



## Living Standards: Recent Trends and Future Challenges

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Jonathan Cribb Andrew Hood Robert Joyce

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Series editors Rowena Crawford Carl Emmerson Paul Johnson Luke Sibieta



### Living Standards: Recent Trends and Future Challenges

#### Jonathan Cribb, Andrew Hood and Robert Joyce<sup>1</sup>

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#### **Executive summary**

- The coalition government took office after the Great Recession, just as household incomes were beginning their subsequent and inevitable decline. It would be misleading to attribute all trends in living standards that occurred before May 2010 to Labour and all trends thereafter to the coalition.
- We project that real (RPIJ-adjusted) median household income is at around the same level in 2014–15 as in 2007–08 (before the financial crisis), and about 2% below its 2009–10 peak.
- Having continued to rise slowly during the recession itself, real median household income then fell by 4.0% from peak in 2009–10 to trough in 2011–12, driven by falls in workers' pay and in employment. This was a larger peak-to-trough fall than occurred around the early 1990s recession (1.2%), but smaller than in the early 1980s (5.7%).
- Since then, employment has recovered strongly but real pay, and hence average income, has not. This is consistent with the absence of productivity growth since 2011. Meanwhile, the coalition has implemented a large package of tax and benefit measures taking money away from households in response to the structural budget deficit caused or revealed by the crisis.
- The slow recovery in household incomes has been more remarkable by historical standards than the peak-to-trough fall. We project that median household income grew by just 1.8% in total between 2011–12 and 2014–15. In contrast, the first three years of recovery in the early 1980s and early 1990s saw median income grow by 9.2% and 5.1% respectively.
- Household consumption has also been very slow to recover by historical standards. Consumption per head of non-durables (things such as food and fuel that are bought and consumed roughly straightaway) was 3.8% lower in 2014Q3 than in 2008Q1. At the same point after the 1980s and 1990s recessions, it was 14.4% and 6.4% above pre-recession levels respectively. This might reflect households' perceptions that their income prospects have been permanently damaged by the crisis and that a significant cut to their spending is therefore required.

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- Assuming all households face the same inflation rate, income inequality is lower in 2014–15 than it was in 2007–08. This is explained by changes between 2007–08 and 2012–13, when earnings fell relative to benefits. Since 2012–13, incomes are projected to have fallen towards the top and bottom of the distribution but risen across the middle, in line with the distributional impact of recent tax and benefit reforms.
- However, low-income families have faced higher-than-average inflation since 2007– 08. This is mostly due to price changes in the period up to and including 2009–10: these families were hit harder by rising food and energy prices, and benefited less from falling mortgage interest rates. When this is taken into account, the changes in real incomes between 2007–08 and 2014–15 look similar across most of the income distribution.
- The incomes of older individuals have caught up with those of the rest of the population in recent years, while living standards have fallen the most for young adults. After adjusting for group-specific inflation, median income among those aged 60 and over is projected to be 1.8% higher in 2014–15 than in 2007–08, compared with a 2.5% fall for those aged 31–59 and a 7.6% fall for those aged 22–30.
- In the long run, policies that spur productivity growth will have the most significant effect on living standards. Over the course of the next parliament, the choices that the next government makes about the shape and size of any further fiscal consolidation will also affect how the living standards of different groups change.

## 1. Introduction

The coalition government took office after a severe recession and just as real household incomes were beginning their inevitable subsequent decline. One of the first challenges it had to confront was how and when to take further money away from households in order to address an unsustainable budget deficit. It is no wonder that policy and political debate during this parliament have often been dominated by discussion of what is happening to living standards, who is most affected and what should be done about it.

This briefing note sets out what has been happening to living standards and unpicks the main reasons for these trends. It looks both at living standards on average and at the considerable variation in trends across different parts of the population.

Our primary focus is on the official survey-based measure of net household income, due to the richness of these data, but we also cover National Accounts measures of average living standards, including household consumption.

The main measure of income used in our analysis is from the official Households Below Average Income (HBAI) series published by the Department for Work and Pensions (although we use a different measure of inflation to compare incomes in real terms over time, as described in Section 2). This is based on the Family Resources Survey, a survey of about 20,000 households each year, and measures each household's total income from all sources (including earnings, self-employment income, pensions, benefits and tax credits) minus income tax, National Insurance contributions and council tax. 'Equivalence scales' are then applied to each household's income, accounting for the fact that (for example) a net income of £200 per week will mean a higher standard of living for a single individual than it will for a couple with four children, all else equal.<sup>2</sup>

A frequent source of frustration is that debates on living standards have to run far ahead of the available data. The official HBAI income measure is not yet available beyond 2012–13. Hence, throughout this briefing note, we also make use of projections that we have produced of HBAI income in 2013–14 and 2014–15. The methods – and directions to a more detailed description of them – are outlined in Appendix A. But in short, we take the 2012–13 HBAI data as the starting point and adjust these data to account for relevant known changes since 2012–13 – for example, tax and benefit policy changes, and demographic and labour market trends (for which we have estimates from other data sources). One limitation is that we have no robust means of projecting the incomes of the very highest-income households, due to a lack of good-quality and timely data about them. Therefore, we do not present projections in 2013–14 and 2014–15 for statistics that depend on these very highest incomes, such as mean income and the Gini coefficient. However, we are able to assess the likely evolution of things such as median income beyond 2012–13, and inequality across the vast majority of the population.

The briefing note proceeds as follows. Section 2 looks at how average living standards have been changing, using HBAI incomes and other proxies for average living standards from the National Accounts. Section 3 explores how the picture has varied across the population. The answer is that there is considerable variation, and that to understand this fully one needs to account for the different inflation rates faced by different groups, as well as the different changes in their incomes. Section 4 reflects on the policy challenges that these trends present for the future.

### 2. Average living standards

This section is in two broad parts. We begin by looking at trends in the measure of net household income used in official (HBAI) statistics, which is the primary focus of this briefing note. We then compare and contrast this with other proxies for average living standards available from the National Accounts, which together help to provide a fuller picture of what has happened and why.

#### 2.1 Household incomes from the HBAI series

Table 2.1 shows how real incomes in the UK have changed in each year since 2002–03, at the median and at the mean. This includes our projections for median income in 2013–14 and 2014–15, separated by a dotted line. Here and throughout, we adjust for inflation using the RPIJ price index, available since 1997–98.<sup>3</sup> This is different from the RPI measure that is still used in official government statistics, despite known defects with the underlying formula which lead it to overstate inflation and which have caused it to lose its National Statistic status. Box 2.1 discusses the choice of inflation measure further and

<sup>&</sup>lt;sup>2</sup> For a more comprehensive discussion of how HBAI measures living standards, see appendix A of C. Belfield, J. Cribb, A. Hood and R. Joyce, *Living Standards, Poverty and Inequality in the UK: 2014*, IFS Report R96, 2014, <u>http://www.ifs.org.uk/uploads/publications/comms/r96.pdf</u>.

<sup>&</sup>lt;sup>3</sup> To adjust for price changes prior to 1997–98, we use the RPI as it is the only price index that covers the whole period of HBAI data used in our analysis. The difference between RPI and RPIJ was much smaller before 2010–11.

	<i>£ per week in 2014–15 prices</i> ( <i>eauivalents for childless couple</i> )		Growth since	previous year
	Median	Mean	Median	Mean
2002–03	£445	£542	-	-
2003–04	£446	£541	0.1%	-0.3%
2004–05	£451	£549	1.1%	1.6%
2005–06	£455	£558	1.0%	1.6%
2006–07	£461	£566	1.3%	1.5%
2007–08	£463	£575	0.4%	1.5%
2008–09	£469	£583	1.2%	1.4%
2009–10	£473	£593	0.9%	1.7%
2010–11	£463	£564	-2.1%	-4.9%
2011–12	£453	£560	-2.0%	-0.8%
2012–13	£456	£555	0.5%	-0.8%
2013–14	£456	-	0.1%	-
2014–15	£461	-	1.1%	-

#### Table 2.1. Average UK household incomes since 2002–03

Note: Incomes have been measured before housing costs have been deducted. HBAI data for the whole UK are only available from 2002–03 onwards; therefore growth in UK mean and median income is not available for 2002–03.

Source: Authors' calculations using Family Resources Survey, various years, and projections for 2013–14 and 2014–15 using the IFS tax and benefit microsimulation model, TAXBEN, and assumptions specified in the text.

illustrates the impact of using CPI instead (in brief, the CPI makes real income falls since the recession look larger than the RPIJ does).

The table illustrates several important points. First, income growth had been modest even in the years preceding the recession. In fact, in every single year since 2002–03, the growth rates of both median and mean income have been below their historical annual averages over the period from 1961 to 2002–03 (of 1.7% at the median and 2.0% at the mean).

Second, the impact of the Great Recession on household incomes was somewhat delayed, with continued average income growth up to and including 2009–10 at approximately the same modest pace as over the pre-recession years.

Third, the falls in real income – when they came – were substantial. Median income fell by 4.0% in real terms between 2009–10 and 2011–12. Mean income fell even further, though this is partly due to the artificial shifting of income by high-income individuals from 2010–11 and 2011–12 forward into 2009–10 (in anticipation of the introduction of the 50% marginal income tax rate in 2010–11). Because of the sensitivity of mean income to changes at the very top of the distribution, we focus primarily on the median figures.

The precise timing of the income falls was affected by policy choices. Most significantly, the Labour government's cut to the main rate of VAT between 1 December 2008 and 31 December 2009, as a temporary fiscal stimulus measure, had kept inflation very low (in fact, it went negative on the RPIJ measure), and hence boosted real incomes during this period. Additionally, the Monetary Policy Committee of the Bank of England cut the official Bank Rate from 5.75% in Summer 2007 to 0.5% by March 2009, which led to falling mortgage interest costs and therefore reduced inflation. There were other discretionary stimulus measures that also supported real incomes in this period,

#### Box 2.1. Adjusting for inflation

Throughout this briefing note, we compare incomes in real terms over time using the RPIJ measure of inflation. This is a version of the retail price index (RPI) that avoids the flaws in its formula which lead it to systematically overstate inflation.<sup>a</sup>

We use the RPIJ because it is the measure of inflation that treats the price of housing in the most appropriate way given the HBAI measure of income. It incorporates changes in rents for renters and mortgage interest costs for owner-occupiers. The consumer price index (CPI) does not incorporate the housing costs of owner-occupiers. A variant called the CPIH does, but on a 'rental equivalence' basis (the rental income forgone by choosing to occupy the house rather than let it). This may be appropriate for an income measure that adds imputed rents to the income of owner-occupiers, but not for the HBAI measure, which does not. It would mean that increases in rents make owneroccupiers worse off (by increasing inflation). Neither the CPI nor the CPIH accounts for the large falls in mortgage interest rates during the recession.

Figure 2.1 shows the path of real median income since 2002–03, indexed to 100 in 2007–08, when adjusted for prices using RPIJ and CPI. Prior to 2007–08, RPIJ inflation was higher than CPI inflation, and so growth in real median income was slower according to the RPIJ. However, real median income starts to fall in 2009–10 (rather than 2010–11) if the CPI is used, because the CPI does not account for the large falls in mortgage interest costs in that period. In more recent years, there has been little difference between CPI and RPIJ inflation. In total, this means that projected 2014–15 real median income is further below its 2007–08 level if CPI is used (3.0%) than if RPIJ is used (0.4%).



Figure 2.1. Real UK median income adjusting for RPIJ and CPI inflation (2007–08 = 100)

Note: Incomes have been measured before housing costs have been deducted. Dashed lines signify data for 2013–14 and 2014–15, which are estimated using IFS simulations. Source: Authors' calculations using Family Resources Survey, TAXBEN and assumptions specified in the text.

<sup>a</sup> See P. Levell, 'A winning formula? Elementary indices in the Retail Prices Index', IFS Working Paper W12/22, 2012, http://www.ifs.org.uk/wps/wp1222.pdf.

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including above-inflation increases in tax credits. The return of the main VAT rate to 17.5% in January 2010 then dragged real incomes back down.

Ultimately, though, a fall in incomes was an inevitable impact of the severe economic contraction. It may be tempting to attribute to Labour all trends in living standards that occurred before May 2010 and to attribute to the coalition government all trends thereafter. However, this would be misleading. The coalition came to power at a moment when real incomes were in the process of falling. Had it come to power a year earlier or a year later, real incomes would still have fallen.

Perhaps even more than the size of the peak-to-trough fall in income, it is the weakness of the recovery that is striking. Real median income started to grow again in 2012–13, but by just 0.5%. We project that it then remained virtually unchanged in 2013–14 as earnings growth remained weak and cuts to benefits accelerated, before growing by 1.1% in 2014–15 (faster than before, but still below the historical average growth rate).

Figure 2.2 puts this in the context of previous recessions, comparing the cumulative falls in median income from peak to trough as well as the pace of income growth in the first three years afterwards. For reasons of consistency, we focus here just on Great Britain (Northern Ireland was not included in the data until 2002–03). The figure shows very clearly that the slow recovery has been a remarkable feature of the most recent downturn and, in the context of previous recessions, considerably more remarkable than the size of the peak-to-trough decline. As discussed above, this comes on top of slow income growth in the years prior to the recession. The net result is that median income in 2014–15 is less than 3% higher than it was a decade earlier.

It is important to understand what has been driving the falls in household income, particularly as background to comparisons of trends in the living standards of different groups in Section 3. Previous work has shown that the large falls in household incomes



Figure 2.2. Comparison of periods of falling median income (GB)

Note: The '1.8%' figure for growth in the most recent recovery is based on an IFS simulation of median income in 2014–15. Incomes have been measured before housing costs have been deducted.

Source: Authors' calculations using the Family Expenditure Survey and Family Resources Survey, various years, and projections for 2013–14 and 2014–15 using TAXBEN and assumptions specified in the text.

were, unsurprisingly, driven by the severe real falls in employment income (which accounts for the majority of household income) between 2009–10 and 2011–12.<sup>4</sup> Although employment fell significantly during the recession, the falls in employment income were driven primarily by falls in pay for those in work (and since then the employment rate has recovered to its pre-crisis level while average earnings have not).

Since 2011–12, after the sharp falls in real incomes had happened, the slow pace of the recovery in incomes has been driven by two main factors. One is the direct impact of the post-recession fiscal tightening – designed to deal with the unsustainable structural budget deficit that had opened up or revealed itself as a result of the crisis. Working-age households in roughly the bottom third of the income distribution have been particularly affected by cuts to social security entitlements; households towards the top have been most affected by tax rises.<sup>5</sup> However, the slow recovery is by no means all about the direct effects of the fiscal tightening in dragging down household incomes. GDP growth has recovered less quickly following this recession than following previous recessions, despite strong employment growth. Real earnings growth has remained very weak. This in part reflects public sector pay restraint since 2011, but also low private sector earnings growth. This is consistent with the very disappointing performance of productivity, which has not grown at all overall since 2011.<sup>6</sup>

#### 2.2 Other measures of average living standards

When focusing on average living standards, as in this section, there are also a number of relevant measures from the National Accounts. Both the similarities and the differences between alternative measures can provide useful information. Figure 2.3 therefore compares their evolution since 2007–08. Three National Accounts measures are shown, all on a per-capita basis: real gross domestic product (GDP), real household disposable income (RHDI) and household final consumption expenditure (HFCE). For comparison, we also include the measures of mean and median HBAI income discussed above.

Real GDP per head is a widely-used measure of economic well-being, giving the estimated market value of all final goods and services produced in the UK, divided by the UK population. However, we should not expect it to track the resources available to households in real time because, for example, the government's fiscal position affects how much of national income in a particular year ends up with households. Real household disposable income, as the name implies, focuses on the household sector, <sup>7</sup> and so excludes changes in the financial health of companies and the public sector. Household final consumption expenditure is a measure of spending rather than income. It captures expenditure incurred by or on behalf of households<sup>8</sup> on the consumption of goods and services, and is therefore sensitive to how much of their income households are saving. All of these National Accounts measures provide estimates only at the mean, so are (all else equal) more comparable to mean HBAI income than median HBAI income.

<sup>&</sup>lt;sup>4</sup> C. Belfield, J. Cribb, A. Hood and R. Joyce, *Living Standards, Poverty and Inequality in the UK: 2014*, IFS Report R96, 2014, <u>http://www.ifs.org.uk/uploads/publications/comms/r96.pdf</u>.

<sup>&</sup>lt;sup>5</sup> J. Browne and W. Elming, 'The effect of the coalition's tax and benefit changes on household incomes and work incentives', IFS Briefing Note BN159, 2015, <u>http://www.ifs.org.uk/uploads/publications/bns/BN159.pdf</u>.

<sup>&</sup>lt;sup>6</sup> J. Cribb and R. Joyce, 'Earnings since the recession', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget: February 2015*, <u>http://www.ifs.org.uk/uploads/gb/gb2015/ch2\_gb2015.pdf</u>.

<sup>&</sup>lt;sup>7</sup> A very small share of the household sector used for this measure is made up of 'non-profit institutions serving households' (NPISH), such as charities and universities.

<sup>&</sup>lt;sup>8</sup> Mirroring RHDI, this includes the expenditure of the NPISH sector.

## Figure 2.3. National Accounts measures of changes in average living standards compared to HBAI, indexed to 100 in 2007–08 (UK)



Note: Incomes have been measured before housing costs have been deducted. Dashed lines signify data for 2013–14 and 2014–15, which are estimated using IFS simulations. Source: Authors' calculations using ONS series IHXW, IHXX and IHXZ, Family Resources Survey data, and projections for 2013–14 and 2014–15 using TAXBEN and assumptions specified in the text.

that these measures are each adjusted for inflation over time using their own deflators (not the RPIJ, as we use for deflating HBAI incomes throughout this briefing note), and this can contribute to differences in trends between the series.<sup>9</sup>

At least two points stand out. First, although there was some divergence between trends in household income measures in the National Accounts (RHDI) and survey data (HBAI), the divergence was relatively small and temporary. By 2011–12, mean and median HBAI income and RHDI per head were all between 2% and 3% lower than in 2007–08. However, average incomes measured in HBAI were more volatile within that period, continuing to rise until 2009–10 and then falling much more sharply from peak to trough. Indeed, it is worth noting that this volatility from year to year can make comparisons of changes in these measures over short periods very sensitive to precisely which years are chosen. For example, falls in RHDI per head since 2009–10 are significantly more moderate than falls in HBAI income. This is because, in 2010–11, RHDI per head barely changed whereas real mean HBAI income fell by about 5%. It is wise not to draw firm conclusions about very short-run changes in living standards from a single measure.

Second, both GDP and household consumption fell well before household incomes began to fall. They peaked in 2007–08, whereas mean and median HBAI income peaked in 2009–10. An important reason for the divergence between household incomes and GDP is the emergence of a large budget deficit. Comparing these two measures therefore helps to highlight that the household sector was (temporarily) shielded from the brunt of the fall in national income by additional government borrowing.

<sup>&</sup>lt;sup>9</sup> GDP is deflated using the GDP deflator, RHDI is deflated using the 'final consumption expenditure by households and NPISH deflator' and HFCE is deflated using the CPI (these are ONS series L8GG, YBFS and D7BT respectively).

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The divergence between trends in household incomes and consumption expenditure is perhaps of particular interest. By capturing what people are actually buying in a given period, household expenditure can provide a more direct measure of material living standards than household income. And because people can build up and run down savings, or borrow more or less, expenditure changes can reflect not only changes in current income but also changes in wealth and in expectations about future income. Hence they can reflect important changes not visible from income trends alone.

The fact that consumption was cut back before incomes were falling is consistent with forward-looking behaviour: falls in household incomes were inevitable by this point and, given that the crisis was generally not anticipated, we would expect people's spending to respond to this new information as they receive it (rather than to wait for incomes to change and then make a more sudden adjustment). There may also have been other factors at play, such as tighter availability of credit to finance consumption due to the financial crisis. Of all the measures of living standards available for 2013–14, household consumption expenditure per head remained the furthest (about 5%) below its pre-recession level. One possible interpretation is that people judge their income prospects to have been permanently damaged by the crisis – and hence that their previously-planned levels of spending now look too high.

Figure 2.4 looks at this in more detail, focusing specifically on household consumption of non-durables<sup>10</sup> (things such as food and fuel that are bought and consumed roughly straightaway) and comparing the most recent recession with others. We judge the last three recessions to have started in the first guarter of 1980, the third guarter of 1990 and the second quarter of 2008,<sup>11</sup> and we show how aggregate household expenditures per head have evolved in each of the 26 quarters following these dates. Figure 2.4 excludes durable goods – things such as furniture that are bought and can then be consumed on an ongoing basis for some time. It is less painful in the short run for households to adjust their expenditure by changing the timing of durable purchases, but changes to expenditure on non-durables are likely to impact directly and immediately on material living standards (delaying the replacement of white goods, for example, tends to impose less of a welfare loss than cutting back expenditure on food or fuel). By the same reasoning, if households make large adjustments to their consumption of non-durable goods, it might indicate that their expectations about the amounts they have available to spend over their lifetime have changed considerably, or that their ability to finance consumption through the credit market has been reduced, or both.

The differences between the most recent recession and previous ones are very stark. The peak-to-trough fall in non-durable spending per head this time round has been much greater (at 5.8%, relative to 1.3% and 3.5% in the 1980s and 1990s respectively). Second, as with income, the subsequent recovery has been very weak. Twenty-six quarters after the recession began (i.e. in 2014Q3), household non-durable expenditure per head was still 3.8% below its pre-recession level. By this stage after the 1980s and 1990s recessions, it was 14.4% and 6.4% above pre-recession levels respectively.<sup>12</sup>

<sup>&</sup>lt;sup>10</sup> Non-durable expenditure here is taken to include spending on services.

<sup>&</sup>lt;sup>11</sup> For a discussion of how recessions can be dated, and the criteria for choosing these particular dates, see section II.2 of T. Crossley, H. Low and C. O'Dea, 'Household consumption through recent recessions', *Fiscal Studies*, 2013, 34, 203–29.

<sup>&</sup>lt;sup>12</sup> Price changes might have played some role: Crossley, Low and O'Dea (2013, op. cit.) showed that the price of non-durables relative to durables rose during the recession. All else equal, we would expect this to lead to some substitution in consumption away from non-durables. However, the same authors showed that relative

## Figure 2.4. Household consumption of non-durables per head in three recessions, indexed to 100 at quarter before recession



Source: Non-durable aggregate expenditure is based on authors' calculations using ONS series UTIL, UTIT and UTIP (non-durable goods, semi-durable goods and services respectively). Aggregates are converted into percapita measures using population data from the Office for National Statistics (ONS). Historical data are obtained from decennial census data. More recent population data are obtained from table 1 of Office for National Statistics, 'Annual mid-year population estimates, 2013, 2014, http://www.ons.gov.uk/ons/dcp171778\_367167.pdf.

Trends in non-durable consumption seem to underline the large scale of the economic adjustment that households have made since the crisis, and suggest that they may expect to have taken a permanent hit to their income prospects.

### 2.3 Summary

The coalition took office just after the Great Recession and during the associated fall in real earnings (which had been delayed somewhat by Labour's temporary cut to the main rate of VAT and the Monetary Policy Committee of the Bank of England's cut to the official Bank Rate). Despite strong employment growth over the recovery period, growth in productivity – and hence GDP – has remained weak. In this context, it is no surprise that real earnings growth has remained weak too. We project that median household income has grown slowly in 2014–15, and is now around its pre-crisis (2007–08) level but more than 2% below its 2009–10 peak.

Measures of disposable income and consumption from the National Accounts have also fallen significantly since the crisis. The particularly large fall in household consumption of non-durable goods suggests that falling incomes have indeed led to falling living standards, and significantly more acutely than was the case in previous recessions. One plausible explanation for this is that households think that their income prospects have been permanently damaged by the crisis, and that a significant cut to their spending is therefore required.

price changes during the 1980s and 1990s recessions were not radically different; and durable spending relative to its pre-recession level is also lower than at this stage after the 1980s recession, and essentially the same as at this stage after the 1990s recession. This suggests that simple substitution between non-durables and durables is not sufficient to explain why spending on non-durables has looked so different this time around.

### 3. Changes in living standards for different groups

In Section 2, we focused on recent changes in average living standards. In this section, we look in detail at how living standards have changed since 2007–08 for different groups. We first look at how incomes have changed across the income distribution and draw out the implications for inequality. The impact on poverty is discussed in Box 3.1. We then examine how changes in living standards have varied for individuals of different ages and living in different types of household (those with and without children and those with and without someone in work).

#### **3.1 Income inequality**

3

2

1

0

~96^

1970

(9<sup>67</sup>

19<sup>15</sup>

,9<sup>90</sup>

19<sup>65</sup>

To provide long-run context for recent changes, Figure 3.1 shows two measures of income inequality since the early 1960s.<sup>13</sup> On the left-hand axis, it shows the '90/10 ratio' (the ratio of income at the 90<sup>th</sup> and 10<sup>th</sup> percentiles of the income distribution). This does not capture trends at the very top of the income distribution. The second measure, shown on the right-hand axis of Figure 3.1, shows the proportion of household income received by the highest-income 1% of individuals. Together, these highlight a number of key facts about income inequality over the last 50 years. First, having remained roughly constant through the 1960s and 1970s, income inequality increased substantially during the 1980s. This can be seen both for the 90/10 ratio and for the share of income received by



Figure 3.1. Inequality measures: 90/10 ratio and top 1% income share,



~9<sup>90</sup>

90/10 ratio (LH axis)

Top 1% share of income (RH axis)

1995

2000

2005

Source: Authors' calculations and simulations using the Family Expenditure Survey, Family Resources Survey and TAXBEN.

of individuals

%

6% 5% 4%

3% 2%

1%

0%

2010

<sup>&</sup>lt;sup>13</sup> The analysis in this briefing note adopts a relative notion of inequality. This means that if all incomes rise by the same proportional amount, inequality remains unchanged. There are many different ways of measuring (relative) inequality. For analysis of a wider range of measures of inequality, see chapter 3 of J. Cribb, A. Hood, R. Joyce and D. Phillips, Living Standards, Poverty and Inequality in the UK: 2013, IFS Report R81, 2013, http://www.ifs.org.uk/comms/r81.pdf.

#### Box 3.1. Poverty

The changes in living standards across the income distribution have had important consequences for poverty.<sup>a</sup> Between 2007–08 and 2014–15, the proportion of the population in absolute poverty fell from 18.2% to 16.1%, as incomes towards the bottom of the distribution rose modestly in real terms. Because median income, and hence the relative poverty line, is around the same level in 2014–15 as in 2007–08, the change in relative poverty has been very similar, falling from 18.2% to 16.0%. Detailed statistics on recent changes in poverty for different groups can be found in Appendix C.

Three further things are worth noting. First, our projections suggest that relative poverty rose slightly between 2012–13 and 2014–15 while absolute poverty has stayed the same; the incomes of low-income households were quite stable on average while median income rose slightly. Second, child poverty remains well above its targeted levels. Relative and absolute child poverty are projected to be 18.8% and 19.0% in 2014–15 (compared with 2020 targets of 10% and 5% respectively).<sup>b</sup> Third, these figures do not account for the higher inflation rates faced by poorer households since before the recession (analysed in the next subsection).<sup>c</sup>

It is important to place these recent changes in a longer-run context. Figure 3.4 shows relative poverty rates for the population as a whole and for different groups since 1961. Both overall and child relative poverty rates are still lower than in most years since the late 1980s, but higher than during the 1960s and 1970s. On the other hand, relative pensioner poverty is near the lowest level seen since the data began in 1961, while relative poverty rates for working-age non-parents are near historical highs.



Figure 3.4. Relative poverty rates 1961 to 2014–15 (GB)

Note: The relative poverty line is 60% of contemporaneous median income before housing costs. Dotted lines signify data for 2013–14 and 2014–15, which are estimated using IFS simulations.

<sup>a</sup> The relative poverty line used is 60% of median income in a given year. The absolute poverty line is 60% of 2010–11 median income in real terms (£278 a week in 2014–15 for a childless couple). All poverty rates in this box are calculated before housing costs are deducted.

<sup>b</sup> Child Poverty Act 2010 (<u>http://www.legislation.gov.uk/ukpga/2010/9/pdfs/ukpga\_20100009\_en.pdf</u>).

<sup>c</sup> See A. Adams and P. Levell, *Measuring Poverty when Inflation Varies across Households*, Joseph Rowntree Foundation Report, 2014, <u>http://www.jrf.org.uk/sites/files/jrf/poverty-inflation-households-full.pdf</u>.

Source: Authors' calculations and simulations using the Family Expenditure Survey, Family Resources Survey and TAXBEN.

the top 1%. Since the early 1990s, trends have been more complex. Between the early 1990s and the recent recession, income inequality remained roughly constant across most of the income distribution (as indicated by the 90/10 ratio). However, the very top of the income distribution continued to race away. From less than 4% in the early 1980s, the share of income held by the top 1% more than doubled to over 8% in 2008–09.

Income inequality then fell rapidly in the wake of the recession. The 90/10 ratio was 3.9 in 2012–13, its lowest level since the late 1980s. Our projections suggest that it has since remained essentially unchanged between 2012–13 and 2014–15. The top 1% income share fell even more rapidly to around 7%, no higher than its level in the late 1990s. Behavioural responses (some of which may well be temporary) to the changes to the additional rate of tax since 2009–10 mean that it is difficult to draw strong conclusions about recent changes in inequality at the top of the income distribution.<sup>14</sup> In addition, we do not have a robust way of projecting incomes at the very top of the distribution beyond the most recent data (2012–13). It is therefore worth bearing in mind that all of our subsequent analysis is of inequality across the vast majority of the distribution, rather than between the top 1% and the rest (despite the prominence of the latter issue in public discussion of inequality).

Figure 3.2 shows how incomes have changed at selected points of the distribution in the years since 2007–08, including our simulations for 2013–14 and 2014–15. To give a sense of monetary amounts, Appendix B details the income levels these percentile points correspond to for different household types. Figure 3.3 adds to this by showing the cumulative change in income right across the distribution between 2007–08 and 2014–15, <sup>15</sup> as well as distinguishing between three subperiods: 2007–08 to 2009–10 (when



#### Figure 3.2. Real household income since 2007–08, by percentile point

Note: Dashed lines signify data for 2013–14 and 2014–15, which are estimated using IFS simulations. Incomes have been measured before housing costs have been deducted.

Source: Authors' calculations using the Family Resources Survey and TAXBEN.

<sup>&</sup>lt;sup>14</sup> For a longer discussion, see J. Cribb, R. Joyce and D. Phillips, *Living Standards, Poverty and Inequality in the UK: 2012*, IFS Commentary C124, 2012, <u>http://www.ifs.org.uk/comms/comm124.pdf</u>.

<sup>&</sup>lt;sup>15</sup> We exclude the bottom and top 5% of the distribution due to statistical and modelling uncertainty.



Figure 3.3. Change in real household income from 2007–08, by percentile point

Note: Percentiles 1–4 and 96–99 are excluded due to high levels of statistical and modelling uncertainty. Data for 2013–14 and 2014–15 are estimated using IFS simulations. Incomes have been measured before housing costs have been deducted.

Source: Authors' calculations and simulations using the Family Resources Survey and TAXBEN.

incomes were still rising), 2009–10 to 2012–13 (up to the latest available HBAI data) and 2012–13 to 2014–15 (the period covered by our simulations).

The overall picture is of larger proportional falls in income for higher-income households. This is both because they saw smaller rises in real incomes between 2007–08 and 2009–10 and because they have seen larger falls in real incomes since 2009–10. By 2014–15, we project that income at the 10<sup>th</sup> percentile is 3.3% above its pre-recession (2007–08) level, but still 2.5% lower than its 2009–10 peak. By contrast, income at the 90<sup>th</sup> percentile in 2014–15 remains 3.6% below its level prior to the recession and 6.2% below its 2009–10 peak. There are, however, signs of recovery, with our projections suggesting incomes are rising across the distribution in 2014–15.

These patterns of income changes across the distribution are explained by both labour market trends and tax and benefit policies. Between 2007–08 and 2009–10, when incomes were continuing to rise across the distribution but by more for low-income households, the key factor was that benefits and tax credits continued to rise quickly in real terms – due partly to falling inflation and partly to discretionary policies. This supported incomes most towards the bottom of the distribution.<sup>16</sup> Between 2009–10 and 2012–13, incomes fell across the distribution, but with much larger falls among high-income households. This is because this period saw the sharpest falls in earnings, which make up a larger share of the income of high-income households (these falls were

<sup>&</sup>lt;sup>16</sup> W. Jin, R. Joyce, D. Phillips and L. Sibieta, *Poverty and Inequality in the UK: 2011*, IFS Commentary C118, 2011, <u>http://www.ifs.org.uk/comms/comm118.pdf</u>.

particularly sharp for men, the young and those working in the private sector).<sup>17</sup> Incomes at the bottom of the distribution were relatively protected, as benefits and tax credits continued to rise broadly in line with prices (most of the working-age benefit cuts implemented by the coalition came in the second half of the parliament).

The projected changes in the income distribution since 2012–13 suggest a different pattern. Incomes have fallen in the bottom 15% of the distribution, risen slightly between the 20<sup>th</sup> and 85<sup>th</sup> percentiles (by up to 2% over the two years) and fallen in the top decile.

While recent average income changes are mostly driven by continued employment growth and the return of real earnings growth in 2014–15 (aided by falling inflation), the coalition's tax and benefit changes play an important role in differences across the distribution. Large real cuts to benefits in 2013–14 (most importantly the below-inflation 1% increase in most working-age benefits) reduce the incomes of low-income households, while large increases in the income tax personal allowance have a substantial impact in increasing net incomes across the middle of the distribution. Towards the top, higher earners – who have seen somewhat weaker earnings growth in recent years – are affected by real cuts to the higher-rate income tax threshold and the withdrawal of child benefit from families with children containing a relatively high-income individual. The pattern for the most recent period is therefore similar to that described in Browne and Elming (2015), who show that the top and bottom 10% of households have seen the largest proportional falls in their incomes as a result of tax and benefit changes since 2010–11.<sup>18</sup>

Considering the whole period from 2007–08 to 2014–15, then, the picture is one of falling income inequality. By far the biggest driver of the falls in household incomes has been falls in real earnings, and they have had a smaller effect on low-income households.

It is worth noting that changes to the tax and benefit system coming into effect in April 2015 will also affect incomes. Further income tax cuts will largely benefit middle- and high-income households, while the nominal increase in most working-age benefits will again be limited to 1% (although it is not clear whether this will represent a real-terms cut, given falling inflation).

#### 3.2 Accounting for differential inflation

All the analysis undertaken in this briefing note is of real income, after adjusting for inflation. So far, this has assumed that the inflation rate faced by each household is the same, as official statistics do. In reality, some types of households may experience higher inflation rates than others, if the prices of goods and services that make up a relatively large share of their spending rise faster than the prices of other products. When seeking to understand how the living standards of different groups have changed, it can be important to account for the differential impact of inflation across groups.<sup>19</sup>

<sup>&</sup>lt;sup>17</sup> J. Cribb and R. Joyce, 'Earnings since the recession', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget: February 2015*, http://www.ifs.org.uk/uploads/gb/gb2015/ch2\_gb2015.pdf.

<sup>&</sup>lt;sup>18</sup> J. Browne and W. Elming, 'The effect of the coalition's tax and benefit changes on household incomes and work incentives', IFS Briefing Note BN159, 2015, <u>http://www.ifs.org.uk/uploads/publications/bns/BN159.pdf</u>.

<sup>&</sup>lt;sup>19</sup> See A. Adams, A. Hood and P. Levell, 'The squeeze on incomes', in C. Emmerson, P. Johnson and H. Miller (eds), *The IFS Green Budget: February 2014*, <u>http://www.ifs.org.uk/budgets/gb2014/gb2014\_ch6.pdf</u>, and A. Adams and P. Levell, *Measuring Poverty when Inflation Varies across Households*, Joseph Rowntree Foundation Report, 2014, <u>http://www.jrf.org.uk/sites/files/jrf/poverty-inflation-households-full.pdf</u>.

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Since 2007–08, some products that form a large part of households' expenditures have seen very different price changes from the average. For example, the prices of food and energy have risen much more quickly than overall inflation (despite recent falls), while mortgage interest costs have fallen substantially as a result of cuts to the official Bank Rate.<sup>20</sup> These differences are important because poorer households tend to dedicate a higher share of their expenditure to food and energy than richer households, and a much smaller share to mortgage interest (as they are much less likely to own a home). As a result, they have faced higher inflation rates. There are also important differences in spending patterns (and hence inflation) between different ages and household types. This will be discussed more in the next subsection.

Figure 3.5 replicates the analysis shown in Figure 3.3 but accounts for the different inflation rates faced by households in different parts of the income distribution. It shows that, after accounting for differential inflation, changes in real incomes between 2007–08 and 2014–15 look much more similar across the distribution than when a uniform inflation rate is assumed (although real incomes below the 20<sup>th</sup> percentile have still fallen less than those above the 90<sup>th</sup> percentile). In other words, once we account for the higher inflation rates faced by low-income households, their real incomes have not caught up with those of households further up the distribution to anything like the same extent. This is because the higher inflation rates that they have faced act to offset the stronger growth in their nominal incomes.

Figure 3.5. Change in real household income from 2007–08, by percentile point, accounting for differential inflation



Note: Percentiles 1–4 and 96–99 are excluded due to high levels of statistical and modelling uncertainty. Data for 2013–14 and 2014–15 are estimated using IFS simulations. Incomes have been measured before housing costs have been deducted.

Source: Authors' calculations and simulations using the Family Resources Survey and TAXBEN.

<sup>&</sup>lt;sup>20</sup> The distributional impact of recent changes in housing costs was examined in detail in C. Belfield, D. Chandler and R. Joyce, 'Housing: trends in prices, costs and tenure', IFS Briefing Note BN161, 2015, <u>http://www.ifs.org.uk/uploads/publications/bns/BN161.pdf</u>.

The importance of differential inflation in recent years is driven largely by price changes between 2007–08 and 2009–10. In the years since then, price changes have been much more similar for households across the income distribution, meaning that accounting for differential inflation has less of an impact when comparing trends in living standards for richer and poorer households. Both before and after differential inflation, the falls in real incomes since 2009–10 are largest towards the top of the distribution. If the recent falls in food and energy prices are sustained, and mortgage interest rates begin to rise, we could see something of a reversal of the pattern of differential inflation seen during and shortly after the recession.

#### 3.3 Changes in living standards by household type and age

In this subsection, we analyse the changes in living standards experienced by different types of households (those with and without someone in work and those with and without children) and different age groups. Throughout, we show the results with and without allowing for differential inflation, since these groups have faced different inflation rates since 2007–08.<sup>21</sup>

	Cumulative change in real median household income from:				
	2007–08 to	2009–10 to	2012–13 to	2007–08 to	
	2009–10	2012–13	2014–15 (simulated)	2014–15 (simulated)	
Accounting for average inflation					
All non-pensioners	0.5%	-4.6%	1.9%	-2.4%	
of which:					
in working household	1.3%	-5.6%	1.0%	-3.5%	
in non-working household	5.4%	1.7%	-3.0%	4.0%	
in household with children	2.3%	-3.1%	1.4%	0.4%	
in household without children	0.2%	-7.1%	3.3%	-3.8%	
Accounting for group-specific inflation					
All non-pensioners	1.0%	-4.8%	1.5%	-2.4%	
of which:					
in working household	2.4%	-5.8%	0.8%	-2.7%	
in non-working household	1.1%	1.3%	-4.2%	-1.9%	
in household with children	3.2%	-3.3%	1.1%	0.9%	
in household without children	0.1%	-7.3%	2.9%	-4.5%	

## Table 3.1. Change in real median household income for non-pensioners, by household type

Note: 'Non-pensioner' is defined as anyone under the age of 60. Data for 2013–14 and 2014–15 are estimated using IFS simulations. Incomes have been measured before housing costs have been deducted. Source: Authors' calculations and simulations using the Family Resources Survey and TAXBEN.

<sup>&</sup>lt;sup>21</sup> Patterns of differential inflation are driven by different expenditure patterns across different groups. For more details of how the budget shares allocated to food, energy and mortgage interest costs vary across household type and age, see Appendix B.

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Table 3.1 examines how living standards have changed for individuals in households with and without someone in work and those with and without children. For this analysis, we exclude individuals aged 60 and over; changes in the household incomes of older individuals are examined in more detail in Figure 3.6 later.

Accounting for average inflation only, since 2007–08 median income for working households has fallen by 3.5% in real terms, compared with a rise of 4.0% for non-working households. This large cumulative difference is driven by changes up to 2012–13, which have been partially unwound since then. Real median income for non-working households rose by 5.4% in the first two years of the recession, as the result of increases in the real value of benefits. In contrast, median income for this group is projected to have fallen by 3.0% from 2012–13 to 2014–15, as the coalition government's benefit cuts accelerated. Meanwhile, median income for working households is simulated to have risen by 1.0% over the last two years, after a fall of 5.6% between 2009–10 and 2012–13 (driven by falling real earnings).

However, the story changes significantly when we allow for differences in the inflation rates faced by the two groups. The fall in mortgage interest costs up to 2009–10 helped support the real incomes of working households, while high food and energy inflation had a particularly large impact on non-working households. This means that while median income for non-working households rose by 5.4% from 2007–08 to 2009–10 after accounting for average inflation, it rose by only 1.1% after allowing for the higher-than-average inflation faced by these households. Looking at the period since the recession as a whole, and after accounting for group-specific inflation, the falls in median income for working households are only slightly larger than those for non-working households (2.7% and 1.9% respectively).

There have also been differences in the income trends of households with and without children. After adjusting for average inflation, median income among households with children is estimated to be 0.4% higher in 2014–15 than in 2007–08, while median income among households without children is 3.8% lower than prior to the recession. This difference arises mainly because earnings from the labour market make up a smaller proportion of household income for households with children than for those without. Accounting for differential inflation does not significantly alter these conclusions. This actually continues a longer-term theme, whereby the living standards of households with children (and pensioners) have been catching up with those of working-age adults without children.<sup>22</sup>

Living standards have also changed differently for different age groups. Figure 3.6 shows the changes in median income for three different age groups: those aged 22–30, 31–59 and 60 and over. Median household income among adults aged 60 and over has increased significantly since before the recession, with median income projected to be 7.3% higher in 2014–15 than in 2007–08. Reasons for this include the fact that fewer older individuals are in work and hence affected by falls in real earnings; more favourable trends in the earnings of older workers than of younger workers;<sup>23</sup> the decision of the coalition government to 'triple-lock' the basic state pension; and the increasing private pension

<sup>&</sup>lt;sup>22</sup> See chapter 5 of J. Cribb, A. Hood, R. Joyce and D. Phillips, *Living Standards, Poverty and Inequality in the UK: 2013*, IFS Report R81, 2013, <u>http://www.ifs.org.uk/comms/r81.pdf</u>.

<sup>&</sup>lt;sup>23</sup> For more details, see J. Cribb and R. Joyce, 'Earnings since the recession', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget: February 2015*, http://www.ifs.org.uk/uploads/gb/gb2015/ch2\_gb2015.pdf.



Figure 3.6. Real median household income since 2007–08, by age group

Note: Data for 2013–14 and 2014–15 are estimated using IFS simulations. Incomes have been measured before housing costs have been deducted.

Source: Authors' calculations and simulations using the Family Resources Survey and TAXBEN.

entitlements of successive cohorts of adults reaching retirement.<sup>24</sup> Accounting for differential inflation moderates this story somewhat. Since older individuals spend a greater share of their expenditure on energy and food, and much less on mortgage interest payments (see Appendix D), they have faced higher inflation in recent years, particularly between 2007–08 and 2009–10. However, even after taking into account differential inflation, median income for adults aged 60 and over is projected to be 1.8% higher in 2014–15 than in 2007–08.

In contrast, after accounting for differential inflation, the median income of those aged 31–59 is projected to be 2.5% below its pre-crisis level in 2014–15, despite having risen by 1.2% in the last two years as the labour market has started to recover. Meanwhile, young adults aged 22–30 have seen the largest falls in their income since the recession, with their income projected to be 7.6% lower in 2014–15 than in 2007–08. Again this is despite a recovery in the last two years, with an estimated 2.5% rise in median income since 2012–13. Median income has fallen by more for young adults since 2007–08 because they have seen larger falls in their employment rates and earnings than other groups and because they are particularly reliant on earnings from the labour market for their income. Belfield et al. (2014) show that these falls in household income may understate the decline in their longer-term prospects, as around a quarter of those aged 22–30 live with parents.<sup>25</sup> The incomes of those parents have helped to support the

<sup>&</sup>lt;sup>24</sup> For more details, see C. Emmerson, K. Heald and A. Hood, *The Changing Face of Retirement: Future Patterns of Work, Health, Care and Income among the Older Population*, IFS Report R95, 2014, <a href="http://www.ifs.org.uk/uploads/publications/comms/r95.pdf">http://www.ifs.org.uk/uploads/publications/comms/r95.pdf</a>.

<sup>&</sup>lt;sup>25</sup> For in-depth analysis of the falls in living standards of young adults, see chapter 5 of C. Belfield, J. Cribb, A. Hood and R. Joyce, *Living Standards, Poverty and Inequality in the UK: 2014*, IFS Report R96, 2014, <u>http://www.ifs.org.uk/uploads/publications/comms/r96.pdf</u>.

household incomes of the young people who live with them, but this is unlikely to be a long-term solution for many.

#### 3.4 Summary

Recent years have seen similar changes in the real incomes of low- and high-income households. While the large falls in real earnings had a bigger effect on the incomes of those further up the income distribution, households towards the bottom faced higher inflation. When all this is taken into account, the changes in incomes between 2007–08 and 2014–15 look roughly similar across most of the distribution, although falls towards the very top are larger. A more striking difference has emerged between individuals of different ages. While pensioners have been mostly unaffected by falling real earnings (and protected from cuts to social security), young adults have seen the largest falls in employment and earnings. As a result, while the median income of those aged 60 and over is projected to be higher in 2014–15 than in 2007–08. In the long run, the living standards of this younger cohort will depend on whether these labour market impacts persist.

## 4. Conclusions and future challenges

When assessing the coalition government's record on living standards and inequality, it is important to consider the context. The coalition entered office just after the Great Recession and during the associated fall in real earnings, a fall which had been delayed somewhat by Labour's temporary cut to the main rate of VAT and by cuts to the Bank of England's official Bank Rate.

As part of its strategy for dealing with the (unsustainably large) budget deficit, the new government has raised some taxes, and cut some benefits, thereby reducing household incomes directly. Weak earnings growth has played an even more important role in ensuring that the recovery in living standards after the recession has been unusually weak.

We project that median household income is growing slowly in 2014–15, after large falls in the aftermath of the recession and stagnation for much of the parliament. It is now around its pre-crisis (2007–08) level, though still about 2% below its 2009–10 peak.

While living standards have on average returned to pre-recession levels, different groups have experienced different changes. Income inequality is now lower than before the crisis – though the change is much less marked once one accounts for the higher inflation rates experienced by the poor between 2007–08 and 2009–10. This reflects the fact that, whilst the coalition's significant cuts to working-age social security predominantly hit low-income households, earnings had fallen substantially relative to benefits in the immediate aftermath of the recession. In addition, the young have done much worse than the old, and those with children better than those without.

Some of these patterns have arisen from policy choices – to protect pensioner benefits, to increase taxes on those with high incomes while reducing them for working-age people on average earnings, and to cut working-age benefits. But the biggest determinant of the overall change in living standards has been what has happened in the labour market.

That will also be true in the next parliament. The latest Office for Budget Responsibility (OBR) forecasts (December 2014) suggest that CPI-adjusted real earnings growth will accelerate from a modest 0.8% in 2015–16 up to around 2% a year in the second half of the next parliament. However, current falls in inflation are boosting the short-term outlook for real wages.<sup>26</sup> Of course, there remains huge uncertainty – both about the overall outlook and about which groups will benefit most from a continuing labour market recovery.

In the longer term, sustained real earnings growth will need to be underpinned by productivity improvements. Policies on infrastructure investment, the rationalisation of an unnecessarily distortionary tax system, and effective skills and education policy all potentially have significant long-term effects on living standards.

Nevertheless, the choices that the next government makes about the shape and size of any further fiscal consolidation will affect how the living standards of different groups change, and there are inescapable trade-offs. More cuts to social security would tend to reduce the incomes of low-income households the most, and so increase inequality. Tax rises (which recent history suggests are likely) would tend to affect higher-income households at least as much as – and often considerably more than – lower-income households. But it is also important to remember that cuts to public services spending can have important impacts on living standards, even though they may not directly reduce standard measures such as household incomes. Higher government borrowing acts to support household incomes in the short run, but the resulting higher levels of government debt mean that a greater proportion of public spending must be allocated to financing debt interest payments in the long run, and potentially leave the UK more vulnerable to large negative shocks in future.

A much-discussed choice regarding fiscal consolidation is the extent to which pensioners continue to be relatively protected. In the longer term, the ageing population will continue to make it harder to balance supporting pensioners with other priorities. But there are other issues that will determine the relative fortunes of different age groups and generations too. A crucial one is the extent to which the difficult early labour market experiences of the current cohort of young adults affect their ability to work and earn good wages in future.

<sup>&</sup>lt;sup>26</sup> Office for Budget Responsibility, *Economic and Fiscal Outlook: December 2014*, 2014, http://budgetresponsibility.org.uk/economic-fiscal-outlook-december-2014.

## Appendix A. Methodology and assumptions underlying income projections for 2013–14 and 2014–15

In producing our projections of the UK household income distribution in 2013–14 and 2014–15, we start with data on a representative sample of 20,131 households from the 2012–13 Family Resources Survey (the latest available). We then adjust financial variables (e.g. nominal earnings) and reweight the data to account for demographic and economic changes, before using TAXBEN, the IFS tax and benefit microsimulation model, to calculate projected net household incomes given the 2013–14 and 2014–15 tax and benefit systems. This appendix provides details of the demographic and economic changes we account for, and the assumptions we make. For details on other aspects of the methodology, see J. Browne, A. Hood and R. Joyce, *Child and Working-Age Poverty in Northern Ireland from 2010 to 2020*, IFS Report R78, 2013, http://www.ifs.org.uk/comms/r78.pdf.<sup>27</sup>

Table A.1 shows the key labour market and inflation projections underlying our simulations. We use total employment as recorded in Labour Force Survey (LFS) statistics until 2014Q4 (the latest available at the time of publication) and then the Office for Budget Responsibility (OBR) forecasts from the December 2014 *Economic and Fiscal Outlook* (EFO) for 2015Q1. We use average (mean) nominal earnings growth from the LFS data until 2014Q3 (again the latest available) and then use OBR forecasts from the December 2014 EFO.<sup>28</sup> For inflation, we use Office for National Statistics (ONS) data until the end of 2014Q4 and the Bank of England forecasts for 2015Q1.<sup>29</sup>

	Total employment (million)	Average nominal earnings (% change)	RPIJ inflation (% change)
2012–13	29.8	-	-
2013–14	30.2	1.9%	2.2%
2014–15	30.8	1.7%	1.4%

#### Table A.1. Key labour market and inflation out-turns and assumptions

Source: Authors' calculations using the Labour Force Survey, the Office for Budget Responsibility's December 2014 Economic and Fiscal Outlook (http://budgetresponsibility.org.uk/economic-fiscal-outlook-december-2014) and the Bank of England's February 2015 Inflation Report

(http://www.bankofengland.co.uk/publications/Pages/inflationreport/2015/feb.aspx).

We model changes in employment and demographics by reweighting the data, giving households of types that have become more prevalent in the overall population greater weight than in the 2012–13 data. Table A.2 lists the characteristics we control for when reweighting the data, along with the sources for the prevalence of those characteristics. As well as controlling for basic demographic characteristics and overall employment, we

<sup>&</sup>lt;sup>27</sup> While most aspects of the methodology not discussed here are unchanged from that publication, there are some differences in the treatment of the rising female state pension age and in the tax and benefit reforms included in our analysis. For further details, please email <u>andrew\_h@ifs.org.uk</u>.

<sup>&</sup>lt;sup>28</sup> We do not use the latest average weekly earnings (AWE) data available for 2014Q4 because incorporating the latest AWE data on top of earnings growth measured in the first half of 2014–15 in the LFS would give a measure of nominal earnings growth higher than that recorded by any of the major earnings measures. We think that the LFS data are the most appropriate measure to capture how earnings growth across the vast majority of the distribution is likely to evolve in future versions of the Family Resources Survey.

<sup>&</sup>lt;sup>29</sup> Since the Bank of England does not forecast RPIJ inflation, we use its forecast of CPI inflation and assume that the difference between CPI and RPIJ inflation remains constant.

allow changes in employment to vary across the different groups shown. We use LFS data on differential trends until 2014Q3 and then a linear extrapolation of these trends (based on the last six quarters of data) to the end of 2014–15, although we constrain total employment to equal the level shown in Table A.1. In addition, we control for the increase over time in the proportion of older individuals with a positive private pension entitlement using results from the IFS dynamic microsimulation model of pensioner incomes, RetSim.<sup>30</sup>

Control	Source
Population by nation and English region	ONS population projections
Population by sex and age band (0–9,10–15, 16– 19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70–79, 80+)	ONS population projections
Household type (single person, lone parent, 2+ adults with no children, 2+ adults with 1+ children)	Projections from the four national statistical agencies
Total employment	LFS/OBR
Employment by sex and age band (16–19, 20–24, 25–29, 30–39, 40–49, 50–59, 60–64, 65–69, 70+)	LFS
Self-employment by sex	LFS
Lone parent employment	LFS
Public sector employment	ONS public sector employment statistics
Private pension entitlement by sex and age band (60–69, 70–79, 80+)	RetSim

## Table A.3. Average annual nominal earnings growth, 2012–13 to 2014–15

	E	Earnings quintile (within group)				
	Lowest	2	3	4	Highest	
Private sector workers aged over 30	2.0%	0.6%	1.0%	1.6%	2.7%	-
Private sector workers aged 30 and under	4.0%	3.5%	2.7%	2.5%	1.0%	-
Public sector workers aged over 30	3.1%	1.6%	2.3%	0.9%	0.1%	-
Public sector workers aged 30 and under	-	-	-	-	-	2.5%

Note: To preserve sufficient sample size, we do not split public sector workers aged 30 and under by earnings quintile.

Source: Authors' calculations using the Labour Force Survey and the Office for Budget Responsibility's December 2014 Economic and Fiscal Outlook (<u>http://budgetresponsibility.org.uk/economic-fiscal-outlook-december-2014</u>).

<sup>&</sup>lt;sup>30</sup> For details of this model, see J. Browne, C. Emmerson, K. Heald and A. Hood, 'Modelling work, health, care and income in the older population: the IFS retirement simulator (RetSim)', IFS Working Paper WP14/12, 2014, <u>http://www.ifs.org.uk/uploads/publications/wps/wp201412.pdf</u>.

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Table A.3 shows the average annual nominal earnings growth used for different individuals in our simulations, depending on their age (under or over 30), sector (public or private) and earnings quintile. (To preserve sufficient sample size, we do not split public sector workers under 30 by earnings quintile.) To derive these figures, we use the LFS until 2014Q3 and then assume uniform earnings growth (at the rate forecast by the OBR for the last two quarters of 2014–15).<sup>31</sup> We assume that self-employment income of each individual in the data grows in line with overall average earnings for employees. Private pension income is increased in line with projections from RetSim, by sex and age band (60–69, 70–79, 80+).

# Appendix B. Cash figures for projected household incomes in 2014–15

	Single adult	Couple with no children	Couple with two children aged under 14
10 <sup>th</sup> percentile	£157	£234	£327
25 <sup>th</sup> percentile	£217	£324	£453
50 <sup>th</sup> percentile	£309	£461	£646
75 <sup>th</sup> percentile	£440	£657	£920
90 <sup>th</sup> percentile	£613	£914	£1,280

Table B.1. Projected weekly household income for different family types at selected percentile points of the income distribution in 2014–15

Note: Data are estimated using IFS simulations.

Source: Authors' simulations using the Family Resources Survey and TAXBEN.

Appendix C appears on the next page

<sup>&</sup>lt;sup>31</sup> We do not extrapolate trends into the final two quarters of 2014–15 (as we do with employment) because trends in differential earnings growth are much more volatile.

### **Appendix C. Poverty projections**

	Millions of people in poverty (% people in poverty)			
	All	Children	Working-age	Pensioners
			non-parents	
		Relativ	e poverty	
2007–08, actual	11.0	2.9	3.2	2.5
	(18.2%)	(22.6%)	(14.0%)	(22.1%)
2009–10, actual	10.4	2.6	3.4	2.0
	(16.9%)	(19.9%)	(14.7%)	(17.6%)
2012–13, actual	9.7	2.3	3.4	1.9
	(15.4%)	(17.4%)	(14.1%)	(15.7%)
2013–14, simulated	10.0	2.5	3.4	1.9
	(15.9%)	(18.7%)	(14.0%)	(16.0%)
2014–15, simulated	10.2	2.5	3.4	1.9
	(16.0%)	(18.8%)	(14.3%)	(16.1%)
		Absolut	te poverty	
2007–08, actual	11.0	2.9	3.2	2.5
	(18.2%)	(22.5%)	(13.9%)	(22.0%)
2009–10, actual	9.7	2.4	3.2	1.9
	(15.8%)	(18.5%)	(14.0%)	(16.2%)
2012–13, actual	10.2	2.5	3.5	1.9
	(16.1%)	(18.5%)	(14.5%)	(16.4%)
2013–14, simulated	10.4	2.6	3.5	2.0
	(16.5%)	(19.6%)	(14.4%)	(16.7%)
2014–15, simulated	10.2	2.6	3.4	1.9
	(16.1%)	(19.0%)	(14.3%)	(16.3%)

#### Table C.1. Relative and absolute poverty in the UK, before housing costs

Note: The relative poverty line is 60% of contemporaneous median income. The absolute poverty line is 60% of the 2010–11 median income, adjusted for prices using the RPIJ. Data for 2013–14 and 2014–15 are estimated using IFS simulations.

Source: Authors' calculations and simulations using the Family Resources Survey and TAXBEN.

## **Appendix D. Differential inflation**

Table D.1 shows the percentages of household expenditure that are spent on food, energy and mortgage interest for each of the groups analysed in Section 3 (so-called 'budget shares'). Table D.2 shows inflation measured by the RPI sub-indices corresponding to these three components of spending since 2007–08, alongside overall RPI and RPIJ inflation.

We calculate group-specific inflation rates by combining the budget share for each good (estimated from the 2012 Living Costs and Food Survey, the latest available) with goodlevel price changes. Since price changes for goods are not published for the RPIJ, we use RPI figures, and then adjust each inflation rate downwards by a constant to ensure the average of our inflation rates is overall RPIJ inflation.<sup>32</sup> To calculate the inflation rates for each percentile point, we take a weighted average over inflation rates estimated for

<sup>&</sup>lt;sup>32</sup> This adjustment contains a very small component that accounts for differences between the budget shares in the Living Costs and Food Survey and those used in the calculation of the RPI and RPIJ. This component can therefore vary across groups.

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	Food	Energy	Mortgage interest
By age			
22–30	12%	4%	6%
31–59	13%	5%	7%
60+	17%	8%	1%
By household type			
All aged under 60	14%	5%	6%
of which:			
in working household	13%	5%	7%
in non-working household	20%	7%	1%
in household with children	15%	5%	7%
in household without children	12%	5%	5%

#### Table D.1. Budget shares for key expenditure components, 2011–12

Source: Living Costs and Food Survey, 2011 and 2012.

	RPI food	RPI	RPI mortgage	RPI	RPIJ
		energy	interest		
2008–09	10.3%	25.2%	-12.8%	3.0%	2.6%
2009–10	3.1%	-0.8%	-37.8%	0.5%	0.0%
2010–11	4.3%	-0.1%	4.8%	5.0%	4.3%
2011–12	5.5%	12.8%	2.1%	4.8%	4.1%
2012–13	3.2%	5.9%	3.2%	3.1%	2.5%
2013–14	3.2%	6.8%	1.8%	2.9%	2.2%
2014–15	-1.0%	1.9%	-0.0%	2.0%	1.4%
	2201	6404	2004		100/
2007–08 to 2014–15	32%	61%	-39%	23%	18%

#### Table D.2. Inflation by key expenditure component, 2007–08 to 2014–15

Source: Authors' calculations using Office for National Statistics and the Bank of England's February 2015 Inflation Report (<u>http://www.bankofengland.co.uk/publications/Pages/inflationreport/2015/feb.aspx</u>).

households in the neighbourhood of each percentile point.<sup>33</sup> We assume throughout that all households face the same price changes for each good.

<sup>&</sup>lt;sup>33</sup> For details, see appendix A3 in A. Adams and P. Levell, *Measuring Poverty when Inflation Varies across Households*, Joseph Rowntree Foundation Report, 2014, <u>http://www.jrf.org.uk/sites/files/jrf/poverty-inflation-households-full.pdf</u>.