2002–2004 and 2014–2016, by UK region and nation

	Level 2002–2004	Level 2014–2016		Growth 2002–2004 to 2014–2016	
	Actual	Actual	Fixed tenure scenario	Actual	Fixed tenure scenario
UK	£69	£90	£76	31%	10%
London	£100	£143	£115	44%	16%
North East	£52	£69	£60	34%	16%
West Midlands	£55	£73	£62	33%	12%
Wales	£54	£73	£63	34%	15%
East Midlands	£60	£71	£60	19%	1%
North West	£57	£71	£62	24%	8%
East of England	£77	£97	£83	26%	9%
South East	£94	£113	£98	20%	3%
Scotland	£56	£71	£62	27%	11%
Yorks and the Humber	£56	£66	£57	17%	2%
Northern Ireland	£45	£50	£42	13%	–6%
South West	£73	£93	£77	27%	6%

Note: Years refer to financial years. Real housing costs are equivalised using the modified OECD before-housing-costs equivalence scale and deflated using an after-housing-costs deflator. The growth rates in the two rightmost columns are derived using unrounded average housing costs and therefore differ slightly from those implied by the statistics in the first three columns, which have been rounded to the nearest pound. 'Low-income' is defined as being in the lowest-AHC-income 30% of the entire UK population. Mean housing costs under the 'fixed tenure' scenario are calculated by fixing the fraction of children living in each tenure group in each region at the level in 2002–2004 and allowing mean housing costs within each tenure and region to change as observed in the data.

Source: Authors' calculations using the Family Resources Survey, various years.

Appendix C: Additional tables for Chapter 5

Table C.1. Characteristics of 25- to 54-year-olds with and without a long-standing illness (mental health and other), 2016–17, Great Britain

	Without long-standing illness	With long-standing mental illness	With other long-standing illness
Male	51%	40%	48%
Female	49%	60%	52%
High education	61%	42%	47%
Low education	39%	58%	52%
Single	25%	52%	33%
In a couple	75%	48%	67%
No dependent children	45%	56%	53%
Has dependent children	55%	44%	47%
Aged 25–34	37%	35%	23%
Aged 35–44	32%	33%	29%
Aged 45–54	31%	33%	48%

Note: 'Low education' refers to those who finished full-time education below the age of 18; others are 'high education'. An individual with a long-standing illness is categorised according to what they identify as their 'main' illness.

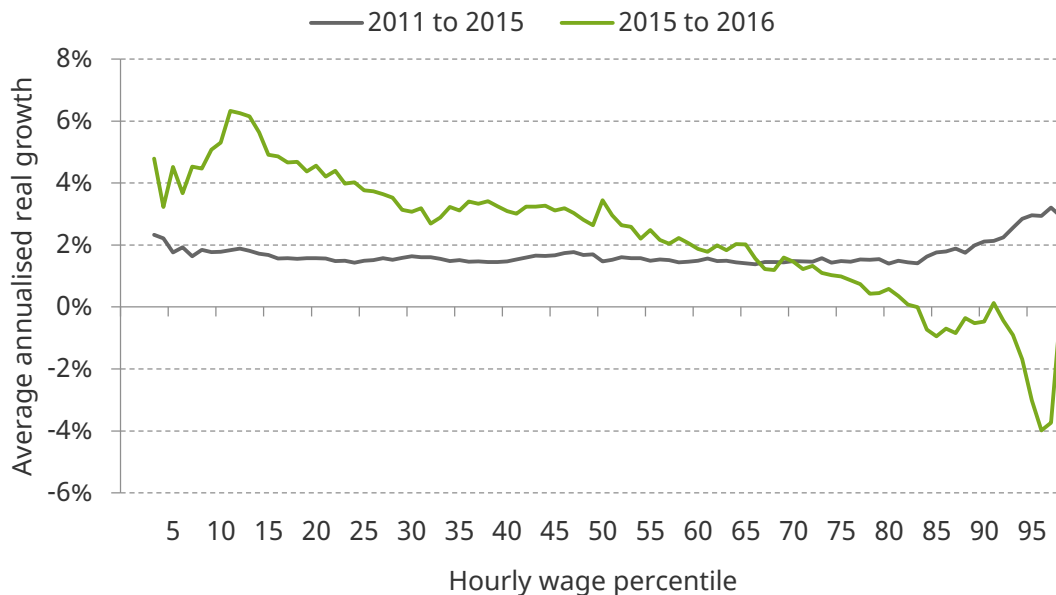Source: Authors' calculations using Labour Force Survey, 2016–17.

Table C.2. Percentage of 25- to 54-year-olds with a longstanding illness by number and type of illnesses, 2012–13 to 2016–17, Great Britain

	1 illness	2+ illnesses	All
Including mental health	10%	16%	26%
Not mental health	55%	19%	74%
All	**65%**	**35%**	**100%**

Source: Authors' calculations using Family Resources Survey, 2012–13 to 2016–17.

# Appendix D: Additional figures for Chapter 6

Figure D.1. Average annual real growth in wages by percentile of hourly wage distribution (UK), FRS data

Note: Years refer to financial years. Sample includes employees aged 25 and over. Figure excludes percentiles 1, 2 and 99.

Source: Authors' calculations using the Family Resources Survey, 2011–12, 2015–16 and 2016–17.
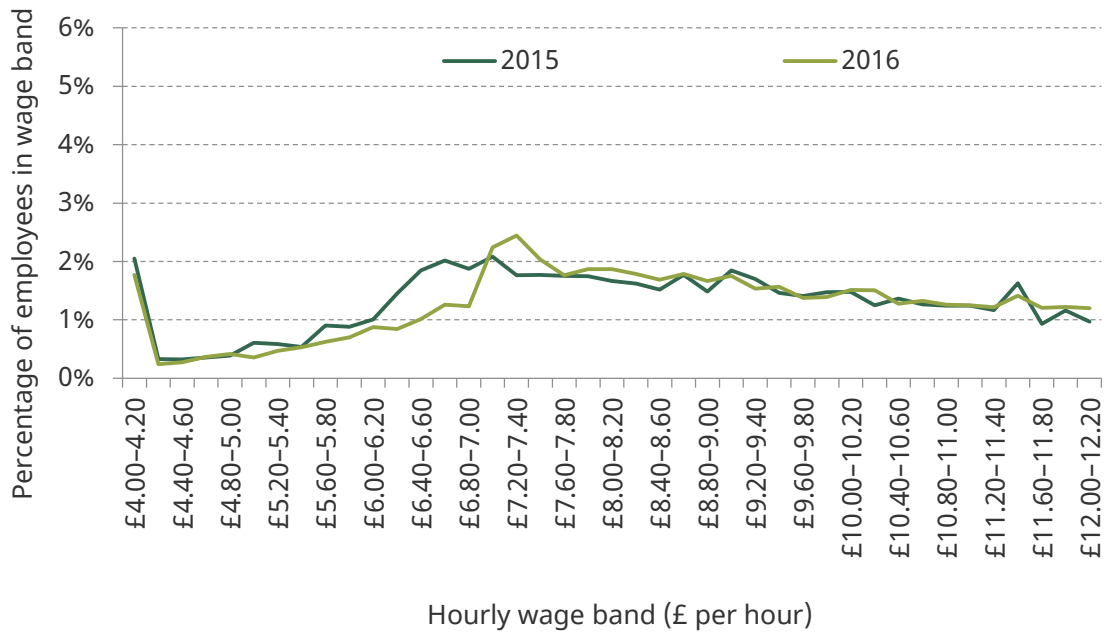
Figure D.2. Fraction of employees aged 25+ by hourly wage band (GB), ASHE data
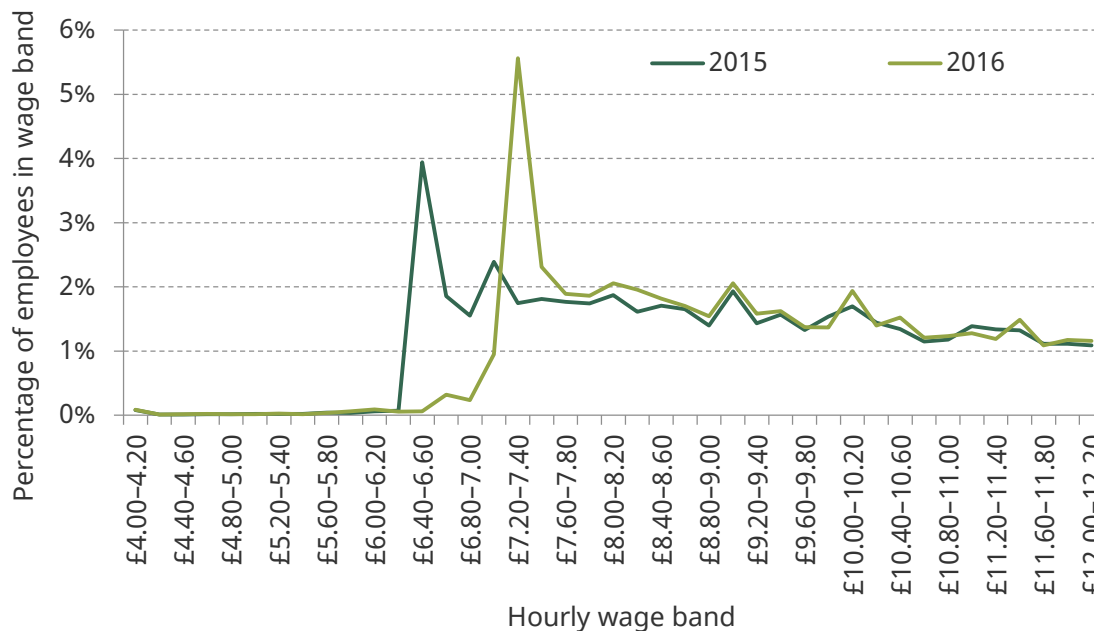
Note: Measured in April of each year. Hourly wages expressed in nominal terms (i.e. not adjusted for inflation).

Source: Authors' calculations using the Annual Survey of Hours and Earnings, 2015 and 2016.
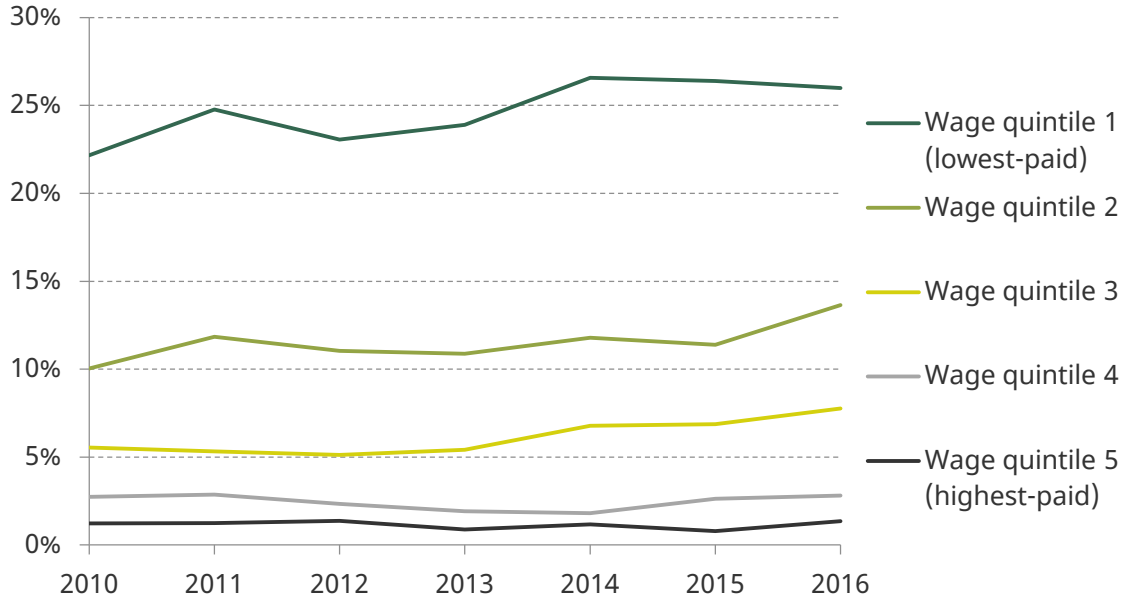
Figure D.3. Fraction of employees aged 25+ by hourly wage band (UK), FRS data

Note: Years refer to financial years. Hourly wages expressed in nominal terms (i.e. not adjusted for inflation)

Source: Authors' calculations using the Family Resources Survey, 2015–16 and 2016–17.

Figure D.4. Relative AHC poverty rates by wage quintile (UK, employees aged 25+)

Note: Years refer to financial years. The relative poverty line is defined as 60% of median income (measured after housing costs have been deducted – AHC) in each year. Sample includes employees aged 25 or older and excludes those with an hourly wage in the bottom or top 1% of the hourly wage distribution.

Source: Authors' calculations using the Family Resources Survey, 2010–11 to 2016–17.

References

Banks, J., Blundell, R. and Emmerson, C. (2015), 'Disability benefit receipt and reform: reconciling trends in the United Kingdom', *Journal of Economic Perspectives*, vol. 29, no. 2, pp. 173–90.

Belfield, C., Cribb, J., Hood, A. and Joyce, R. (2015), *Living Standards, Poverty and Inequality in the UK: 2015*, Report no. R107, London: Institute for Fiscal Studies (http://www.ifs.org.uk/publications/7878).

Brewer, M., Etheridge, B. and O'Dea, C. (2017), 'Why are households that report the lowest incomes so well-off?', *Economic Journal*, vol. 127, no. 605, pp. F24–49.

Brewer, M., Goodman, A. and Leicester, A. (2006), *Household Spending in Britain: What Can It Teach Us about Poverty?*, Bristol: Policy Press.

Brewer, M., Goodman, A. and Shephard, A. (2003), 'How has child poverty changed under the Labour government? An update', Institute for Fiscal Studies (IFS), Briefing Note no. 32 (https://www.ifs.org.uk/publications/1780).

Brewer, M., Muriel, A., Phillips, D. and Sibieta, L. (2008), *Poverty and Inequality in the UK: 2008*, Commentary no. C105, London: Institute for Fiscal Studies (http://www.ifs.org.uk/publications/4258).

Brewer, M. and O'Dea, C. (2012), 'Measuring living standards with income and consumption: evidence from the UK', Institute for Fiscal Studies (IFS), Working Paper no. W12/12 (http://www.ifs.org.uk/publications/6276).

Burkhauser, R., Hérault, N., Jenkins, S. and Wilkins, R. (2018), 'Top incomes and inequality in the UK: reconciling estimates from household survey and tax return data', *Oxford Economic Papers*, vol. 70, pp. 301–26.

Cribb, J., Hood, A., Joyce, R. and Norris Keiller, A. (2017), *Living Standards, Poverty and Inequality in the UK: 2017*, Report no. R129, London: Institute for Fiscal Studies (http://www.ifs.org.uk/publications/9539).

Cribb, J., Joyce, R. and Norris Keiller, A. (2018), 'Will the rising minimum wage lead to more low-paid jobs being automated?', Institute for Fiscal Studies Observation (https://www.ifs.org.uk/publications/10287).

Cribb, J., Joyce, R. and Phillips, D. (2012), *Living Standards, Poverty and Inequality in the UK: 2012*, Commentary no. C124, London: Institute for Fiscal Studies (https://www.ifs.org.uk/publications/6196).

D'Arcy, C. (2018), *Low Pay Britain 2018*, London: Resolution Foundation, (https://www.resolutionfoundation.org/publications/low-pay-britain-2018/).

Department for Work & Pensions (2018a), *Households Below Average Income (HBAI) Quality and Methodology Information Report: 2016/17*

(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691919/households-below-average-income-quality-methodology-2016-2017.pdf).

Department for Work & Pensions (2018b), *Income Dynamics: Background Information and Methodology* (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691835/income-dynamics-background-information-and-methodology-2015-16.pdf).

Department for Work & Pensions and Department of Health & Social Care (2017), *Work, Health and Disability Green Paper: Improving Lives* (https://www.gov.uk/government/consultations/work-health-and-disability-improving-lives/work-health-and-disability-green-paper-improving-lives).

Elming, W., Emmerson, C., Johnson, P. and Phillips, D. (2015), 'An assessment of the potential compensation provided by the new "National Living Wage" for the personal tax and benefit measures announced for implementation in the current parliament', Institute for Fiscal Studies (IFS), Briefing Note no. BN175 (https://www.ifs.org.uk/publications/7975).

Emmerson, C., Joyce, R. and Sturrock, D. (2017), 'Working-age incapacity and disability benefits', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget: February 2017*, London: Institute for Fiscal Studies (https://www.ifs.org.uk/publications/8888).

French, E. (2005), 'The effects of health, wealth, and wages on labour supply and retirement behaviour', *Review of Economic Studies*, vol. 72, pp. 395–427.

HM Treasury (2015), *Summer Budget 2015*, London: HM Government (https://www.gov.uk/government/publications/summer-budget-2015).

Hood, A. and Waters, T. (2017a), 'The impact of tax and benefit reforms on household incomes', Institute for Fiscal Studies (IFS), Briefing Note no. BN196 (https://www.ifs.org.uk/publications/9164).

Hood, A. and Waters, T. (2017b), *Living Standards, Poverty and Inequality in the UK: 2017–18 to 2021–22*, Report no. R136, London: Institute for Fiscal Studies (https://www.ifs.org.uk/publications/10028).

Low Pay Commission (2017), *National Minimum Wage: Low Pay Commission Report 2017* (https://www.gov.uk/government/organisations/low-pay-commission).

Mor, F. and Brown, J. (2018), 'Workers underpaid the minimum wage', House of Commons Library Briefing Paper no. 8235 (https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-8235).

Office for Budget Responsibility (2015), *Economic and Fiscal Outlook: July 2015* (http://obr.uk/efo/economic-fiscal-outlook-july-2015/).

Office for Budget Responsibility (2018), *Economic and Fiscal Outlook: March 2018* (http://obr.uk/efo/economic-fiscal-outlook-march-2018/).

Office for National Statistics (2018), 'An expenditure-based approach to poverty in the UK: financial year ending 2017' (https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/articles/anexpenditurebasedapproachtopovertyintheuk/financialyearending2017).

TUC (2017), 'Mental health and employment' (https://www.tuc.org.uk/sites/default/files/Mental_Health_and_Employment.pdf).

Data

Central Statistical Office. (1995). *Family Expenditure Survey, 1993–1994* [data collection]. UK Data Service. SN: 3280, http://doi.org/10.5255/UKDA-SN-3280-1.

Department for Work and Pensions. (2018). *Households Below Average Income, 1994/95-2016/17*. [data collection]. *11th Edition.* UK Data Service. SN: 5828, http://doi.org/10.5255/UKDA-SN-5828-9.

Department for Work and Pensions, National Centre for Social Research, Office for National Statistics. Social and Vital Statistics Division. (2018). *Family Resources Survey, 2016-2017*. [data collection]. UK Data Service. SN: 8336, http://doi.org/10.5255/UKDA-SN-8336-1.

Goodman, A., Webb, S. (1995). *Institute for Fiscal Studies Households Below Average Income Dataset, 1961-1991*. [data collection]. Central Statistical Office, Department of Employment, [original data producer(s)]. UK Data Service. SN: 3300, http://doi.org/10.5255/UKDA-SN-3300-1.

Office for National Statistics. (2018). *Annual Survey of Hours and Earnings, 1997–2017: Secure Access* [data collection]. *11th edition.* UK Data Service. SN: 6689, http://doi.org/10.5255/UKDA-SN-6689-10.

Office for National Statistics, Department for Environment, Food and Rural Affairs. (2016). *Living Costs and Food Survey, 2014*. [data collection]. *2nd Edition*. UK Data Service. SN: 7992, http://doi.org/10.5255/UKDA-SN-7992-3 (available at https://discover.ukdataservice.ac.uk/catalogue/?sn=7992&type=data%20catalogue).

Office for National Statistics. Social Survey Division, Northern Ireland Statistics and Research Agency. Central Survey Unit. (2017). *Quarterly Labour Force Survey, January–March 2017* [data collection]. *2nd Edition*. UK Data Service. SN: 8195, http://doi.org/10.5255/UKDA-SN-8195-1.

University of Essex. Institute for Social and Economic Research, NatCen Social Research, Kantar Public. (2017). *Understanding Society: Waves 1–7, 2009–2016 and Harmonised BHPS: Waves 1–18, 1991–2009.* [data collection]. *9th Edition*. UK Data Service. SN: 6614, http://doi.org/10.5255/UKDA-SN-6614-10.