

Resolution Foundation

REPORT

The Living Standards Audit 2018

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Executive Summary

The post-crisis decade has brought a renewed focus on living standards, inequality and poverty – and on the effectiveness of policy in supporting income growth

Ten years on from the global financial crisis, the nature of Britain's economy – and the way growth feeds through to the incomes of its citizens – appear much changed. While the country avoided what was for a time the very real threat of a collapse of its financial system, it continues to suffer from an unprecedented stagnation in productivity growth that undermines the strength of the economy's recovery. And the government's finances remain under pressure too. The annual deficit has more or less returned to its pre-crisis level, but the UK's debt-to-GDP ratio is still more than twice its previous level.

These shifts have prompted an ever-sharper focus on the living standards of the UK's 34 million families. Post-crisis falls at the top of the income distribution have been replaced by relatively modest recovery. In direct contrast, households at the bottom of the income distribution have seen some immediate post-crisis protection replaced by a policy of benefit cuts in the name of fiscal consolidation. With income growth disappointing for such a large share of the income distribution however, existing issues of inequality and poverty have come to gain more and more traction in our political debate.

All of this makes it ever more important that we understand what is happening to living standards and, crucially, the effectiveness of different government policies designed to support improvement.

To aid this, the Resolution Foundation has been publishing annual 'audits' of living standards in the UK throughout the post-crisis decade, with a particular focus on the experiences of households on low to middle incomes. In this latest publication, we consider both longer-term changes to the fundamentals of the UK economy and near-term specifics associated with the country's economic performance over the last year or so. In doing so, we highlight what these shifts should mean for the UK's approach to policy making.

Many of the changes that have become evident over the last decade were in train even before the crisis hit

Living standards are the product of many components, which may be of different relative importance for different people. On one side of the ledger is the income people receive from their jobs, the state, their investments and other sources. On the other side are the costs that people pay, affected by the levels of taxes, housing costs and broader inflation. We can take these various elements, together with how many mouths each family has to feed, to get total disposable incomes and a sense of each household's financial well-being.

Changes in these elements drive changes in living standards but, where we see more generalised trends, they also affect the wider economic profile of the country. Much appears to have changed in this regard since the financial crisis but, on closer inspection, we can see that two especially significant trends were apparent even before 2008.

First, there is the decline in worklessness. In the mid-1990s, 15 per cent of working-age families contained no-one in employment and politicians frequently argued for action to change this. Two decades of relatively robust employment growth (only partially interrupted by the financial crisis) means that today this figure is just 10 per cent, and a large share of these comprise families with severe disability or sickness and single parents with very young children. In the mid-1990s nearly two thirds of single parents did not work, but today that figure is only just over a third.

Second, even as more people have moved into work so a greater share of income for working families in the bottom half of the income distribution has been derived from benefits. This partly reflects the fact that people moving into employment for the first time or after a period of unemployment tend to have lower incomes (and are therefore more likely to remain eligible for benefit receipt) but it is also because the coverage and generosity of in-work benefits increased (at least until 2010). This includes support for housing costs for low to middle income households, driven by a rise in renting and in rental costs since the mid-2000s.

These two big changes have significant implications for our approach to policy. Arguments that emphasise reducing worklessness – which still underpin much of the design of Universal Credit for instance – appear increasingly outdated, with policy now better advised to be directed towards supporting improvements in job quality and progression at work. Likewise, the growing importance of benefits – and in-work support in particular – to the living standards of those on low to middle incomes makes the potential impact of the £14 billion of cuts in working-age benefits introduced in Summer Budget 2015 a great concern. This is all the more true given the disappointing performance of the UK economy over the last 18 months or so.

A bad 2017-18 for those on low to middle incomes adds to the urgency of reviewing current policy

The latest detailed data on household incomes covers the 2016-17 financial year. It shows that typical household incomes for working-age families grew by just 1.4 per cent (in real terms) less than the average (2.1 per cent) recorded between 1994 and 2007. This disappointing performance followed a relatively strong two years in 2014-15 (growth of 3 per cent) and 2015-16 (2.2 per cent) but means that, overall, typical working-age incomes in 2016-17 were just 4 per cent higher than they were in 2006-07. Focusing on those on low to middle incomes the picture is even worse: growth of just 0.3 in 2016-17 left median incomes in the group entirely unchanged on the decade.

A number of factors have underpinned these recent trends, and explain year-to-year movements. Employment grew especially strongly between 2012 and 2015 – with particular benefits for lower-income households. While remaining high, the pace of growth slowed from 2016. The introduction of the National Living Wage from April 2016 provoked very strong growth in pay for the lowest earners, but wage growth more generally remained subdued. Perhaps most importantly, 2016-17 marked an end to the period of ultra-low inflation that had previously supported strong real-terms income growth. The inflation rate started picking up off the floor even before the EU referendum of June 2016, but the subsequent sharp drop in the value of the pound provoked (with some delay) an increase in the costs of imports and a spike in inflation.

While we don't yet have official survey data for 2017-18, we can use what we know about ongoing developments in all of these factors to 'nowcast' income

growth. In some ways, the story has been an extension of the 2016-17 one. The employment rate continued to break records, with male employment currently at its highest since 1991 and female employment outperforming anything seen before. But employment *growth* – which is what matters for income growth – remained comparatively muted. There was some easing of housing cost pressures, and wage growth was again remarkably progressive, with the lowest earners enjoying the largest pay rises following another increase in the National Living Wage in April 2017.

But inflation continued to rise in 2017-18, with the arrival of the full effect of the post-referendum devaluation meaning CPIH inflation peaked at 2.8 per cent in late 2017. As a result, average real wages fell – hindered by low nominal pay growth that has not topped 3 per cent since January 2009 and by low productivity growth. And, while the purchasing power of many people's wages was hit hard by high inflation, this was all the more true of working-age benefits like Tax Credits and Child Benefit which are frozen in cash terms until April 2020.

Bringing these factors together, our nowcast suggests that typical incomes increased by just 0.9 per cent (after housing costs) in 2017-18. This is weak, representing less than half the average annual growth rate recorded between 1994 and 2007, and separate statistics from the ONS and Bank of England also point to poor growth.

Yet this figure for the median appears to be as good as it gets across the income distribution. The combination of a benefit freeze and above-target inflation means real household incomes fell for much of the bottom half of the income distribution in our estimate. Such a hit to living standards is clearly worrying, particularly coming so soon after the last recession. And incomes in the top half are estimated to have grown by only around 0.4 per cent.

In the near-term then, we appear to have a picture of generalised stagnation for many, with lower income households actually going backwards. Over the longer-term, inequality has been little altered since around 1990 – though levels are of course far higher than in the 1960s and 1970s. The apparent falling away of the bottom from the middle in 2017-18 (a pattern that may well be repeated in the coming years) represents a disturbing new development.

This pattern of growth has clear implications for poverty (captured by the number of people living in households with incomes below 60 per cent of the median). While it is difficult to have certainty about any single year change in poverty (due to the limitations of surveys), there are good odds that 2017-18 delivered a notable increase. Relative child poverty may have risen to its highest rate in at least 15 years, despite high levels of employment.

And a closer look at the survey data suggests that benefits policy is even more important for this group than has previously been recognised

Given the bleak picture on living standards over the last decade, and the particularly skewed nature of estimated growth in 2017-18, it is important to look in more detail at precisely what is happening. Although technical, to properly understand past, present and future developments in living standards and the effectiveness or otherwise of government policy, we must delve deeper into the way in which income is captured in the government's 'gold standard' household surveys – the *Family Resources Survey* (FRS) and related *Households Below Average Income* (HBAI).

The HBAI dataset is undoubtedly the best source of household income information we have. But it is easy to demonstrate that something is not quite right with its benefit income results. Adding up all of the benefit income in this data gives a total of £170 billion in 2016-17. But government figures show that £214 billion was spent on benefits in the same year. So why is £44 billion apparently missing? A small fraction can be explained by benefit spending on pensioners overseas and people in care homes and other institutions (or entirely homeless) who are not included in household survey data. But our estimate is that this still leaves £37 billion of under-reporting: or 17 per cent of all such spending.

Worse, this gap has grown in significance over time. This is partly because benefits have become more important in general, partly because spending has shifted to benefits that are more likely to be under-reported (such as tax credits, where 30 per cent of spending is missing), and partly because data quality has declined for particular benefits.

For working-age households, the gap has grown from the equivalent of under 2 per cent of their (reported) household income around the turn of the

millennium to over 4 per cent in the 2010s. And for pensioners, for whom benefits are typically a larger share of income, the gap has grown over recent years to 8 per cent.

While there are other issues with household income data, such as the under-reporting of top incomes, this benefit under-reporting appears by far the largest problem facing this and other surveys (including in other countries). This has serious implications. As well as this data being important in itself, estimates of benefit take-up also rely on it – and therefore may be significantly wrong. And the government's modelling of the expected distributional impacts of tax and benefit changes will underestimate the importance of those benefits due to the inaccuracy of the underlying data used.

Given this under-reporting, we present an adjustment process for the HBAI data. This primarily involves a mix of scaling up the value of benefits reported and allocating money to people who don't report benefit receipt but appear to be likely candidates. This is done for every major benefit in every year from 1994-95 to 2016-17. This process cannot be perfect: we have no way of knowing which households are under-reporting or by how much, and so many assumptions must be made. But it aims to be closer to reality than the existing data, and succeeds in eradicating the benefit spending gap in each year.

The £37 billion gap implies that mean income is underestimated by £1,400 per household. But clearly if benefits are well-targeted, the underestimation for particular groups will be even larger. Our adjustment allows us to analyse not just the aggregate impact of benefit under-reporting but also its likely effect on different parts of the income distribution. Following the adjustment, median income after housing costs is 6 per cent (or £1,300) higher in 2016-17. And while HBAI has shown for quite a few years that the typical pensioner now has a slightly higher household income than the typical non-pensioner, this gap is larger following adjustment, with median non-pensioner income revised up by 5 per cent and median pensioner income revised up by 10 per cent.

Growth figures are also affected. For the typical non-pensioner, real income growth between 1999-00 and 2014-15 is revised up slightly from 17 per cent to 22 per cent, with 'missing growth' concentrated in the mid-2000s. There are – predictably – even larger changes for poorer households.

However, even with our estimated revisions, a pre-crisis slowdown in income growth for much of the population is still apparent. This is a period in which housing costs rose along with fuel and food prices, benefit increases slowed, the labour market started to disappoint for certain groups, and the richest hoovered up a very large share of income growth. As a result, low to middle income households experienced only weak growth in disposable incomes between around 2003-04 and the financial crisis, with or without benefit under-reporting.

Our rough adjustment lowers measures of inequality in every year, with the Gini coefficient in 2016-17 falling from 38.7 per cent to 35.7 per cent (after housing costs) as a result. As noted in previous work however, known underestimates of top incomes mean that inequality is understated, partially counteracting this. Inequality trends also improve slightly following our correction, though the big picture remains one of little change since the very large increases of the 1980s.

The largest effect, however, is on our understanding of poverty. The concentration of under-reporting among lower income households means our adjustment has an inevitably significant impact on the incomes of those currently falling below the poverty threshold. Our modelling reduces the number of people in relative poverty (after housing costs and excluding Northern Ireland) from 13.9 million (22 per cent) to 11.4 million (18 per cent). The proportion of children in poverty falls from 30 per cent to 25 per cent, and pensioner poverty falls from 16 per cent to 11 per cent.

This is a large change of course, but the more important finding relates to what our adjustment does to poverty *trends*. In particular, the drop in child poverty rates between 1999-00 and 2004-05 grows from 5 percentage points to 9 percentage points. This revision – though not the final word – may have implications for past poverty goals. On our figures it seems quite likely that the goal to reduce the number of children in poverty by a quarter by 2004 was met rather than missed, and the 2010 goal (for a halving) was not far off. On the other hand, the rise in relative child poverty since 2011-12 may have been slightly faster than the official figures suggest, even before considering our 2017-18 nowcast.

Our estimates provide further evidence that poverty *does* respond to policy, with the use of cash transfers now appearing to have had a more powerful

effect than previously thought. On the flip side, the estimates also highlight the speed with which progress can be eroded when these programs are cut back.

Our figures provide a first go at improving the accuracy of household income data in this regard. We are confident that a better job can be done – and the DWP and ONS should be applauded for beginning work on this. Unlike us, government statisticians now have the option of linking administrative benefit data to survey responses to compute more accurate results, and this is something they are beginning to do. Improving the quality of household income data at our disposal is crucial to designing and evaluating better policy, and should be a priority. But it is also important for politicians to learn lessons from those statistics about what works in relation to improving living standards and reducing inequalities. If they do not, there is every reason to think that relative poverty will continue to rise.

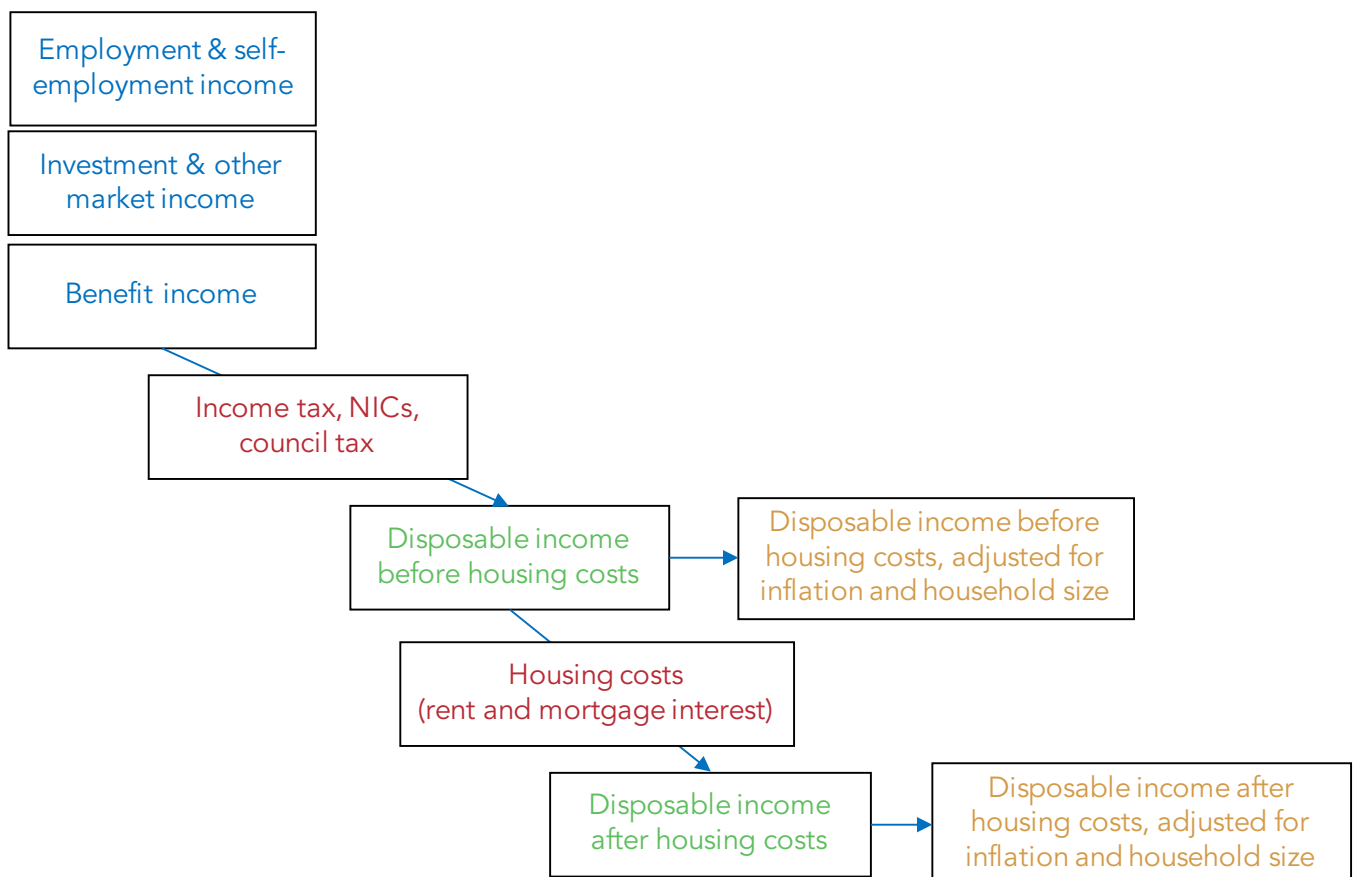
Section 1

Introduction

In 2009 we published our first ‘low earners audit’,^[1] looking at the living standards of around 7.6 million low to middle income households, with a focus on 2006-07 data. In this report, we look at the latest household income figures for 2016-17, earlier years, and our ‘nowcast’ for 2017-18.

Disposable household income is our key measure of living standards, bringing together as it does so many economic factors. It depends on employment, earnings, benefit policy, tax policy and more. And we can also look at incomes after housing costs to reflect the crucial role of rental and mortgage payments. Figure 1 gives a broad description of what we mean by disposable income and what determines it.

Figure 1: Household disposable income is determined by a broad range of factors



Notes: Some smaller considerations have been omitted. In addition, in line with DWP's statistics, this report does not look at inheritances and other private transfers, imputed rent, capital gains (realised or unrealised), free or subsidised public services, or the effects of indirect taxes.

[1] *Squeezed: the low earners audit*, Resolution Foundation, March 2009

As well as looking at how all of these factors have changed over recent years, and what they might have meant for living standards in 2017-18, this year we also look in depth at whether the benefit income data may be giving an imperfect picture of living standards, and how this might change with future revisions.

The structure of this report is as follows:

- » **Section 2** looks at how different parts of the population have fared over the 1994 to 2016 period and the importance of each component of income, and focuses especially on the low to middle income families that are at the heart of the Resolution Foundation's work;
- » **Section 3** assesses how the economy has performed more recently, beyond the 2016-17 household income data;
- » Using those latest economic statistics, **Section 4** then presents our 'nowcast' of household incomes in 2017-18 and what may have happened to poverty and inequality in that year;
- » As benefits are a key component of household incomes, **Section 5** sets out some worrying discrepancies in that data, with benefit income known to be significantly under-reported;
- » **Section 6** then shows what effect this under-reporting may have had on household income figures;
- » **Section 7** presents adjusted poverty and inequality figures, with poverty numbers and trends particularly affected by under-reporting of benefits;
- » **Section 8** concludes.
- » For those who'd like further technical information, the **Annexes** present the details of our nowcasting and benefit income correction methodologies.

This report should be seen alongside the *Living Standards Outlook 2018*,^[2] which projects household incomes over the next five years; *Low Pay Britain 2018*,^[3] which focuses on earnings rather than household incomes; and a forthcoming audit of the state of household wealth.

[2] A Corlett, G Bangham & D Finch, [The Living Standards Outlook 2018](#), Resolution Foundation, February 2018

[3] C D'Arcy, [Low Pay Britain 2018](#), Resolution Foundation, May 2018

Section 2

The economic profile of UK households from 1994 to 2016

There have been significant shifts in employment patterns, housing tenure, and the benefit system over the past two decades. This section explores some of these. There are far fewer families in which no one works, and a polarisation between dual-earning and single-earning households. One result is a greater share of families in work but on low to middle incomes. Furthermore, today low to middle income families are more likely to be in full-time work than previously, yet receive more of their income in benefits, and are more likely to rent than own their own home. Non-working families are less likely to live in council housing and more likely to rent from a housing association. And today single people without children form a larger share of the non-working population than they did in 1994-95.

While the economic profile of UK households has changed, living standards – with the exception of pensioner households – have mostly stagnated since the mid-2000s. Typical household incomes are not much higher than they were in 2003-04. This stagnation in living standards for many has brought with it a rise in poverty rates for low to middle income families. Over a third of low to middle income families with children are in poverty, up from a quarter in the mid-2000s, and nearly two-fifths say that they can't afford a holiday away for their children once a year. On the other hand the share of non-working families in poverty has fallen, though not by enough to prevent an overall rise in poverty since 2010.

The share of UK families in which no one works has fallen dramatically in the past two decades

Having described the key components of household income we now examine how these have shaped the experiences of households across the income distribution over the past two decades. There have been a number of significant shifts since the mid-1990s: a decline in worklessness, a movement away from single-earner households, falls in the number of families that own their own home and significant increases in the number of families in the private rented sector. We shall explore all these below but we start by analysing how the share of higher income, non-working and low to middle income families have changed over time. Our definitions of these groups are set out in Box 1.

i Box 1: Defining different family groups

Our analysis will focus on four different families groups: low to middle income families, working-age families in which no-one works, families on higher incomes and pensioners. Our conceptual interest in low to middle incomes has no hard and fast borders, yet for the purposes of our analysis we need a statistical definition. This definition is composed of three parts. First, we focus just on working-age families, splitting out the pensioner population (reflecting the fact that lower income pensioner households face different challenges and options for support). Second, we narrow this down to the bottom half of the working-age income distribution, setting median non-pensioner equivalised

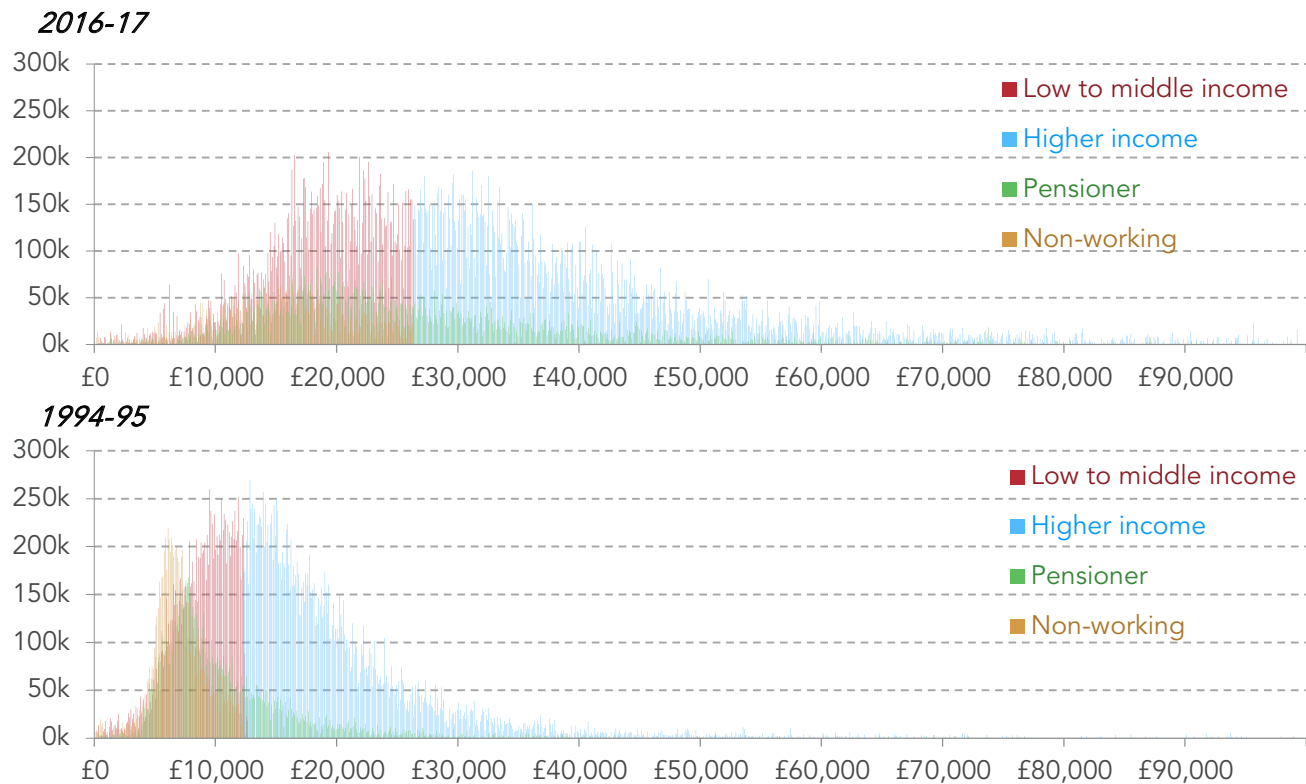
net household income (before housing costs) as an upper boundary. In 2016-17 this equated to £26,300 for a couple. Finally, we categorise the low to middle income group as only containing those in which at least one person is in (at least part-time) work. Families in which no one is in work are defined as being in the 'non-working (working-age)' group, while those in the top half of the distribution are categorised as 'higher income'. More detail on our approach to identifying the low to middle income group can be found in previous reports.^[1]

[1] A Corlett, D Tomlinson & S Clarke, *The Living Standards Audit 2017*, Resolution Foundation, July 2017

One of the most important shifts has been a decline in the number of families in which no-one works. In the mid-1990s 15 per cent of working-age families contained no-one in employment, today that figure is just 10 per cent. This has led to a fall in the number of non-working families (evident in Figure 2). Pensioner households have moved up the income distribution. In 1994-95 the typical pensioner family had an income of £14,201 (in nominal terms), whereas the typical income of a working age household was £19,300, 35 per cent larger. By 2016-17 these figures had changed to £23,500 and £26,500 respectively and the incomes of working-age families were only 13 per cent larger. The other big shift (not shown in Figure 2) is the increase in the share of higher income families with real incomes over £100,000, this rose from 1.2 per cent in 1994-95 to 3.1 per cent in 2016-17.

Figure 2: The number of non-working families has declined significantly

Number of families by nominal disposable household income (before housing costs)



Notes: Families who report no income and those with incomes above £100,000 are not shown.

Source: RF analysis of DWP, *Households Below Average Income*

Table 1 shows how many, and what proportion, of individuals and families in the UK fall into one of the four categories that we describe in Box 1.^[4] Based on our definition just under a third of the population (19.2 million) and a quarter of families (8.1 million) are on low to middle incomes. 12 per cent of families contain no-one in work and have relatively low incomes and 39 per cent of families have incomes above the median. There are 8.6 million pensioner families that account for 25 per cent of the total number of families.

[4] Children are categorised based on the family they live in.

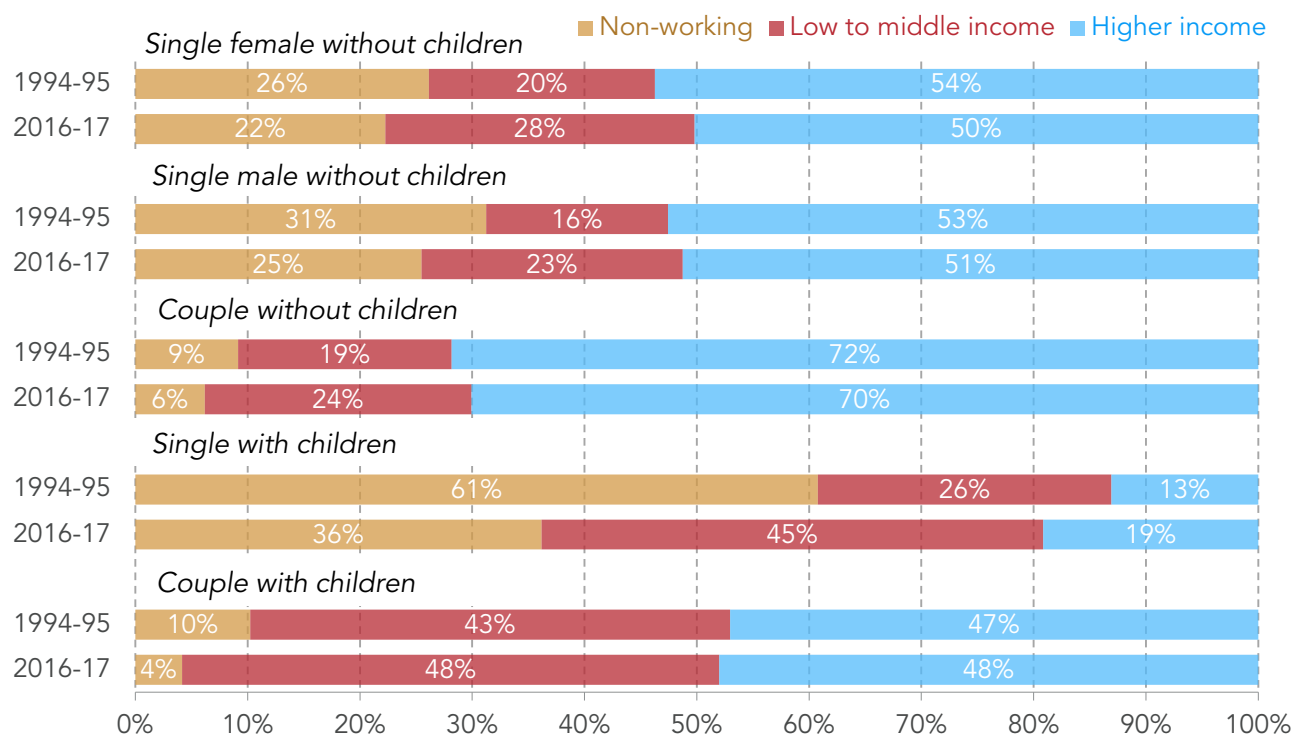
Table 1: Families with children are much more likely to be in low to middle incomes than those without

	Non-pensioner						Pensioner	
	Non-working	(%)	Low to middle income	(%)	Higher income	(%)		(%)
Total population	6,560,000	10%	19,200,000	30%	25,740,000	40%	12,920,000	20%
Adults	4,790,000	9%	12,430,000	24%	20,700,000	41%	12,850,000	25%
Children	1,770,000	13%	6,770,000	50%	5,040,000	37%	70,000	1%
Total number of families	4,140,000	12%	8,110,000	24%	13,510,000	39%	8,670,000	25%
Couple with children	250,000	4%	2,870,000	48%	2,880,000	48%		
Single with children	680,000	36%	840,000	45%	360,000	19%		
Couple without children	380,000	6%	1,460,000	24%	4,310,000	70%		
Single male without children	1,730,000	25%	1,580,000	23%	3,480,000	51%		
Single female without children	1,100,000	22%	1,360,000	28%	2,480,000	50%		
Pensioner couple							4,160,000	100%
Single male pensioner							1,400,000	100%
Single female pensioner							3,110,000	100%

Source: RF analysis of DWP, Households Below Average Income

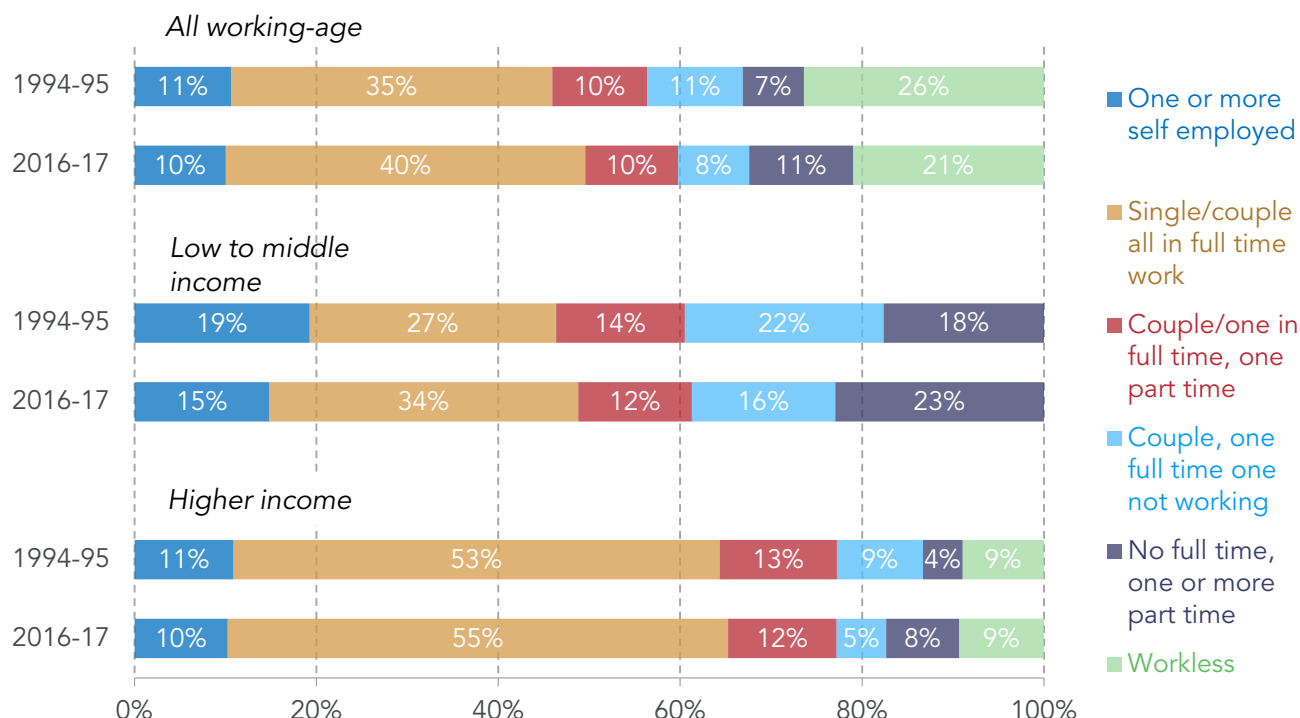
Looking at the proportions of different family types by income groups, families with children are much more likely to be on low to middle incomes than those without. However, there is a stark contrast between single and coupled families. Couples with children are just as likely to be on higher incomes as low to middle incomes, whereas single families with children are nine times more likely than couples to be in non-working households. Families without children are much more likely to be in the higher income group, particularly if they are in a couple. This is unsurprising given the financial costs associated with having a child and that dual earning couples have higher incomes. Interestingly, there is little difference between single male and female households without children in regards to income groups.

While these figures provide an insight into the composition of the different income groups, it's useful to compare this with historic data to see how the compositions have changed over time. Figure 3 shows how the proportion of families in each income group has changed between 1994-95 and 2016-17.

Figure 3: The share of single parents not working fell between 1994-95 and 2016-17*Share of groups across family types*Source: RF analysis of DWP, *Households Below Average Income*

The most noticeable shift over this period is the significant decline in the share of all types of families that fall into the non-working category. The decline is most pronounced for single families with children. In 1994-95, 61 per cent of single families with children were non-working. By 2016-17, 36 per cent of single families with children fell into this category; a decline of 25 percentage points. There was an increase in the share in the low to middle income group, taking the proportion to 45 per cent, whilst 19 per cent of higher income families in 2016-17 were single families with children. This shift is the welcome result of the improvements in single parent (often female) employment rates. Between 1996 and 2017 the employment rate for single parents rose from 43 to 67 per cent. Such gains are impressive but it remains the case that single families with children are, of all the family types below, most likely to be in the non-working category.

The general decline in families in which no one is in work has driven the increase in the number of families on low to middle incomes. But other than the fact that more families contain at least one person in work how has the nature of that employment changed over time? Figure 4 shows that the employment profile of families has changed a lot since 1994. A big shift has been the significant increase in low to middle income families in which all people are in full-time work, which has increased by 7 percentage points. Conversely there has also been a large increase in the share of households in which no-one is in full-time work, which has increased by 5 percentage points. The fact that 'all' and 'no full-time' families have both increased at the expense of other employment categories suggests that – in terms of employment – low to middle income families are more polarised than they were two decades ago. We observe the same patterns, although less pronounced, for higher income families.

Figure 4: Families where all members are in full time work have increased*Proportional share of employment for LMIs by age*Source: RF analysis of DWP, *Households Below Average Income*

Across both income groups, and across all working-age families, there has been a decline in full-time, single-earner couple families. This reflects the significant rise in the employment rates of second-earners, brought about by changes to the tax and benefit system along with changing social conventions.^[5] There also appears to have been a decline in the share of families in which one or more people are self-employed, though this finding should be treated with caution.^[6]

Benefit income has become a more important component of household income

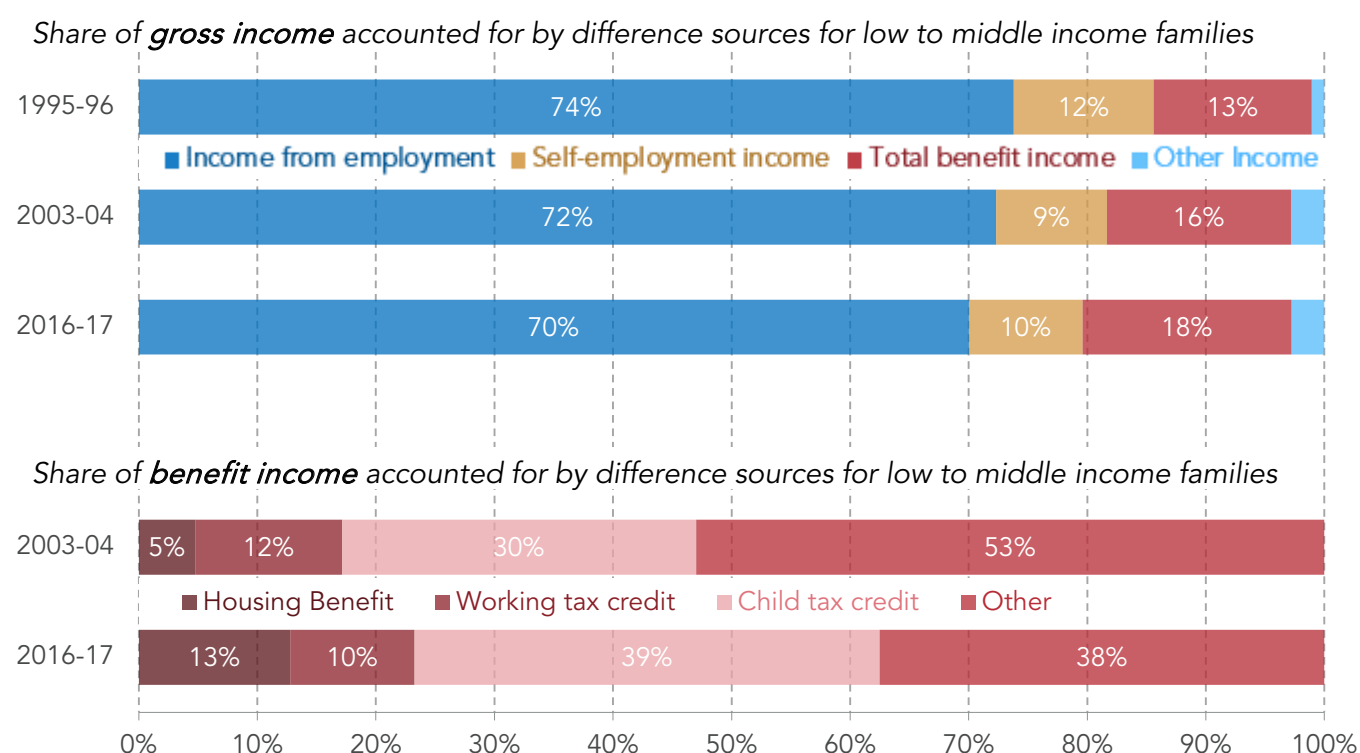
Rising employment has had a profound effect upon the economic profile of UK families, as have changes to the tax and benefit system. These changes have had a big impact on the incomes of both non-working and low to middle income families, the former because they derive the vast majority of their income from benefits and the latter because over time benefit income accounts for a larger proportion of total income. Figure 5 shows low to middle income families derive the majority of their income from employment. This was the case in 1995-96, 2003-04 as well as in 2016-17. But employment now accounts for a smaller share of income than it did in 1995-96, while benefit

[5] D Finch, 'All working together: how to draw more people into the UK labour market' in S Clarke (ed), [Work in Brexit Britain](#), Resolution Foundation, May 2017

[6] This runs counter to the trend of rising self-employment, which has been a key feature of the labour market since the crisis. Data on individuals suggests that self-employment has been rising and so the fact that we do not observe the same pattern in the data on households suggests that self-employment may have become more concentrated in households over time. That said, the ONS warns that the individual-level data is a better measure of employment, so we can't rule out measurement error.

income accounts for more.^[7] This has occurred despite the fact that full-time employment has increased and is partly because from the early 2000s support for working families (most notably in the form of tax credits and child benefit) was expanded and made increasingly generous. Rising employment has also – perhaps counterintuitively – played a part, by bringing more previously out of work families into the low to middle income group. The result is that today there are more low to middle income families that receive a relatively large proportion of their income through in-work support.

Figure 5: Low to middle income families have derived slightly more of their income from benefits over time



Notes: Disaggregated data on tax credits only available from 2003-04. 'Other' benefits are mostly comprised of income support, disability benefits and universal child benefit. Other than Employment and Support Allowance spending on these have remained relatively constant since the mid-2000s, but fell as a share of total spending due to rising spending on housing benefit and tax credits.

Source: RF analysis of DWP, *Households Below Average Income*

As well as a rise in the share of income accounted for by benefits, there has also been a shift in which benefits. In 2003-04 tax credits (both child tax credits and working tax credits) accounted for 42 per cent of the benefit income received by the typical low to middle income family, while housing benefit accounted for just 5 per cent. By 2016-17 the share accounted for by tax credits had risen to 49 per cent.^[8] In this child tax credits formed the most significant part, accounting for 39 per cent of benefit spending, up from 30 per cent in 2003-04. The share accounted for by housing benefit had increased to 13 per cent. This change was driven by the rising cost of housing over this period, which increased from 22 to 24 per cent of the average low to middle income households' income. As a result more low to middle income households now need greater levels of support with their housing costs.

[7] These figures do not take into account the fact that benefit income is under-reported in the survey data. This is an issue we turn to in Section 5.

[8] This is slightly below their post-crisis high, due to reductions in coverage and generosity since 2010.

Far more families now rent

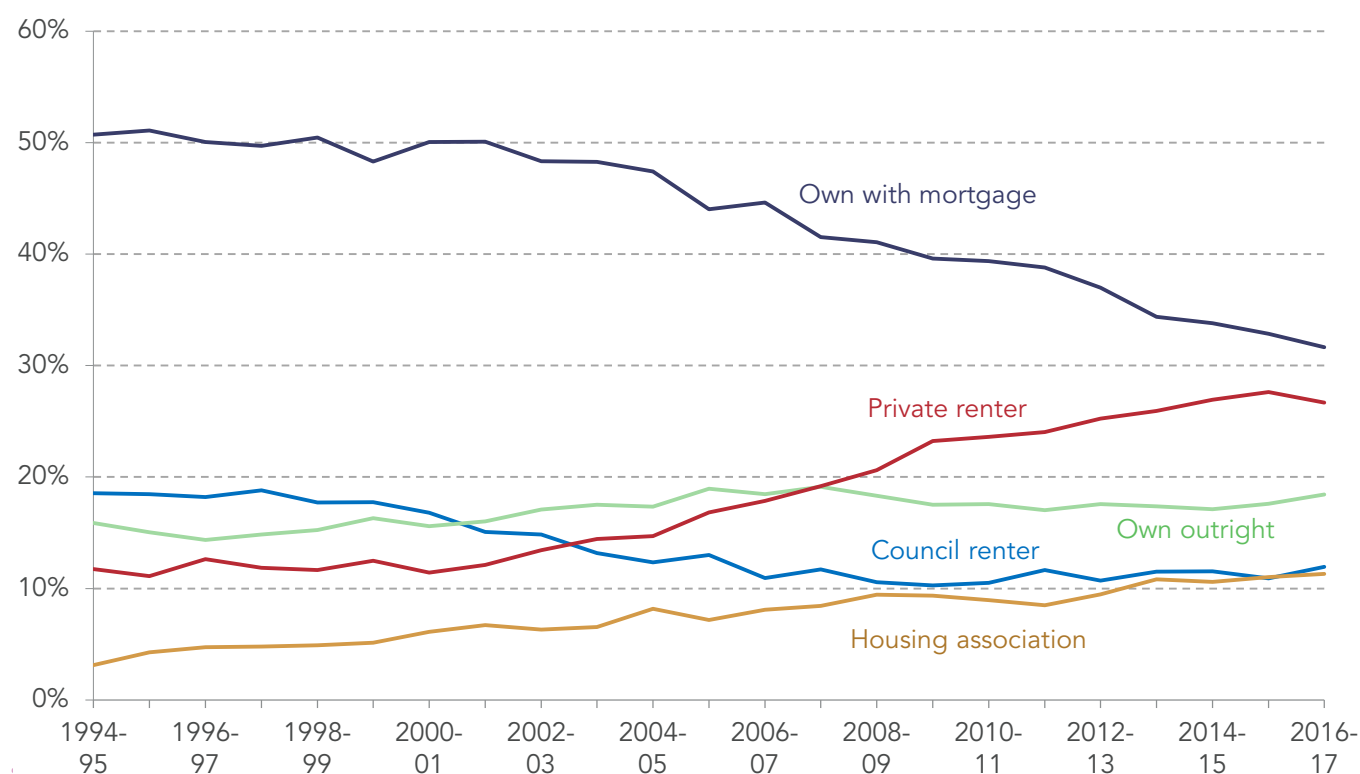
One reason why housing costs have risen for low to middle income families is that a far larger proportion of them now rent, particularly in the private rented sector and in housing association accommodation, where costs tend to be higher than in council housing or for home owners. Figure 6 shows that the share of low to middle income families that own their own home with a mortgage has fallen from just above 50 per cent in 1994-95 to 32 per cent in 2016-17. There was also a fall (from 19 per cent to 12 per cent) in the share living in council housing. This shift was matched by a rise in the share renting privately (up 15 percentage points) and in housing association accommodation (up 8 percentage points).^[9]

Tenure changes played out similarly for higher income households, albeit fewer than 6 per cent of higher income households live in socially rented accommodation and there has been a more pronounced increase in the share of higher income households that own their own home outright. These shifts have offset each other and so there has been little change in the share of income that higher income families spend on housing.

The big shift for non-working households is the decline in the proportion living in council accommodation (down from 40 to 23 per cent) and the commensurate rise in the share in the private rented sector (up from 12 to 27 per cent) and in housing association accommodation (up from 8 to 23 per cent). Overall these shifts have increased the share of income spent on housing for non-working families.

Figure 6: The share of low to middle income families that own their own home has fallen by 25 per cent since 1994-95

Share of low to middle income families in each tenure



^[9] It is likely that some households do not accurately record whether they are in council housing or housing association accommodation. If tenants are not aware that their property has moved from council to housing association ownership then this will underestimate the shift in Figure 6.

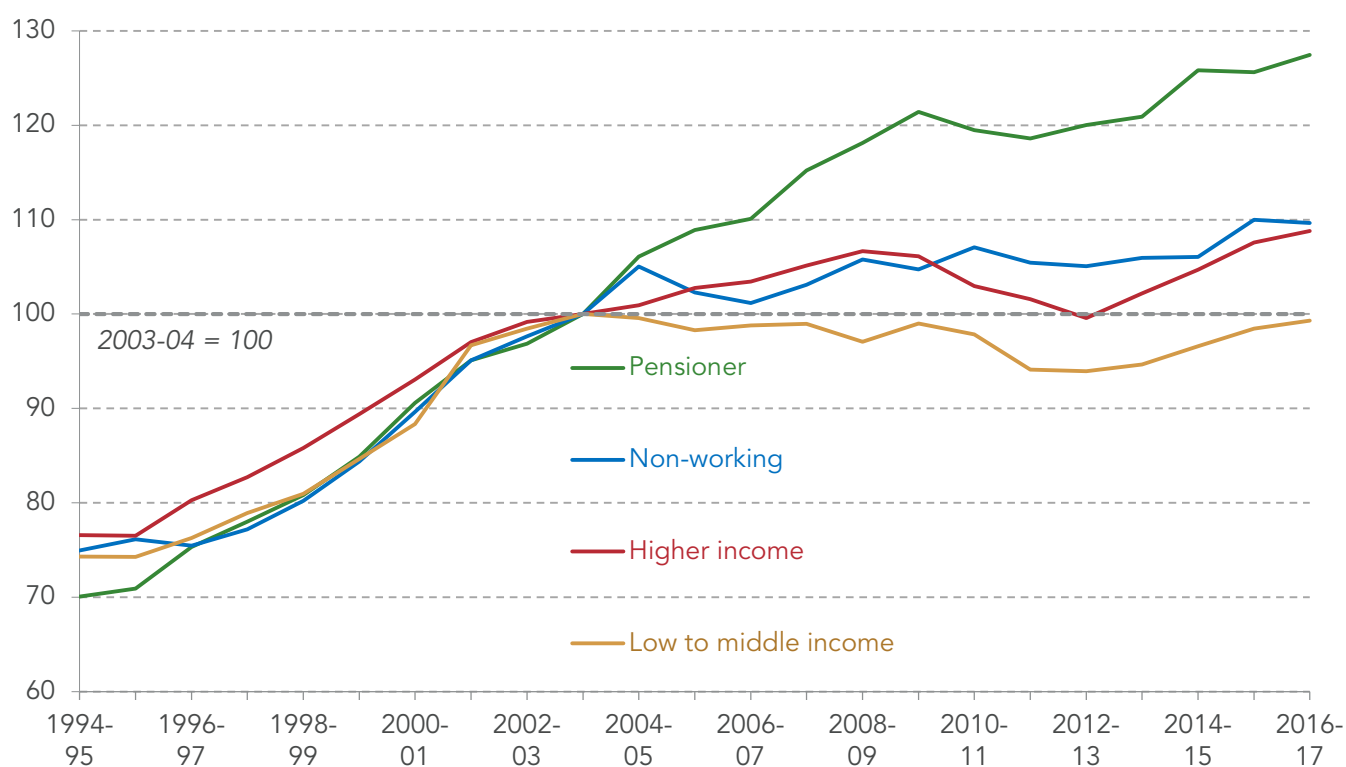
We can get a sense of how shifts *between* these tenures, versus changes in the amount spent on housing as share of income *within* each tenure, has changed the average housing cost to income ratio for low to middle income families by carrying out a shift-share analysis.^[10] The results of this analysis show that tenure changes accounted for all the increase in the amount of income spent on housing for low to middle income families over this period because rising cost to income ratios *within* some tenures (such as the private rented sector) were offset by falls in others (mortgagors).

Growth has been weak for much of the working-age population, but has been poorest for low to middle income families

Rising housing costs have also contributed to the significant slowdown in income growth since the early 2000s. Although it must be emphasized that the families that make up these three groups are not fixed, the last decade has been a challenging one for all groups (with pensioners something of an exception). Yet as Figure 7 shows the slowdown in household income growth has been most acute for the low to middle income group. In 2003-04 median household income (after accounting for housing costs) for a low to middle income family was £14,900; in 2016-17 it was £14,800. Over the same period incomes for higher income and non-working households increased by approximately 10 per cent, and by 27 per cent for pensioner families.

Figure 7: Typical incomes for low to middle income families are lower than they were in 2003-04

Index of real median household disposable income (after housing costs), 2003-04 = 100



Source: RF analysis of DWP, *Households Below Average Income*

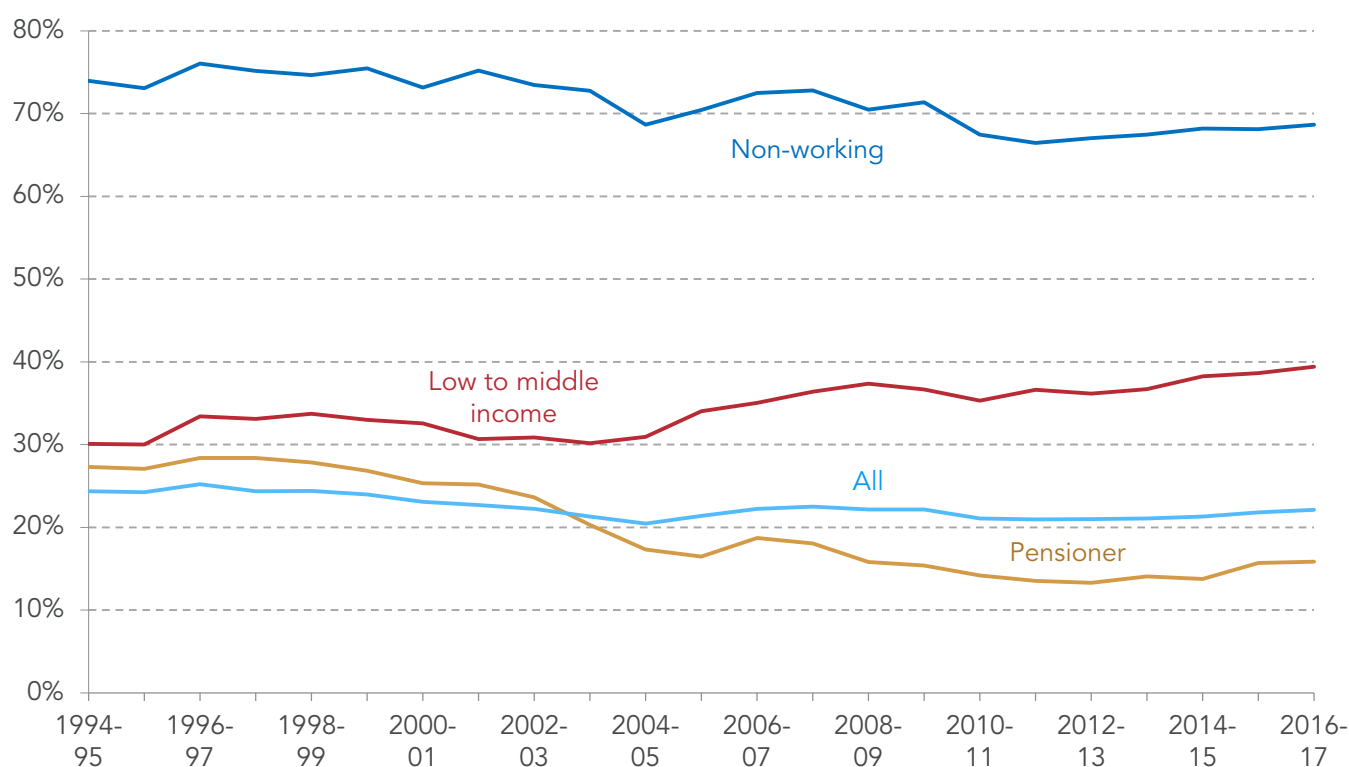
[10] A 'shift-share' analysis takes the change over time of an economic variable, in this case the average housing cost to income ratio for low to middle income families within different housing tenures, and divides that change into that which can be attributed to changes in the proportion of families in each tenure and the housing cost to income ratio for each tenure.

Poverty rates for low to middle income families are higher than they were in the mid-2000s

The particularly marked stagnation in income for low to middle income families over the past decade has contributed to a rise in poverty for this group. Figure 8 shows the relative poverty rates of three different groups (by definition higher income households cannot be in poverty) and while non-working and pensioner poverty (after taking into account housing costs) have declined steadily since the early 2000s it has risen for low to middle income families.^[11]

Figure 8: Two fifths of low to middle income families are in poverty after taking into account housing costs

Proportion of families in poverty after housing costs



Notes: Relative poverty is defined as living in a household where equivalised incomes are less than 60 per cent of median income.

Source: RF analysis of DWP, *Households Below Average Income*

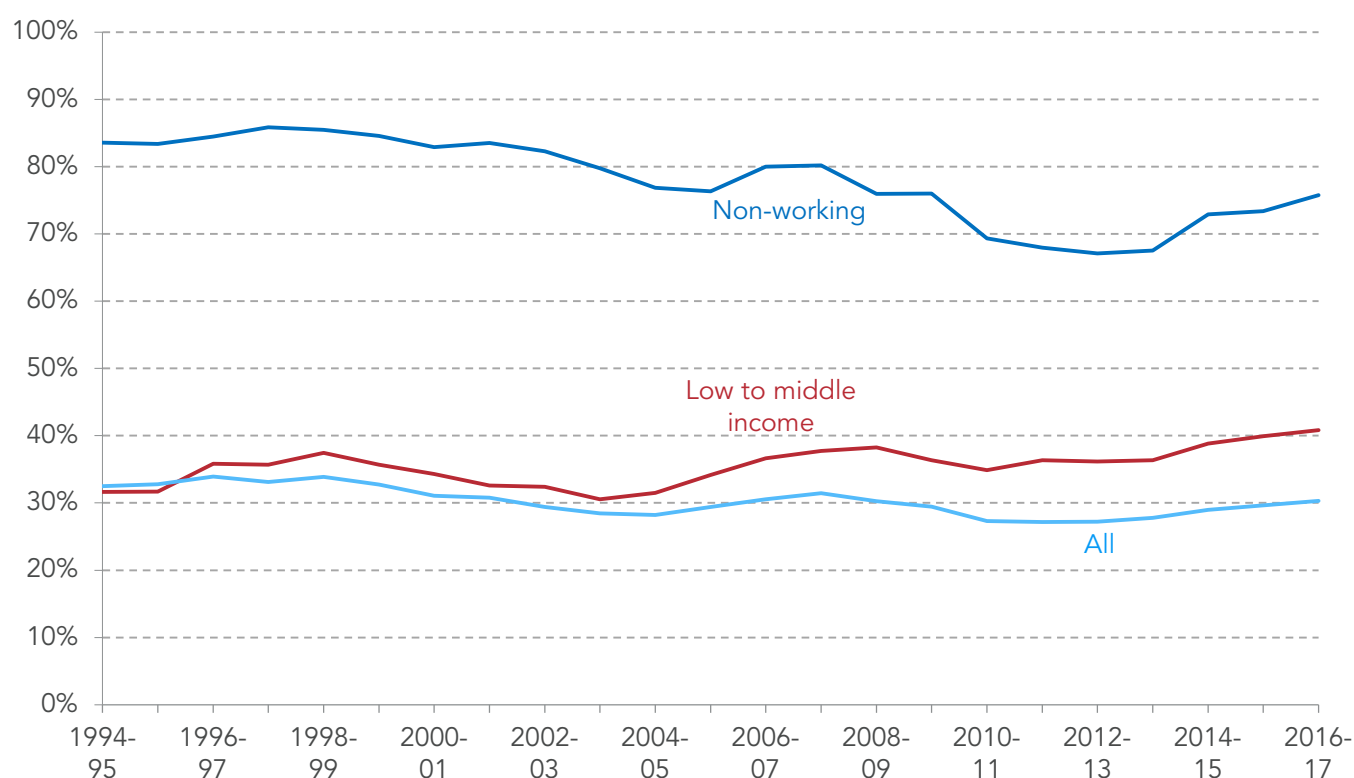
This trend has been driven by three main factors. The first is the pre-crisis slowdown in household income growth for low to middle income families (discussed further in Section 6), in which their fortunes worsened compared to their higher-income counterparts. A more recent contributor are the post-crisis cuts to working-age support, which have also served to increase the poverty rates of non-working families since 2010. These fell particularly heavily on families with children (who are most likely to be on low to middle incomes) while pensioner families were somewhat protected. Finally, poverty in the (in-work) low to middle income group has increased over time because the group's make-up has changed as more families have moved into work, as explored earlier. These families are more likely to be near the poverty threshold than existing low to middle income families, so the counterpoint to falling 'non-working' poverty is rising poverty for low to middle income families who are in work. However, the fact that total poverty rates have risen since 2010 shows that this compositional shift cannot fully explain recent shifts.

^[11] Relative poverty is defined as living in a household where equivalised incomes are less than 60 per cent of median income.

As well as a small rise in the share of families in poverty there has also been an increase in the proportion of children falling below the poverty line. 40 per cent of children in low to middle income families are in poverty, up from 30 per cent in 2003-04. Some of this increase has been offset by a fall in the share of children in non-working families in poverty (which is down from 80 per cent in 2003-04 to 76 per cent today), though this decline came to an end in 2012-13. Again, the fact that poverty rate for all families has risen since 2010 suggests that shifts between the non-working and low to middle income group cannot explain all the recent changes.

Figure 9: Two-fifths of children in low to middle income families are in poverty

Proportion of children in poverty after housing costs



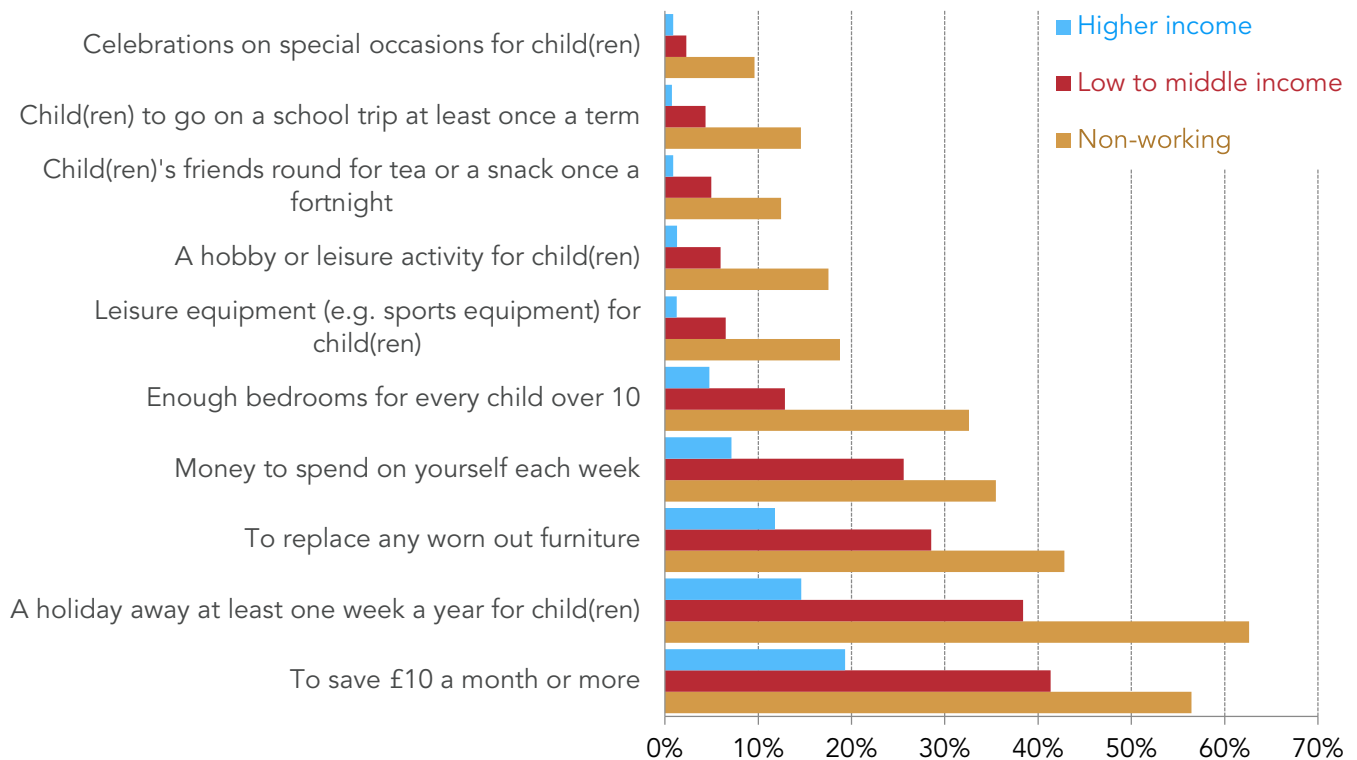
Notes: Relative poverty is defined as living in a household where incomes are less than 60 per cent of median income.

Source: RF analysis of DWP, *Households Below Average Income*

Of course it is worth celebrating that more families have moved into work, but the fact that this is not enough to escape poverty for many is troubling. Some of the real-world ramifications of this are shown in Figure 10. Two-fifths (41 per cent) of low to middle income families report that they cannot afford to save at least £10 a month or give their children a holiday once a year (38 per cent). 13 per cent report not having enough bedrooms for all their children. The figures are higher for non-working families, almost two-thirds (62 per cent) cannot afford a holiday away and over half (56 per cent) cannot afford to save £10 a month. Surprisingly almost a fifth (19 per cent) of higher income families also report difficulty saving £10 a month.

Figure 10: Two-fifths of low to middle income families with children cannot afford a holiday away for a week once a year

Share of families in 2016-17 who report being unable to afford...



Source: RF analysis of DWP, Households Below Average Income and Family Resources Survey

The economic profile of families in the UK has changed significantly since the mid-1990s. In some respects these shifts are even more noticeable given that household incomes have stagnated over the past decade and there haven't been significant changes in the distribution of income.^[12]

As a result of these changes, policy makers need to be aware that the challenges facing many families have also shifted. While worklessness is still a problem, it has been supplanted by in-work poverty for many families. Housing costs play a key role in determining a household's living standards, perhaps more so than at any time in the past. Finally, household incomes, particularly those of non-working and low to middle income families are increasingly sensitive to changes in the generosity of benefits. In the case of low to middle income families the importance of in-work support underscores this point.

Given the context of these challenges and the ups and downs of the past two decades up to 2016-17, in the next section we examine how economic circumstances have developed more recently.

[12] As Section 7 shows, broad levels of inequality were similar in 2016-17 and 1994-95, though this does obscure some important shifts such as an increase in the income share of the top 1 per cent of households.

Section 3

The 2017-18 living standards backdrop

The living standards of families in the UK are influenced by a range of factors. How much income flows into a household depends on whether the adults in it are in work, how much they earn in those jobs, the support that comes from the benefit system and the amount deducted through taxation. Spending is affected by the prices of the goods and services they buy, including the critical role played by housing costs. In any given year, this equation is the result of wider economic performance (the growth in GDP and productivity), the strength of the labour market (employment rates and pay) and the choices made by government. Living standards are also influenced by the services government provides such as healthcare, transport and educational provision. Although these are important we do not cover them in our analysis.

This section explores what happened to all these factors in 2017-18. Employment continued to reach new highs and wage growth, thanks in part to the National Living Wage, was strong for the lowest earners. Inflation, however, put more pressure on household budgets, with CPIH peaking at 2.8 per cent in autumn 2017. This spike, coupled with the weak nominal wage growth that has been a hallmark of the UK labour market for much of the post-crisis period, led to average earnings falling in real-terms for much of 2017-18. Higher inflation also meant that the freeze placed on many benefits hit families more deeply, though rises in housing costs were relatively muted. And while the UK's recent economic performance has been mixed, there is little evidence that a longed-for resurgence in productivity is on the immediate horizon. These trends are important components in our household income 'nowcast', which is presented in Section 4.

Economic growth has disappointed compared to historical norms and other large economies

While the latest household income data refers to 2016-17, many other – more timely – economic statistics provide a good guide to what has happened since then.

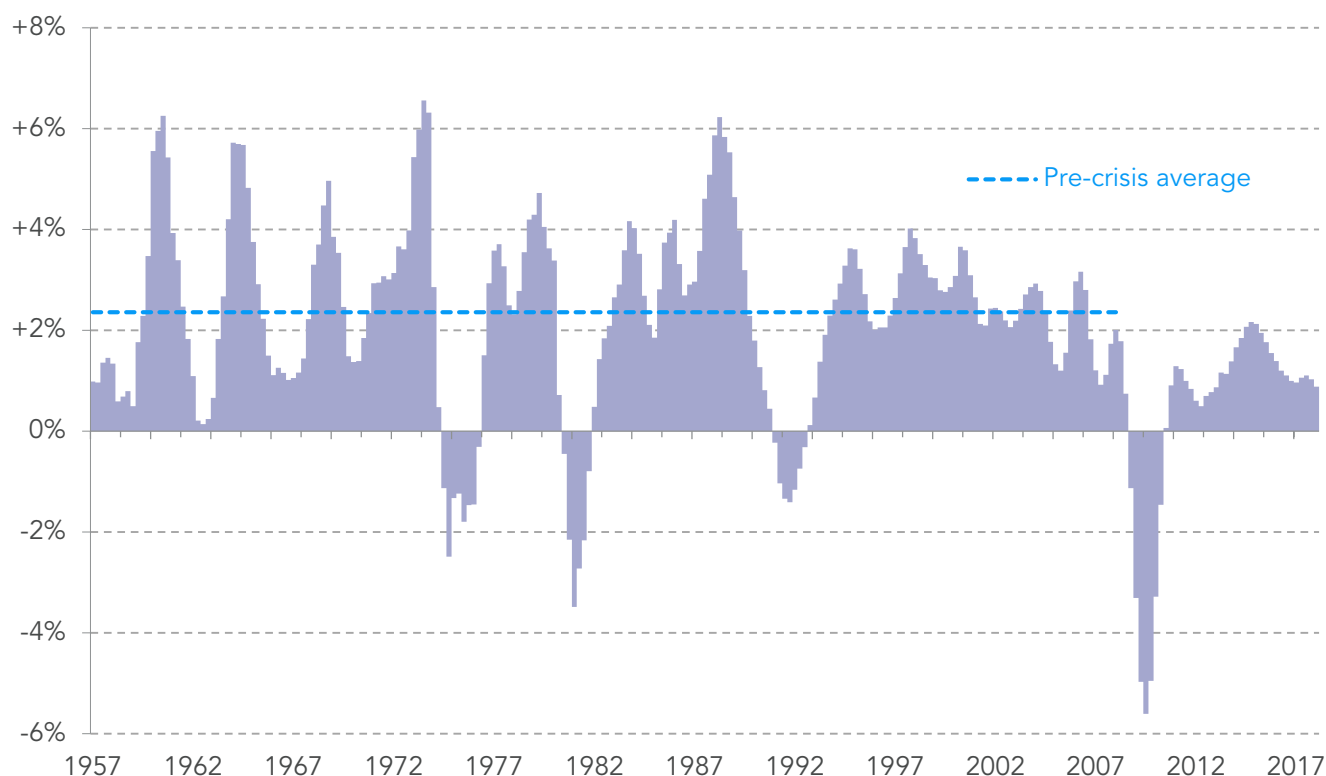
When it comes to measuring the economic wellbeing of a country, GDP is the most relied upon statistic. Since the financial crisis began in 2008, the UK's economic growth has been in the middle of the pack when compared to other leading economies. The most recent data shows that the UK's economy is now 11 per cent larger than it was in the second quarter of 2008. While outpacing growth in the laggards among the G7 – Japan's GDP has risen by less than 6 per cent over the same time period while Italy's economy has actually shrunk – the UK has not matched the USA (16 per cent growth) or Canada (18 per cent). Over the most recent year, however, Britain's performance has dropped off. Comparing GDP in Q1 2018 with Q1 2017, the UK's economy grew by just 1.2 per cent, ranking only above Japan in the G7 over that period.

This headline GDP growth figure misses out an important part of the equation however: the size of the population. Adjusting for change in the number of people in each country, output in the UK has been more disappointing. GDP per capita remains just 2.9 per cent above its pre-crisis peak, nearly ten years on, though again this places the UK in the middle of the G7 pack.

History provides a less flattering comparison however. At the same point after the 1980 and 1990 recessions, GDP per capita was up 27.2 per cent and 21.5 per cent respectively. And as Figure 11 shows, in the half-century leading up to the financial crisis, year-on-year growth in annualised GDP per capita averaged 2.4 per cent. In each of the past 46 quarters – just under 12 years – annual growth in GDP per capita has been below the pre-crisis trend. The weaker performance of the last year is visible, with growth over the last four quarters averaging only a meagre 1 per cent.

Figure 11: GDP growth per capita continues to lag well behind previous norms

Year-on-year growth in annualised GDP per capita: UK



Source: RF analysis of ONS, *Second estimate of GDP: January to March 2018 (IHXW)*

Employment continues to act as a boon to living standards

Achieving more robust economic growth in future would certainly help ease living standards concerns, but GDP can only ever provide an overview of what's happening in an economy. To understand how families fared in 2017-18, a much broader range of factors needs to be considered. Key among these is employment, given earnings from work is the largest component of income for most working-age households. The UK's record-breaking run continued in 2017-18 with employment rates reaching new highs. In the first quarter of 2018, 75.6 per cent of 16-64-year-olds were in work, up 0.8 percentage points from the same three months in 2017. This was driven by falls in both the share of the labour force unemployed – down to 4.2 per cent, its lowest rate since 1975 – and the share of adults in inactivity – now 21 per cent, the smallest proportion on record.

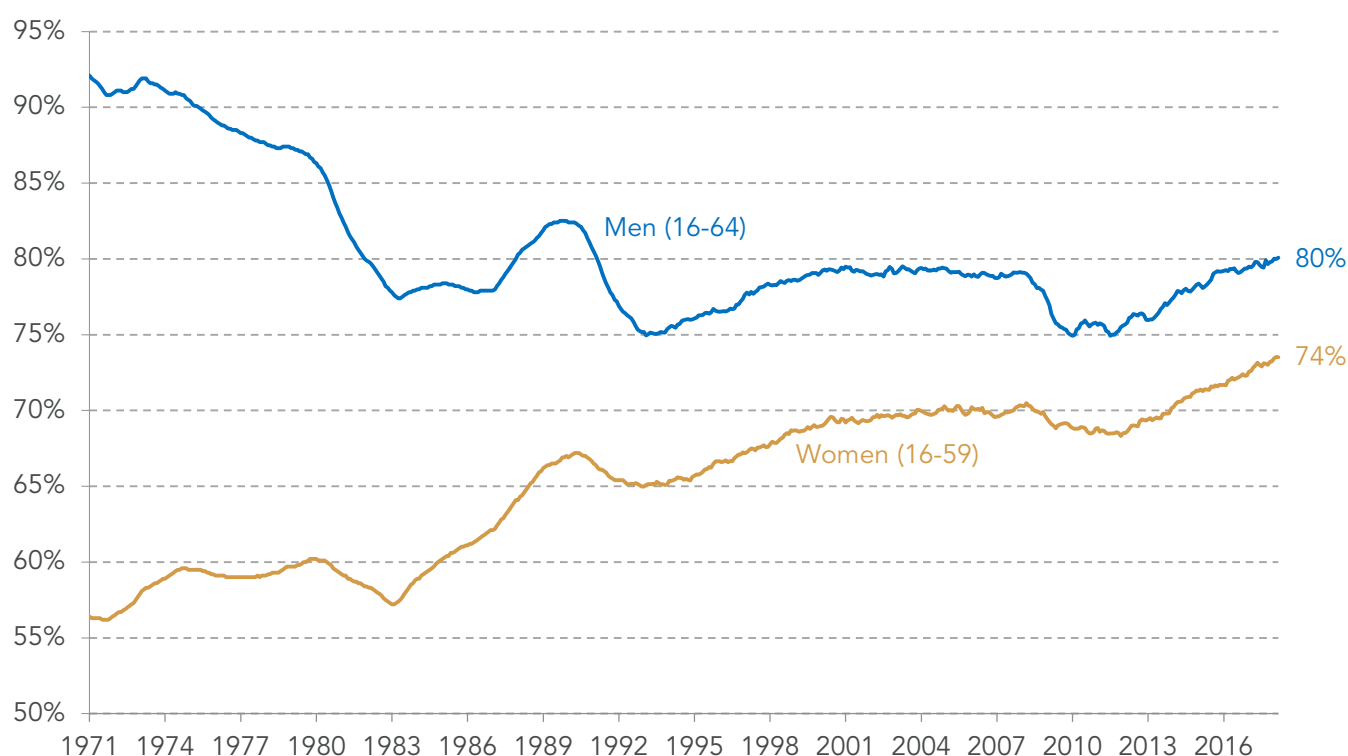
The earlier years of the employment recovery were primarily due to growth in self-employment and part-time work, with the number of full-time roles remaining below its 2008 peak until the third quarter of 2014, even with a growing population. More recent gains have been broad-based, however in terms of the kinds of jobs created and the people who are benefiting. Nevertheless, atypical work has become a fixture of the UK's labour market debate. Although occasionally overhyped, particularly in respect to the so-called gig economy, this higher profile reflects a genuine shift from previous labour market norms.

But doubts about the early years of the recovery and concerns about insecure work shouldn't mask the strength of the jobs recovery since 2015. Full-time roles now comprise 44 per cent of all net jobs added since the onset of the recession in 2008 and have been the driving force behind recent employment growth. Combined with the plateauing of many forms of atypical work, the UK's employment landscape continued to brighten in 2017-18.

An interesting dimension of the UK's jobs market is how those gains have been shared across the sexes. Unlike the majority of advanced economies over the past decade or so,^[13] prime-age men have been a positive net contributor to the UK's employment rate. As Figure 12 illustrates, the share of working-age men in employment hit 80 per cent in 2018, the first time this threshold had been crossed since 1991. Female employment rates continue to hit record highs, with 74 per cent of women aged 16-59 now in work. And these figures come despite a rise in the number of young people in full-time education (and therefore not in employment). Although some signs remain that the jobs market has yet to complete a full recovery – job-to-job moves are still 23 per cent below their pre-crisis peak and the prevalence of various forms of atypical work remains elevated – employment's role in the living standards story of 2017-18 was certainly a positive one.

Figure 12: In contrast to trends in other countries, male employment in the UK has risen above pre-crisis levels

Employment rates by sex



Source: RF analysis of ONS, Labour Market Statistics

[13] J Furman & W Powell, [Why employment rates in the US have lagged other countries](#), Vox EU, June 2018

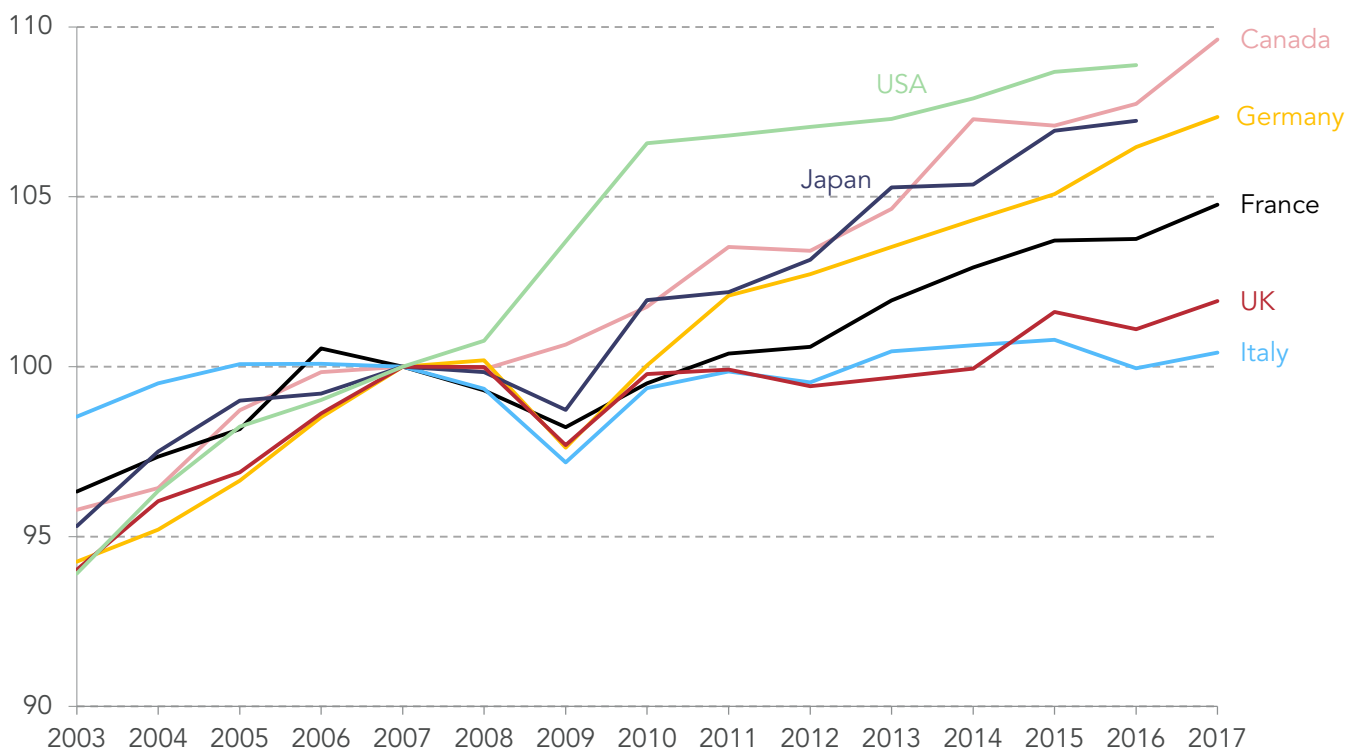
The UK's poor productivity performance persists

Unlike high employment rates, a far less popular ongoing trend is the UK's now chronically weak productivity growth. Output per hour worked – the most commonly used measure of productivity – is now just 1.2 per cent higher than it was at the end of 2007. As a thought experiment, had the pre-crisis growth trend continued then productivity would be more than 25 per cent higher today.

The UK is far from the only country suffering productivity woes, with a variety of theories regarding this slowdown. But as Figure 13 makes clear, as of 2017 the UK is among the worst performers in the G7 with only Italy – where output per hour is virtually the same as in the mid-2000s – faring worse.

Figure 13: The UK is among the worst-performing large economies on productivity of late

Indices of GDP per hour worked by country, constant prices, 2007=100



Source: RF analysis of stats.oecd.org

Initial encouraging data from late 2017 suggested, however, that a return to faster growth was possible with the strongest productivity growth for some time. But a weaker quarter at the start of 2018 appears to have scotched such hopes.^[14] Quarter-on-quarter productivity growth was down by 0.5 percentage points and year-on-year productivity growth stood at just 1 per cent, well below the pre-crisis norm of 2.3 per cent per annum.

The ground lost relative to past trends now appears very unlikely to be recovered any time soon. In 2017 the Bank of England and OBR downgraded their projections for future productivity growth,

^[14] The uptick in productivity growth was driven by a fall in reported hours worked in the last quarter of 2017 which was not sustained into the first quarter of 2018.

which, if accurate, would suggest that improvements in living standards are likely to be slower in future.

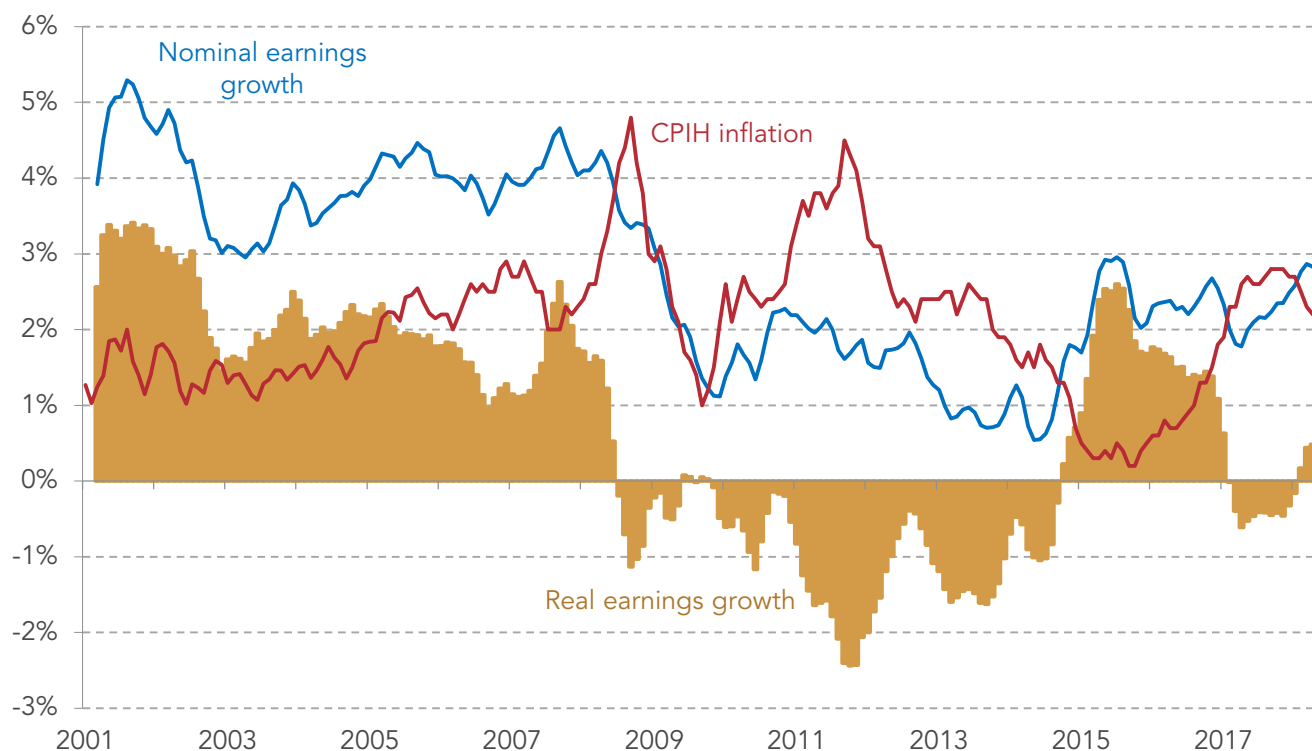
Average pay fell in real-terms but low earners escaped the squeeze

These two elements of the living standards equation – employment and productivity – both influence pay growth. Generally speaking, if employment rates are high, employers will be forced to pay more to attract and retain staff. But improvements in wages and living standards can only be sustainable if productivity rises too. Though other considerations can have a major impact on wages too – for instance, the relative power of workers vis a vis firms – the parallels between the UK's terrible productivity performance and slow wage growth are hard to ignore.

As the blue line in Figure 14 highlights, nominal earnings growth since the crisis has been disappointing when compared to the pre-crisis period. In the three months up to and including April 2017, average weekly earnings grew by just 1.8 per cent. That thankfully marked a nadir, with pay growth improving since then, averaging 2.8 per cent in early 2018. But, while a relative high point post-crisis, this remains some distance below the pre-crisis norm of around 4 per cent. Indeed, nominal pay growth has not topped 3 per cent since January 2009.

Figure 14: Prices outpaced pay for much of 2017-18

Annual growth in average weekly earnings (regular pay) and CPIH inflation



Source: RF analysis of ONS, Labour Market Statistics

How pay rises *feel* to workers is, of course, dependent on how quickly prices are rising. For instance, the ‘mini-boom’ of 2015 was the result of a combination of both nominal earnings growth approaching 3 per cent as well as inflation hovering just above zero (and prices actually falling when CPI is used). Likewise, the return of the pay squeeze – perhaps the key living standards development of 2017-18 – was due to above-target inflation as well as tepid nominal wage growth.

As Figure 14 shows, the period of ultra-low inflation segued into the post-referendum increase in prices as a weaker pound meant businesses paid more for imports with this feeding through to consumers. The inflation peak occurred towards the end of 2017, when CPIH reached 2.8 per cent – its highest rate since 2012. Since then, the spike has begun to pass through the calculation. Although the weaker pound means the cost of goods and services from overseas is still higher than before the EU referendum, the *pace* of rises has abated. CPIH has dropped back towards 2 per cent, although recent increases in oil prices could reverse some of those reductions.^[15]

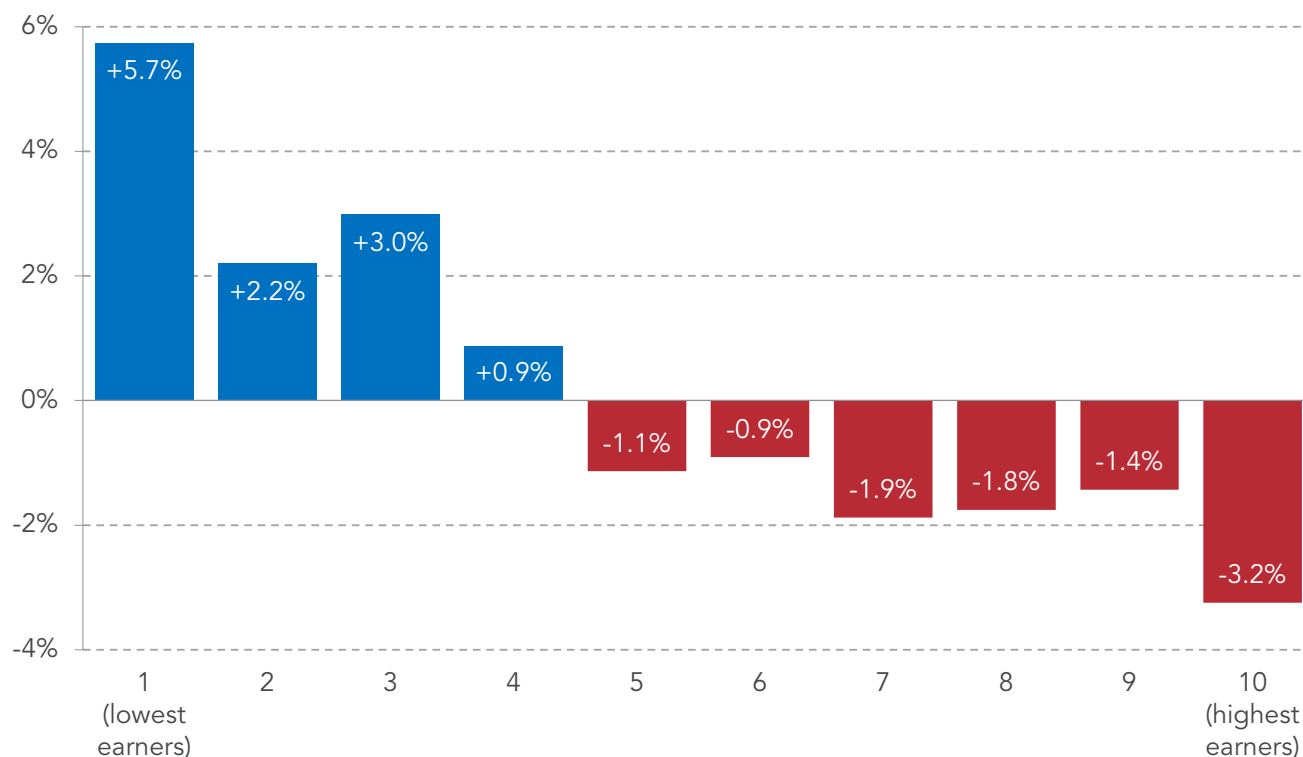
Accounting for inflation, the gold bars in Figure 14 show real pay growth, and the squeeze of 2017. The most recent data has confirmed that real-terms pay growth has returned but, once again, compared to the pre-crisis period or even as recently as 2015, real wage growth is likely to feel tame at best for the average earner. The coming year is likely to bring stronger earnings growth than 2017-18. But the pre-crisis peak on wages remains some distance off, with average weekly earnings still £15 below that level. On current estimates, that gap will not close until the mid-2020s.^[16]

The figures referred to above only reflect *average* weekly earnings. People at different points in the distribution can of course have very different experiences, with forces affecting some rungs of the pay ladder but not others. In recent years, the most notable of these has been the National Living Wage. Since its introduction at £7.20 in April 2016, the minimum wage for those aged 25 and over has risen to £7.50 in April 2017 and £7.83 in April 2018. As previous Resolution Foundation analysis has found, there is not a perfect overlap between the lowest hourly wage earners and the lowest weekly wage earners.^[17] But, as Figure 15 shows, the increase in hourly wages has boosted total annual pay too, with the bottom four deciles experiencing real-terms growth, and the strongest growth of 5.7 per cent for the lowest 10 per cent. This is in stark contrast to the top 60 per cent, for whom real wages fell in 2017-18, with the greatest falls for the top decile.

[15] It is worth remembering that the overall inflation figures are just an average that disguises the experiences of different households. The ONS do separately attempt to capture differences in inflation across groups, however, and the latest data shows that inflation rates for both high and low income households have been broadly similar over the course of the past year.

[16] Resolution Foundation, [Sugar rush: Spring Statement response](#), March 2018

[17] C D’Arcy, [Low Pay Britain 2018](#), Resolution Foundation, May 2018

Figure 15: Wage growth was strongest for the lowest earners*Change in average gross weekly pay by decile, 2016-17 to 2017-18, CPIH-adjusted*

Source: RF analysis of ONS, Labour Force Survey

The benefits squeeze tightened in 2017-18 due to higher inflation

The labour market is playing a mixed role in household finances, with high employment weighed against falling wages overall. But the impact of the benefits system has been much more clearly negative for working-age families.

In terms of overall welfare payments, since 2010-11 pensioner benefits have been protected from fiscal consolidation. The single largest payment – the State Pension – has been bolstered by the ‘triple lock’. This has meant that even when wage growth has been weak, or inflation high, its value has been flat or rising in real terms. One caveat however, is that the ‘triple lock’ is based on inflation from the year before, so can take time to ‘catch up’ with high inflation – and this happened in 2017-18. Hence in April 2017 the State Pension was increased by 2.5 per cent, even though inflation in the year to April 2018 averaged 2.8 per cent. Overall though, benefit-spending per pensioner is 3.7 per cent higher than it was in 2010-11.

For working-age adults and children, however, a different picture has emerged. Welfare spending per working-age adult and child has fallen by nearly 11 per cent in real terms since 2010-11. While some of this decline is due to cyclical factors – higher employment typically results in lower JSA payments, for instance – much of this drop has been driven by policies announced at the 2015 Summer Budget. The government at the time outlined cuts worth £14 billion by 2021-22, with

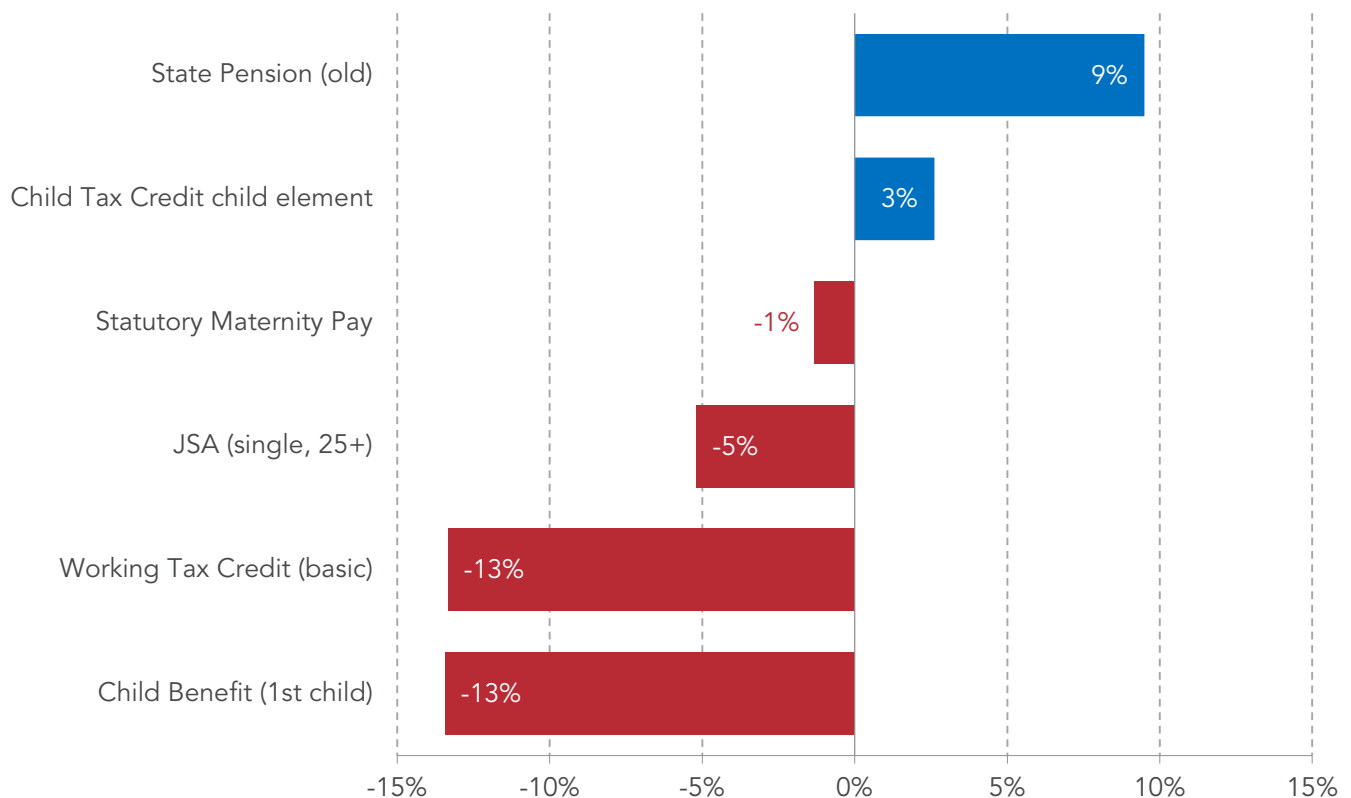
the majority of the planned savings coming from benefits targeted at working-age families and children. The first significant savings for the government from these policies began in 2017-18, with more taking effect in 2018-19 and 2019-20.^[18]

Chief among these policies was the four-year freeze on most working-age benefits. This had a more muted impact on families in 2016-17 because, as discussed above, inflation was at historic lows. But the spike in inflation that the UK subsequently experienced meant that the hit to affected families' incomes grew rapidly, eroding the real value of many benefits in 2017-18.

Figure 16 illustrates the change between April 2010 and April 2018 in the value of a number of key benefits. Child Benefit and Working Tax Credit are now worth 13 per cent less than at the start of the decade. Statutory Maternity Pay grew in real terms in 2017-18 but its value remains 1 per cent

Figure 16: The value of most working-age benefits has fallen in real terms

Change in real-terms values of selected benefit payments (CPIH-adjusted): Apr 2010-Apr 2018



Notes: The old State Pension applies to those born before April 1953 (for men) or April 1951 (for women). It includes two parts. A Basic State Pension based on your previous National Insurance contributions. An Additional State Pension also based on your National Insurance contributions, but this takes into account your earnings and whether you claimed benefits too.

Source: RF analysis of HMRC and DWP

lower than in 2010. The State Pension on the other hand is now 9 per cent higher than in 2010.

Other cuts have only just begun to filter through to newly-affected families, including a two-child limit for new Universal Credit claimants and cuts in work allowances provided under the newly-introduced welfare system. This means that state support will be playing a declining role for many families. This is not necessarily because families will experience losses relative to their previous

^[18] Resolution Foundation, [Sugar rush: Spring Statement response](#), March 2018

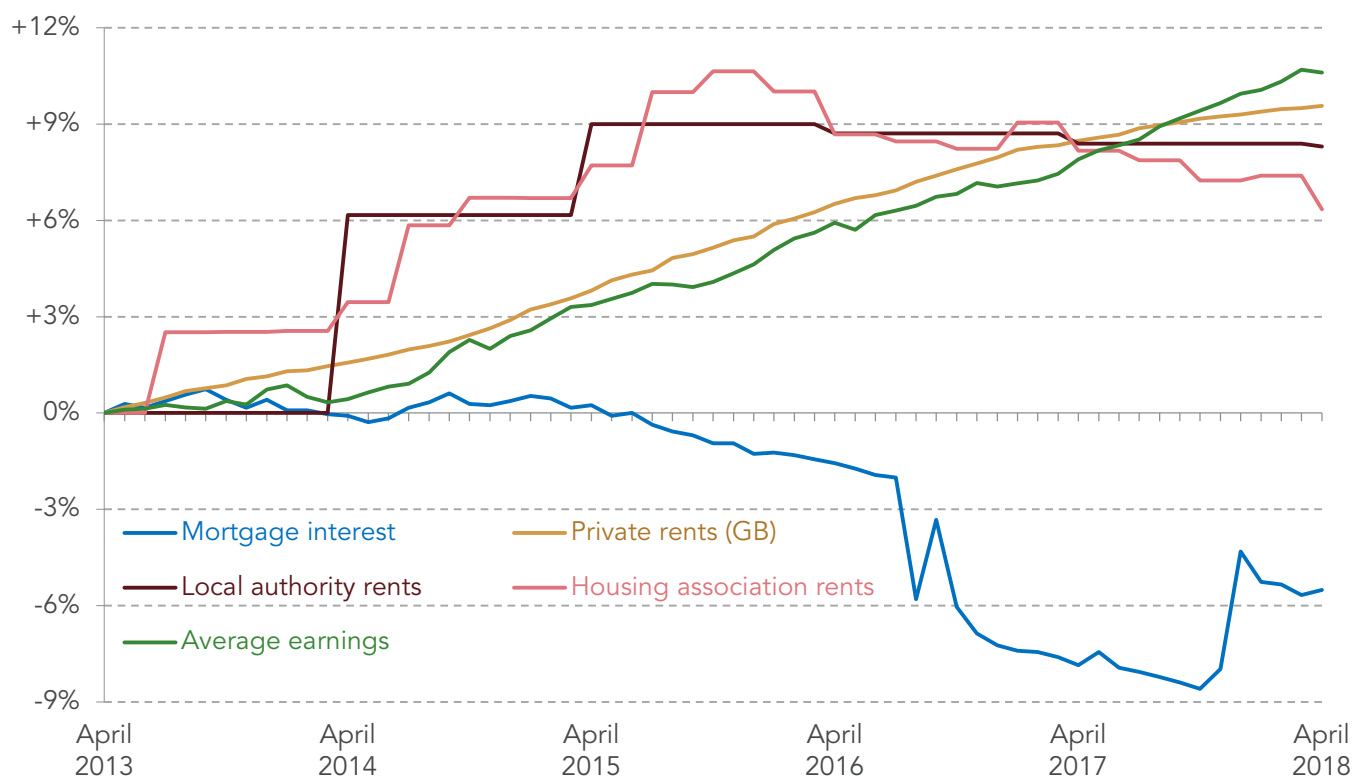
benefit entitlements (although the freeze will reduce the real value of benefits for recipients) but instead new claimants will be relatively worse off compared to if they had been under the previous regime.

Housing pressures may be easing

Finally, there is the role that housing costs play in determining living standards, particularly for low to middle income families. Over the long run, the share of income consumed by housing costs has risen dramatically (though this may partly reflect higher quality).^[19] Over the last decade, however, the picture has been mixed. Although house prices themselves remain high, and have grown faster than earnings over the past five years, interest costs for mortgagors have plummeted. Despite a small increase in the Bank rate in November 2017, Figure 17 shows that borrowing costs

Figure 17: Rents grew slower than average earnings in 2017-18

Cumulative change in mean costs (and earnings) since April 2013



Source: RF analysis of ONS, various

remain low even by the standards of recent years.

Average rents have not taken the same path. But private rents have recently been rising slower than average wages. Excluding London, rents in Britain were 1.6 per cent higher in April 2018 than a year earlier, and in London – after years of rapid rent inflation – the growth rate was zero. While such figures may reflect a weak economy, they help cushion blows to household incomes. For private renters who receive Housing Benefit, however, the continued freeze in that support may make any rent rises harder to bear than in the past.

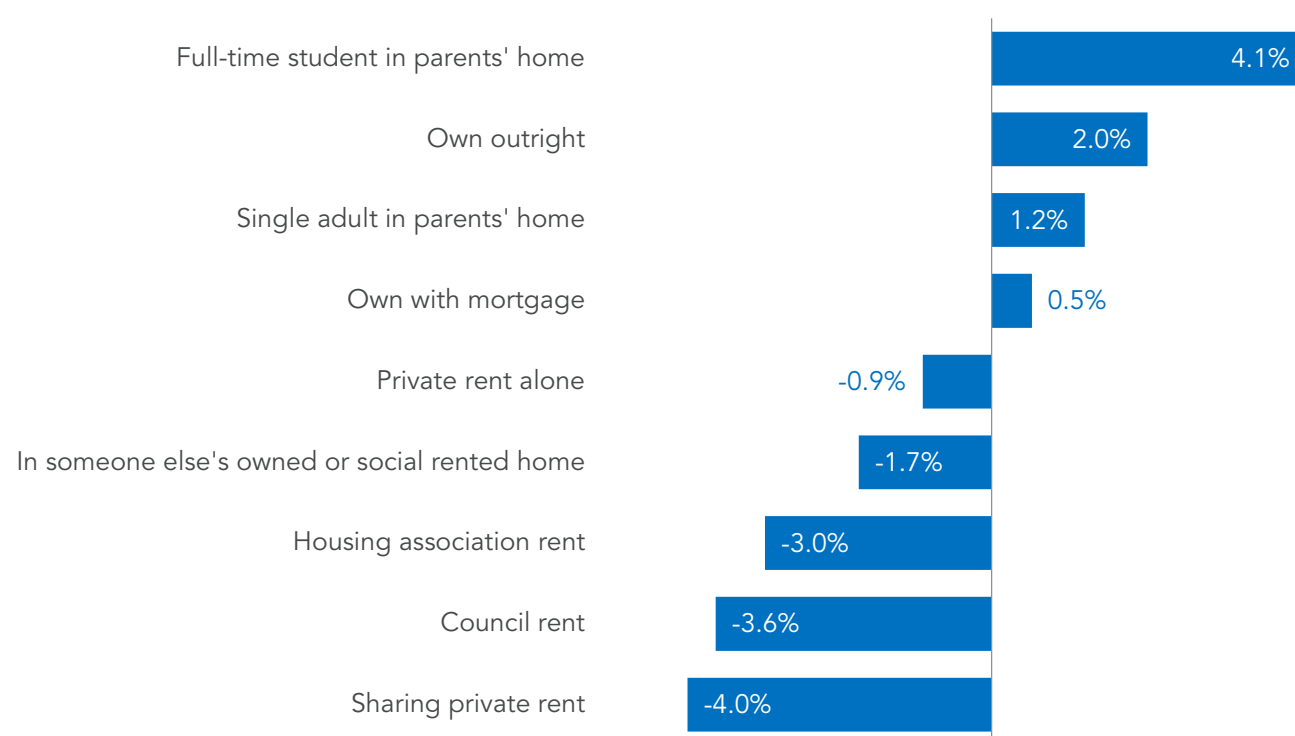
[19] A Corlett and L Judge, [Home Affront: Housing across the generations](#), Resolution Foundation, September 2017

After years of rising faster than incomes, social rents have recently fallen as a result of the government's policy for these to fall by 1 per cent a year for four years. However, for the many people whose social rents are fully covered by Housing Benefit, this will not make a difference to their household incomes.

Recent changes in housing tenure, shown in Figure 18, may also have supported disposable incomes. Despite the historic decline in home ownership, the proportion of families owning their home outright – and therefore with no major housing costs – has continued to rise to record highs. And the proportion of families renting has paused. Overall home ownership levels have increased but this may just represent a 'bounce-back' after homeownership was suppressed by the financial crisis and it is not yet clear if this will continue.

Figure 18: There was a rise in outright ownership and mortgagors in 2017

Percentage change in share of families in each tenure: 2016 - 2017



Source: RF analysis of Labour Force Survey

From a living standards perspective, then, 2017-18 seems to have been at best a mixed bag. Overall economic growth underwhelmed, with the running sore of weak productivity growth showing no sign of healing. The continued strength of the jobs market on the other hand has been a much more welcome development. Pay, however, offered a flashback to earlier in the post-crisis era, with falling real-terms wages due to both inflation and tepid nominal wage gains on average, despite a better outcome for the lowest earners. An acceleration of cuts in working-age benefits over the year is likely to have acted as major dent to living standards of recipients. But the housing market has been depressed, helping to somewhat cushion the hits to earnings and benefits.

In the next section, we make use of both recently-released survey data for 2016-17 and the more timely economic metrics explored above, in order to build a nowcast of incomes in 2017-18 that can give us a sense of what is happening to living standards across society.

Section 4

Household incomes and inequalities in 2017-18

Having analysed the drivers of household incomes in 2017-18 our 'nowcast' provides a formal estimate of household income growth over the past year. We project that typical household incomes (before taking into account housing costs) increased by 0.2 per cent in 2017-18, a similar result to the latest National Accounts data. After accounting for housing costs we record an increase in 0.9 per cent.

Beyond this our nowcast provides an estimate of what has happened to incomes across the distribution (after housing costs). We find that incomes fell significantly (by between 0.7 and 1.3 per cent) for households in the bottom third of the income distribution, with meagre growth for the rest. Decent earnings growth and a small income tax cut were not enough to offset cuts to benefits for low income households.

We also estimate that inequality rose in 2017-18. The small rise in inequality reversed the slight fall of the previous year, and means that since the crisis inequality has remained constant, though at a rate above that of many similarly advanced economies. Poor growth for lower-income households coupled with a rise (albeit small) in median incomes means that relative poverty rates may have increased significantly last year. Our estimates suggest that overall poverty rose from 22.1 to 23.2 per cent while child poverty rose from 30.3 to 33.4 per cent. It is likely that 2017-18 was a poor year for lower-income households, yet beyond this our figures suggest that there has been a general stagnation in improvements in living standards for the majority of households over the last two years.

Both national accounts data and our nowcast suggest that household incomes performed badly in 2017-18

There are two main sources of detailed household income data in the UK. The *'Effects of taxes and benefits on UK household income'* is produced by the ONS and draws upon its *Living Costs and Food Survey*. This is released around January and provides data on household incomes up to the previous financial year. The other, stronger, source of data is produced by the DWP.^[20] The *Households Below Average Income (HBAI)* statistics were last released in March 2018 and provided data up to the 2016-17 financial year. Both the ONS's and DWP's statistics are produced from large household surveys, and it takes time for the results to be processed, therefore the lag between the time the data is recorded and released is understandable. Nevertheless the result is that, as of July 2018, the latest detailed data on household incomes is over a year old, covering the 2016-17 financial year.^[21]

[20] A Corlett, [Unequal results: improving and reconciling the UK's household income statistics](#), Resolution Foundation, December 2017

[21] An exception is the NMG survey commissioned by the Bank of England for which the most recent data is for the second half of 2017. This is currently an untested resource for assessing household income growth in detail, but our analysis suggests it gives a similar picture to our nowcast of weak, unequal, growth in 2017.

However as part of the *Quarterly Sector Accounts*, which are produced each quarter with just a three-month lag, the ONS releases a number of other measures of household income. The main measure is its estimate of real household disposable income (RHDI). This includes the income of the household sector but also includes transactions that are not directly observed by households, such as imputed rent (which represents the value of housing services that owner-occupiers derive from their homes). For this reason the ONS has created a 'cash RHDI' measure which strips out these unobserved transactions and so 'is a closer representation of disposable income as measured in social surveys'.^[22] Cash RHDI therefore provides a more timely measure of average incomes than those derived from household surveys. Nevertheless it has the big drawback of being an average; unable to tell us anything about the distribution of income and strongly affected by what happens to those with the highest incomes, whose incomes tend to be more volatile.

To get a better sense of what has happened to household incomes and their distribution since April 2017 we can use more recent economic data to update or 'nowcast' the household survey data that underpins the DWP's HBAI statistics. Annex 3 describes in detail how we do this but in essence we use more timely data on earnings, prices, employment and demographics along with the IPPR tax-benefit model to incorporate 2017-18's tax and benefit system.

Figure 19 compares the ONS's cash RHDI figures with figures on typical equivalised household income drawn from the DWP's HBAI data. The figure also includes the result of our 2017-18 nowcast. The two series track each other relatively well.^[23] The cash RHDI measure has been falling for the past six quarters and the result of our nowcast is only marginally better, showing that, before taking housing costs into account, median household income increased by just 0.2 per cent in 2017-18.^[24]

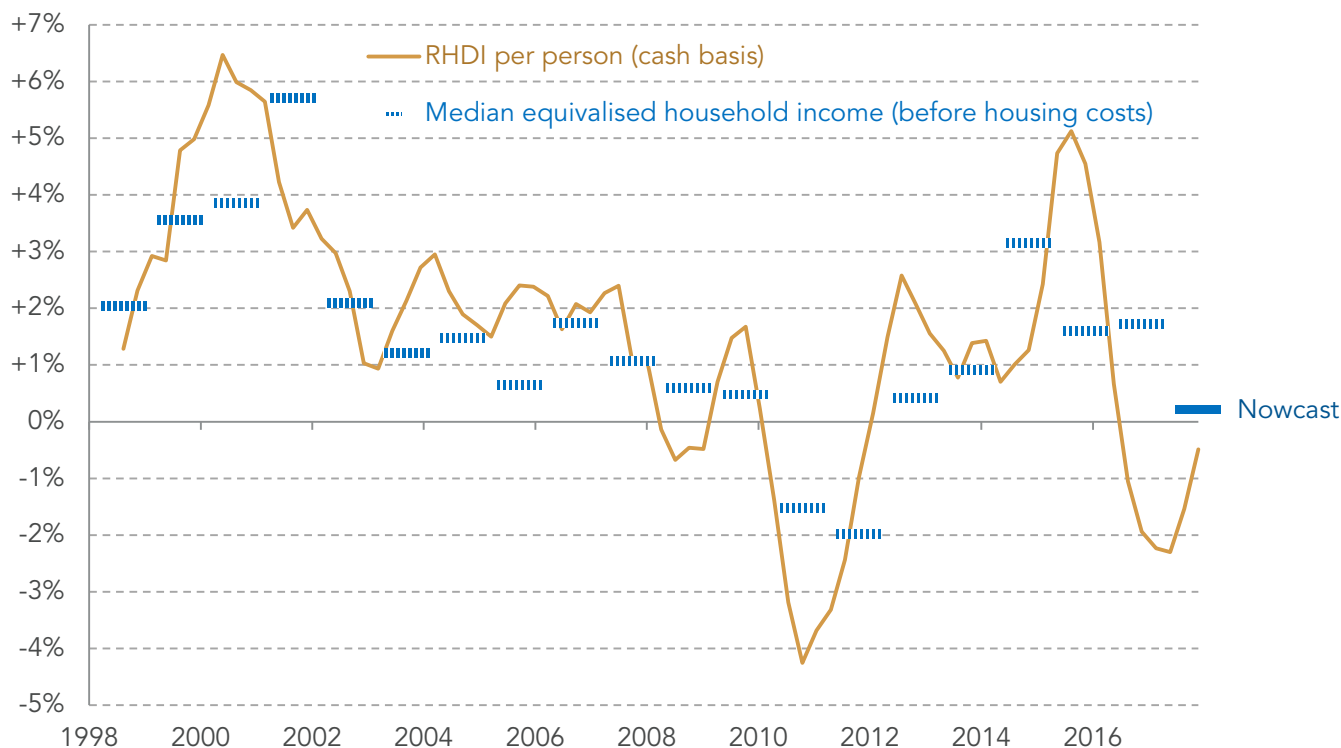
[22] ONS, [Alternative measures of UK households' income and saving](#), July 2018

[23] Between 1997 and 2017 the correlation between the two series is around 0.6

[24] Although this measure of income doesn't itself account for housing costs, housing costs are included in the deflator. The result is that rises in average (economy-wide) costs of housing are taken into account in producing estimates of 'real' income, but the distribution of those costs is not and nor are changes in tenure.

Figure 19: RHDl has fallen for the six most recent quarters

Year-on-year growth in measures of real income



Notes: Quarterly RHDl figures are annualised and expressed in real (CVM) terms. Median household income is measured before taking into account housing costs and deflated using a variant of CPI including measures of housing costs. 2017-18 nowcast shown as dotted lines.

Source: ONS, RHDl and RF analysis of DWP, *Households Below Average Income*. Nowcast uses the IPPR tax-benefit model.

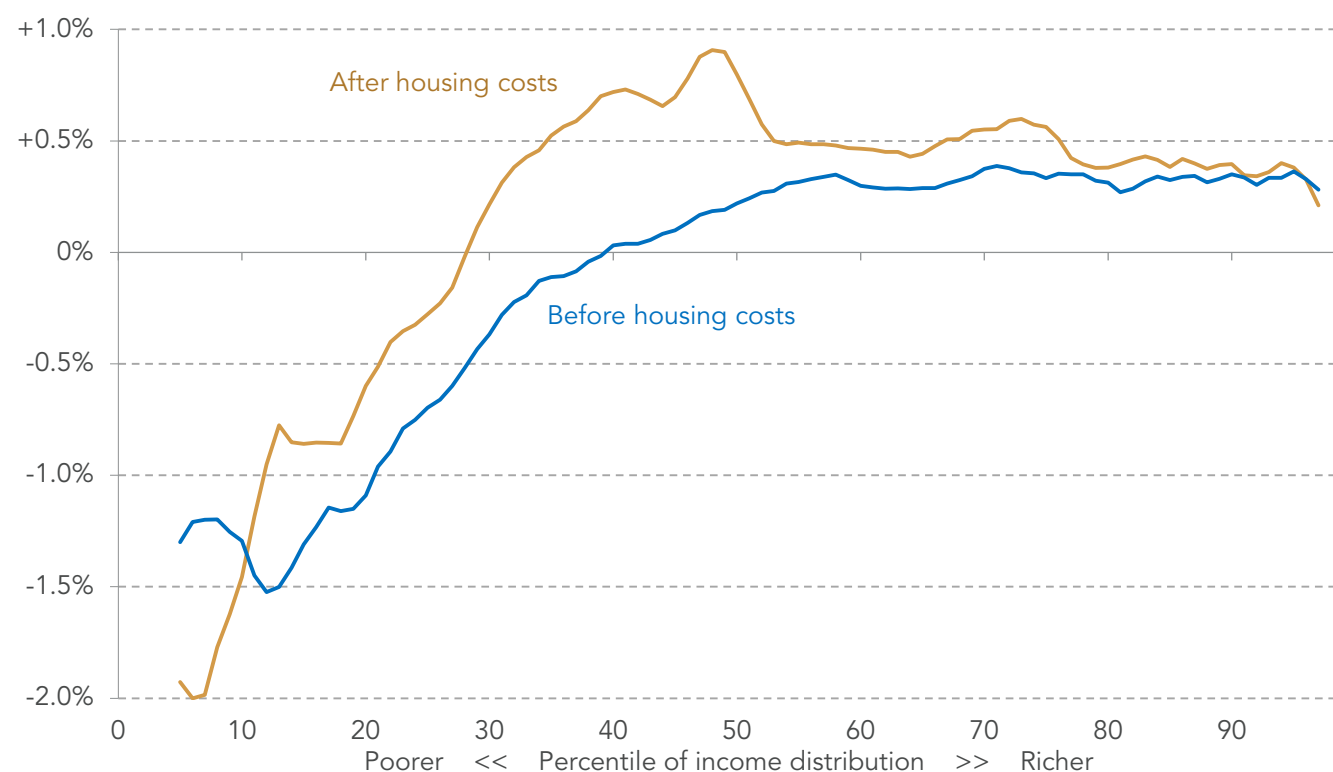
Although this is an estimate, the nowcast suggests that 2017-18 was the weakest income growth since 2012 when typical household incomes fell. Of course it is hard to accurately predict what the outturn data will show, but even if the point estimate is wrong it is likely that 2017-18 was a far poorer year for household incomes than any time since the fallout from the financial crisis.

Income declines were most pronounced at the bottom of the distribution

One of the benefits of our nowcast is that it can tell us about the likely distribution of income growth. Figure 20 does this and shows that growth was particularly uneven in 2017-18. The yellow line on the chart (taking housing costs into account) shows that for the typical household incomes grew by 0.9 per cent this year. The blue lines show that typical incomes rose by 0.2 per cent if we do not take housing costs into account. Growth was stronger on the 'after-housing-costs' measure because housing costs either fell or they did not increase by as much as incomes. As discussed in Section 3, in 2017-18 local authority and housing association rents fell, mortgage interest payments fell, and rents in the private sector increased at a slower rate than in 2016-17. Furthermore there was a 2 per cent increase in the number of households that own their home outright. Because such households have far lower housing costs, their growing prevalence contributed to an overall fall in housing costs.

Figure 20: Our nowcast suggests incomes fell for poorer households in 2017-18

Change in real household income between 2016-17 and 2017-18



Notes: Results are smoothed and the extremes of the distribution are removed

Source: RF nowcast (see Annex 1 for more details). Nowcast uses the IPPR tax-benefit model.

That being said the shape of the results before and after housing costs are similar: higher income households fared better than their lower-income counterparts. In terms of the after housing costs results, for most of those in the bottom third of the distribution (below the 30th percentile) incomes fell. The decline varied, with those around the 10th percentile experiencing the most pronounced fall (of approximately 2 per cent), while there were milder declines across the rest of the bottom third. Incomes increased for households in the top of the distribution by an average of 0.5 per cent, however this growth rate was relatively subdued by historical standards.

The results above do not assume that all possible benefit entitlements are taken-up, whereas previous nowcasts have done so.^[25] As Section 5 makes clear, accurately capturing benefit take-up is important when gauging household incomes and therefore this year's nowcast marks an improvement over previous ones. In future more accurate benefit take-up modelling will be incorporated into our forecasts of household income.

In absolute terms incomes changed most for those in the bottom third of the distribution

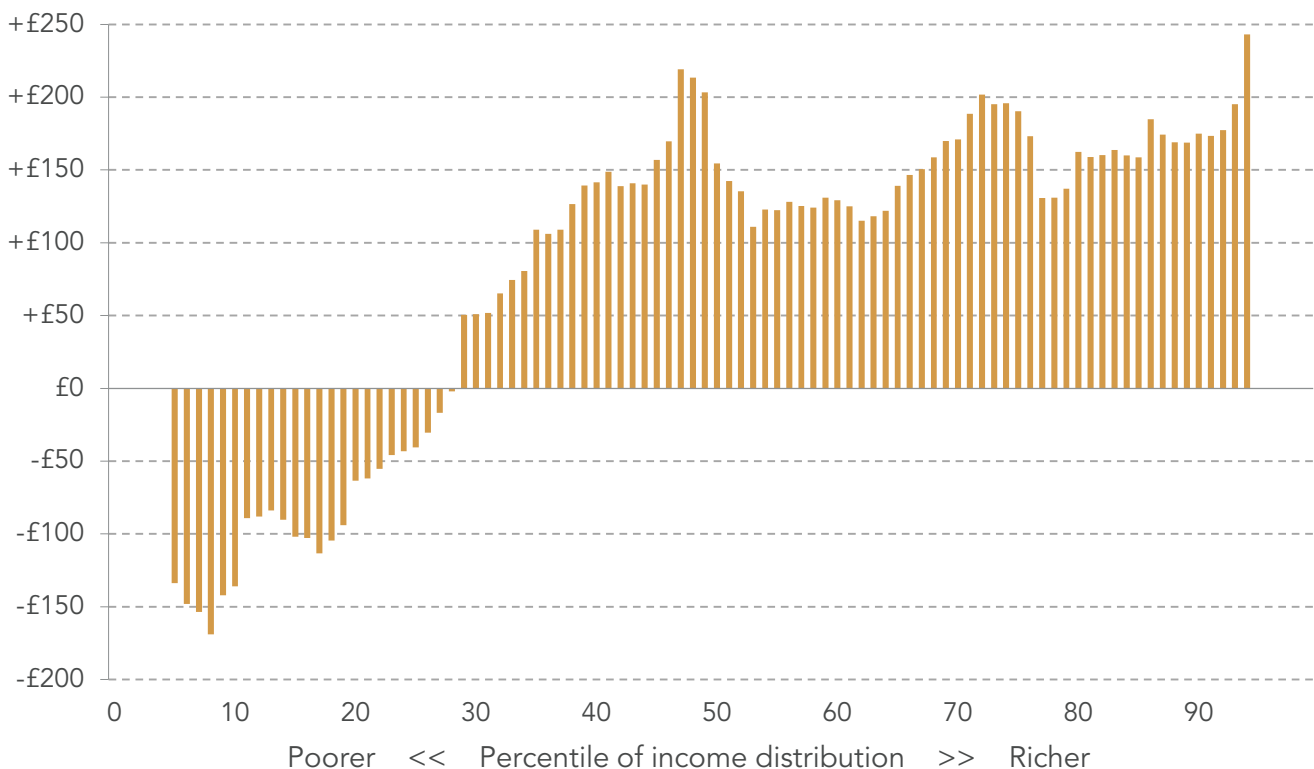
Figure 20 shows that in proportional terms the largest change in income was in the bottom third of the distribution. However, it is important to consider *absolute* as well as *relative* changes in income. Figure 21 shows the absolute change in annual income in 2017-18 for households across the distribution. Given the importance of housing costs to people's living standards from here on we shall concentrate on the figures that take these into account.

[25] A Corlett, D Tomlinson & S Clarke, *The Living Standards Audit 2017*, Resolution Foundation, July 2017

The biggest absolute changes in income are for lower-income households. There were declines of between £100 and £150 for households between the 5th and 20th percentiles. Changes across the rest of the distribution were far less pronounced; ranging from falls of around £75 for households between the 20th and 30th percentiles of the distribution, to rises of £100 to £150 for those above the 40th percentile. These results underscore the fact that 2017-18 was a particularly poor year for lower-income households, the group whose living standards are most sensitive to changes in their absolute income.

Figure 21: Our nowcast suggests that lower-income households were between £50 and £150 worse off in 2017-18

Change in real household income (after housing costs) between 2016-17 and 2017-18

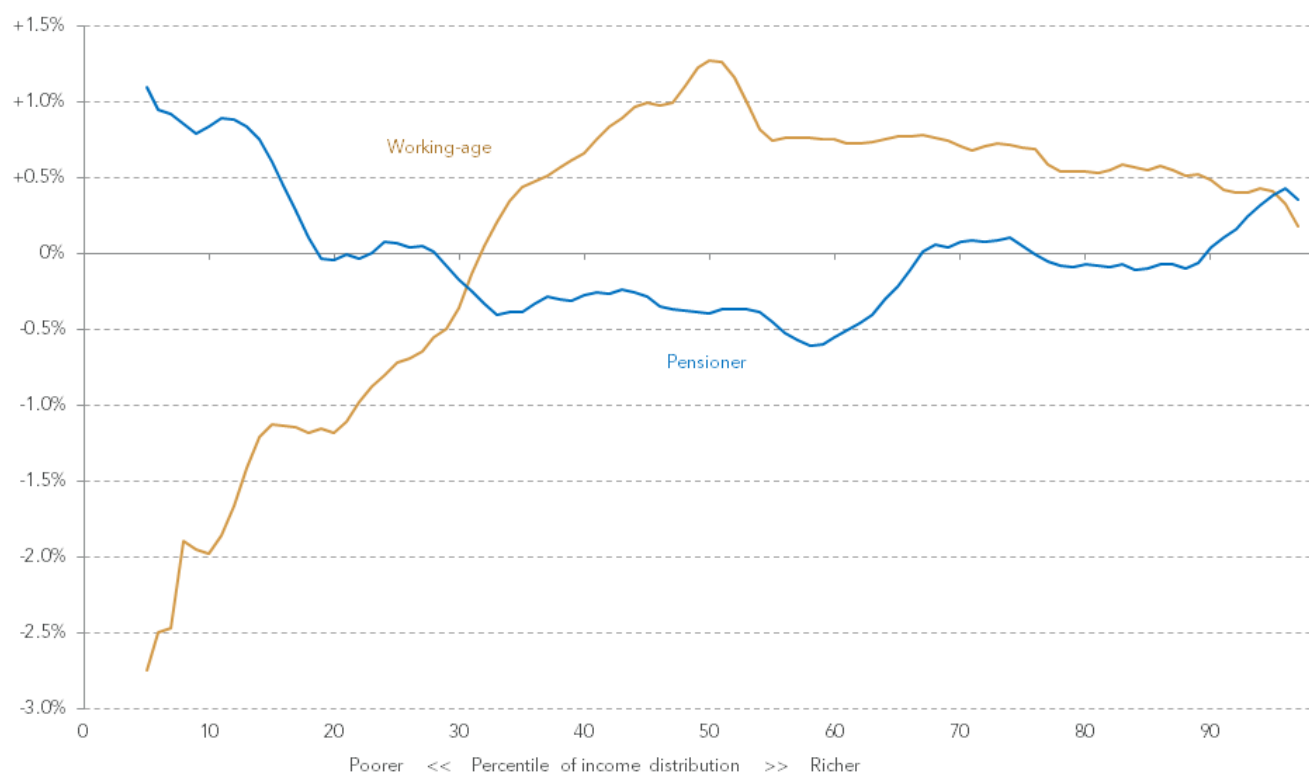


Notes: Results are smoothed across five percentiles and the extremes of the distribution are removed

Source: RF nowcast (see Annex 1 for more details). Nowcast uses the IPPR tax-benefit model.

Pensioners may have fared particularly poorly in 2017-18

Figure 20 and Figure 21 imply that in both relative and absolute terms income growth varied across the distribution of households in 2017-18. However, both figures include the entire population and therefore shroud important differences in the experiences of working-age and pensioner households. Figure 22 shows that while income growth varied across the distribution for working-age households the change in income was relatively even for pensioners. This partly reflects the limitations of our nowcasting method for this group and so, even more so than for those of working-age, caution should be exercised into reading too much into specific figures.

Figure 22: Incomes fell for low-income households and pensioners*Change in income after housing costs (inflation-adjusted using CPI exc. housing) between 2016-17 and 2017-18*

Notes: Results are smoothed and the extremes of the distribution are removed

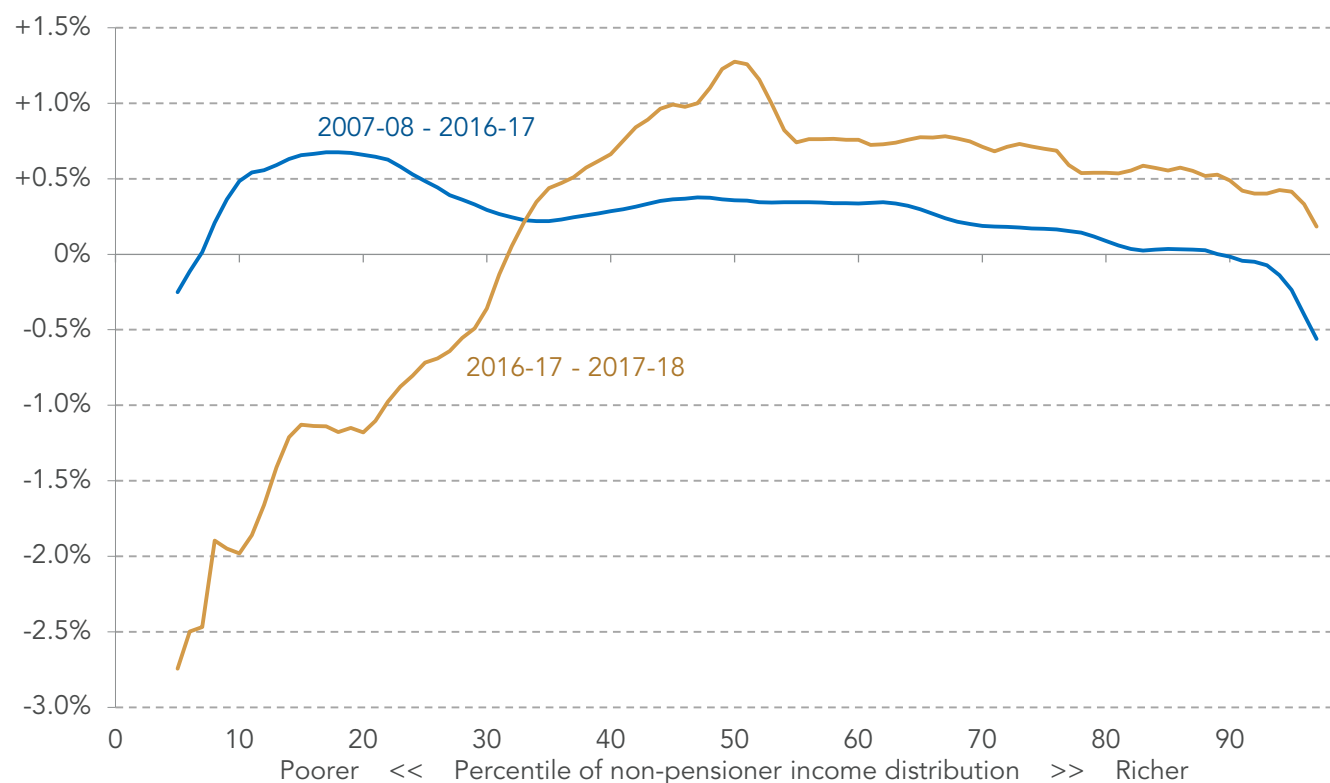
Source: RF nowcast (see Annex 1 for more details). Nowcast uses the IPPR tax-benefit model.

Nevertheless, the blue line shows that on average incomes for pensioner households were flat in 2017-18, with slight rises for lower and higher income households. Such relatively meagre income growth (by historical standards) is the result of unexpectedly high inflation. The majority of pensioner income comes from pensions, and the State Pension is currently uprated by either average earnings growth, inflation, or 2.5 per cent, whichever is highest. As noted in Section 3 in April 2017 the State Pension was increased by 2.5 per cent as prices and earnings increased by lower amounts in the previous year. However in the year to April 2018 inflation averaged 2.8 per cent. The result (as evident in Figure 22) is that pensioner incomes declined by between 0.2 and 0.5 per cent last year. Fortunately for pensioners this situation is likely to be reversed this year. In April 2018 the State Pension was increased by 3 per cent (September 2017's inflation figure) while the OBR expects inflation in the year to April 2019 to be 2.2 per cent.

Figure 23 puts the 2017-18 result in context. Last year income growth was particularly poor for lower-income households, however since the crisis working-age households in the bottom third of the income distribution have done marginally better than their higher income counterparts. Between 2007-08 and 2016-17 real income growth averaged just 0.3 per cent per year for working-age households, yet it was marginally stronger (around 0.4 per cent) for those in the bottom third, and marginally weaker (around 0.1 per cent) for those in the top fifth. This year though the situation is reversed with lower-income households faring worse.

Figure 23: Since the crisis income growth has been poor, but marginally better for lower-income households

Average annual change in income after housing costs (inflation-adjusted using CPI exc. housing) for working-age households between 2007-08 and 2017-18



Notes: Results are smoothed and the extremes of the distribution are removed

Source: RF analysis of DWP, *Households Below Average Income*; RF nowcast (see Annex 1 for more details). Nowcast uses the IPPR tax-benefit model.

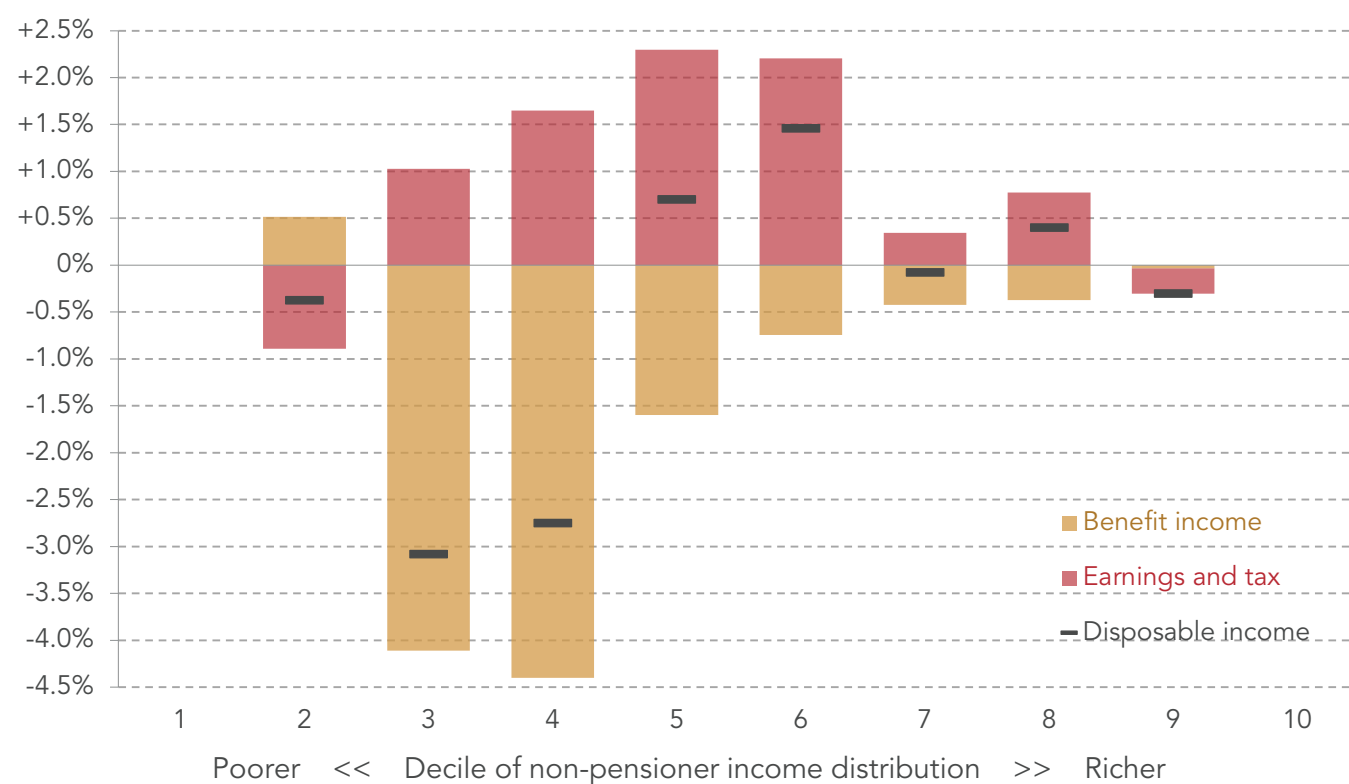
Earnings growth was not enough to offset cuts to benefits for low income households

To get a better sense of why income growth for working-age households varied across the distribution, below we explore how the various components of income changed over the past year based on our nowcast.^[26] A household's disposable income is broadly made up of three components: how much people earn after taking inflation into account, how much they pay in tax and how much they receive in state support through the benefit system.^[27] Figure 24 brings these three elements together to get a sense of their combined impact across the income distribution. Similar to the result for working-age households in Figure 20 (before taking housing costs into account), these three components of our nowcast indicate that disposable income fell significantly towards the bottom of the income distribution with relatively small increases (or falls) for the rest.^[28]

[26] Compared to the overall income figures the data on the different components of income are more volatile. Nevertheless the shape of the results do tell us about what impact changes in different components of income are having across the distribution.

[27] Other forms of state spending (on health, education, transport, etc.) also have a big impact on people's living standards but here we shall limit ourselves to analysing some of the key components of disposable income which underlie our nowcast.

[28] The exact shape of these results differ from those in Figure 22 because this is unequivalised disposable income and it does not include all sources of income, just those outlined above.

Figure 24: Higher earnings and lower taxes are not enough to offset cuts to benefits for lower-income households*Change in real components of disposable income between 2016-17 and 2017-18*

Notes: The top and bottom decile have been removed. The impact of tax and earnings are combined because they are interdependent (a rise in earnings increases tax paid), though tax changes had a relatively small impact this year.

Source: RF nowcast (see Annex 1 for more details). Nowcast uses the IPPR tax-benefit model.

In terms of earnings growth households between the third and sixth deciles of the distribution did better than those at the top and bottom. The fact that low to middle income households did better is likely down to strong growth in the minimum wage (which increased by approximately 4 per cent in real terms) while earnings growth remained subdued across the rest of the earnings distribution. It is interesting that the sharp rise in the minimum wage did not increase earnings in the second decile, however this is because workers on the minimum wage are not clustered at the bottom of the distribution. There are many workers on the minimum wage in higher-income households (for instance second earners in two-earning households); around 15 per cent of households at the 50th percentile contain someone on the minimum wage, as do 10 per cent of households at the 70th percentile. A rising minimum wage helps households across the income distribution. This notwithstanding 2017-18 was a good year for low- and mid-earners, and for the earnings of lower-income households.

Employment growth over the last couple of years has also tended to benefit lower-income households. Between 2014-15 and 2016-17 employment increased by an average 1 per cent in the bottom half of the income distribution, while it fell by 0.4 per cent in the top half. Furthermore in 2017-18 the number of non-working single parent households fell by 6 per cent and the number of non-working couples with children fell by 8 per cent. As employment has continued to rise this year, this has tended to raise household incomes for those at the bottom of the distribution. Slightly offsetting this is the fact that hours worked have declined over the past few years for lower-paid men, but this has been offset by a rise in hours for lower-paid women.^[29]

[29] S Clarke & G Bingham, [Counting the hours: two decades of changes in earnings and hours worked](#), January 2018

Changes in benefit income were negative in 2017-18 and the decline in benefit income was most pronounced for the third and fourth deciles of the distribution, while there was little or no impact at the top. Benefit income, as a share of total income, peaks in the second decile, and accounts for only a very small proportion of income for households at the top of the distribution. Therefore it is not surprising that the cuts to working-age benefits had little or no effect for this group, particularly when expressed as a share of their total income.

Overall then 2017-18 was a year in which changes in benefit income were mostly negative and had a big impact at the bottom of the distribution. To an extent the decline in benefit income was mitigated by either lower taxes or higher earnings (particularly for those in the third and fourth deciles), but our nowcast suggests that this was not enough to prevent large falls in income.

It is likely that inequality rose marginally in 2017-18 as the incomes of those at the bottom slumped

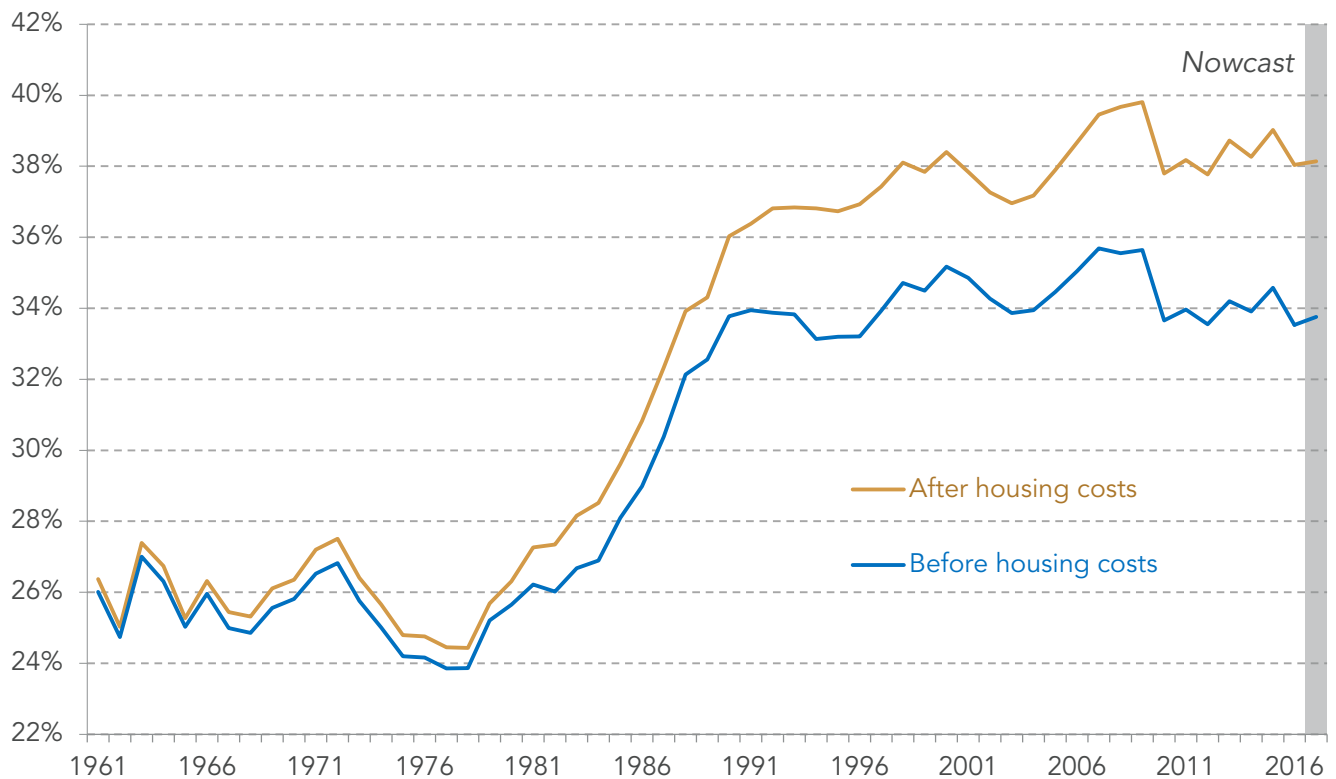
Our nowcast paints a picture of stagnating living standards in 2017-18, with meagre gains at the top and pronounced falls towards the bottom of the income distribution. Earnings growth was stronger for lower-income households, however this was more than offset by cuts to working-age support and rising inflation.

The divergent fortunes of groups across the income distribution means we project a small rise in inequality in 2017-18. Although year-to-year figures can be jumpy the evidence is that inequality increased because of the regressive shape of household income growth this year. The ratio between the income of the household at the 90th percentile compared to the household at the 10th percentile rose from 5.33 to 5.54. There was also a marginal increase in the ratio of the income of the typical household at the 80th percentile compared to that at the 20th percentile but no change in the 90th/50th percentile ratio.

Figure 25 puts the relatively minor shifts this year into a wider historical context. There has been a lot of debate recently about whether or not inequality is rising or falling. Though we have shown that it is not helpful that there are two different official sources of data on inequality,^[30] the figures below show that those that argue that inequality has risen over the past few years, and those that argue that it is falling, are both wrong. What is true is that inequality remains significantly higher than in many other advanced economies.

The slight uptick this year means that on both a before and after housing costs basis inequality has remained fairly constant since 2010-11 and that the slight fall in inequality in 2016-17 has been halted. However, the 2016-17 fall was driven largely by the fact that dividend income was bought forward to 2015-16 to avoid a change in tax treatment. It remains to be seen how far this will bounce back in 2017-18. Our nowcast suggests there has been some, though it is very difficult to estimate dividend income.

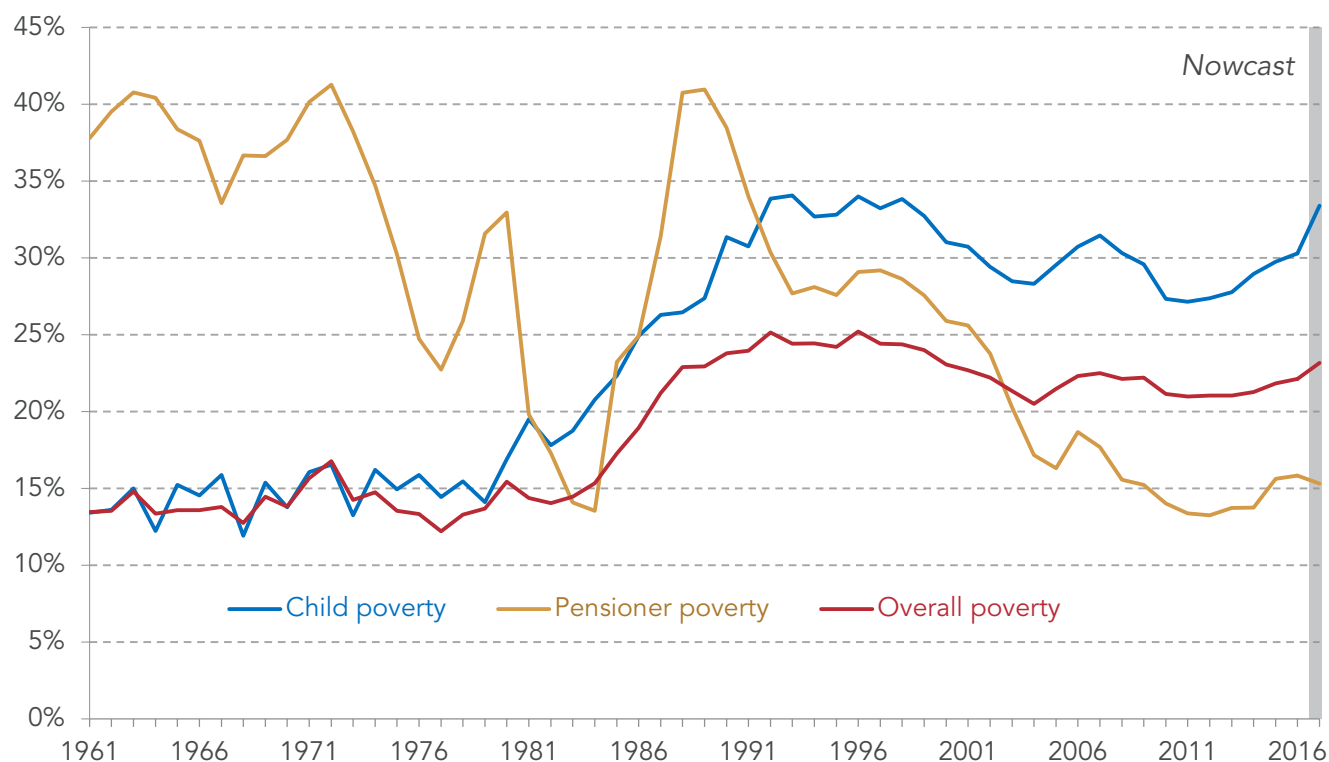
[30] A Corlett, [Unequal results: improving and reconciling the UK's household income statistics](#), Resolution Foundation, December 2017

Figure 25: Inequality has remained relatively unchanged since the financial crisis*Gini coefficient of household income*

Source: RF analysis of DWP, *Households Below Average Income*; RF nowcast (see Annex 1 for more details); IFS. Nowcast uses the IPPR tax-benefit model.

We project a rise in poverty in 2017-18

Although the increase in broad measures of inequality were relatively muted last year, our nowcast suggests that there was a pronounced rise in poverty (measured after housing costs), shown in Figure 25. The increase in overall poverty (from 22.1 to 23.2 per cent) was the largest since 1988. But this was dwarfed by the increase in child poverty which rose from 30.3 per cent to 33.4 per cent. Such a large increase is a product of how the poverty statistics are calculated and the way that incomes evolved this year. A child is counted as living in poverty if they are in a household with income less than 60 per cent of the median, in 2017-18 median (working-age) income increased by 1.2 per cent, while incomes fell significantly for households in the bottom two deciles of the distribution. The fortunes of middle-income households diverged from those towards the bottom of the distribution and so a greater share of households, and children, found themselves below the poverty threshold.

Figure 26: Our nowcast suggests child poverty rates increased significantly in 2017-18*Proportion of people in relative poverty (after housing costs)*

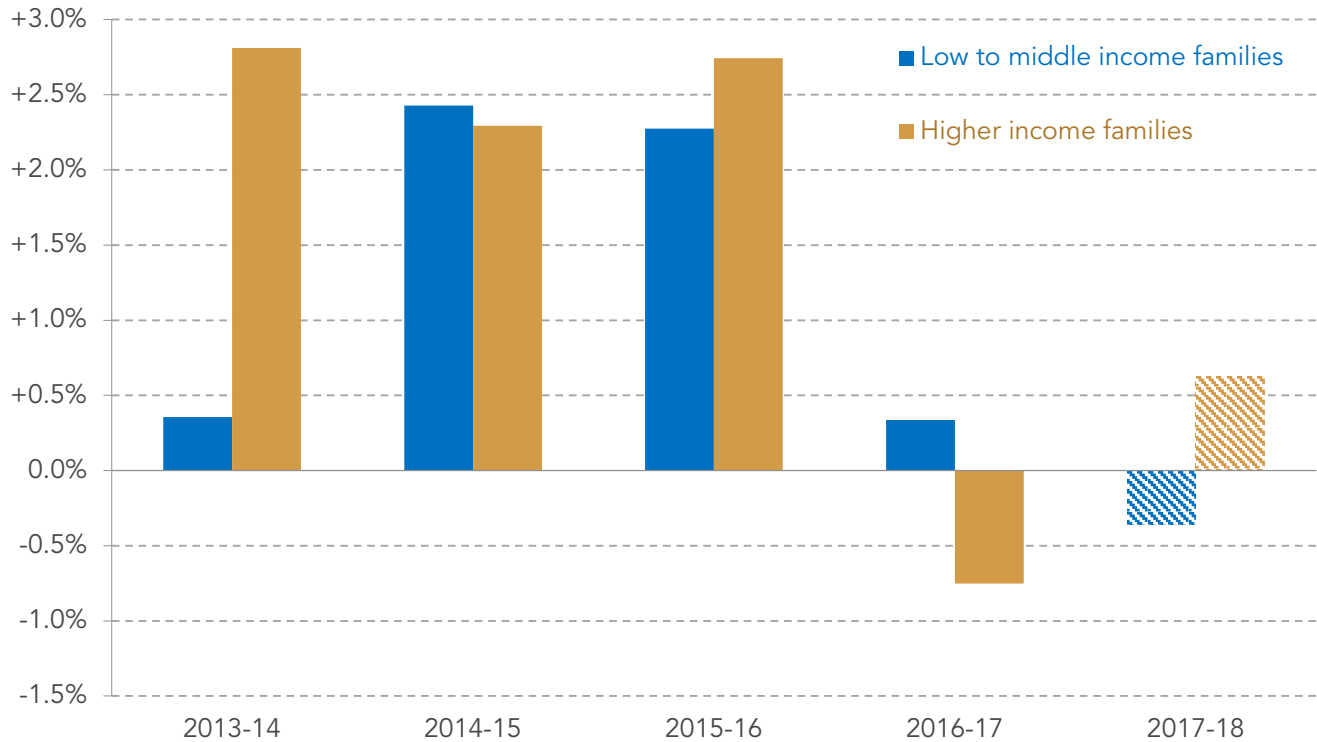
Notes: Relative poverty is defined as living in a household where incomes are less than 60 per cent of median income.

Source: RF analysis of DWP, *Households Below Average Income*; RF nowcast (see Annex 1 for more details); IFS. Nowcast uses the IPPR tax-benefit model.

There is still the question as to why the child poverty figures rose more than those for pensioners and overall. The answer lies in what has driven changes in income this year. As we outlined above the main driver of falling incomes at the bottom of the distribution was benefit cuts. Furthermore the benefit changes this year had the biggest impact on households with children, many of whom would have seen their tax credits, child benefit and, for some, housing benefit fall in real terms by around 3 per cent.

Following two strong years of growth, incomes have stagnated for both higher and lower income families

Although inequality and poverty both ticked up this year our nowcast suggests there has been relatively meagre income growth for *all* families over the past two years. Figure 27 shows that typical incomes for low to middle income families fell by 0.4 per cent in 2017-18 while there was a slight rise (0.6 per cent) in incomes for higher income families. This is a reverse of the previous year when incomes fell for higher income households but rose for low to middle income ones. But the overall impression is that incomes have been flat for both groups since 2015-16.

Figure 27: Incomes have stagnated for high and low income families for the past two years*Annual change in real household income (after housing costs)*

Notes: 2017-18 nowcast shown as hatched lines

Source: DWP, *Households Below Average Income*; RF nowcast (see Annex 1 for more details). Nowcast uses the IPPR tax-benefit model.

The big picture of the past few years is that income growth has steadily ground to a halt following two years of relatively robust improvements in 2014-15 and 2015-16. While the rises in poverty and inequality (implied by our nowcast) emphasise the fact that the slowdown in income growth has affected those at the bottom more, it is undeniable that there has been a general stagnation in improvements in living standards for the majority of households.

Section 5

Benefits are under-reported in household income data

As well as exploring what the survey data tells us about living standards, it is worth asking how accurate a reflection of real life that data is. This section compares benefit spending reported in the HBAI data with what the government knows it has spent each year, and finds a £37 billion gap in 2016-17. We present figures for almost every benefit in every year between 1994-95 and 2016-17, and find that the overall gap grew in significance over the 2000s.

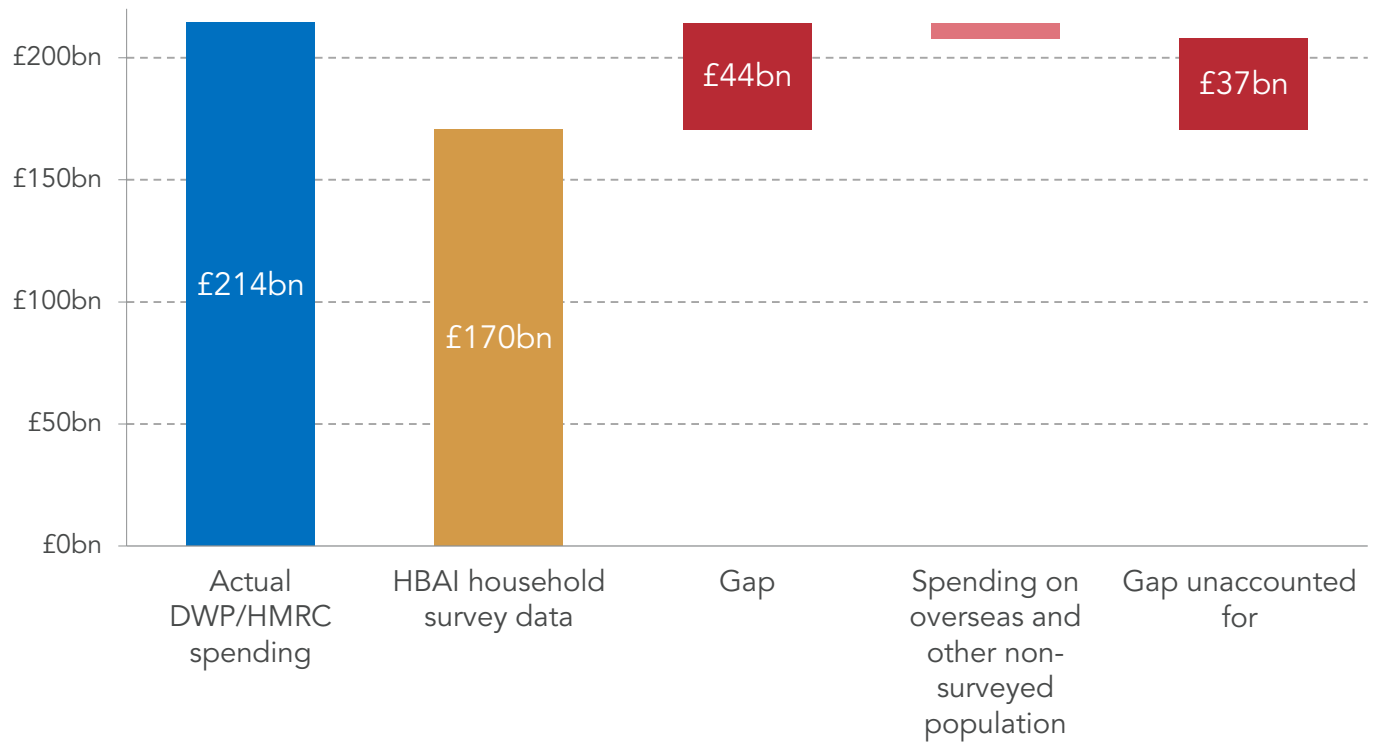
We go on in sections 6 and 7 to look at what effect this data problem may have had on income, poverty and inequality figures.

A fifth of benefit spending is missing from the best source of household income data

As explored earlier, public cash transfers are a key component of many households' incomes, allowing people to be supported at times of life when they most need it, ensuring the tax and benefit system as a whole is progressive, and reducing inequality. In 2016-17, the government spent £214 billion on benefits in Great Britain, including £92 billion on the State Pension, £26 billion on tax credits and £23 billion on Housing Benefit.

But most of our data on households' financial well-being comes from survey data, in which a random sample of households (around 20,000) is asked detailed questions about each of their sources of income and other aspects of their lives. This is what is used to measure typical income, levels of poverty, inequality and much more. And this survey data – although of generally high quality, with a wide range of checks – seems to miss a substantial proportion of benefit spending.

As noted in the previous section, the best source of income data at present is the *Households Below Average Income* (HBAI) dataset (though this is a misnomer – it actually covers the entire household population), based on the *Family Resources Survey* (FRS). The HBAI data includes £170 billion of benefit spending in 2016-17 – but this is a gap of £44 billion (or 20 per cent) compared to what we know was spent, as illustrated in Figure 28.

Figure 28: Tens of billions of pounds seem to be missing from the household income data*Total benefit spending in 2016-17*

Source: RF analysis of DWP, *Households Below Average Income* dataset; and DWP, *Benefit expenditure and caseload tables: Spring Statement 2018*

Part of the gap is easily explained. Household surveys only include the 'private household' population of the UK, and so do not include people in care homes, halls of residence, other institutional arrangements or the homeless. And nor do they include those overseas who may nonetheless still receive certain benefits. More detail is given in Box 2. As we will show, however, these considerations only explain a small fraction of the gap (around £6 billion), with an estimated £37 billion unaccounted for.

i Box 2: 1.2 million people are not included in household income surveys

In considering household income statistics, and particularly in this paper, it is important to recognise that surveys like the FRS only cover 'private households'. A number of groups are therefore not included in the survey data, but might be in receipt of benefits nonetheless. Many may also be living in real-life poverty but would not be included in the poverty statistics.

Of the UK's population of 66 million, 1.2 million are outside the scope of the FRS. The most common groups are:^[1]

- » Those in educational institutions, particularly student halls of residence in term time (over 400,000 people)
- » Those in care homes (around 400,000)
- » The prison population (around 80,000)
- » Armed forces living in defence establishments (around 50,000)
- » The homeless and those living in hostels and shelters (tens of thousands)
- » Those in mental health units and other care (over 20,000)

Figure 29 shows this population broken down by age and gender. Those aged 16-24 or 80+ are most likely to be absent from the survey: due to halls of residence and care homes, respectively. Among other age groups, men are more commonly missing than women, likely reflecting their overrepresentation among the armed forces, the prison population and the homeless.

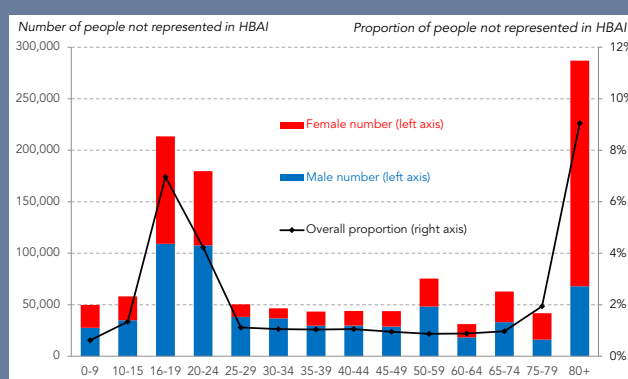
In comparing overall benefit spending with the benefits measured by household surveys, it is therefore important to try and account for the fact that some of the 'missing spending' may be going to the 'missing population'.

[1] ONS, *Labour Force Survey User Guide Volume 1*, 2016. See Table 3.1. Figures are from the 2011 GB census.

In addition, some benefits may go to people living outside the UK. For example, the DWP estimates that 1.2 million people are in receipt of the State Pension outside the UK.^[2] For most benefits, however, this will be a minor consideration, if any, due to entitlement rules.^[3]

Figure 29: The 16-24 and 80+ populations are most likely to live outside of private households

Difference between HBAI private household population and ONS total population figures, by age and gender



Notes: UK. Age groups are not even sizes.
Source: DWP, private correspondence

[2] DWP, *Benefit expenditure and caseload tables: Spring Statement 2018*, March 2018

[3] For example, only 0.26 per cent of children in receipt of child benefit are based outside the UK: BBC News, *Reality Check: How much child benefit goes overseas?*, June 2017

The main cause of the gap must therefore be problems with the survey itself. Respondents may not know exactly what benefits they (or other household members) get, or how much. Or they may simply not want to give that information, either due to the time pressures of the survey, privacy concerns or any stigma that may be attached to benefits. Another possibility is that the sample of households selected is not representative in terms of benefit-receiving households, or that response rates – which are low, and have declined over time^[31] – are biased, and that the weighting process (by which sample totals are scaled up to national totals) does not correctly account for

[31] See K Bolling & P Smith, *Declining response rates and their impact*, Kantar Public UK and Ipsos MORI, June 2017 and M McConaghy & R Beerten, *Influencing response on the Family Resources Survey by using incentives*, ONS, January 2003. But note that FRS response rates are no worse (and often better) than other social surveys.

this. Whatever the reason, it is clear – and not a new finding^[32] – that HBAI and other household surveys underestimate the importance of benefit income.

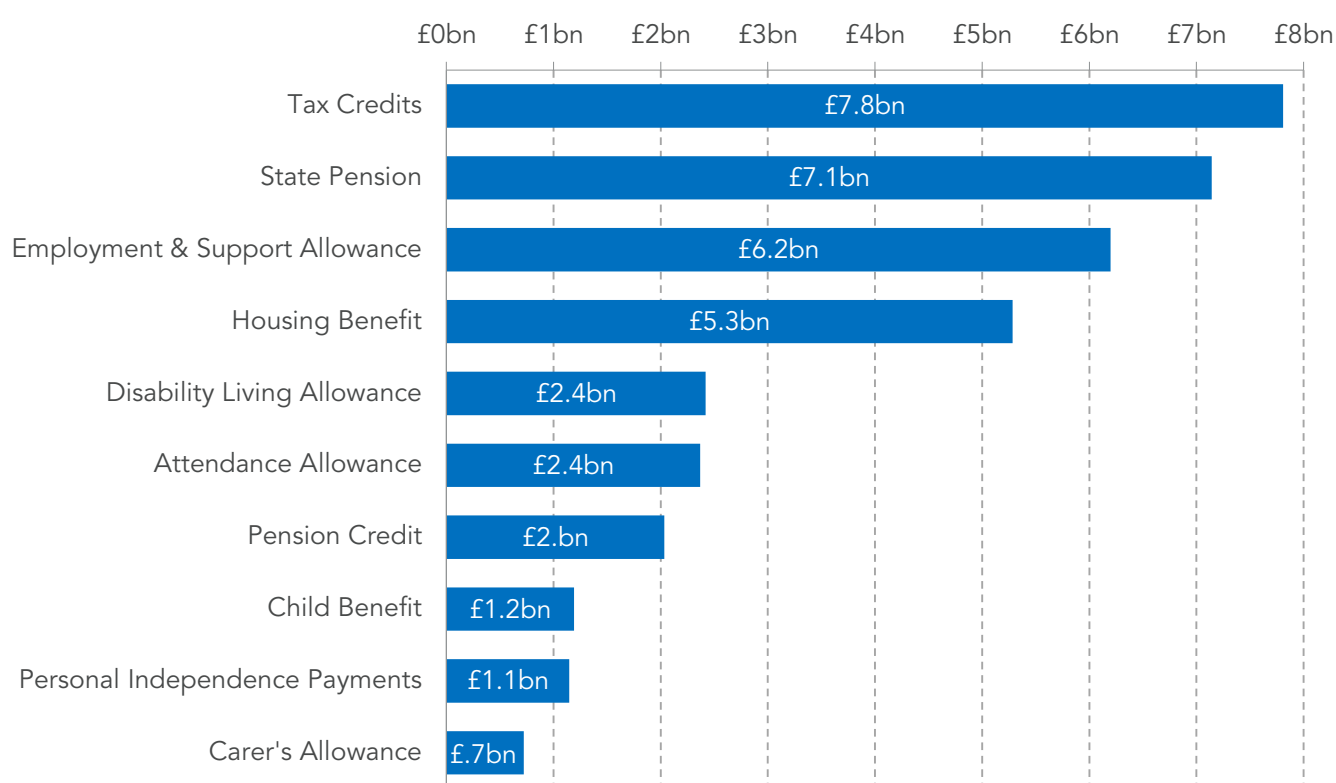
A small number of major benefits form the bulk of the 'missing spending'

Which benefits contribute the most to this gap? Figure 30 shows the ten benefits with the biggest spending gap, coming to a total of £36 billion in 2016-17. The size of these gaps partly reflects simply how much is spent on each benefit, with tax credits, the State Pension, Employment and Support Allowance (ESA) and Housing Benefit playing the largest roles.

In comparing the FRS survey data with outturn spending totals, these figures – and all subsequent ones in this paper – take some account of the non-private household population (see Box 2). We subtract the £4 billion a year of State Pension spending that goes overseas^[33] and estimates of older-age spending that goes to people in care homes (e.g. 5 per cent of pension credit spending)^[34] and account for the proportion of jobseekers (3 per cent) who aren't in the private household population.

Figure 30: Large amounts of tax credit, State Pension and other spending are missing from the household income data

Absolute gap between FRS/HBAI and outturn spending totals, 2016-17



Source: RF analysis of DWP, Family Resources Survey and Households Below Average Income dataset; and DWP, Benefit expenditure and caseload tables: Spring Statement 2018

[32] e.g. See Appendix D of J Cribb, R Joyce & D Phillip, *Living standards, poverty and inequality in the UK: 2012*, IFS, June 2012

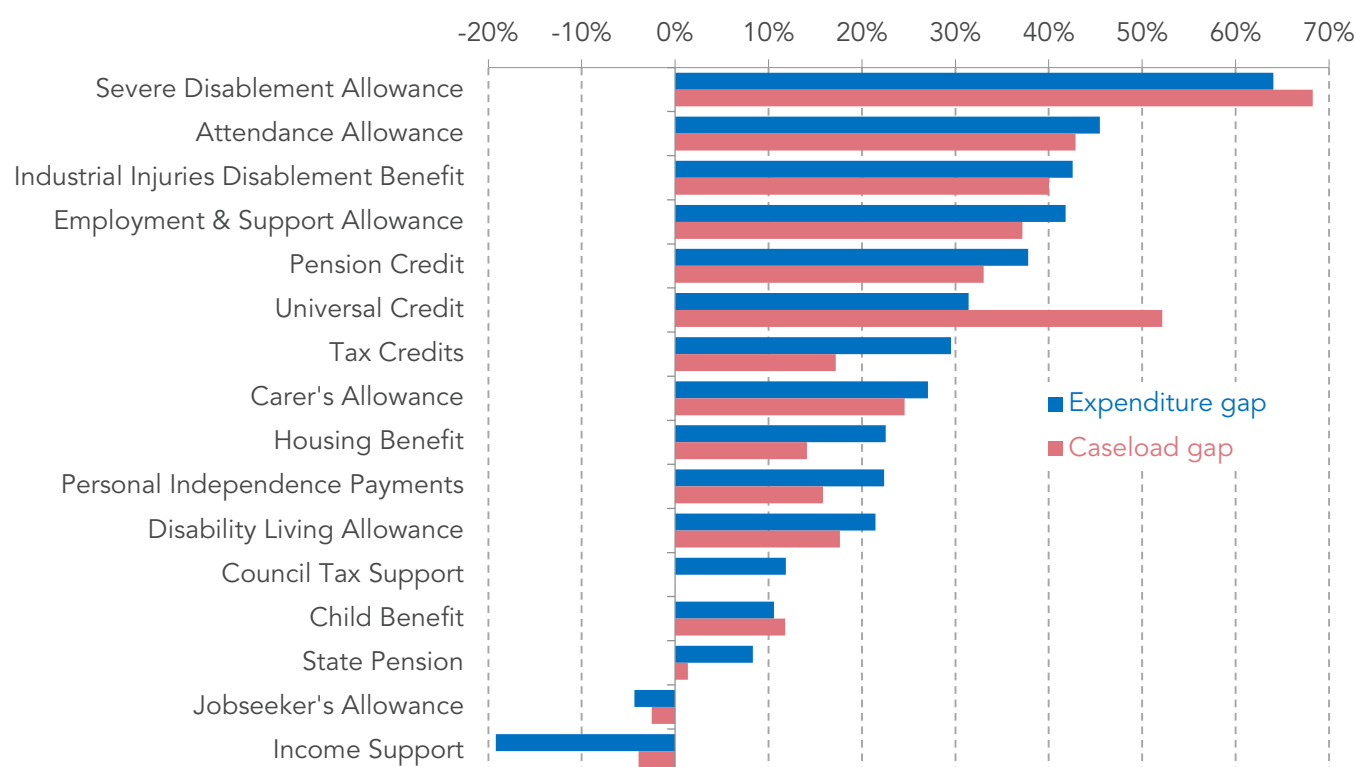
[33] DWP, *Benefit expenditure and caseload tables: Spring Statement 2018*, March 2018

[34] DWP, *Income-Related Benefits: Estimates of Take-up 2015/16 – Background information and methodology*, September 2017

Relative to the amount spent on each benefit, however, largely-universal benefits such as the State Pension and Child Benefit are better recorded in the survey than most other benefits. The worst performance is for benefits such as Severe Disablement Allowance, Attendance Allowance and Industrial Injuries Disablement Benefit, as Figure 31 shows. A full collection of statistics is given in Annex 3.

Figure 31: In proportional terms, Severe Disablement Allowance and Attendance Allowance are the worst captured in the survey

Proportional gap between FRS/HBAI and outturn spending or caseload totals, 2016-17



Source: RF analysis of DWP, Family Resources Survey and Households Below Average Income dataset; and DWP, Benefit expenditure and caseload tables: Spring Statement 2018

Looking at the difference between the survey and reality both in terms of missing expenditure and missing caseload (the number of people receiving each benefit) also helps narrow down where the under-reporting problem may lie. For most benefits, the 'expenditure gap' and 'caseload gap' are of a similar size, suggesting that the problem is one of people mistakenly reporting zero receipt rather than people acknowledging receipt but underestimating the amount. However, for some, including the State Pension, tax credits and Housing Benefit, missing caseload does not explain all of the gap.

Some benefits, however, are *over-estimated* in the survey data.^[35] Chief among these are Income Support, where over £400 million more is received in the survey than was spent in 2016-17, and Incapacity Benefit (at over £300 million). In both cases, these benefits have been largely replaced by other ones but survey respondents may have been unaware of this or forgotten. However, these overestimates are clearly small in comparison to the under-reporting shown in Figure 30.

[35] See also Table M.8 in DWP, [Family Resources Survey: financial year 2016/17](#), March 2018, for comparisons with admin data

Missing benefit spending of almost £40 billion in total has significant implications both for income estimates, and for some other uses of survey data which are explored in Box 3.

i Box 3: Further implications of benefit under-reporting

The under-reporting of benefit income in household income surveys (not just HBAI) has some important knock-on effects.

First, the Treasury and other bodies use household survey data when forecasting the impact of policy changes on incomes, and in doing so they assume that the surveys are correct.^[1] But, as we've seen, the level of benefits in the survey is significantly underestimated. This means that many models of policy change will underestimate the real-life impact of benefit cuts or increases.

[1] HM Treasury, *Impact on households: distributional analysis to accompany Autumn Budget 2017*, November 2017

Second, DWP and HMRC both produce estimates of the proportion of people 'taking-up' benefits they are entitled to. This is important to assess whether benefits are having their intended effect, who may be falling through the cracks of the system, and whether additional measures to boost take-up are needed. But all of these take-up calculations are based on estimates of the number of people who are eligible for benefits but not receiving them, using FRS-based modelling. Yet it's clear that a great many incidences of people 'not receiving' a benefit in the FRS are incorrect. This has significant implications for the accuracy of those take-up statistics and, although some steps are taken to correct this, take-up is very likely underestimated.

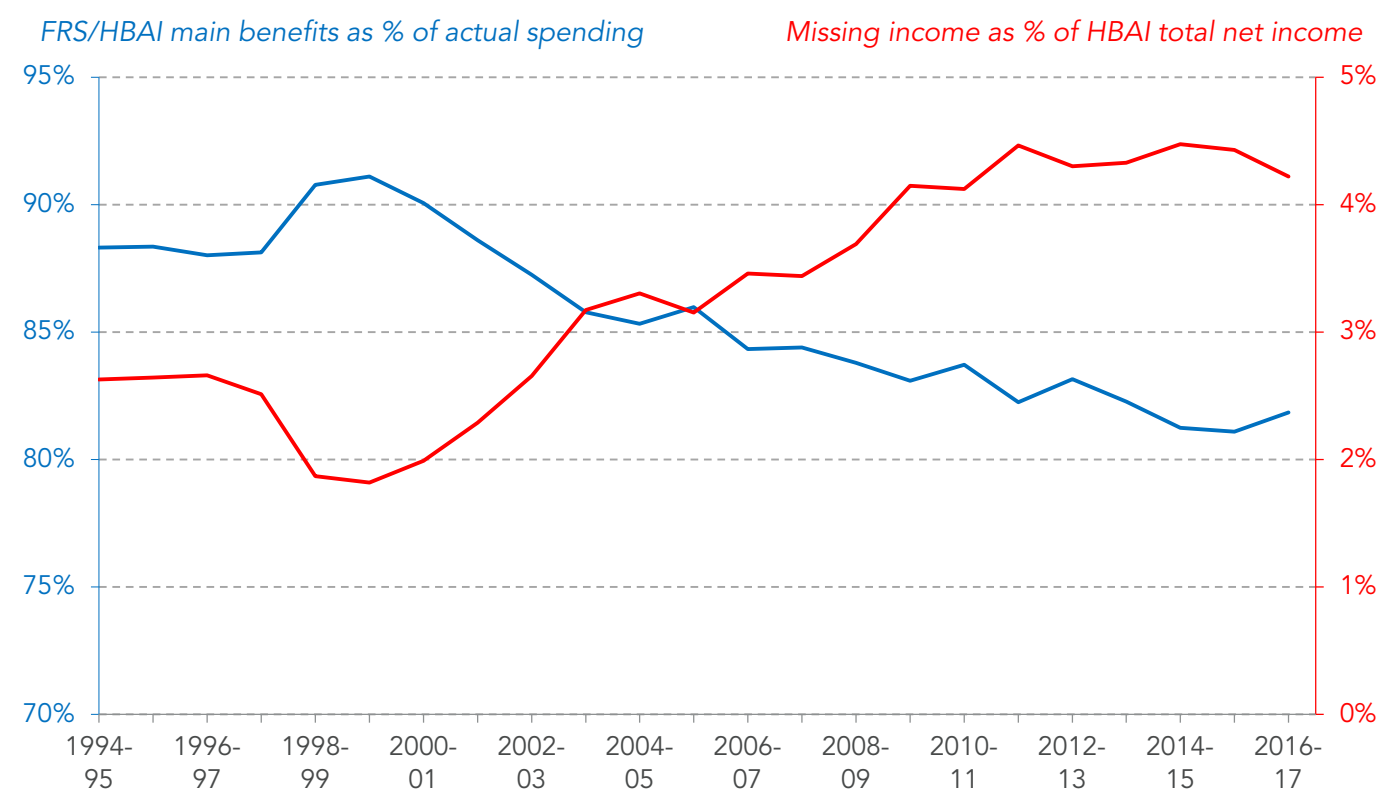
The problem has got worse over time

So far we have looked at the level of missing benefit spending in 2016-17. But perhaps more concerning is that the scale of the gap has changed over time, and not in a random fashion.

At the end of the 1990s, around 90 per cent of benefit spending was being captured in the survey.^[36] But, as Figure 32 shows (in blue), by 2015-16 that had dropped to 81 per cent, with a steady decline in between. The importance of the gap relative to household incomes (in red) grew over the 2000s from around 2 per cent of recorded income (before housing costs) to over 4 per cent in the 2010s.

[36] Using an almost comprehensive selection of benefits in both the numerator and denominator. See Annex 2 for further details.

Figure 32: The missing spending grew in importance throughout the 2000s



Notes: Net income here is before housing costs

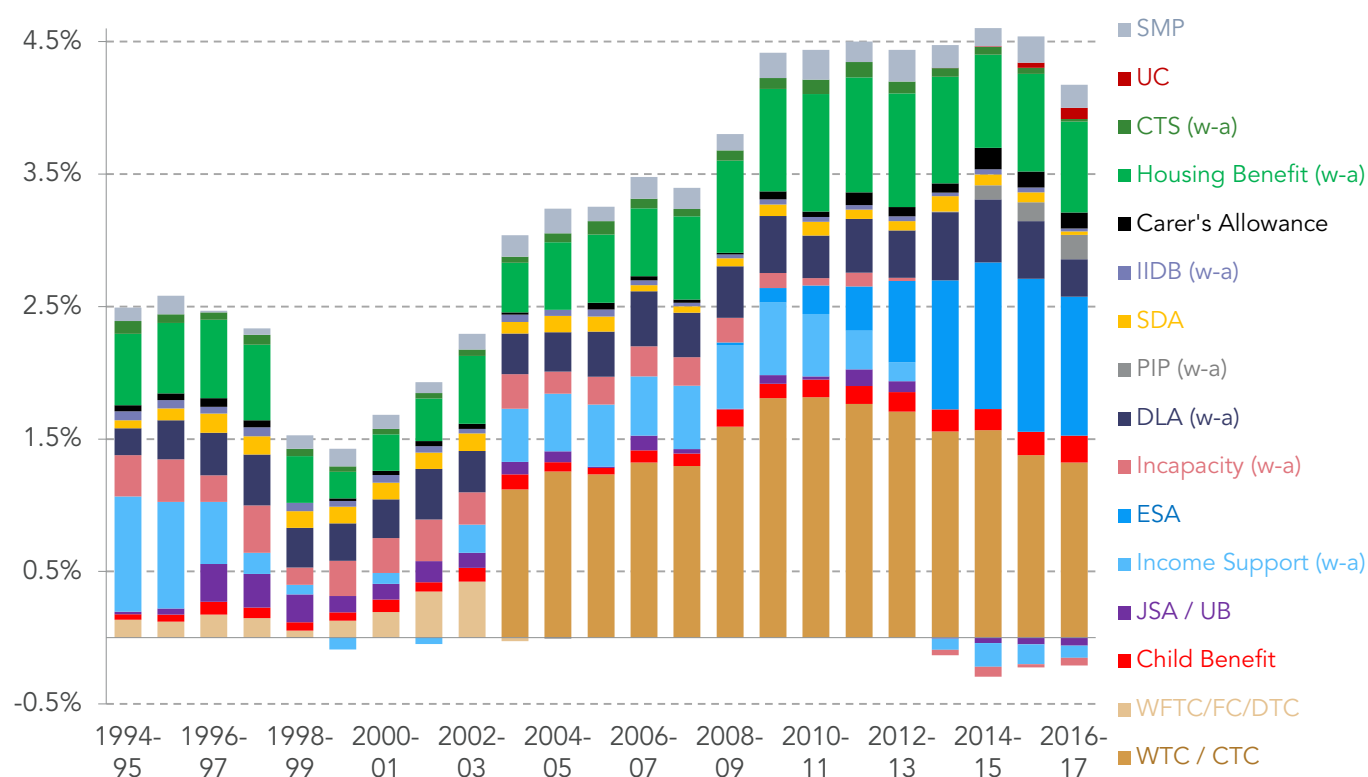
Source: RF analysis of DWP, Family Resources Survey and Households Below Average Income dataset; and DWP, Benefit expenditure and caseload tables: Spring Statement 2018

The growing importance of this problem can be separated into three parts:

- » An increase in under-reporting for particular benefits over time (see Annex 3 for full statistics);
- » Within overall benefit spending, a shift towards spending on benefits that are more likely to be under-reported; and
- » A rise in the importance of benefits as a component of household incomes, which increases the significance of the problem.

This trend was partly driven by the rise of tax credits for the working-age population

The rising importance of benefit under-reporting is even starker when we focus more narrowly on the non-pensioner population. In 1999-00, adding up the missing spending for a wide range of working-age benefits gives an overall sum equivalent to 1.4 per cent of non-pensioner household income (after housing costs). But by 2009-10 this had tripled to 4.3 per cent. A large driver of this seems to have been the rise of Tax Credits, where a lot of money was spent boosting household incomes but around 30 per cent of this spending was missed each year by the surveys. Employment and Support Allowance and Housing Benefit are the other most important contributors to the current gap.

Figure 33: The importance of benefit underestimation relative to working-age incomes grew dramatically in the 2000s*Missing benefit spending as a share of total non-pensioner net income (after housing costs)*

Notes: See Annex 2 and Annex 3 for more details. "w-a" identifies those benefits where a division between working-age (w-a) and pensioner spending has been required.

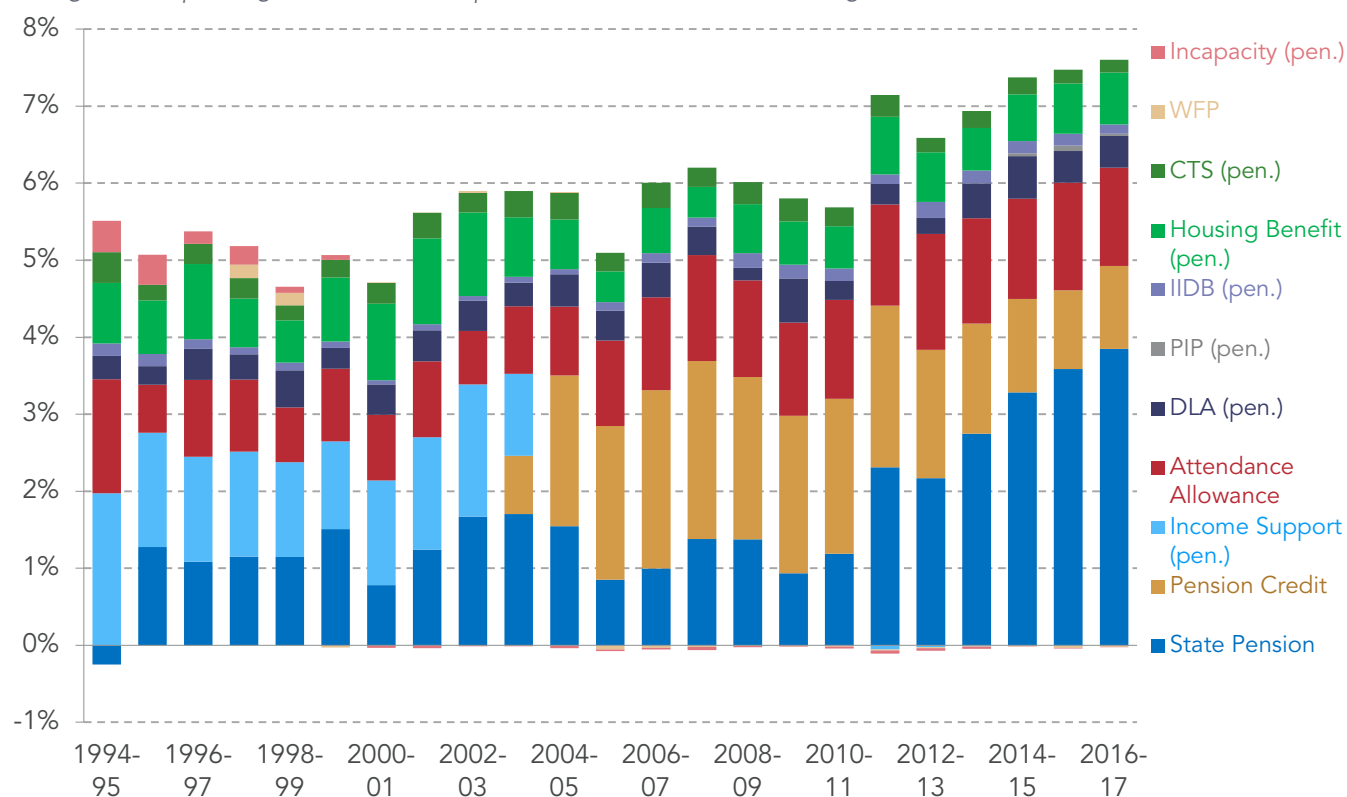
Source: RF analysis of DWP, Family Resources Survey and Households Below Average Income dataset; and DWP, Benefit expenditure and caseload tables: Spring Statement 2018.

But the gap has also grown for pensioners

Although the problem has grown considerably for working-age households, it is proportionally largest for pensioners, simply because benefits on average make up a larger fraction of their incomes. As Figure 34 shows, the missing spending is equivalent to over 7 per cent of recorded pensioner incomes, compared with around 5 per cent in the 1990s. This is an increase over earlier years. In particular, there has recently been a striking decline in the proportion of State Pension spending captured by the survey, falling from 97 per cent in 2010-11 to 92 per cent in 2016-17. Pension credit and attendance allowance are also important parts of the gap.

Figure 34: Missing spending on pensioners is large relative to their incomes, and has grown in recent years

Missing benefit spending as a share of total pensioner net income (after housing costs)



Notes: See Annex 2 and Annex 3 for more details. "pen." identifies those benefits where a division between working-age and pensioner (pen.) spending has been required.

Source: RF analysis of DWP, Family Resources Survey and Households Below Average Income dataset; and DWP, Benefit expenditure and caseload tables: Spring Statement 2018

This problem is not unique to HBAI, but needs fixing

Benefit under-reporting is not unique to HBAI – indeed we focus on that survey only because it is our preferred, best source of household income data. Similar trends of a large and growing gap – partly driven by tax credits – are evident in the *Living Costs and Food Survey*.^[37] And a rough comparison of the (related) *Family Expenditure Survey* with DWP spending totals suggests that the gap may also have grown over the period from 1961 to 1991, though further research would be needed to confirm this.

What's more, the same problem has been found in US surveys, with low reporting rates and a decline over time.^[38]

Nor is benefit under-reporting the only data quality issue with HBAI and other surveys. Other components of income are discussed in Box 4. But the available evidence suggests that few other problems are as important as correcting benefit under-reporting: other income sources do appear to be far better recorded (at least in HBAI). As we will show in Sections 6 and 7, correcting for benefit under-reporting does not completely change our existing understanding of incomes or distributional trends, but the problem is clearly major enough to warrant fixing.

[37] M Brewer et al., *Why are Households that Report the Lowest Incomes So Well off?*, October 2017

[38] B Meyer et al., *The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences*, June 2015

i Box 4: Other components of income are generally better reported in HBAI

In exploring the degree of benefit under-reporting in surveys, it is worth considering whether there are similar – and even potentially offsetting – problems with other components of income data.

We know that there is relatively little difference in employment rates between the FRS and the gold standard measure,^[1] and the same is true of average wages.^[2] Trends in self-employment income, while hard to measure accurately, also broadly match tax data.^[3]

Investment income is poorly captured in surveys. But for the very richest, HBAI adjusts incomes to match tax data. Among other effects, this greatly improves the accuracy of investment income totals relative to national accounts.^[4] However, overall the administrative data adjustment is

known to still underestimate top incomes and inequality.^[5]

At the opposite end of the income spectrum, the income data of the very 'poorest' (perhaps the bottom 1 per cent) is believed to be completely unreliable. As well as the under-reporting of benefit income, some households may report near-zero income as a result of not reporting their employment or investment income.^[6] The size of this group is limited though.

In terms of deductions from gross income, there is no reason to think that there are problems with direct taxes in HBAI. And housing costs are often well-known to survey respondents (or easily looked up), although the division of mortgage costs into interest (which is counted as a cost) and principal repayments (which are not) is potentially less accurate.

Overall then, although no component of income is likely to be perfectly reflected in HBAI (not to mention other surveys), the scale of benefit under-reporting appears to be much more significant than other issues – and this is course particularly important for low to middle income households and poverty statistics.

[1] See Figure 2.4 in J Cribb, A Norris Keiller & T Waters, *Living standards, poverty and inequality in the UK: 2018*, IFS, June 2018

[2] See ONS, *Annual Survey of Hours and Earnings*

[3] e.g. H Miller, T Pope & J Cribb, *Tax records show that people working for their own business have much lower profits and are investing less than before the recession*, IFS June 2018 and <https://www.resolutionfoundation.org/data/all-worker-earnings/>

[4] A Aitken & M Weale, *Imputation of Pension Accruals and Investment Income in Survey Data*, ESCoE, March 2018

[5] A Corlett, *Unequal results: improving and reconciling the UK's household income statistics*, Resolution Foundation, December 2017

[6] M Brewer et al., *Why are Households that Report the Lowest Incomes So Well off?*, October 2017

Section 6

The effect of benefit under-reporting on income trends

The previous section showed the gap between how much is spent on benefits and how much is recorded in household income surveys. In this section, we try to correct the survey data to account for that missing income. We show that mean income is likely underestimated by around £1,400, with a larger revision for pensioner households.

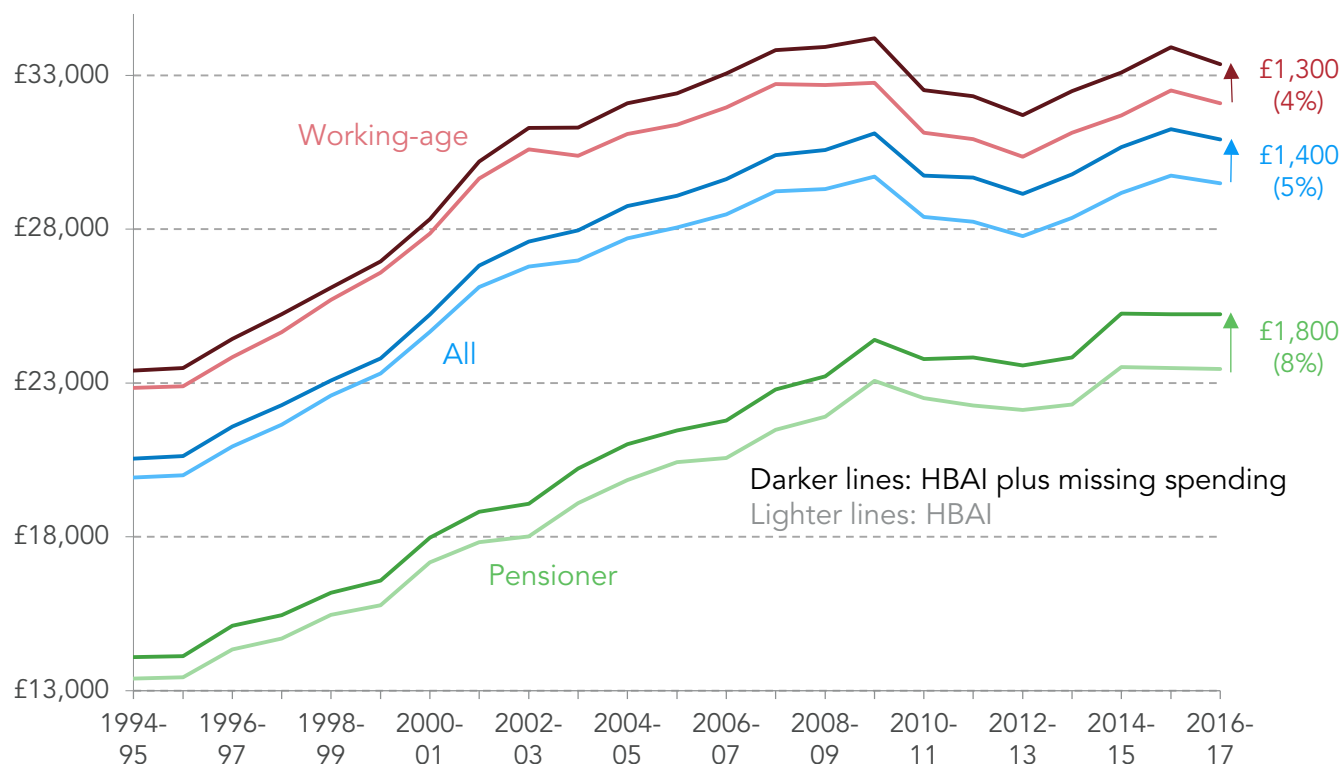
We also present a complex (though unavoidably simplified) adjustment process. By allocating the missing spending for each benefit to individual households in each year, we can estimate the distributional effects of under-reporting in more detail. This suggests median income would also be revised up by over £1,300, and that typical pensioner living standards exceed those of non-pensioners by more than previously thought. Growth in typical incomes may have been faster in the 2000s than previously thought, reflecting the growing scale of the missing spending, though a pre-crisis slowdown in working-age incomes is still evident.

Section 7 then looks at what these revisions would mean for poverty and inequality.

We can easily correct mean income to account for benefit under-reporting

What effect does underestimating benefit receipts have on levels of income in HBAI, and its trends over time? Using the benefit income ‘gaps’ set out in the last section, we can at least see how mean income is affected in each year. Looking at the mean requires no knowledge or assumptions about *whose* benefit income is underestimated. However, as set out in the previous section, we are able to separate out benefit spending into pensioner and non-pensioner at the aggregate level.

As Figure 35 shows, adding in the missing £37 billion of benefit spending, average household income in 2016-17 (after housing costs and before any equivalisation) is revised up from £29,500 to £30,900. This is an increase of £1,400 or 5 per cent. For the average pensioner household the increase is larger at 8 per cent (£1,800), compared to 4 per cent (£1,300) for non-pensioner households.

Figure 35: Adding in the missing benefit income revises up mean income by £1,400*Real mean household disposable income (after housing costs), unequivalised, 2017-18 prices*

Notes: GB

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

Clearly the gap has also grown over time, implying that income growth has been underestimated. This is discussed further below. But to really understand living standards we must be able to look beyond the mean average.

A range of methods are possible for allocating the missing spending to households in the survey

We have no way of knowing which households in the survey are under-reporting their benefit income, or by how much (though government statisticians have the option of using administrative data to work this out). However, a reasonable adjustment process can be constructed. For instance, we do at least know that the missing child benefit will go to households with children, and that missing pension credit spending must go to people above (female) State Pension age.

We 'allocate' the missing spending through three methods, with different approaches used for different benefits:

- » In some cases, we scale up the value of benefits received for those who do report receipt.
- » Mostly, we identify people not reporting receipt but who have similar characteristics to those who do (e.g. they are of a similar age, income, family type, disability status and employment status to the typical recipient), and we then give them the existing average of that benefit. The number of people chosen is determined by the amount of spending missing for that benefit in that year.

» Finally, for child benefit we find that an assumption that all dependent children receive the benefit produces results that more accurately reflect spending totals (with an adjustment in recent years to reflect its means-testing for high earners), and so we replace the HBAI data entirely in this case. A small correction is also applied to HBAI's imputation of winter fuel payments.

Changes in each household's benefits are then added onto (or in some cases subtracted from) its income. In this way, the missing spending for every benefit in every year from 1994 to 2016 is added into household incomes. Full details of our methodology are given in Annex 2.

This process, while complex, includes some major simplifications and assumptions. Other methodological choices would no doubt produce somewhat different results (and one example is shown in Annex 2). Nevertheless, at least in terms of overall benefit under-reporting, our adjusted data is a step forward relative to the raw HBAI data.

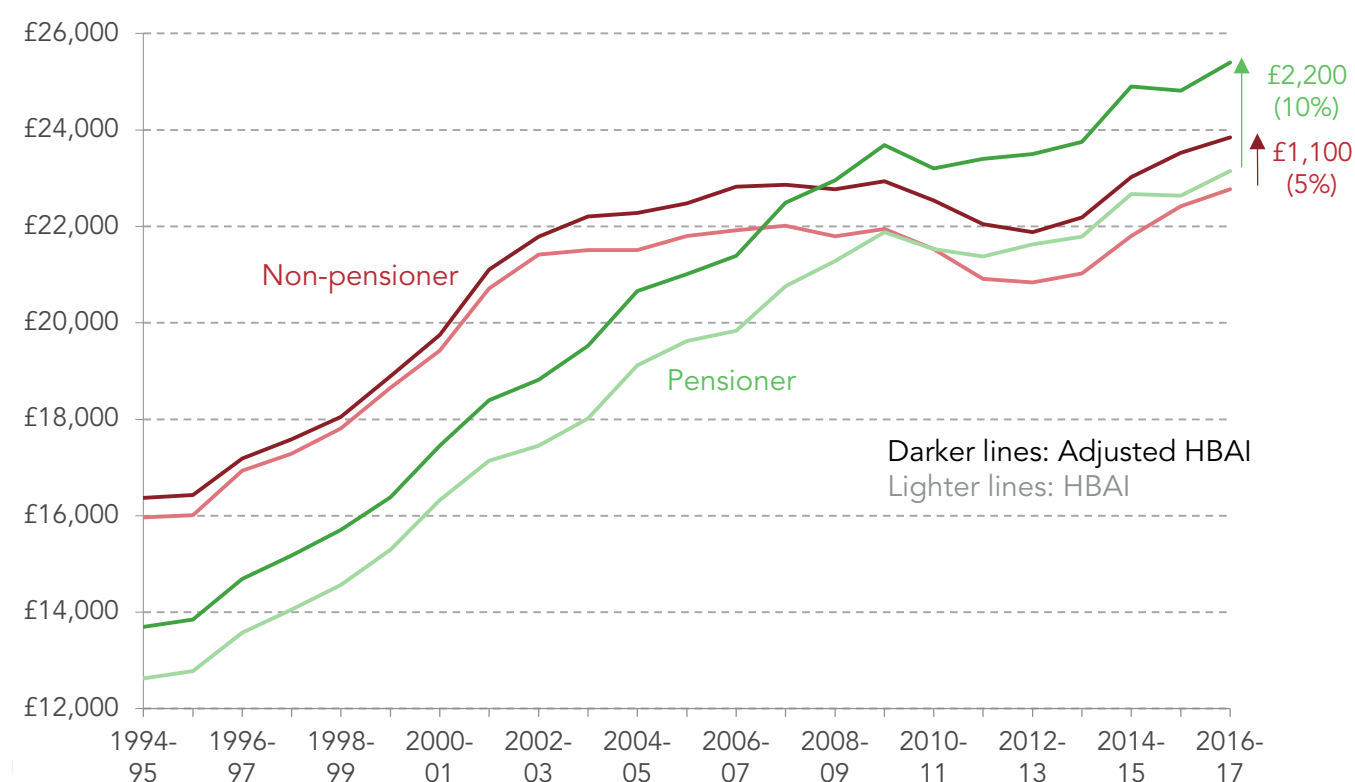
Our adjustment revises up median income, with the largest change being for pensioner households

With this adjustment, we can now look at the estimated effects of under-reporting on different parts of the income distribution. This includes median income – i.e. the person in the middle of the distribution. The effect on the median is slightly greater than on the mean, as it is adjusted up by 6 per cent, from £22,900 to £24,200.

Again though the impact is greatest on typical pensioner income, as Figure 36 shows. While the unadjusted data has shown for quite a few years that the typical pensioner now has a slightly higher household income (after housing costs and equivalisation) than the typical non-pensioner, the adjustment suggests that the size of this gap has been underestimated.

Figure 36: Typical non-pensioner household income is revised up by 5 per cent while typical pensioner income is revised up by 10 per cent

Real median household equivalised disposable income (after housing costs), 2017-18 prices

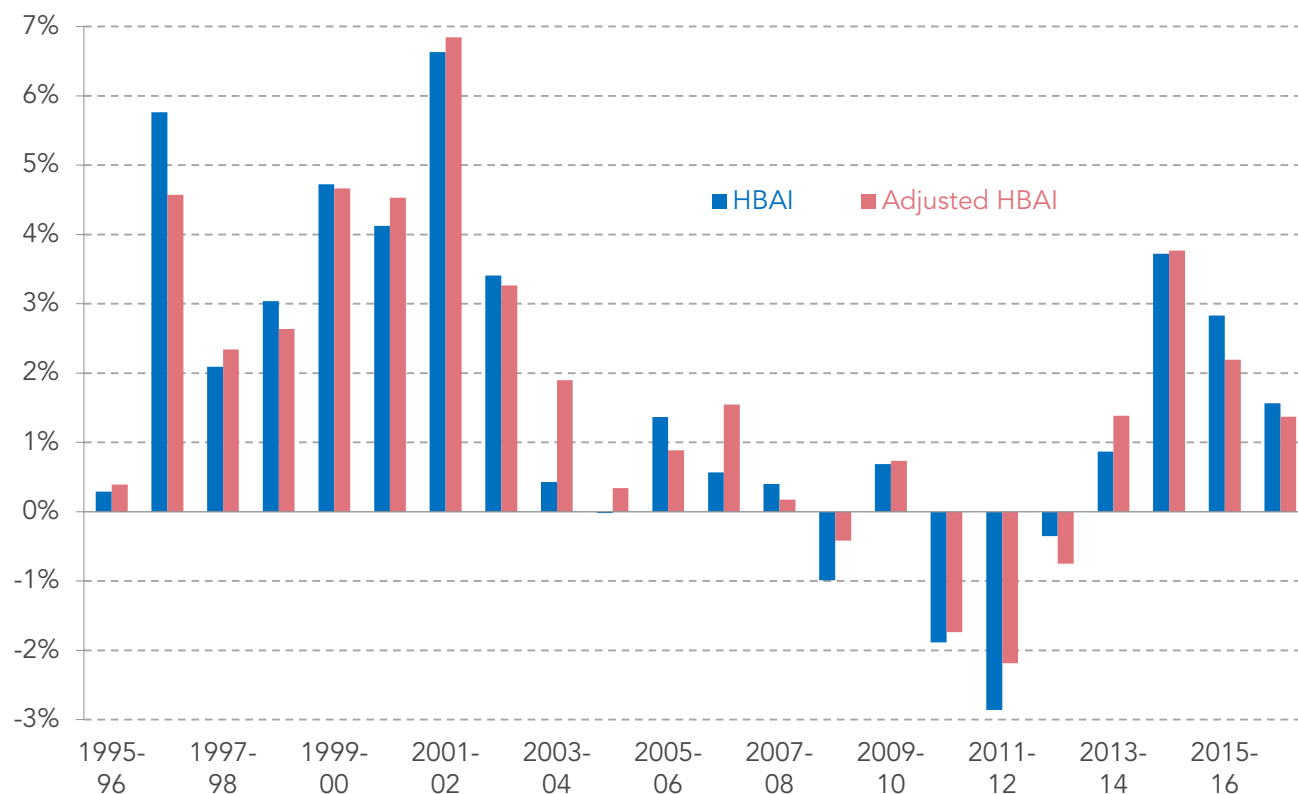


Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

Given that the effect of benefit under-reporting on incomes grew through the 2000s, our adjustment has the effect of improving income growth figures in the same period. The effect is especially marked for working-age households, whose growth figures are shown in Figure 37. However, while some of these changes are relatively large, none change the big picture of how incomes have risen and fallen over this period.

Figure 37: Our adjustment does not radically change typical income growth, but does strengthen growth in the 2000s

Real growth in median non-pensioner income (after housing costs) versus the year before



Notes: GB

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

The 'pre-crisis slowdown' remains present

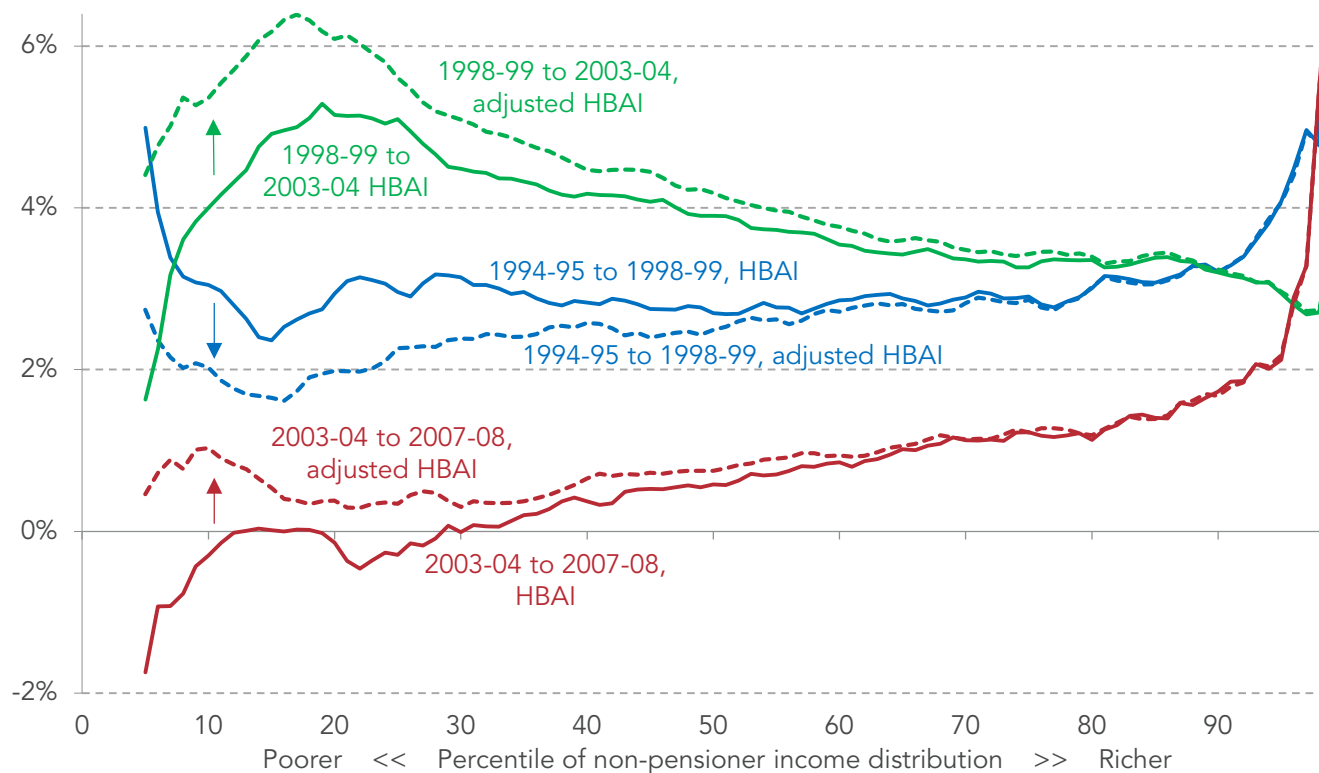
It is worth pausing to reconsider what we know about the 'pre-crisis slowdown' period that we have often written about – covering roughly 2002-03 to 2007-08.^[39] The results of the under-reporting adjustment suggest that this survey error played some role in this, and that 2003-04 at least should now be considered a good year for living standards. But a slowdown is definitely still evident, particularly if we look beyond the median to the entire income distribution.

Figure 38 shows average annual income growth in three periods, with and without our adjustment. It is clear that the largest adjustments are for the bottom part of the income distribution, which should be unsurprising.

[39] A Corlett, D Tomlinson & S Clarke, *The Living Standards Audit 2017*, Resolution Foundation, July 2017

Figure 38: For the bottom of the income distribution, growth revisions may be significant

Average annual growth in real household incomes (after housing costs)



Notes: GB. The top percentile goes beyond the Y-axis maximum for 1994-95 to 1998-99 and 2003-04 to 2007-08. The bottom 5 per cent are not shown.

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

With or without the adjustment, it is clear that income growth in the 2003-04 to 2007-08 period (after housing costs) was weak for large parts of the distribution, particularly when compared to the exceptionally strong 1998-99 to 2003-04 period. This poor growth may be attributed to a number of factors:

- » Rising housing costs of every form: higher interest rates (hitting 5.75 per cent in 2007), sky-high house prices, a collapse in youth home ownership and rising rents;^[40]
- » A plateauing of employment (albeit at a relatively high rate of just under 73 per cent);^[41]
- » A fall in hours for low-skilled males, with a rise in male earnings inequality^[42] and a small rise in underemployment;^[43]
- » A slowing of benefit increases in the three years after 2004-05;^[44]

[40] A Corlett & L Judge, [Home affront: housing across the generations](#), Resolution Foundation, September 2017

[41] ONS series [LF24](#)

[42] R Blundell et al., [Income Inequality and the Labour Market in Britain and the US](#), IFS, October 2017

[43] S Clarke & G Bangham, [Counting the hours: two decades of changes in earnings and hours worked](#), Resolution Foundation, January 2018; see also M Brewer & L Wren-Lewis, [Why did Britain's households get richer? Decomposing UK household income growth between 1968 and 2008-09](#), Resolution Foundation, December 2011

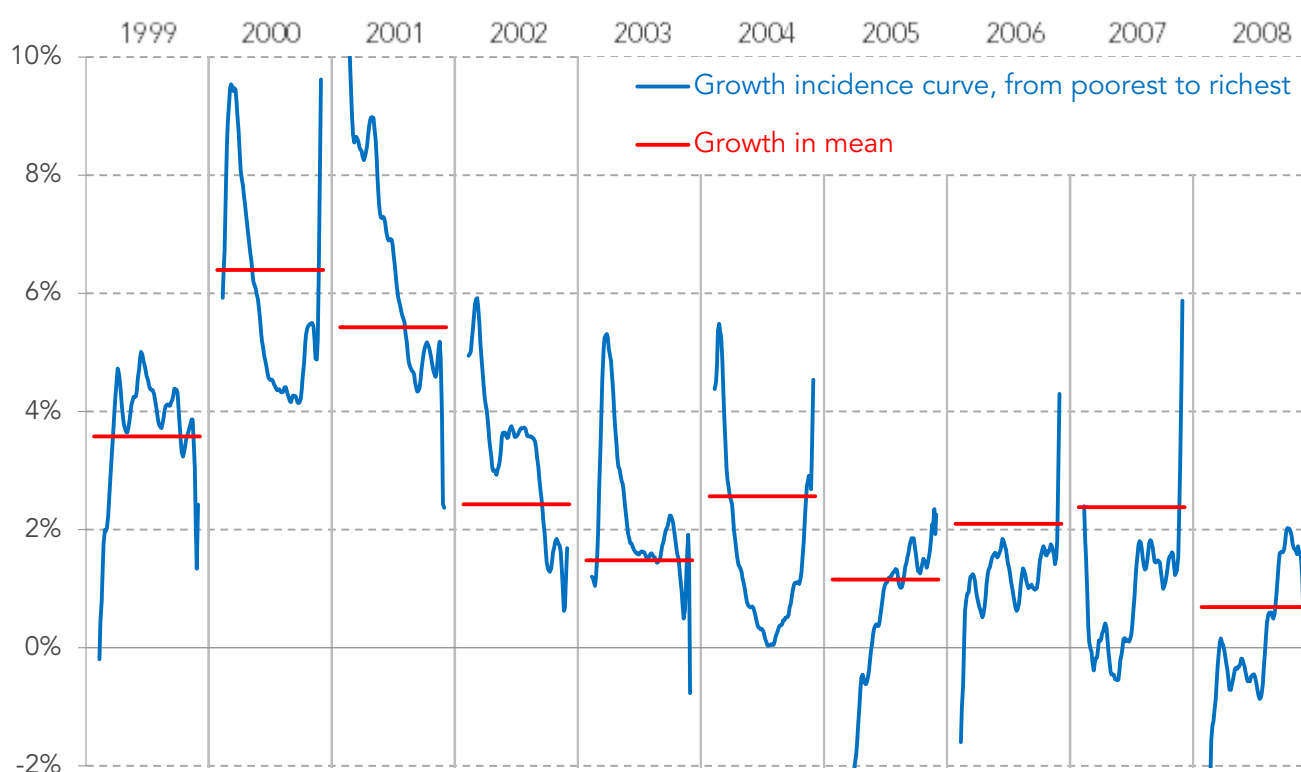
[44] R Joyce, [Child poverty in Britain: recent trends and future prospects](#), IFS, October 2014

- » Global increases in oil and food prices, following a period from February 1997 to June 2005 in which CPI inflation never topped 2 per cent;^[45]
- » Rapid income growth for the very richest – visible in Figure 38 – which took the top one per cent's share of income to record highs (and conversely the bottom 99 per cent's to record lows);^[46]
- » Potentially *compositional* effects such as larger numbers of lower earning workers from abroad.^[47]

To further explore the pre-crisis period, Figure 39 gives the (adjusted) growth incidence curve for each year from 1999-00 to 2008-09 (although the sample size of the underlying survey data means that caution is advised when focusing on single year changes). This shows the boom years of 2000-01 and 2001-02. And in 2002-03 and 2003-04, real income growth still appears to have been around or above 2 per cent for large parts of the income distribution. After that, however, such growth becomes rare for most of the distribution.

Figure 39: Annual growth of over 2 per cent became rarer for most of the working-age income distribution after around 2003-04

Growth in real household disposable incomes (after housing costs), from poorest to richest non-pensioners in each year



Notes: GB. All results include our adjustment for benefit under-reporting. Lines are smoothed using a 5-percentile rolling average, and the very top and bottom results excluded.

Source: DWP, *Households Below Average Income* dataset, plus RF analysis (see Annex 2)

[45] ONS series [D7G7](#)

[46] A Corlett, D Tomlinson & S Clarke, [The Living Standards Audit 2017](#), Resolution Foundation, July 2017

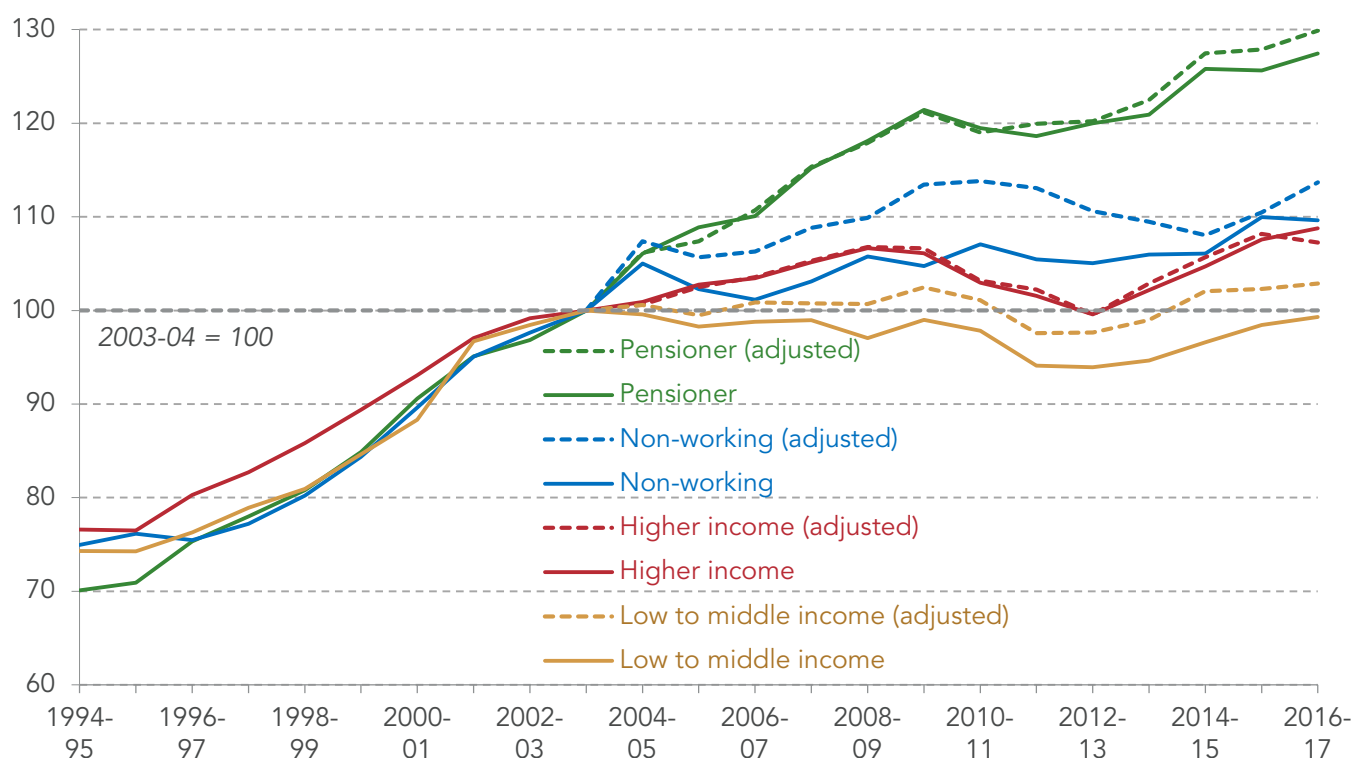
[47] S Clarke, [Migration and the past, present and future of the British labour market](#), Resolution Foundation blog, May 2017 and A Corlett & L Judge, [Home affront: housing across the generations](#), Resolution Foundation, September 2017

It is notable that the growth in average income is a poor indicator of the majority experience in many years. In 2006-07 and 2007-08, essentially no part of the income distribution except the top few percentiles experienced above-average growth. What's more, detailed examination of tax records has suggested that top income growth (and therefore average income growth too) is actually underestimated in HBAI around this period.^[48]

The pre-crisis slowdown can also still be seen in the experience of the low to middle income group set out in Section 2. The adjustment slightly increases the scale of income growth for the group since 2003-04 – as seen in Figure 40 – but does not qualitatively change the story of a prolonged weak period for household incomes.

Figure 40: With or without adjusting for benefit under-reporting, income growth for low to middle income families has been minimal since 2003-04

Index of real median household disposable income (after housing costs), 2003-04 = 100



Notes: GB

Source: Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

The distributional impacts of benefit under-reporting set out in this section also have implications for poverty and inequality measures, and it is to these that we now turn.

[48] See S Jenkins et al. analysis explored in A Corlett, [Unequal results: improving and reconciling the UK's household income statistics](#), Resolution Foundation, December 2017

Section 7

The effect of benefit under-reporting on poverty and inequality

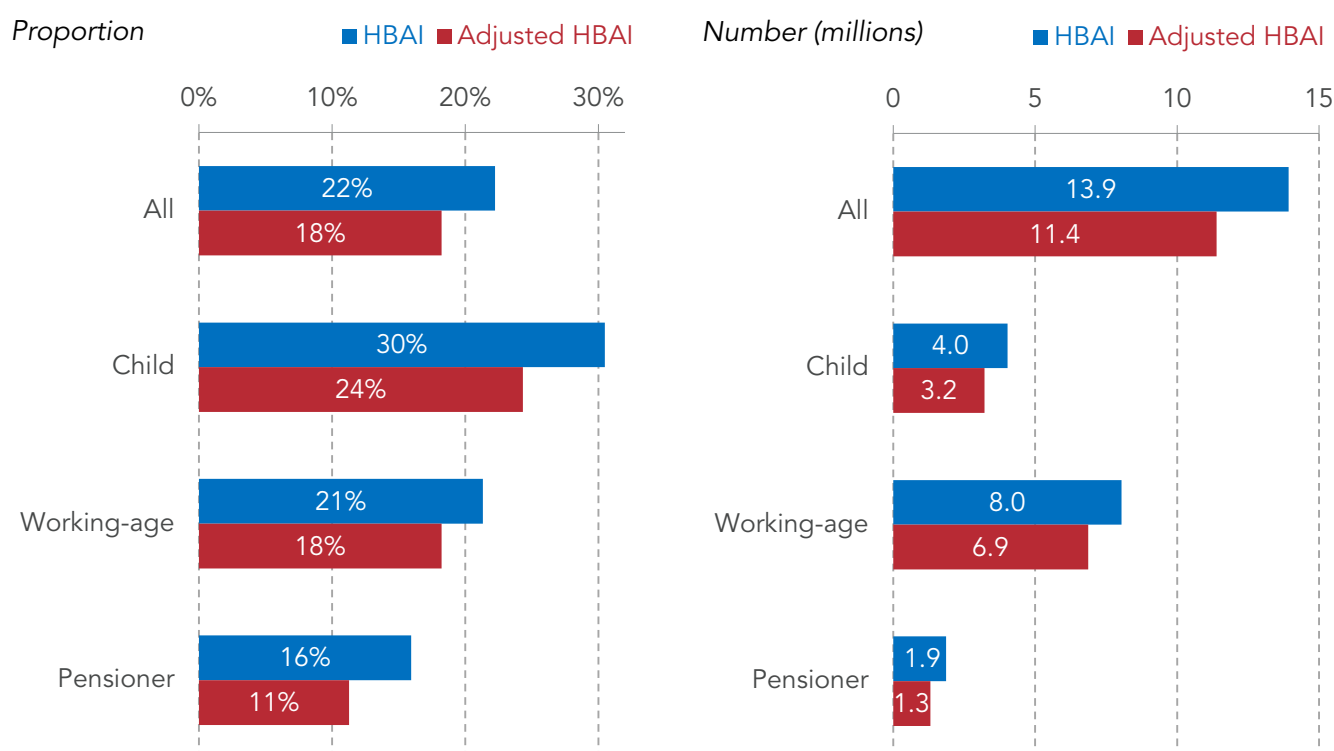
By affecting not just the level of incomes but also their distribution, the most significant effect of the benefit under-reporting problems is likely to have been on poverty statistics. This section shows how our adjustment slightly lowers the proportion of people who are below the poverty line. Improvements in poverty from 1999 to 2009 may have been significantly underestimated, potentially with implications for past child poverty targets. We also show revisions of inequality measures. These positive revisions, however, only throw into starker relief our nowcast for 2017-18. It is quite possible that child poverty has now risen to its highest rate in 15 years.

Benefit under-reporting has significant implications for poverty numbers

The previous section showed that correcting for missing benefit income has some impact on historical results for mean and median incomes, but that the greatest impact is of course on lower income households. One set of figures likely to be particularly affected by any correction are those

Figure 41: Adjusting for benefit under-reporting results in lower levels of poverty

Relative poverty, after housing costs, 2016-17



Notes: GB

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

This publication is available in the Incomes & Inequality section of our website

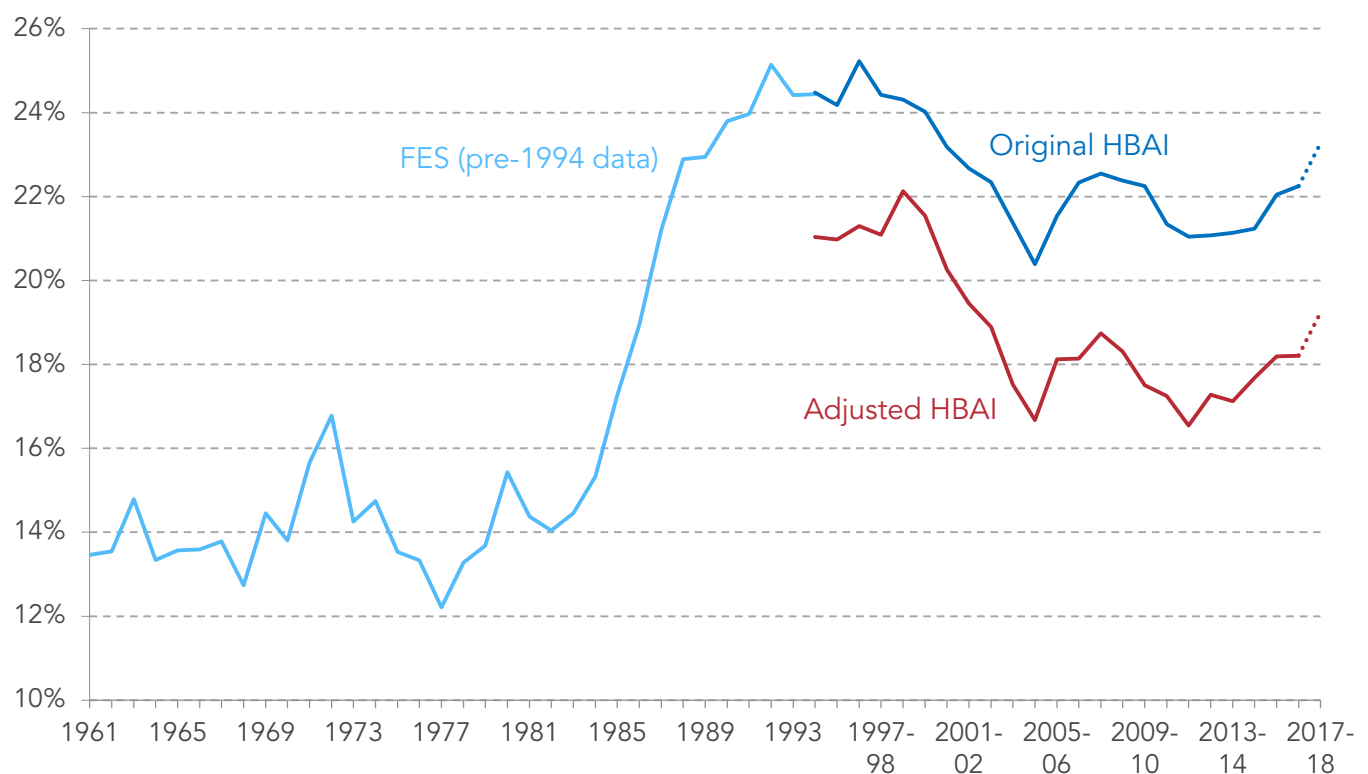
@resfoundation

for poverty, which have long been an important part of political debate.

Figure 41 shows poverty numbers and rates for different groups, before and after our adjustment, focusing here on relative poverty after housing costs. The impact is significant. Our adjustment reduces the Great Britain poverty rate in 2016-17 from 22 per cent to 18 per cent – equivalent to a reduction of 2.5 million people. The proportion of children in poverty falls from 30 per cent to 24 per cent, and pensioner poverty falls from 16 per cent to 11 per cent.

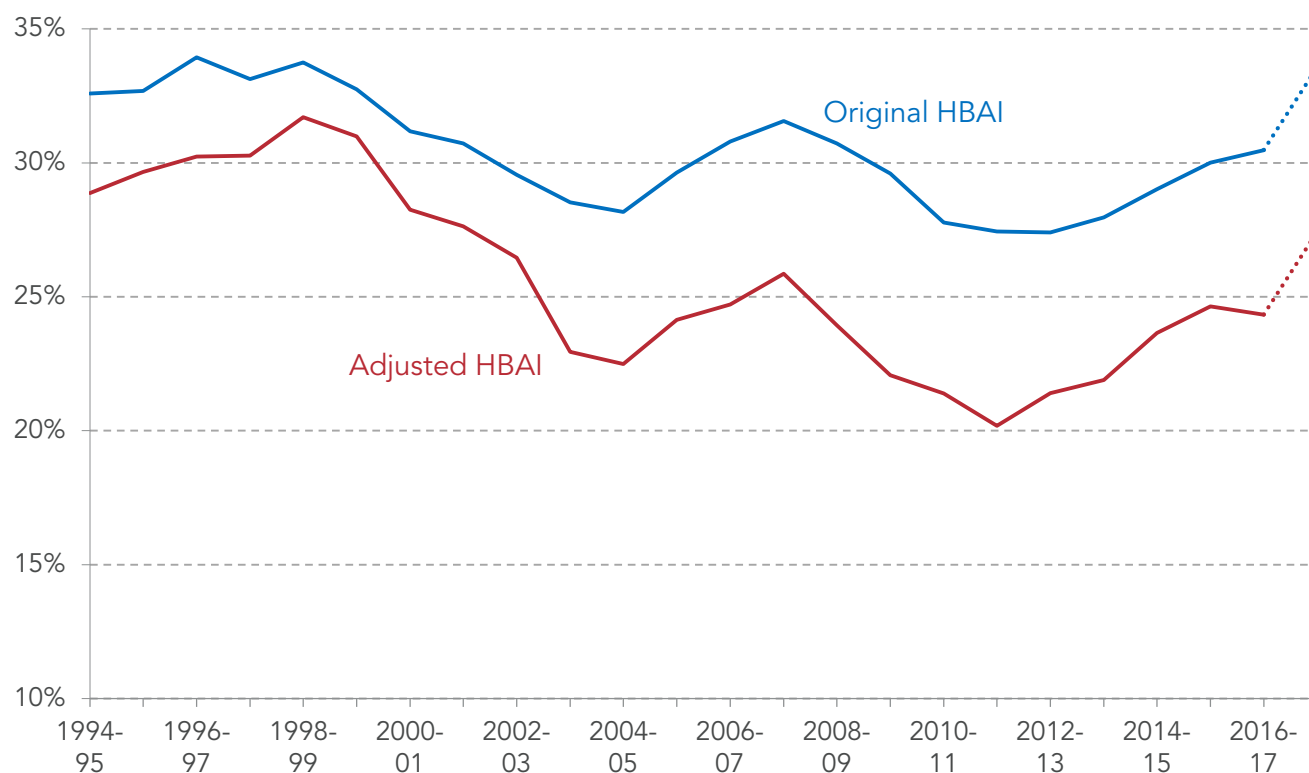
Figure 42: Adjusting for benefit under-reporting results in lower levels of poverty in every year, and a faster pace of reduction in the 2000s

Proportion of people in relative poverty, after housing costs



Notes: GB. Y-axis does not start at zero.

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2); IFS. Nowcast uses the IPPR tax-benefit model.

Figure 43: Child poverty reductions in the 2000s may have been faster than previously thought*Proportion of children in relative poverty, after housing costs**Notes:* GB. Y-axis does not start at zero.*Source:* DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2). Nowcast uses the IPPR tax-benefit model.

Adjusting for benefit under-reporting also affects poverty trends...

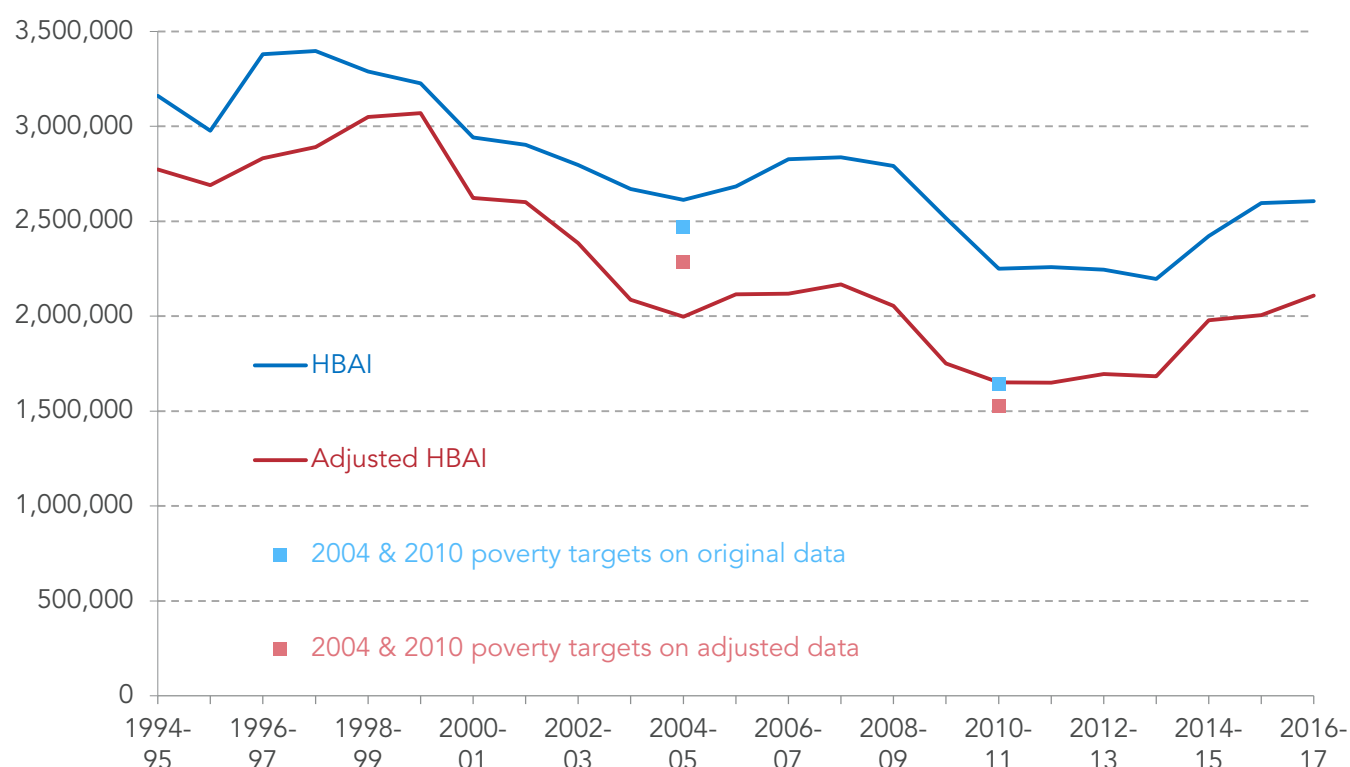
Our correction does not only affect 2016-17. Poverty is also revised down in every previous year, as Figure 42 demonstrates. But the size of the revision has shifted over time, with the smallest change in the 1990s and early 2000s and the largest change in 2009-10 to 2011-12. This means that the pace of poverty reduction over the 2000s is greater following the adjustment.

The same trends are apparent if we look only at child poverty. Most strikingly, the pace of child poverty reduction at times is considerably faster following the adjustment. In particular, the drop in child poverty rates between 1999-00 and 2004-05 grows from 5 percentage points to 9 percentage points. And the largest revision comes in 2009-10, when child poverty may have been overestimated by 8 percentage points.

On the other hand, the rise in relative child poverty since 2011-12 may have been slightly faster than the official figures suggest, even before considering our 2017-18 nowcast.

Figure 44: It seems quite possible that the 2004 child poverty target was met once benefit under-reporting is adjusted for

Number of children in relative poverty, before housing costs



Notes: The government's targets were for a reduction in child poverty of a quarter by 2004-05 and a half by 2010-11, relative to 1998-99. As our figures adjust the poverty rate in 1998-99, we also show adjusted targets.

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

i Box 5: The UK's child poverty targets

In 1999, the government made a commitment to eradicate UK child poverty by 2020. This was accompanied by two main intermediate goals:

- » For the number of children in relative poverty (in families with income below 60 per cent of the median), to be reduced by a quarter by 2004-05 relative to 1998-99.
- » For the number of children in relative poverty (in families with income below 60 per cent of the median, before housing costs), to be reduced by a half by 2010-11 relative to 1998-99. Some methodological changes were made compared to the 2004-05 target (specifying a before housing costs basis, including Northern Ireland, and a change in equivalisation scale).^[1]

In 2006 it was reported that the 2004-05 target had been missed.^[2] It was also acknowledged by 2009 that the 2010 target was unlikely to be met,^[3] which the government

confirmed in 2012.^[4]

Nonetheless, the *Child Poverty Act 2010* was passed with cross-party support, enshrining targets for 2020-21 into law. The Act had four specific goals. Those were to reduce the proportion of children who:

- » live in relative low income (in families with income below 60 per cent of the median), to less than 10 per cent
- » both live in material deprivation and have a low income (below 70 per cent of the median), to less than 5 per cent
- » live in absolute low income, to less than 5 per cent
- » are in 'persistent' relative poverty, i.e. in at least three of the last four years.

Soon after the 2015 election these targets were repealed (by the *Welfare Reform and Work Act 2016*), although the government is required to continue to publish low income statistics.

[1] House of Commons Library, *Child Poverty Bill Research Paper*, June 2009

[2] BBC News, *Government misses poverty target*, March 2006

[3] House of Commons Library, *Child Poverty Bill Research Paper*, June 2009

[4] Iain Duncan Smith speech, The Abbey Centre, June 2012

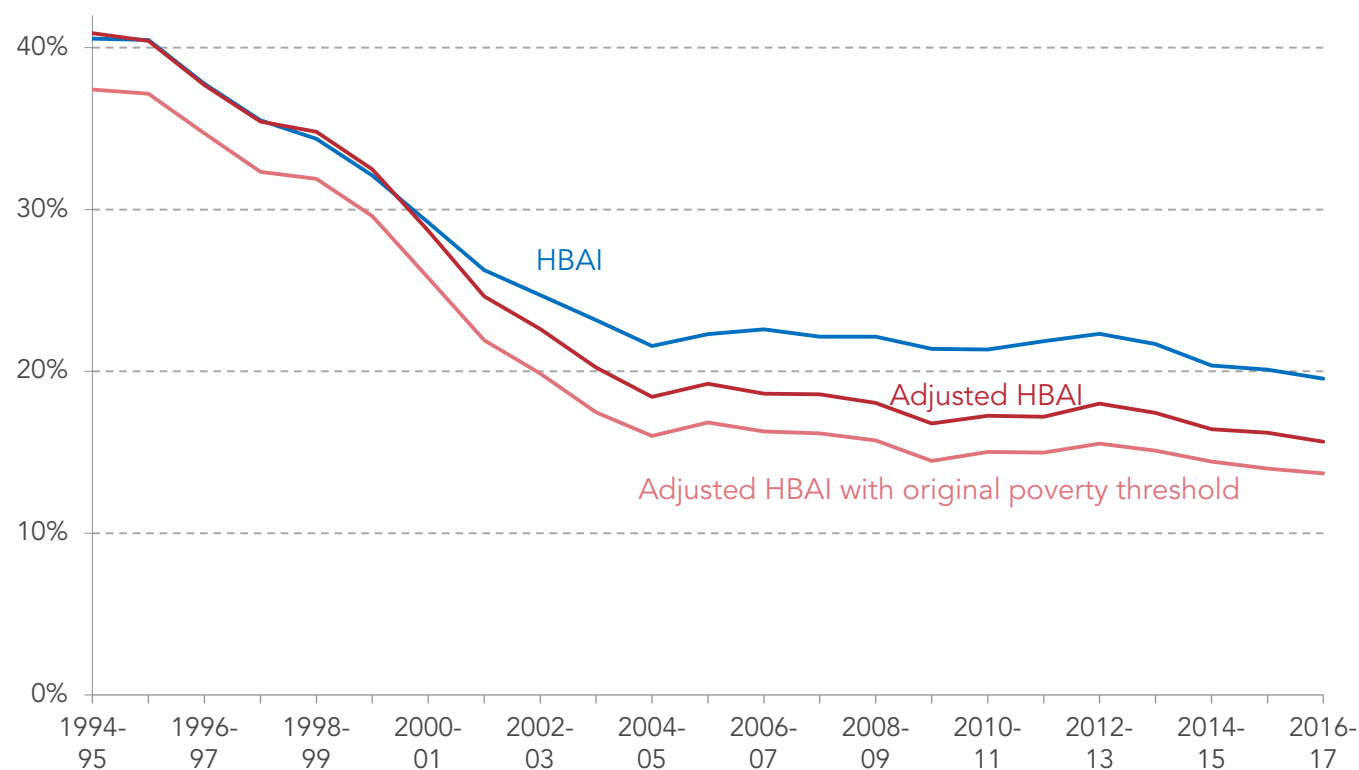
...Perhaps with implications for past child poverty targets

The scale of these revisions raises questions about the government's performance against its child poverty targets in the 2000s. These are described in Box 5.

More work will be needed in future to determine these figures with more certainty, but using our adjustment it seems quite possible that the government's 2004 target – for the number of children in poverty to be reduced by a quarter – was met rather than narrowly missed as was previously thought. This is true even after also adjusting the poverty target to reflect the fact that poverty was

Figure 45: Absolute poverty fell even faster than thought in the early 2000s

Proportion of people in absolute poverty, after housing costs



Notes: GB. The absolute poverty line is defined as 60 per cent of the median in 2010-11, adjusted for CPI-inflation in other years.

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

lower than thought in the base year of 1998-99. In addition, the 2010 target to halve child poverty may have been within reach, rather than missed by a wide margin.

i Box 6: Tuition fee loans as 'income'

A key focus of this paper is whether incomes are underestimated due to benefit misreporting. But the definition of 'income' itself can also be debated. One particular peculiarity of HBAI is its treatment of student loans, and especially tuition fee loans (rather than maintenance loans). It makes sense that loan repayments – deducted from people's take-home pay like a tax – should be removed from people's "disposable income". It is less clear that the receipt of a loan should count as income in the first place, particularly for a survey that is focused on living standards and poverty. But this is what happens in HBAI.

If a student receives a £3,000 loan one year, which then goes straight on tuition fees, this £3,000 counts toward that individual's 'disposable income'. So if tuition fees are increased, this has the effect in HBAI of boosting youth incomes and reducing poverty. Were tuition fees to be reduced or abolished, this would be a drag on incomes and increase recorded poverty due to lower loans. This is an issue we looked at in some detail last year,^[1] and we not repeat that analysis here. But its potential importance is demonstrated in Figure 46. This shows poverty figures (before any benefit income adjustment) for the population age 18-22 with and without 'miscellaneous income', of which student loans are a key part. On the existing income definition, poverty for this group has fallen by 320,000

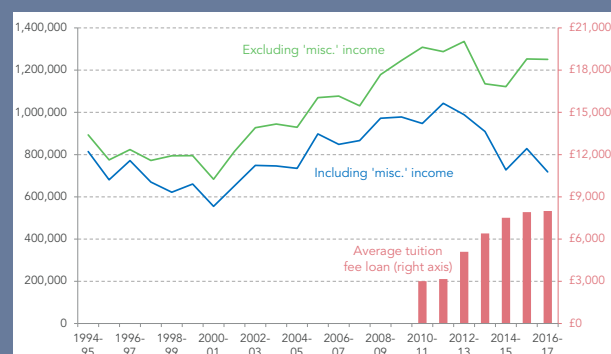
[1] For further discussion, see A Corlett, *Did raising tuition fees flatter measurements of young people's incomes?*, Resolution Foundation blog, October 2017

since 2011-12. But if miscellaneous income is removed (with the poverty line recalculated accordingly), there has been a fall of only 40,000. Over the same period, tuition fee loans had increased substantially.

More work is needed on determining quite how tuition fee loans should be treated in HBAI.

Figure 46:

Including tuition fee loans as income may have a small but noteworthy effect on poverty statistics
Number of working-age people, age 18-22 (by head of benefit unit), in relative poverty after housing costs

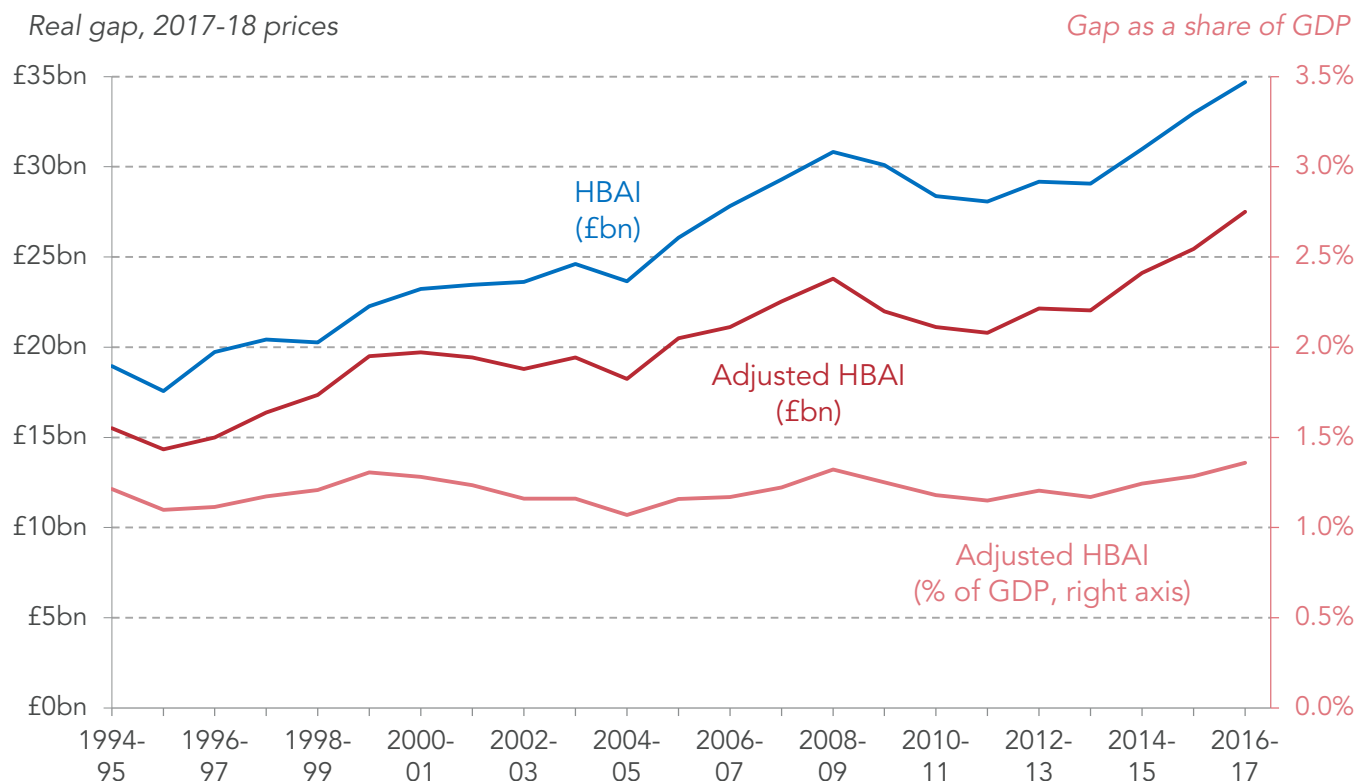


Source: RF analysis of HBAI, and Student Loans Company

Absolute poverty may also have fallen more rapidly than thought

Absolute poverty uses a threshold that is fixed in real-terms, moving only in line with inflation each year rather than moving in line with median income. On this measure, poverty has fallen considerably since 1994-95 according to HBAI, though far more slowly after 2004-05 than before. Adjusting for benefit under-reporting reduces the current level of absolute poverty, and further increases the early 2000s reduction.

Both absolute and relative poverty are useful concepts, though we think it is right that as societies get richer the bar for an acceptable minimum income should rise too – hence our focus on relative poverty. The measurement of poverty does raise many questions, however, including a particular one about tuition fee loans explored in Box 6.

Figure 47: Abolishing relative poverty in 2016-17 would have cost £27 billion, or 1.4 per cent of GDP*Total gap between household disposable incomes (after housing costs) and the relative poverty line*

Notes: GB, except GDP. Inflation adjustment here is done using the GDP deflator.

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

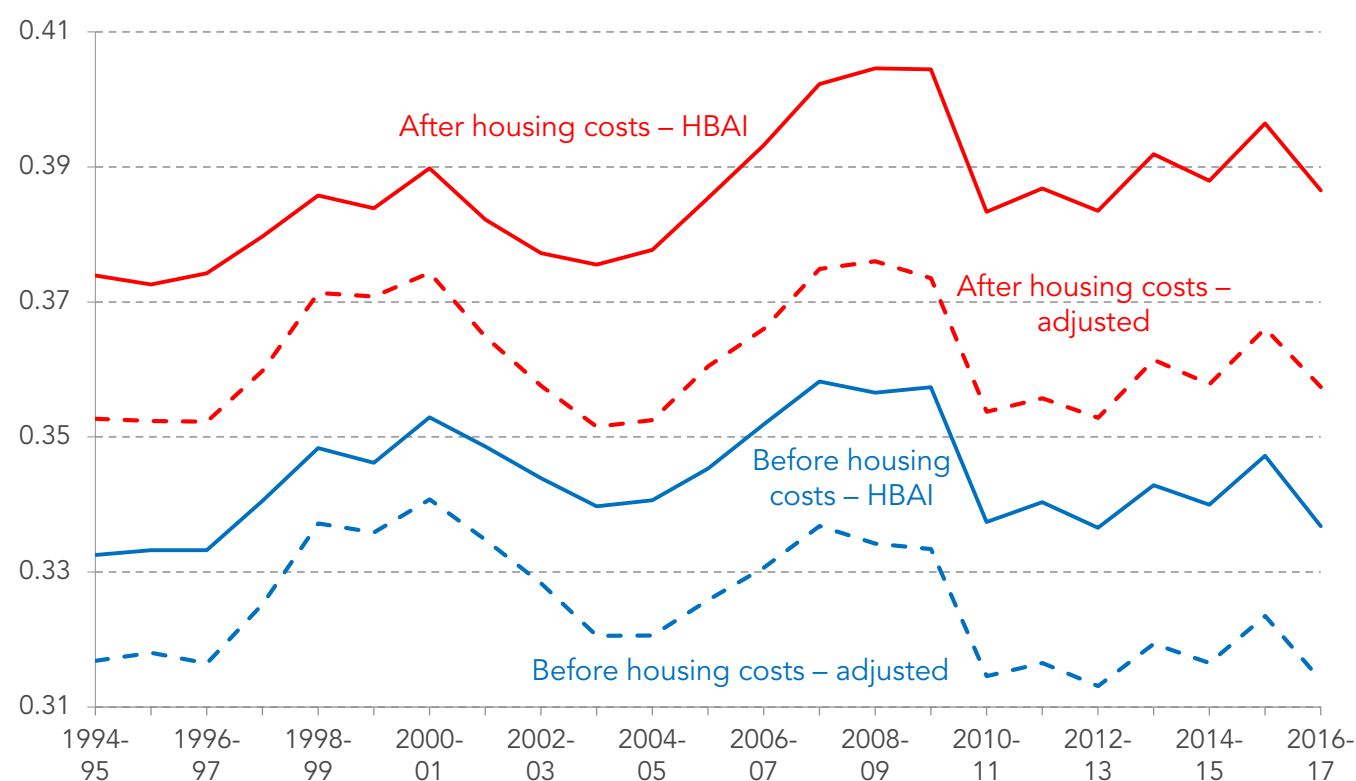
Finally, it is interesting to look not only at the number of people below the poverty line but at the *depth* of that poverty. Figure 47 presents the total amount of income that would be needed in Britain to get everyone up to the relative poverty line (after housing costs), with and without our under-reporting adjustment. These figures can be somewhat distorted by people inaccurately reporting near-zero incomes (see Box 4), but our adjustment at least helps correct some of the problem and shows that the cost of abolishing poverty is – at £27 billion in 2016-17 – not quite as high as previously thought.

The real cost of abolishing relative poverty has generally risen over time, though this partly reflects a growing population as well as economic growth pushing up both incomes and the poverty line. For this reason, the gap is also shown as a share of GDP over time. In 2016-17 the (adjusted) amount required was equivalent to 1.4 per cent of GDP – the highest on record.

1.4 per cent of GDP is a huge sum, but it is not unthinkable that additional resources of this scale could be found to reduce poverty. For comparison, it is equivalent to a typical single year of economic growth; is similar in scale to some individual tax reliefs;^[49] would require around a 4p rise in income tax rates;^[50] and would be cheaper than a recent suggestion to raise defence spending to 4 per cent of GDP.^[51] Even without aiming to entirely abolish relative poverty (which might not be entirely sensible)^[52], it should be clear that any new goals to greatly reduce it would not be beyond the realms of political possibility, despite other fiscal pressures. With £14 billion of welfare cuts planned, however, mostly coming after 2016-17, poverty seems sure to go in the opposite direction.

Figure 48: Adjusting for benefit under-reporting results in lower levels of inequality

Gini coefficient for household equivalised disposable income



Notes: GB

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

[49] Resolution Foundation, [UK's £155bn tax relief bill costs more than health, transport, justice, home and foreign office budgets combined](#), January 2018

[50] HMRC, [Direct effects of illustrative tax changes](#), April 2018

[51] BBC News, [Trump urges Nato members to double military funding target](#), July 2018

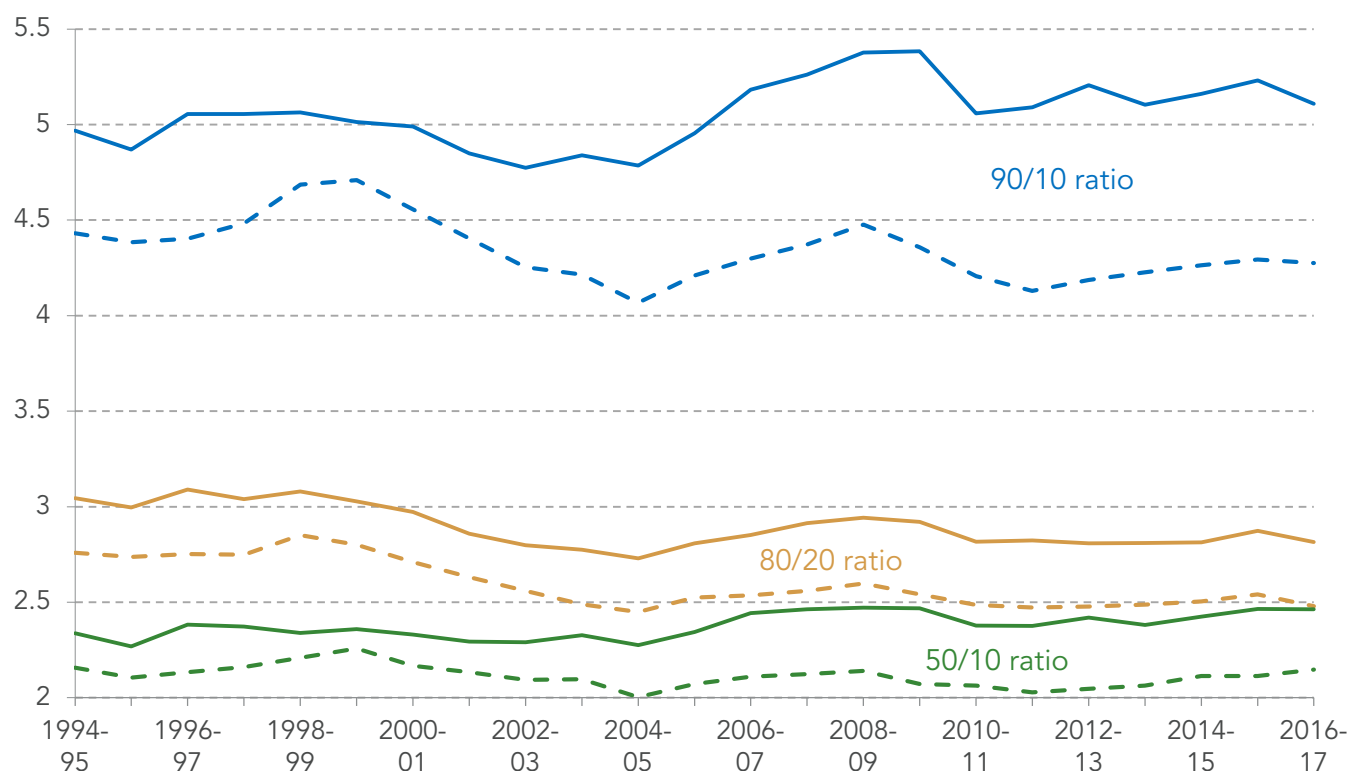
[52] Think, for example, of someone taking time off work unpaid to go travelling using some savings: they might temporarily have an income of zero but would not be considered poor in real-life.

Like poverty, measures of inequality may be slightly lower than thought

Our adjustment also lowers the standard Gini measure of inequality by around 2-3 percentage points, as Figure 48 shows. The trends since 1994-95, both before and after housing costs, are also slightly more optimistic post-adjustment. However, the big picture remains that inequality has been broadly flat but high over this period, following the step-change rise that took place in the

Figure 49: By revising up low incomes, our adjustment lowers measures of inequality between richer and poorer

Income ratios between percentile points, after housing costs



Notes: GB

Source: DWP, Households Below Average Income dataset, plus RF analysis (see Annex 2)

1980s (as shown in Section 4).

As noted in Box 4 earlier, there are some other improvements that could be made to the income data, notably for top income households, that look likely to *revise up* inequality – particularly in the immediate pre-crisis years. But from previous estimates these other considerations do not seem to be large enough to offset the downward adjustment associated with correcting benefit under-reporting.^[53]

[53] See S Jenkins et al. analysis explored in A Corlett, [Unequal results: improving and reconciling the UK's household income statistics](#), Resolution Foundation, December 2017

On the face of it, it should be noted that our adjustments to inequality and poverty figures might improve the UK's international ranking on these measures.^[54] But other countries are certain to have their own reporting issues, complicating any such comparisons.

Finally, as well as the Gini measure of inequality, we can look at income ratios between different parts of the distribution. Again, inequality is revised down, with a slightly stronger decline in poverty over the 1994-95 to 2011-12 period evident.

We have shown that benefit under-reporting has potentially large impacts on statistics about incomes, poverty and inequality, though these are not so great as to suggest we should throw away everything we know. It should also be stressed that our approach is not perfect and the adjustments shown here will not be the final word on this topic. But the scale of our estimated revisions shows benefit under-reporting is certainly important enough to warrant fixing, so that we can accurately track UK living standards and the impacts of public policy both good and bad. Indeed, our results imply that the link between benefits policy and poverty trends over recent decades may have been even stronger than previously thought. We explore this suggestion further in the conclusion.

[54] e.g. see <https://data.oecd.org/inequality/income-inequality.htm>

Section 8

Conclusion

The findings set out here have implications both for measuring living standards and for improving them.

For those interested in household income statistics, the impacts of benefit under-reporting set out in this report show that there is a pressing need for an improvement in the data and also, hopefully, a sense of what future, official revisions might show.

The DWP – which has understandably not wanted to ‘assume away’ poverty – has begun a “three-year work programme” on linking FRS responses to administrative data about benefit receipt and earnings, having established that this is now possible for most respondents.^[55] As the Department notes, this has “the potential to transform the FRS”. However, even then, revising historic data is likely to prove harder than implementing new processes for future releases.

At the same time, the ONS is transforming its own household income datasets (which, although not the focus of this paper, face the same problems as the FRS/HBAI).^[56] This will include the use of administrative data (newly allowed through the *Digital Economy Act 2017*), with the stated priorities – rightly – being fixing both top incomes and benefit receipts.^[57]

Alongside improving income data, there is also the possibility of moving towards a greater focus on expenditure data as an indicator of material well-being and poverty,^[58] though this has its own problems,^[59] as well as making further use of wealth surveys and longitudinal data to provide a fuller picture of people’s living standards.

Clearly all of these processes will take time, and so the considerations in this paper should be borne in mind in the meantime. Our rough estimates of the impacts of benefit under-reporting will inevitably not be perfect, but they may at least show the scale of revision that could be possible. An optimistic take on these revisions, however, would be that the big picture narratives on incomes, poverty and inequality are broadly robust to changes in benefit income estimation (just as they are to top income adjustment).^[60] Levels and degrees of change may be significantly revised, but most of the stories we tell about what has happened to living standards remain true, and using imperfect statistics to inform our view of the world clearly remains preferable to ignoring quantitative data entirely.

[55] DWP, [Family Resources Survey and related series – update and developments](#), Family Finance Surveys User Conference 2018, June 2018

[56] ONS, [Transformation of ONS household financial statistics: ONS statistical outputs workplan, 2018 to 2019](#), June 2018

[57] ONS, [Transforming ONS Household Financial Statistics](#), Family Finance Surveys User Conference 2018, June 2018

[58] See for example ONS, [An expenditure-based approach to poverty in the UK: financial year ending 2017](#), June 2018; and M Brewer et al., [Why are Households that Report the Lowest Incomes So Welloff?](#), October 2017

[59] L Gardiner, D Hirsch & L Valadez-Martinez, [Consuming forces: generational living standards measured through household consumption](#), Resolution Foundation, September 2017

[60] A Corlett, [Unequal results: improving and reconciling the UK's household income statistics](#), Resolution Foundation, December 2017

But more importantly, beyond questions of statistical methods, our adjusted statistics on poverty in Britain over time show anew the importance of benefits and tax credits for supporting living standards for families with lower incomes, and particularly those with children. Where governments have had a strong will to reduce poverty, backed by real cash among other policies, they did so – even more successfully than previously thought. In contrast, our nowcast suggests 2017-18 was a strikingly bad year for lower income households as the 2015 package of benefit cuts began in earnest, in combination with high inflation. In part, politicians are of course either constrained or liberated by the health of the public finances. But – alongside the national Brexit debate – the country needs a new conversation about what level of relative poverty we want and what we intend to do about it.

Annex 1 – ‘Nowcasting’ household incomes in 2017-18

Data on household incomes has thankfully become timelier in recent years, with survey data from the ONS and DWP now released within 12 months of the end of the financial year. Nonetheless, this still means detailed knowledge of UK living standards could be up to 23 months behind the times. This compares unfavourably to statistics on earnings, employment, prices and more, where data can come with a lag of as little as one month.

The relative timeliness of other statistics, however, offers us the ability to piece together what has happened to household incomes based on those separate components of living standards. Not least, the quarterly *Labour Force Survey* – while not containing a household income measure – contains a wealth of data that can be used to estimate what will happen in the less timely household income surveys.

This report therefore analyses household incomes using outturn survey data – especially the *Family Resources Survey* / *Households Below Average Income* series (available via the UK Data Archive to registered users) – but, where possible, adds our own ‘nowcast’ for 2017-18, less than four months after that year ended.

Table 2 shows the various assumptions and sources we use to create this nowcast of 2017-18. These can be grouped into three stages, all using the starting point of the 2016-17 *Family Resources Survey*.

First, regarding incomes, we uprate earnings and other private sources of income using known wage growth, among other factors. We also use the IPPR tax-benefit model to incorporate 2017-18’s tax and benefit system.

Second, regarding costs, we use deflators provided by the ONS for real-terms adjustments (these are special variants of CPI designed for household income statistics) as well as specific data on housing costs in 2017-18.

Third, we ‘reweight’ the population to account for known changes in employment, demographics and more.^[61]

There are some trends that we do not attempt to model, including the impact of student loan payments. And there are some specific changes in 2017-18 which we do not capture, such as the limited roll-out so far of Universal Credit. It should be noted that our approach is also limited by the strength and detail of its inputs. For example, we uprate all mortgage costs by the same growth figure – whereas in reality this change in costs between 2016-17 and 2017-18 will have varied by region and cohort. In some cases, our inputs can only be based on previous trends or related proxies rather than a specific source of 2017-18 data. Finally, while actual survey data will eventually become available, one extra reason for potential disagreement between nowcasts and outturn data is the year-to-year noise inherent in those surveys. Those caveats aside, however, nowcasting can provide us with insights into broad trends in income and inequalities well ahead of survey data becoming available.

[61] J Browne, *Reweight2: Stata module to reweight survey data to user-defined control totals*, IFS, July 2012

Table 2: The assumptions and sources underlying our 2017-18 nowcast

<i>Income growth</i>	<i>Data used for 2016-17 → 2017-18 nowcast</i>	<i>Values for year-on-year growth</i>
Employee earnings	LFS and ASHE 2017-18 scaled to match AWE, with public / private split and 5 quintiles within these	Overall private 2.6% and public 2.1%
Self-employed	Increase in self-employed and increase in mixed income from OBR	2.6%
Private pensions	Family Resources Survey 2011-12 to 2016-17 average growth	3.6%
Other investment	In line with AWE private sector employee earnings growth	2.3%
National tax	Outturn system	e.g. Personal allowance £11,000 → £11,500
National benefits	Outturn system	e.g. Child benefit frozen
Council tax / rates	Regional averages estimated from official data	From 1.6% (Northern Ireland) to 4.4% (Yorkshire & Humber)
UC roll-out	Not modelled	-
Family element cut roll-out	Modelled	Reduction of 20% to account for 20% roll-out
Two child policy roll-out	Modelled	Applied for those born after April 2017
Auto-enrolment roll-out	Numbers of auto-enrollees from The Pensions Regulator	1% increase in number of savers
Student loan roll-out	Not modelled	-
<i>Cost increases</i>		
CPI inc. housing costs	ONS ad hoc release	2.9%
CPI ex. housing costs	ONS ad hoc release	2.6%
Mortgage interest	ONS mortgage interest payments inflation (code:DOBQ) applied to all mortgagors	2.3%
Private rents	ONS by region & Northern Ireland Private Rental Index	From 0.3% (Scotland) to 2.7% (East Midlands)
Social rents	ONS CPI actual rents components, with local authority / registered social landlord split	-0.3% (Council) & -0.9% (RSL)
Eligible rents	We assume all private renters are now above the (frozen) LHA caps so pay for any new rent increases	Frozen for the private sector. As above for social rents
Service charges, ground rent etc.	ONS regional private rent growth – historically a good proxy	From 0.3% (Scotland) to 2.7% (East Midlands)
Structural insurance	ONS house contents insurance (code:D7F2) – historically a good proxy	3.9%
Water and sewerage	ONS water supply and misc. services (code:D7CG)	1.7%
<i>Reweightings</i>		
Adult unemployment, non-participation, self-employment and public/private employees	Labour Force Survey 2017-18	e.g. Private sector employees rose 1.2% as a share of adults
Regional population with adult worker / non-worker split	Labour Force Survey 2017-18	e.g. Workers in London rose 2.3% as share of adults
Population by gender and age (5-year bands)	Labour Force Survey 2017-18	e.g. Men age 65+ rose 1.2% as share of adults
Household employment status, single/couple status and number of kids	Labour Force Survey 2017-18	e.g. Non-working single parents fell 5.5% as share of adults
State Pension Age	Small change in female state pension age not modelled	-
Numbers with private pension / state pension entitlements	Not modelled	-
Housing tenure change	Labour Force Survey 2017-18	e.g. Outright ownership rose 2.1% as share of adults

Annex 2 – Correcting for benefit under-reporting

As explored in Section 5, there are significant gaps between how much the government spends on benefits and how much is represented in the Family Resources Survey / Households Below Average Income data (as well as in other surveys). Trying to correct for this is a complex and novel process, and one that inevitably includes some significant simplifications.

Our primary resources for this are:

Households Below Average Income (HBAI), 1994/95-2016/17^[62]

The matching 23 years of Family Resources Survey (FRS) data^[63]

DWP's Benefit expenditure and caseload tables, last updated in March 2018^[64]

It is important to note that the FRS is what is used to construct HBAI – essentially the two form a single body of data – with the latter used in this report for summary household income variables and the former used where more detailed data is needed.

Because outturn expenditure data is only available consistently for Great Britain (i.e. excluding Northern Ireland), and this was also the scope of the FRS/HBAI from 1994-95 until 2001-02, we limit our analysis to Great Britain.

Step 1 – Calculate the gap between outturn and FRS/HBAI benefit spending

We begin by adding up the amount of spending on each benefit in each year of FRS/HBAI data. The main source here are the FRS 'benefits' files, with some care required to account for changes in labelling between years as well as changes in the benefits system itself. The full list of benefits we look at is as follows:

- » State Pension
- » Pension Credit
- » Attendance Allowance
- » Working Tax Credits and Child Tax Credits
- » Working Family Tax Credits, Disabled Person's Tax Credits and Family Credit
- » Child Benefit
- » Incapacity Benefit, Invalidity Benefit and Sickness Benefit, split into working-age and pensioner receipt
- » Income Support, split into working-age and pensioner receipt

^[62] Available at <https://discover.ukdataservice.ac.uk/catalogue/?sn=5828>

^[63] Available at <https://discover.ukdataservice.ac.uk/series/?sn=200017>

^[64] DWP, [Benefit expenditure and caseload tables: Spring Statement 2018](#), March 2018

- » Jobseeker's Allowance and Unemployment Benefit
- » Employment and Support Allowance
- » Disability Living Allowance (both care and mobility components), split into working-age and pensioner receipt
- » Personal Independence Payments (both care and mobility components), split into working-age and pensioner receipt
- » Housing Benefit, split into working-age and pensioner receipt (taken from HBAI rather than FRS)
- » Severe Disablement Allowance
- » Industrial Injuries Disablement Benefit, split into working-age and pensioner receipt
- » Carer's Allowance
- » Universal Credit
- » Council Tax Support, split into working-age and pensioner receipt up (up until 2013 when it was localised).
- » Winter Fuel Payments (taken from HBAI rather than FRS)
- » Statutory Maternity Pay (taken from the FRS 'job' files)
- » DWP/DSS third party payments for recipients of JSA/ESA/IS/PC/UC, included in those benefits

These 26 benefits together account for almost all benefit spending (around 96 per cent) in every year. The main exclusions include free TV licenses (which are imputed in HBAI so we assume are accurate), bereavement benefits (where we were unable to match FRS and outturn spending categories), Maternity Allowance (where the gap is small) and relatively minor benefits such as Christmas bonuses, Cold Weather Payments, discretionary housing payments, the Independent Living Fund and New Deal spending. We have not looked at Education Maintenance Allowance or the value of Free School Meals, which are/were funded by the Department for Education.

The total amount of income received via each benefit in each year is then compared to the DWP's outturn spending spreadsheet, and the difference calculated. This includes some additional adjustments:

- » Because the FRS/HBAI does not capture any overseas spending, we subtract DWP's figure for State Pension paid outside the UK (though we must estimate this for 1994-1999).
- » Because the FRS/HBAI only covers the 'private household' population, we use DWP's figure for Income Support excluding nursing homes / residential care.
- » For the same reason (but less precisely), we remove some fractions of outturn spending:
 - » 5 per cent of Pension Credit, Attendance Allowance, pensioner DLA and pensioner PIP spending (based on DWP figures for Pension Credit)
 - » 3 per cent of Jobseeker's Allowance and Unemployment Benefit spending (based on DWP figures for JSA)
 - » 2 per cent of State Pension spending
- » For Council Tax Support in 2013-14 to 2016-17, we are required to add up the totals for England, Scotland and Wales separately

This comparison between FRS/HBAI and DWP outturn data is also repeated for caseload (i.e. the number of people receiving each benefit).

All of these results are presented in Annex 3.

Once we know how much benefit income is ‘missing’ from HBAI, we can begin adjusting the data to fill this expenditure gap.

Step 2 – Decide what adjustment process to use for each benefit

As set out in Section 6, there are three potential approaches for fixing benefit incomes:

- » Scaling up the value of recorded benefit receipts
- » Assigning benefit spending to additional people, essentially increasing recorded caseload
- » Replacing the survey results entirely with new imputed results.

We use a mix of all three approaches, depending on the benefit. For child benefit and winter fuel payments, which are largely universal benefits, the third approach appears the best option. But for others the choice is determined by scrutinising the expenditure gap and the caseload gap to assess whether the problem is that there are too few reported recipients, too little spending per recipient, or both. For several benefits, including Housing Benefit and Working/Child Tax Credits, we use both the scale-up and increased-caseload methods in equal proportion.

In all three methods, however, our focus is on matching the outturn spending totals (adjusted for non-private households) rather than necessarily matching caseload totals. This is because it is the spending figure that is most important for household incomes, and because caseload differences can be caused by some people being claimants but not yet receiving any cash. Nonetheless, our adjusted data will also match caseload totals better than the unadjusted FRS/HBAI.

Step 2a – Scaling up the value of benefits

The simplest method is to increase the value of benefits for those people who do report receipt. For example, the comparison of FRS and outturn spending totals implies that only 92 per cent of State Pension spending was represented in the survey in 2016 (while the caseload number was nearly 100 per cent). We therefore multiply all State Pension values in that year by $1/0.92$, which is 109 per cent. Of course, in reality many respondents will have provided accurate figures (e.g. some receiving only the basic State Pension), and so have their income inflated unnecessarily, while for others this factor will be insufficient. But for the population as a whole, at least, this approach will give the correct spending totals.

For each adult in each year, the resulting increase for that source of income is then recorded.

Step 2b – Allocating benefits to people not reporting receipt

For most benefits, the method we use is to assign benefit income to people who do not report receipt, but look like likely candidates for that benefit. For example, the number of people reporting receipt of Employment and Support Allowance in most years is only around 50 per cent of what it should be, and a very similar proportion of expenditure is missing: therefore we need to identify a group of non-recipients that is just as large again and correct their income data. For

each benefit, this process follows five steps:

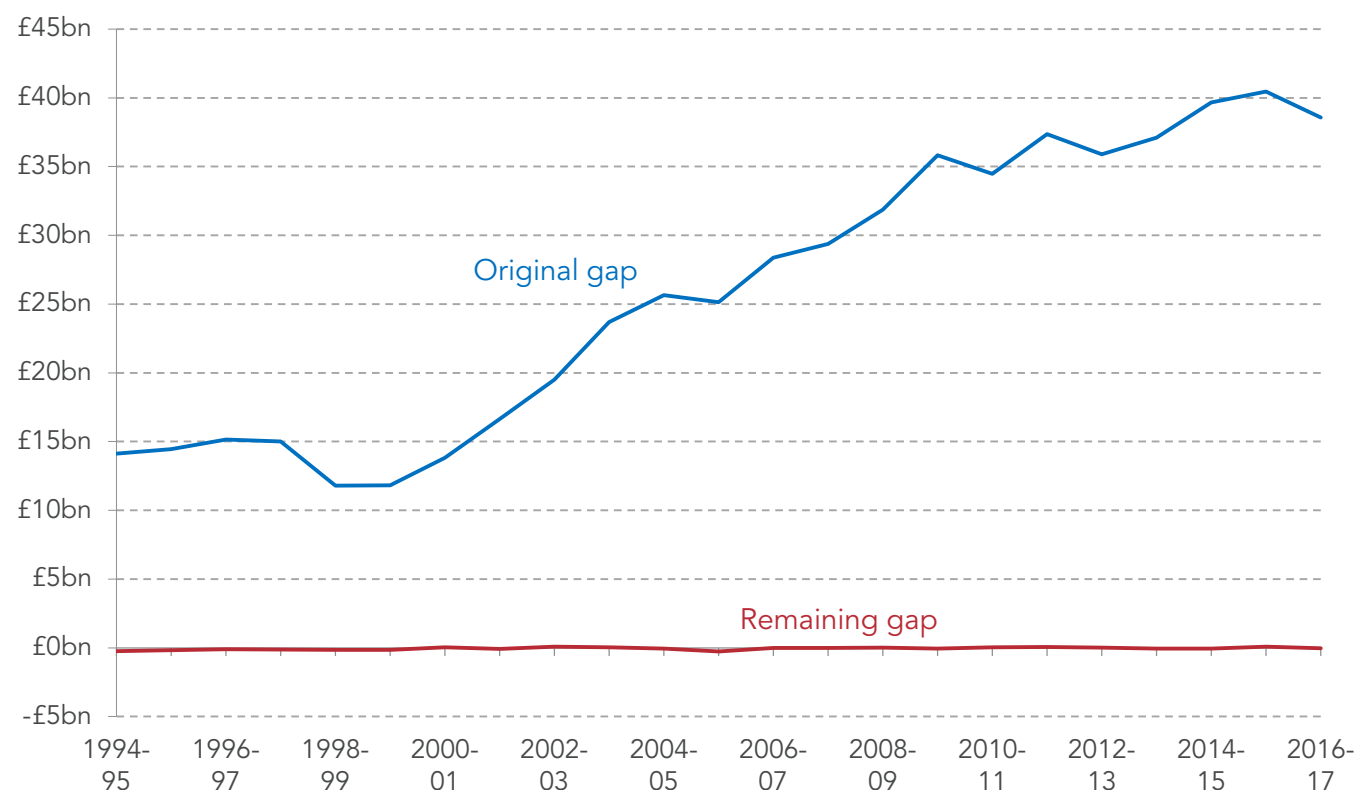
- » First, we apply any very simple eligibility rules that can be applied, e.g. pension credit eligibility age. However, we do not use any sophisticated modelling here.
- » We then look for relationships between various characteristics and *reported* receipt. We use a logistic regression, across all relevant years, to find the strength of correlation between reported receipt and those characteristics. Primarily we look at:
 - » Age group
 - » Gender
 - » Whether registered disabled
 - » Whether employed, unemployed or other
 - » Whether living with a partner
 - » Decile group for equivalised household disposable income (after housing costs), excluding the benefit in question
- » And where possible we include:
 - » Number of dependent children (overall, or by age group)
 - » Housing tenure
 - » Ethnicity
 - » Region
- » Using the results of that regression, we generate odds for people *not* reporting receipt of that benefit (essentially the odds that their reported non-receipt is incorrect). Onto this we add a random element to account for unexplained variation.
- » For each benefit in each year, we use the difference between FRS and outturn spending to create a target group size (a target that will give the correct spending total).^[65] The non-recipients are then ranked by the semi-randomised odds above, from most likely to least, and the top of the list chosen until the required group size is achieved. (Note that for most benefits, we ensure that individuals cannot be included if someone else in the household already receives it.)^[66]
- » That group is then assigned the average amount of that benefit in that year (taken from those who do report receipt). This is of course a significant simplification for some benefits.

This method builds on that developed by Howard Reed,^[67] and now incorporated into the IPPR tax and benefit model (by Ashwin Kumar and Becky Holloway of JRF). Those models have the benefit of being able to model eligibility and precise entitlements in detail. However, they were not used for this project as they are limited in the benefits and years that they cover and are not currently designed to match spending totals as intended here.

[65] Note that where total spending in FRS/HBAI appears to be too *high*, we do not apply this process in reverse (i.e. removing benefits from some people entirely). Instead, for those benefits in those years, we instead scale down all receipts using the approach set out in Step 2a. This does not play an important role, however.

[66] Note also that individuals may be assigned multiple new benefits through this process, but we do not attempt to account for the fact that someone who under-reports one benefit may be particularly likely to under-report others too: i.e. that under-reporting of the different benefits may be correlated. On the other hand, some people will under-report one benefit but over-report another: e.g. by confusing their names.

[67] H Reed & J Portes, [The cumulative impact of tax and welfare reforms](#), EHRC, March 2018

Figure 50: Our adjustments eliminate the gap between the survey and known spending totals*Real-terms gap relative to outturn spending total, 2017-18 prices*

Source: RF analysis of DWP, Family Resources Survey and Households Below Average Income dataset; and DWP, Benefit expenditure and caseload tables: Spring Statement 2018

Step 2c – Recalculating Child Benefit and some Winter Fuel Payments

For Child Benefit, we model receipt using the number of dependent children in each family together with historic levels of the benefit. The High Income Child Benefit Tax Charge from January 2013 can also be modelled, though less easily. This modelling produces Child Benefit income totals that far better match known spending in almost every year.

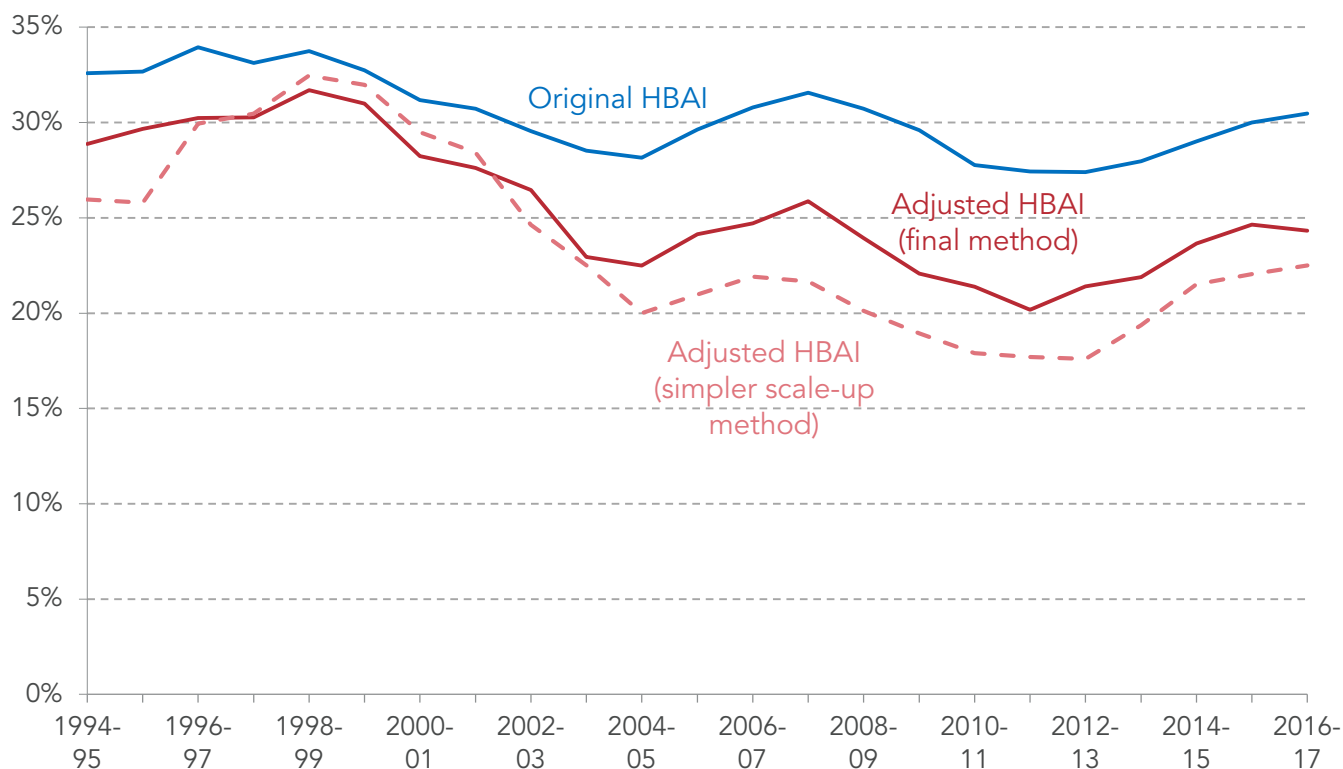
Winter Fuel Payments, as a universal (and seasonal) benefit, are already imputed in HBAI rather than relying on survey responses. However, in the winters of 1997-98 and 1998-99, when Winter Fuel Payments were first introduced, there were two separate levels (£20 and £50) and it appears that HBAI does not fully model this. The resulting gap relative to spending totals is only around £100 million per year, but we correct this by assigning the £20 payment to those pensioner families where values have not already been imputed.

Step 3 – Adjusting household incomes and calculating adjusted income and inequality statistics

For each household in each year, adjusted disposable incomes are then calculated as the sum of

Figure 51: A simpler, alternative method results in similar findings, suggesting that our conclusions are robust to methodological choices

Proportion of children in relative poverty, after housing costs



Source: RF analysis of DWP, Family Resources Survey and Households Below Average Income dataset; and DWP, Benefit expenditure and caseload tables: Spring Statement 2018

the unadjusted HBAI value plus the above changes in benefits. Incomes are then equivalised.

For each year, statistics such as median income, poverty and inequality measures can be calculated using both the original and unadjusted income figures (both before and after housing costs). In the case of poverty, the poverty line is recalculated to account for any change in median income.

Checks

Our approach is designed to eliminate the gap between HBAI's benefit income and the outturn spending totals, as discussed in Step 1. As Figure 50 shows, it does this very successfully. There are, however, a number of inevitable judgement calls and limitations in our method. Alternative ways of 'distributing' the missing spending across households – determining who might be under-reporting and by how much – are certainly possible. As a robustness check, Figure 51 shows one such alternative. The dashed line here uses the scale-up method (described in Step 2a) but applies this to all benefits, eschewing the caseload and imputation approaches (Steps 2b and 2c) entirely. In this case, our broad conclusions that poverty is revised down and fell faster than thought in the early 2000s remain true, and indeed are even starker.

Further details about this methodology are available on request, and any feedback would be very welcome.

Annex 3 – Comparison of FRS/HBAI with outturn spending data

The following tables provide the results of our comparison of FRS/HBAI with DWP's Benefit expenditure and caseload tables (with some adjustments to improve comparability). For many benefits we have been able to split out spending on pensioners ("pen") from that on working-age people and children ("w-a").

Table 3: £ gap per year for selected benefits

Missing spending by benefit (£m)

	WTC				IB	IB	IS	IS		DLA	DLA	PIP	PIP	HB	HB		IIDB	IIDB		CTS	CTS						
	SP	PC	AA	/CTC	WFTC	CB	(pen.)	(w-a)	(pen.)	(w-a)	JSA	ESA	(pen.)	(w-a)	(pen.)	(w-a)	(pen.)	(w-a)	SDA	(pen.)	(w-a)	CA	UC	(pen.)	(w-a)	V	
1994	-155		914		321	101	252	736	1,218	2,056	42		186	483			484	1,276	139	101	164	105		245	226		
1995	809		395		297	135	248	791	941	1,975	111		151	719			442	1,306	221	100	154	124		130	158		
1996	755		695		458	254	111	526	947	1,233	750		282	843			679	1,556	383	87	133	172		183	143		
1997	831		677		412	229	173	999	985	442	710		239	1,075			457	1,599	385	64	188	149		193	204		
1998	897		556		160	184	60	388	961	216	630		377	889			429	1,050	371	78	187	-2		151	162		
1999	1,222		766		404	198	53	829	927	-275	387		218	889			675	625	392	68	142	60		183	131		
2000	689		751		649	318	-32	879	1,199	278	395		348	982			879	924	420	48	198	104		237	137		
2001	1,140		902		1,259	253	-34	1,134	1,338	-169	571		370	1,366			1,022	1,154	451	75	168	141		306	152		
2002	1,584		660		1,580	384	-14	903	1,626	790	425		372	1,158			1,031	1,902	496	57	128	142		240	177		
2003	1,736	769	894	4,218	-98	425	-10	983	1,088	1,508	362		312	1,155			787	1,415	327	75	205	65		349	176		
2004	1,675	2,119	965	4,933	0	270	-39	661	-3	1,708	324		454	1,161			699	2,009	489	75	175	-12		371	264		
2005	986	2,304	1,285	5,008		200	-26	855	-4	1,908	38		448	1,383			464	2,094	460	127	211	207		279	408		
2006	1,202	2,789	1,451	5,645		394	-26	978	-5	1,908	467		544	1,766			710	2,186	197	147	152	134		392	309		
2007	1,814	3,044	1,814	5,784		421	-56	961	-7	2,132	157		485	1,500			525	2,805	214	153	126	103		327	249		
2008	1,953	2,985	1,781	7,402		600	-26	856		2,233	24	99	231	1,814			902	3,241	275	272	139	48		404	357		
2009	1,446	3,169	1,875	8,639		524	-18	548		2,624	305	518	889	2,049			869	3,692	416	279	188	288		465	397		
2010	1,892	3,203	2,048	8,581		637	-42	261	-5	2,230	113	1,016	394	1,520			878	4,191	494	254	163	200		391	518		
2011	3,745	3,405	2,137	8,825		671	-69	517	-89	1,461	627	1,674	427	2,034			1,217	4,342	339	202	178	478		458	576		
2012	3,654	2,809	2,537	8,631		743	-54	125	-45	717	420	3,106	353	1,810			1,083	4,334	352	349	176	359		313	454		
2013	4,809	2,508	2,395	8,340		900	-48	-215	-23	-462	-28	5,224	791	2,752			971	4,312	626	287	139	376	1	384	358		
2014	6,085	2,246	2,408	8,756		891	0	-418	-8	-991	-226	6,175	1,030	2,660			70	606	1,129	3,928	451	287	222	905	16	408	324
2015	6,672	1,903	2,598	8,003		1,011	-19	-145	-16	-869	-281	6,714	763	2,516			132	823	1,213	4,279	433	286	215	704	215	334	268
2016	7,142	2,003	2,368	7,809		1,190	-1	-340	-6	-545	-348	6,198	761	1,659			52	1,095	1,246	4,037	150	229	126	722	495	309	123

Note: SP=State Pension; PC=Pension Credit; AA=Attendance Allowance; WTC/CTC=Working and Child Tax Credits (etc.); WFTC/FC=Working Family Tax Credits and Family Credit; CB=Child Benefit; IB=Incapacity Benefit (etc.); IS=Income Support; JSA=Jobseekers Allowance (etc.); ESA=Employment and Support Allowance; DLA=Disability Living Allowance; PIP=Personal Independence Payments; HB=Housing Benefit; SDA=Severe Disablement Allowance; IIDB= Industrial Injuries Disablement Benefit; CA=Carer's Allowance; UC=Universal Credit; CTS=Council Tax Support (etc.); WFP=Winter Fuel Payments; SMP=Statutory Maternity Pay.

Table 4: Percentage of known expenditure captured in HBAI, for selected benefits*Proportion of benefit spending captured*

	SP	PC	WTC		IB		IS	IS	JSA	DLA	DLA	PIP	PIP	HB	HB	IIDB	IIDB	CA	UC	CTS	CTS	WFP	SMP
			AA	/CTC	WFTC	CB	(pen.)	(w-a)	(pen.)	(w-a)	ESA	(pen.)	(w-a)	(pen.)	(w-a)	SDA	(pen.)	(w-a)		(pen.)	(w-a)		
1994	101%		51%		78%	98%	80%	89%	45%	83%	97%	76%	79%		86%	81%	82%	57%	60%	80%	75%	79%	50%
1995	97%		81%		83%	98%	77%	88%	60%	84%	90%	84%	74%		88%	82%	73%	59%	64%	80%	87%	87%	34%
1996	98%		69%		78%	96%	87%	92%	60%	88%	72%	76%	74%		82%	80%	58%	63%	70%	77%	82%	89%	89%
1997	97%		72%		82%	97%	74%	85%	59%	94%	81%	82%	70%		88%	78%	61%	73%	58%	80%	82%	85%	34%
1998	97%		78%		93%	97%	86%	94%	60%	97%	82%	74%	77%		89%	85%	62%	68%	60%	100%	87%	88%	34%
1999	97%		71%		86%	98%	67%	87%	65%	104%	88%	86%	78%		83%	91%	61%	72%	69%	93%	84%	90%	103%
2000	98%		73%		85%	96%	1125%	87%	59%	97%	86%	80%	77%		79%	87%	59%	82%	56%	88%	81%	90%	100%
2001	97%		70%		77%	97%		83%	60%	102%	77%	81%	70%		77%	84%	57%	72%	63%	85%	77%	89%	100%
2002	96%		79%		75%	96%		87%	57%	92%	83%	82%	76%		78%	76%	48%	80%	72%	86%	83%	87%	99%
2003	96%	65%	73%	67%	229%	95%		85%	51%	85%	85%	86%	78%		82%	82%	65%	72%	56%	94%	78%	89%	100%
2004	96%	63%	72%	68%	0%	97%		90%		83%	85%	82%	79%		85%	77%	47%	74%	62%	101%	80%	85%	99%
2005	98%	62%	66%	70%		98%		87%		79%	98%	83%	76%		90%	78%	49%	57%	53%	82%	85%	79%	102%
2006	98%	57%	63%	69%		96%		85%		78%	80%	81%	71%		85%	78%	78%	52%	66%	89%	80%	84%	102%
2007	97%	57%	57%	70%		96%		86%		76%	93%	85%	77%		89%	74%	76%	55%	70%	92%	84%	87%	101%
2008	97%	59%	60%	68%		94%		87%		74%	99%	22%	93%		84%	72%	69%	37%	60%	96%	81%	83%	100%
2009	98%	59%	61%	68%		95%		91%		69%	93%	59%	77%		85%	74%	54%	38%	47%	81%	79%	84%	100%
2010	97%	59%	59%	69%		95%		95%		72%	97%	54%	90%		85%	73%	44%	44%	59%	87%	83%	80%	101%
2011	95%	55%	58%	69%		94%		90%		79%	87%	53%	90%		81%	74%	61%	56%	54%	72%	79%	79%	101%
2012	95%	61%	51%	70%		94%		96%		86%	92%	54%	92%		83%	75%	60%	28%	55%	81%	85%	84%	101%
2013	94%	63%	53%	71%		92%		118%		113%	101%	50%	83%	69%	66%	85%	85%	76%	27%	42%	63%	82%	75%
2014	93%	64%	53%	69%		92%		271%		134%	108%	52%	78%	70%	42%	58%	83%	78%	39%	44%	40%	61%	71%
2015	92%	67%	50%	71%		91%		335%		134%	113%	53%	83%	70%	51%	70%	81%	76%	8%	45%	38%	72%	56%
2016	92%	63%	55%	70%		89%		2381%		124%	119%	58%	82%	76%	92%	76%	80%	76%	36%	54%	62%	73%	69%

Note: SP=State Pension; PC=Pension Credit; AA=Attendance Allowance; WTC/CTC=Working and Child Tax Credits (etc.); WFTC/FC=Working Family Tax Credits and Family Credit; CB=Child Benefit; IB=Incapacity Benefit (etc.); IS=Income Support; JSA=Jobseekers Allowance (etc.); ESA=Employment and Support Allowance; DLA=Disability Living Allowance; PIP=Personal Independence Payments; HB=Housing Benefit; SDA=Severe Disablement Allowance; IIDB= Industrial Injuries Disablement Benefit; CA=Carer's Allowance; UC=Universal Credit; CTS=Council Tax Support (etc.); WFP=Winter Fuel Payments; SMP=Statutory Maternity Pay.

Table 5: Percentage of known caseload captured in HBAI, for selected benefits

Proportion of caseload captured

			WTC			IB	IB	IS	IS		DLA	DLA	PIP	PIP	HB	HB		IIDB	IIDB		CTS	CTS				
	SP	PC	AA	/CTC	WFTC	CB	(pen.)	(w-a)	(pen.)	(w-a)	JSA	ESA	(pen.)	(w-a)	(pen.)	(w-a)	SDA	(pen.)	(w-a)	CA	UC	(pen.)	(w-a)	WFP	SMP	
1994	100%		53%		81%	99%	83%	66%	108%	84%	104%		81%	77%		97%	89%	77%	52%	67%	88%		85%	93%		106%
1995	97%		84%		88%	99%	79%	67%	113%	88%	99%		89%	77%		99%	90%	78%	56%	73%	80%		96%	97%		73%
1996	97%		71%		81%	99%	84%	66%	110%	76%	38%		81%	78%		94%	89%	61%	63%	72%	83%		93%	98%		210%
1997	97%		71%		83%	98%	76%	63%	95%	90%	86%		91%	73%		96%	88%	59%	63%	63%	76%		98%	100%	17%	132%
1998	98%		78%		92%	98%	100%	67%	98%	92%	89%		84%	76%		99%	92%	60%	65%	65%	96%		99%	103%	17%	97%
1999	97%		71%		84%	98%	98%	59%	92%	94%	78%		95%	79%		95%	99%	59%	63%	63%	91%		96%	109%	102%	77%
2000	98%		74%		86%	98%	123%	59%	86%	89%	78%		88%	79%		95%	100%	58%	66%	66%	86%		96%	110%	103%	102%
2001	98%		70%		85%	97%	434%	55%	82%	91%	66%		89%	73%		93%	96%	56%	66%	66%	89%		93%	105%	98%	109%
2002	98%		80%		90%	96%		57%	74%	87%	73%		91%	75%		98%	93%	50%	70%	70%	93%		98%	103%	97%	86%
2003	98%	36%	76%	65%		97%		53%		85%	72%		96%	78%		95%	92%	65%	67%	63%	102%		95%	104%	98%	95%
2004	98%	70%	75%	74%		98%		56%		81%	72%		96%	79%		93%	86%	45%	65%	62%	105%		95%	96%	99%	69%
2005	98%	71%	68%	75%		97%		55%		73%	84%		99%	78%		100%	84%	49%	52%	56%	83%		101%	92%	103%	76%
2006	97%	68%	66%	76%		96%		53%		77%	69%		98%	74%		96%	86%	81%	53%	71%	86%		95%	96%	102%	72%
2007	97%	68%	60%	79%		96%		54%		76%	78%		103%	78%		95%	85%	77%	52%	68%	92%		94%	97%	101%	70%
2008	96%	68%	64%	78%		95%		52%		73%	83%	6%	105%	74%		93%	81%	72%	51%	56%	96%		92%	93%	100%	91%
2009	99%	69%	65%	84%		96%		55%		72%	85%	52%	88%	72%		91%	83%	57%	47%	47%	80%		90%	93%	100%	77%
2010	99%	70%	62%	86%		95%		58%		77%	94%	52%	105%	79%		91%	82%	47%	49%	64%	85%		93%	88%	100%	65%
2011	98%	65%	62%	84%		95%		55%		79%	89%	53%	104%	76%		88%	81%	60%	60%	64%	73%		85%	85%	100%	80%
2012	98%	67%	54%	86%		94%		61%		87%	96%	55%	101%	82%		90%	83%	59%	36%	72%	82%		91%	89%	99%	57%
2013	99%	68%	55%	84%		91%		69%		100%	106%	53%	91%	75%	340%	243%	92%	83%	28%	48%	65%	84%	63%		99%	71%
2014	99%	68%	56%	84%		92%		92%		116%	125%	56%	90%	71%	89%	98%	89%	83%	40%	53%	52%	64%	90%		99%	66%
2015	99%	68%	52%	83%		91%		52%		112%	142%	57%	89%	72%	125%	77%	89%	83%	7%	52%	40%	75%	50%		100%	70%
2016	99%	67%	57%	83%		88%		116%		104%	153%	63%	88%	79%	142%	79%	87%	85%	32%	59%	62%	75%	48%		100%	73%

Note: SP=State Pension; PC=Pension Credit; AA=Attendance Allowance; WTC/CTC=Working and Child Tax Credits (etc.); WFTC/FC=Working Family Tax Credits and Family Credit; CB=Child Benefit; IB=Incapacity Benefit (etc.); IS=Income Support; JSA=Jobseekers Allowance (etc.); ESA=Employment and Support Allowance; DLA=Disability Living Allowance; PIP=Personal Independence Payments; HB=Housing Benefit; SDA=Severe Disablement Allowance; IIDB= Industrial Injuries Disablement Benefit; CA=Carer's Allowance; UC=Universal Credit; CTS=Council Tax Support (etc.); WFP=Winter Fuel Payments; SMP=Statutory Maternity Pay.

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