

2. Earnings since the recession

Jonathan Cribb and Robert Joyce (IFS)

Summary

- Since the Great Recession, the UK labour market has been characterised by robust employment and weak earnings growth. Employment for 16- to 64-year-olds is back to its 2008Q1 rate, but average earnings remain well below their pre-crisis level.
- Weak productivity has underpinned both of these features of the labour market. In 2014Q3, productivity was still no higher than before the recession and had not grown overall since the end of 2011. If anything, workers' pay seems to have fallen by even more than productivity, but the key puzzle is over why productivity has fallen so much, rather than over the relationship between productivity and pay.
- There has been substantial variation in the magnitude of real earnings falls since 2008. They have been larger for men, young adults and the private sector. Earnings have also fallen by somewhat less at lower points in the earnings distribution (driven by the trend since 2011).
- The workforce has continued to exhibit rising shares of older adults, women, highly-educated individuals and relatively skilled occupations (with a plateau in the last trend in 2014). There have also been rises in the proportions of workers who are self-employed (from 13% in 2007 to 15% in 2014Q1–Q3) and part-time (25% to 27%).
- If the characteristics of employees had not changed since the recession then, all else equal, falls in earnings would have been even larger. This is because factors such as increasing education levels have acted to push average earnings up. There is little sign that the earnings-increasing effects of such 'compositional' changes are reversing or slowing down. Hence, the continued weakness of earnings is due to continued weakness for given types of employee, not compositional effects.
- Between 2011 and 2014, individuals continuously in the same full-time job from year to year saw their average real pay rise as they aged, even while economy-wide earnings were falling – a fact that has recently gained some attention. Because pay tends to increase with experience, and because people in continuous employment are a select group (e.g. are more educated), changes in the earnings of continuously employed individuals as they age tend to look more favourable than trends in average earnings over time. This is important to understand, but is not new or surprising. The falls in both measures of annual real earnings growth since before the crisis are of a similar magnitude – so the drop in overall earnings is not driven only by people starting a new job.

2.1 Introduction

Since the recession of 2008 and 2009, the standout features of the UK labour market have been robust employment and weak earnings. The employment rate of 16- to 64-year-olds is already back to its level as of 2008Q1 (73.0%), which is close to the highest rate recorded since consistent data began in 1971;¹ but average earnings remain well below their pre-crisis level. In both respects, this recession, and the recovery from it, have been very different from previous ones.² Robust employment has meant that fewer people have faced the particularly severe shock of losing all of their earned income. But the falls in (and continued stagnation of) real earnings have meant that the pain from this recession has probably been considerably more widespread.

Workers' earnings comprise the majority of household income.³ Earnings trends therefore have very important consequences. The fall in average household incomes since the recession has been driven largely by falls in workers' earnings.⁴ Weaker-than-expected earnings growth has also led to lower tax receipts – particularly income tax receipts – than previously expected. Finally, despite rapidly falling unemployment and robust GDP growth in 2013 and 2014, low earnings growth has been one reason that the Monetary Policy Committee of the Bank of England has not raised Bank Rate from its very low level.⁵

The aim of this chapter is to outline what we know about changes in earnings since the recession and to cast light on the current direction of travel. A number of facts can complicate matters. For example, the workforce changes in composition, there are many measures and data sources which tell us slightly different things, and the earnings of different people change differently. The public discourse, based on slightly different figures from one week to the next, can often seem a little bewildering. There is a need to set out systematically what we know.

As crucial background, Section 2.2 shows what has happened to employment – which in many respects is the good news story – and to the characteristics of the employed population. Section 2.3 looks at average earnings levels among employees. It summarises what has happened to leading measures of average earnings, analyses how this is affected by the changes in the characteristics of the workforce outlined in Section 2.2, and compares changes in average earnings with changes in labour productivity. Section 2.4 shows how earnings trends have varied across the population. This includes a look at earnings changes among those in continuous employment in the same job for at least a year, which have attracted some attention recently. Section 2.5 considers the prospects for earnings growth. Section 2.6 concludes.

¹ It was 73.1% in 1974 and 2005 (source: ONS series LF24).

² See R. Blundell, C. Crawford and W. Jin, 'What can wages and employment tell us about the UK's productivity puzzle?', *Economic Journal*, 2014, 124, 377–407.

³ Total earnings after direct tax are about two-thirds of total household income after direct taxes and including state benefits – see W. Jin, R. Joyce, D. Phillips and L. Sibieta, *Poverty and Inequality in the UK: 2011*, IFS Commentary C118, 2011, <http://www.ifs.org.uk/comms/comm118.pdf>. An alternative measure from the National Accounts is total gross compensation of employees (note that this excludes self-employment income) as a share of GDP, which was 51.2% in 2013 (<http://www.ons.gov.uk/ons/rel/naa1-rd/united-kingdom-national-accounts/the-blue-book--2014-edition/rpt---chapter-1.html>).

⁴ See C. Belfield, J. Cribb, A. Hood and R. Joyce, *Living Standards, Poverty and Inequality in the UK: 2014*, IFS Report R96, 2014, <http://www.ifs.org.uk/publications/7274>.

⁵ See, for example, the Governor of the Bank of England's speech on 9 September 2014, <http://www.bankofengland.co.uk/publications/Documents/speeches/2014/speech754.pdf>.

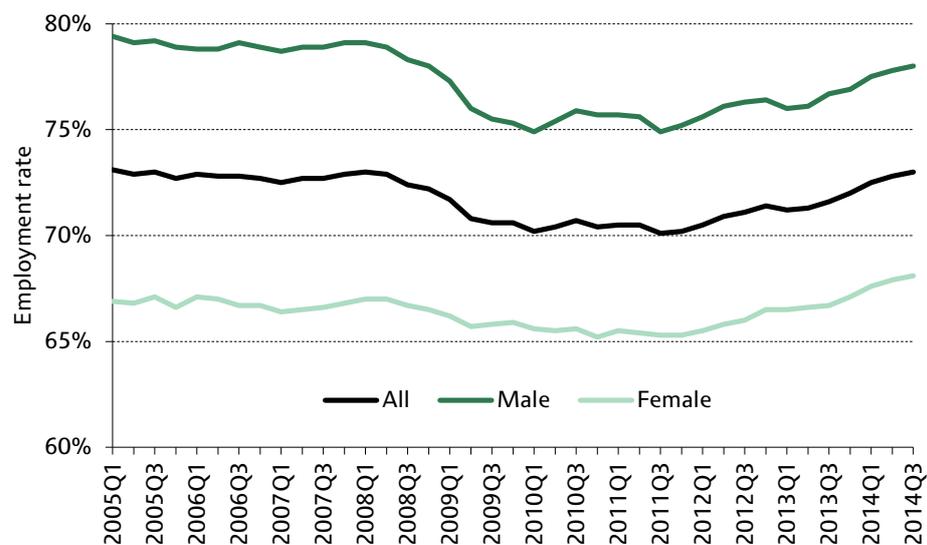
2.2 Employment and the characteristics of the employed

The employment rate for 16- to 64-year-olds has recovered its pre-crisis level as of 2014Q3, as shown in Figure 2.1.⁶ This comes after a fall from 73.0% in 2008Q1 to a low of 70.1% in 2011Q3.⁷

The figure also shows that employment rates have evolved differently for men and women. The female employment rate in 2014Q3 was 68.1%, over 1 percentage point higher than its rate of 67.0% in 2008Q1. The male employment rate, at 78.0%, was still below its pre-crisis rate of 79.1%. This is primarily because the female employment rate fell less between 2008 and 2011. Between 2008Q1 and the overall trough in the employment rate in 2011Q3, employment fell by 4.2 percentage points for men and 1.7 percentage points for women.

The relatively strong employment trends for women continue a longer-term theme. Although the most rapid rises in female labour market participation happened a while ago, the female employment rate continued to rise gradually before the crisis – from 65.6% in 2000Q1 to 67.0% in 2008Q1 – while the male employment rate remained flat overall. There is evidence that benefit reforms have also contributed to rising female

Figure 2.1. Employment rate for 16- to 64-year-olds, by sex, 2005 to 2014

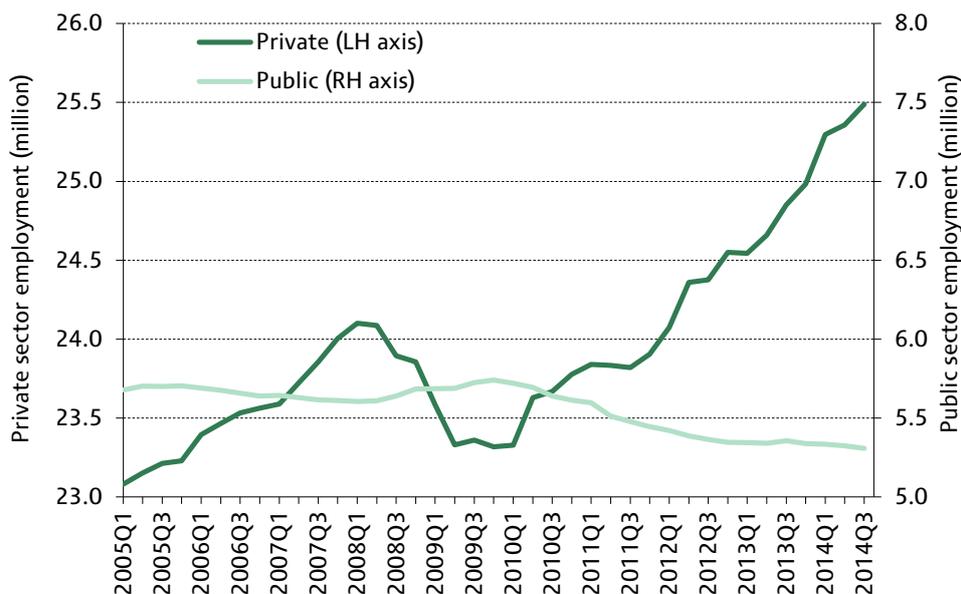


Source: Office for National Statistics (Labour Force Survey) series LF24, LF25 and MGSV.

⁶ The very latest data (for September–November 2014) also show an employment rate for 16- to 64-year-olds of 73.0%.

⁷ This is by no means universal across developed countries. For example, in the United States, the employment rate for 15- to 64-year-olds reached 68.5% in November 2014, still well below its January 2008 level of 71.7%. See <http://research.stlouisfed.org/fred2/series/LREM64TTUSM156S>.

Figure 2.2. Private and public sector employment, 2005 to 2014



Note: Public and private sector employment adjusted for the nationalisation (and subsequent privatisations) of financial corporations, privatisation of Royal Mail and the reclassification of further education and sixth-form colleges in England to the private sector. All institutions are treated as though they always belonged to the sector that they are in currently.

Source: Authors' calculations using ONS Public Sector Employment Statistics.

employment recently: in particular, the rise in the female state pension age,⁸ and the so-called 'lone-parent obligations' reforms.⁹

Even more striking are the differences between the public and private sectors, as shown by Figure 2.2 (which strips out the effects of reclassifications between the sectors, such as the nationalisation of financial corporations and the privatisation of Royal Mail). During the recession, private sector employment fell by 800,000 from peak to trough, but recovered quickly and has risen by almost 2.2 million since early 2010 (1.4 million higher than its pre-recession peak). By contrast, public sector employment rose gradually throughout 2008 and 2009, but has fallen by 430,000 since late 2009.

Table 2.1 summarises how some of the key characteristics of the workforce have been evolving. Workers with different characteristics tend to earn different amounts, so – as we shall explore in Section 2.4 – understanding these changes in workforce composition is important for understanding earnings changes. Compositional changes can be cyclical: for example, the low-skilled might be the most likely to drop out of work during a recession and then rejoin during a recovery. In addition, there can be longer-running 'secular' changes in composition. Examples from recent history include increases in labour force participation among women and increases in education levels.

⁸ J. Cribb, C. Emmerson and G. Tetlow, 'Labour supply effects of increasing the female state pension age in the UK from age 60 to 62', IFS Working Paper W14/19, 2014, <http://www.ifs.org.uk/publications/7323>.

⁹ Department for Work and Pensions, *Lone Parent Obligations: An Impact Assessment*, DWP Research Report 845, 2013, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/211688/rrep845.pdf. These reforms gradually extended the requirement to take steps to look for work in order to claim out-of-work benefits. These requirements now apply to lone parents whose youngest child is aged 5 or more (previously, the age threshold was 16, or 19 for children in full-time education).

Table 2.1. Characteristics of the workforce since the recession

Characteristic	2007	2012	2013	2014 (Q1 to Q3)
<i>Female</i>	46.0%	46.6%	46.7%	46.7%
<i>Public sector</i>	19.1%	18.1%	17.8%	17.3%
<i>Not born in the UK</i>	12.1%	14.4%	14.8%	15.5%
<i>Part-time</i>	25.3%	27.4%	27.1%	27.0%
<i>Self-employed</i>	13.0%	14.2%	14.2%	14.9%
<i>Age</i>				
16–17	1.8%	1.2%	1.1%	1.0%
18–24	12.3%	11.3%	11.2%	11.3%
25–49	59.5%	58.8%	58.3%	57.9%
50–59	18.9%	20.1%	20.6%	20.7%
60+	7.5%	8.7%	8.9%	9.1%
<i>Skill level of occupation</i>				
High skilled	42.5%	43.4%	44.1%	44.0%
Medium skilled	30.9%	30.8%	30.8%	30.9%
Low skilled	26.6%	25.8%	25.1%	25.2%
<i>Highest qualification (ages 16–59)</i>				
Higher education or equivalent	33.7%	40.9%	42.1%	42.6%
A levels / GCSEs or equivalents	46.3%	45.6%	44.7%	44.5%
No GCSEs or equivalents	20.0%	13.4%	13.2%	12.9%

Note: All statistics refer to the 16+ workforce, except for those about qualifications, which relate to the 16–59 population (due to a discontinuity in survey questions). Skill level of occupation is defined by one-digit Standard Occupational Classification (SOC) 2010 code (SOC 2000 for 2007). High skilled is defined as codes 1–3, medium skilled is codes 4–6 and low skilled is codes 7–9. A definitional change in the Labour Force Survey decreased the proportion of workers with ‘No GCSEs or equivalents’ in 2011Q1 compared with 2010Q4 by around 1 percentage point. As a result, the categories ‘Higher education or equivalent’ and ‘A-levels / GCSEs or equivalents’ rose by around 0.5 percentage points each.

Source: Authors’ calculations using the Labour Force Survey, ONS series MGRQ and MGRZ (self-employment) and ONS public sector employment statistics, adjusted in the same way as set out in the note to Figure 2.2.

As implied by Figures 2.1 and 2.2, the share of the workforce that is female has risen slightly since 2007 and the public sector’s share of the workforce has fallen markedly from 19.1% in 2007 to 17.3% in 2014 (Q1 to Q3).

There has also been a relatively large increase in the proportion of the workforce that was born outside the UK, rising from 12.1% in 2007 to 15.5% in 2014. And the workforce has been ageing, with clear increases in the proportion of workers who are aged 50 or older. Rises in employment at older ages are analysed in detail by Chandler and Tetlow (2014),¹⁰ and the specific role of the rise in female state pension age in this is described by Cribb, Emmerson and Tetlow (2014).¹¹ The workforce has also, in general, continued to become more oriented towards high-skill occupations and the more highly educated.

¹⁰ D. Chandler and G. Tetlow, *Retirement in the 21st Century*, IFS Report 98, 2014, <http://www.ifs.org.uk/publications/7384>.

¹¹ J. Cribb, C. Emmerson and G. Tetlow, ‘Labour supply effects of increasing the female state pension age in the UK from age 60 to 62’, IFS Working Paper W14/19, 2014, <http://www.ifs.org.uk/publications/7323>.

There has been some interest lately in the idea that increases in the numbers of relatively low-skilled jobs are dragging down earnings levels (for example, in the Bank of England's November 2014 Inflation Report¹²). Table 2.1 shows that the most recent period has indeed somewhat bucked the trend of a shift towards higher-skilled occupations (defined as managers, professionals and 'associate' professionals). This may reflect cyclical effects, whereby the low-skilled lost the most jobs during the recession and are now returning to work, offsetting the underlying secular trend towards higher-skilled occupations. As a proportion of the whole workforce, though, the rise in the proportion of the low-skilled (sales, plant/processing and elementary occupations) from 25.1% to 25.2% since 2013 looks negligible and is not statistically significant.

Along with the secular trend towards higher-skilled occupations, the proportion of workers (aged 16 to 59) with a higher education qualification has continued to rise rapidly, from 33.7% to 42.6% since 2007.¹³

The rises in the prevalence of self-employment and part-time work are reasons for caution in interpreting the employment numbers as an unambiguously positive story. The self-employed accounted for 13.0% of the workforce in 2007 but 14.9% in 2014. This is primarily due to reductions in the numbers leaving self-employment, though there has also been an increase in the number of people moving into self-employment.¹⁴

Part-timers accounted for 25.3% of the workforce in 2007 but 27.0% in 2014. This is despite the fact that, during the recovery in overall employment, the share of part-timers has fallen back slightly (from 27.4% in 2012). Some of the rise in part-time work since 2007 is driven by older age groups – the proportion of workers aged 16–64 who work part-time rose by 1.2 percentage points (4.9%) between 2007 and 2014 (see Table 2.2), compared with 1.7 percentage points (6.7%) for the workforce as a whole.

As with non-employment, increases in part-time work – and the increases in the prevalence of relatively low weekly earnings that come with them – might reasonably be regarded as more of a problem if they are 'involuntary': that is, if people working part-time would prefer to work full-time. More generally, we might worry that employment has stayed so high partly because workers are settling for less work than they want (of course, this may well still be preferable to large rises in unemployment).

Table 2.2 sets out various measures of, or potential proxies for, 'under-employment' (defined as workers working fewer hours than they would like), for workers aged 16 to 64. All of the indicators shown have increased since the crisis. There has been a particularly large rise in the proportion of part-time workers who would like to work full-time hours, which nearly doubled from 9.9% in 2007 to 19.0% in 2012 before falling back slightly to 18.1% in 2014. Bell and Blanchflower (2014)¹⁵ look in some detail at the characteristics of people who say they want to work more hours. They are disproportionately likely to be young, male, low educated and self-employed – both for

¹² Chart 3.5 at <http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf>.

¹³ Due to definitional changes in the Labour Force Survey data since 2008, we restrict attention to workers aged 16–59 when measuring trends in educational qualifications, to ensure comparability over time. For information on the large increases in the numbers of graduates in the workforce, see Office for National Statistics, 'Full report: graduates in the UK labour market 2013', 2013, http://www.ons.gov.uk/ons/dcp171776_337841.pdf.

¹⁴ Office for National Statistics, 'Self-employed workers in the UK: 2014', 2014, http://www.ons.gov.uk/ons/dcp171776_374941.pdf.

¹⁵ D.N.F. Bell and D.G. Blanchflower, 'Commentary: labour market slack in the UK', *National Institute Economic Review*, 2014, 229, <http://ner.sagepub.com/content/229/1/F4.short?rss=1&ssource=mfr>.

Table 2.2. Indicators of under-employment (16- to 64-year-olds)

Measure of under-employment	2002	2007	2012	2014 (Q1 to Q3)
% of workers 'under-employed' (wanting to work more than their current hours)	6.7%	6.9%	10.0%	9.7%
Average number of additional hours wanted by the under-employed	11.2	11.7	12.2	12.2
% of workers who would like a different job	6.2%	6.1%	7.5%	7.5%
% of workers who work part-time	24.6%	24.3%	26.0%	25.4%
% of part-timers who work part-time because they cannot find more hours	8.4%	9.9%	19.0%	18.1%

Source: Authors' calculations using the Labour Force Survey, various years.

the period since 2001 as a whole and in the post-recession period (2012 to 2014) specifically.

One consequence of the numbers in Table 2.2 is that, while the employment rate has returned to its pre-crisis level, the proportion of the population in work and working at least as many hours as they want has not. Table 2.3 shows that the proportion of 16- to 64-year-olds in work was the same in 2014 as it was in 2007 (72.7%), whereas the proportion who are in work but not underemployed remains clearly lower, at 65.7% compared with 67.7% in 2007. The proportion of the population who are in work and would not like a different job has also fallen, from 68.3% to 67.3%, over the same period.

However, the interpretation of under-employment measures is not entirely straightforward. Weale (2014) finds that, when under-employed people change jobs and subsequently do not report wanting more hours, they tend to have taken fewer additional hours than they said they wanted when they were under-employed.¹⁶ Whether or not a

Table 2.3. Work and under-employment characteristics (16- to 64-year-olds)

	2002	2007	2012	2014 (Q1 to Q3)
% in work	72.7%	72.7%	70.9%	72.7%
% in work and under-employed	4.9%	5.0%	7.1%	7.0%
% in work and not under-employed	67.8%	67.7%	63.8%	65.7%
% in work and would like a different job	4.5%	4.4%	5.3%	5.4%
% in work and would not like a different job	68.1%	68.3%	65.6%	67.3%
% in part-time work	17.9%	17.7%	18.4%	18.5%
% in part-time work, wants full-time job	1.5%	1.8%	3.5%	3.3%
% in part-time work, as desired	16.4%	15.9%	14.9%	15.1%

Source: Authors' calculations using the Labour Force Survey, various years.

¹⁶ M. Weale, 'Slack and the labour market', speech given at the Thames Valley Chamber of Commerce, 20 March 2014, <http://www.bankofengland.co.uk/publications/Documents/speeches/2014/speech716.pdf>; quantitative results reported in D.N.F. Bell and D.G. Blanchflower, 'Commentary: labour market slack in the UK', *National Institute Economic Review*, 2014, 229, <http://ner.sagepub.com/content/229/1/F4.short?rss=1&ssource=mfr>.

worker is satisfied with a given number of hours of work might itself depend on features of their job besides their working hours, and these features may be changing over time. For example, to the extent that a desire for more hours were caused by falls in hourly wages, under-employment would simply be a corollary of the problem of falling real pay – the subject of the remainder of this chapter.

2.3 Average earnings

There are many measures of earnings in the UK, which at times seems to confuse as much as it helps. Earnings can be measured over different periods (generally hourly, weekly or annually); and as discussed in Box 2.1, there are a number of underlying data sources, which use different samples of workers and are available at different frequencies. In this section, we start by describing what leading measures of average earnings have been telling us, disentangling the important differences between data sources and definitions. We then analyse the role of compositional changes in the workforce, which were outlined in the previous section, in driving these average earnings changes. Finally, we briefly compare changes in average earnings with changes in productivity.

None of the data sources looked at in this section captures the earnings of (the growing number of) self-employed individuals, so all analysis in this section looks at employees only. We briefly discuss what we do know about earnings from self-employment in Section 2.4.

Figure 2.3 shows mean real weekly earnings, deflated by the RPIJ price index, from three sources: the Annual Survey of Hours and Earnings (ASHE), average weekly earnings (AWE) and the Labour Force Survey (LFS).¹⁷ Box 2.1 gives details of each of these sources. Each measure is indexed to 100 in 2008Q1, just before the recession began. We deflate using the RPIJ because it is the only consumer price index that includes housing costs for owner-occupiers as well as renters and is designated a National Statistic. Figure 2.4 shows what difference this choice makes. Since 2008, real earnings falls have been smaller than would be recorded using the CPI. Since 2009, though, CPI and RPIJ inflation have been almost identical. The main reason for the divergence between CPI- and RPIJ-adjusted measures of earnings growth between 2008 and 2009 is that the sharply falling mortgage interest costs during the recession are not accounted for by the CPI. Overall, inflation between April 2008 and April 2014 was 15% according to the RPIJ and 19% according to the CPI.

Figure 2.3 shows that by 2014Q3, real average earnings remained 5.9% below their pre-crisis level according to AWE and 3.0% below according to the LFS. ASHE recorded real mean weekly earnings 7.4% lower in April 2014 than in April 2008. The more benign picture painted by the LFS is largely due to it recording more of a recent recovery in earnings: ASHE and AWE continue to measure real falls in 2013 and 2014, while the LFS records real growth since the end of 2013. Nevertheless, even the LFS data show real earnings no higher than at the end of 2012. In contrast, the less benign picture painted by ASHE continues a longer-term theme: ASHE had recorded the slowest earnings growth pre-recession too. Overall, real earnings in 2014Q2 were 5.0% higher than in 2001Q2 according to AWE, 6.7% higher according to the LFS, but 1.0% lower according to ASHE.

¹⁷ ASHE weekly earnings data are available each April, which for the purposes of the figure we count as the second quarter of the calendar year. AWE is available each month and the LFS is available each quarter. For comparability, we must compare *mean* earnings, as that is all that is available from AWE.

Box 2.1. Measuring earnings in the UK

One difficulty in understanding earnings performance in the UK is that there are multiple potential data sources from which to choose. Three main sources are described here. These are the Annual Survey of Hours and Earnings (ASHE), average weekly earnings (AWE) and the Labour Force Survey (LFS). Each of them has its advantages and disadvantages.

The **Annual Survey of Hours and Earnings** is a sample of approximately 1% of employees. It provides hourly, weekly and annual earnings measures. It is often thought to be the best-quality individual-level data on earnings, as it is reported by employers for administrative purposes. However, it does not capture earnings outside of the PAYE system (e.g. earnings that are taxed by self-assessment), and it probably under-records people with very low earnings.^a Practical limitations include the fact that it is based on a sample of workers from just one month (April) in each year (potentially meaning that the hourly and weekly earnings measures are affected by seasonality, e.g. annual bonuses are often paid in December and January) and is only available with a lag of a number of months (particularly the underlying micro-data, which can be used by researchers for further analysis). Results must also be adjusted for methodological changes, which otherwise cause discontinuities in the series in 2004, 2006 and 2011.

The **average weekly earnings** series is designed to measure the mean weekly earnings of employees in the UK. AWE figures are released each month and so are often seen as the ‘headline’ figures for earnings growth. The series is based largely on the Monthly Wages and Salaries Survey (MWSS), which asks firms their total payroll in that month and the headcount to which that applies. The MWSS does not sample firms with fewer than 20 employees, and the AWE series uses ASHE data to try to fill this gap. It is released by ONS each month with a relatively short lag, which means it is a timely source of information. However, it allows for very little assessment of changes in earnings within particular population groups and does not allow for any assessment of how the distribution of earnings is changing.

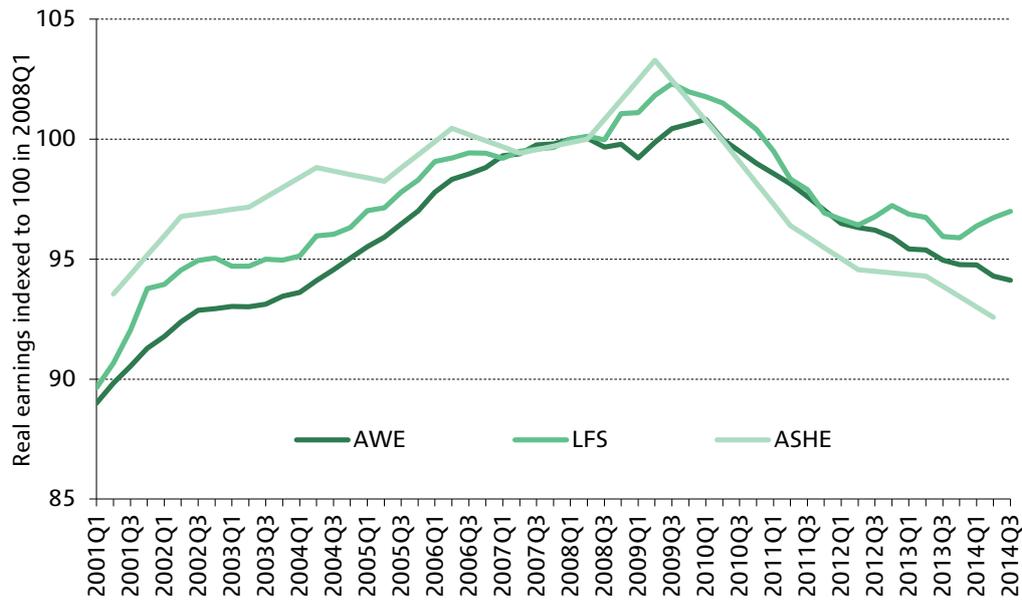
The **Labour Force Survey** is a large household survey that is used primarily to measure employment and unemployment. It also asks questions on the earnings of employees. An advantage is that the underlying micro-data are available to researchers only a few weeks after data collection, allowing for timely and detailed research into changes in the labour market. However, there is substantial non-response to the earnings questions and earnings are often measured with some error, e.g. individuals often report annual salaries that are rounded to the nearest £1,000. For a given type of person, ASHE almost certainly contains less measurement error in earnings than the LFS (but ASHE may be a less representative sample of certain types, such as the low-paid).

Due to these differing samples and methodologies, some differences in results (particularly when looking over short periods) are not surprising.^b But these sources do all tell a similar basic story about earnings changes over the past decade or so.

^a This problem has likely diminished with the move to Real-Time Information in the PAYE system. However, ONS suggests that this change has not materially affected estimates of earnings growth. See page 34 of Office for National Statistics, ‘Annual Survey of Hours and Earnings, 2014 provisional results’, 2014, http://www.ons.gov.uk/ons/dcp171778_385428.pdf.

^b These differences are also discussed in Office for National Statistics, ‘An examination of falling real wages, 2010–2013’, 2014, http://www.ons.gov.uk/ons/dcp171766_351467.pdf.

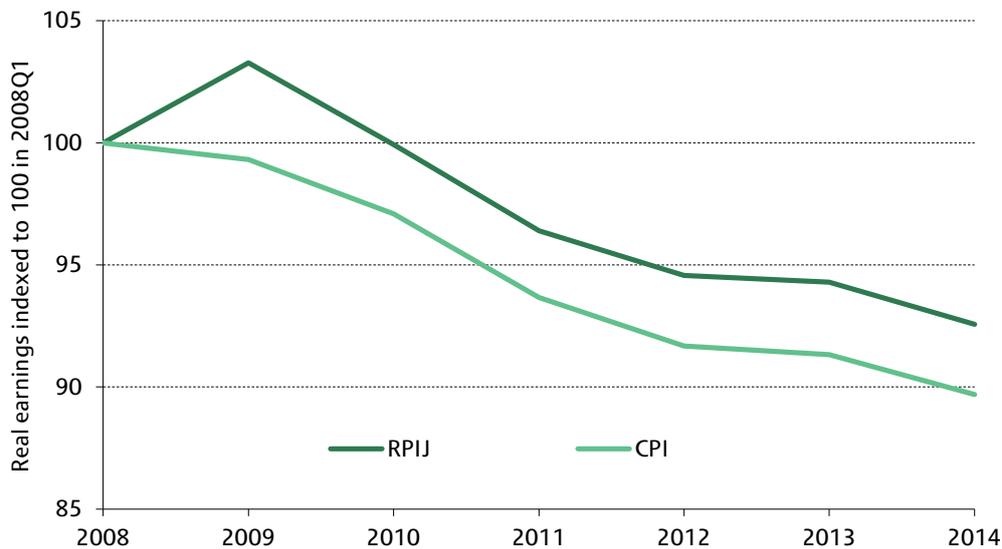
Figure 2.3. Mean weekly earnings since 2001 adjusted for RPIJ inflation (indexed to 100 in 2008Q1)



Note: ASHE results adjusted for methodological changes in 2004, 2006 and 2011 so that the figures are consistent over time. ASHE results indexed to April (Q2) 2008 and ASHE earnings are linearly interpolated between each observation in Q2 of each year. AWE and LFS data are reported using a four-quarter moving average, with the last quarter labelled. RPIJ is measured by ONS series KVR8.

Source: Authors' calculations using Annual Survey of Hours and Earnings, average weekly earnings (total pay) index (ONS series K54U) and Labour Force Survey, 2001–14.

Figure 2.4. Mean real weekly earnings changes (ASHE) using inflation measured by RPIJ and CPI (indexed to 100 in 2008)



Note: ASHE results adjusted for methodological changes in 2011 so that the figures are consistent over time. RPIJ is measured by ONS series KVR8 and CPI by ONS series D7BT.

Source: Authors' calculations using Annual Survey of Hours and Earnings, 2008–14.

Table 2.4. Real weekly earnings, total hours and real hourly wages

	<i>Level in year</i>			<i>Average annual change</i>	
	2001	2008	2014	2001 to 2008	2008 to 2014
<i>Weekly earnings (£)</i>					
Mean	506.26	541.19	501.00	1.0%	-1.3%
Median	424.82	444.17	417.90	0.6%	-1.0%
<i>Total hours (p.w.)</i>					
Mean	34.6	33.8	33.1	-0.3%	-0.3%
Median	37.0	37.0	37.0	0.0%	0.0%
<i>Hourly wages (£)</i>					
Mean	14.68	16.05	15.16	1.3%	-0.9%
Median	11.30	12.19	11.61	1.1%	-0.8%

Note: ASHE results adjusted for methodological changes in 2004, 2006 and 2011 so that the figures are consistent over time. Expressed in April 2014 prices; adjusted for inflation using RPIJ.

Source: Authors' calculations using Annual Survey of Hours and Earnings.

Given these differences between data sources, care is needed when looking at the precise magnitudes of recent earnings changes and when making – or interpreting – claims about the latest direction of travel based on a single source. The big picture is consistent across data sources though. On any measure, real earnings have fallen substantially since the recession and any growth remains weak at best. In the rest of the chapter, we use ASHE as the default due to its likely lower measurement error (see Box 2.1); but at times we use other data sets where these have advantages for the specific analysis being undertaken.

Table 2.4 provides more detail on average earnings changes (all using ASHE). First, it shows figures for hourly pay in addition to weekly pay. Weekly pay better captures the total resources that people actually obtain from working. People's decisions about how many hours to work may be constrained – and indeed the evidence above suggests that involuntarily low hours have been on the increase – and therefore of interest to the extent that they affect weekly pay. On the other hand, variation across individuals in hours worked will also, at least partly, reflect differences in preferences. Such differences would typically be of little concern, which strengthens the case for also considering hourly pay. Second, the table shows figures at the median as well as the mean. Median earnings refer to the earnings of someone earning more than half of employees and less than the other half. It is therefore a different measure of 'average' earnings, and a useful one because it is not sensitive to changes at the extremes of the distribution. Finally, the table shows hours worked (at the mean and median), which links the hourly and weekly earnings measures.

Between 2008 and 2014, median weekly earnings fell by a total of 5.9%. Falls in average weekly earnings have been driven primarily by falls in hourly pay rather than reductions in hours worked, although mean weekly hours worked have fallen by 0.3% per year on average (2.1% in total). Median hourly pay has fallen by 4.7% since 2008. Mean and median earnings measures have, overall, fallen by similar proportions over this period, indicating that the key trends in mean earnings have not been driven simply by small

groups at the extremes of the earnings distribution.¹⁸ However, both weekly and hourly wages have fallen by slightly more at the mean than at the median. This implies that trends have not been uniform across the distribution; we explore this more fully in Section 2.4.

The role of compositional changes in driving average earnings trends

It is natural to ask whether the trends in average earnings set out above are related to the changes in the characteristics of the employed population shown in Section 2.2.

Simple measures of average earnings growth conflate changes in earnings for particular types of people with ‘compositional effects’, or changes in the relative numbers of different worker types. Disentangling these effects can be important. For example, if a group of low-skilled unemployed people find work, this would drag down average earnings without any (direct) adverse effects on the earnings of a particular individual.

In Section 2.2, we showed that the workforce is continuing to become more highly educated, older and generally more oriented towards skilled occupations (with some plateau in that last trend in 2014). This provides little evidence of a compositional shift towards types of workers who are likely to be paid less, which suggests that the weakness of earnings is due to ‘underlying’ factors – trends for given types of worker – rather than compositional shifts.

Figure 2.5 confirms this more formally using a decomposition analysis.¹⁹ This separates the changes in mean real earnings into two components: the change in average earnings that would have occurred in the absence of any changes in observed workforce characteristics (the ‘underlying’ change) and a component that is due to changes in the observed characteristics of the workforce (the ‘compositional effect’). We use the Labour Force Survey (LFS) for this analysis so that we are able to control for all of the following characteristics: age, sex, education level, number of children, occupation, industry, job tenure, region, and whether the employee works full- or part-time. The figure shows decompositions for three periods: 2002–07 (‘pre-crisis’), 2007–12 and 2012–14. Note that ‘2014’ here includes only the first three quarters, as LFS data for 2014Q4 are not yet available. We present separate estimates for hourly and weekly pay (panels a and b respectively), because some compositional effects (e.g. changes in the prevalence of part-time workers) might be more important for one measure than the other.

One striking aspect of the figure is that variation in the rate of earnings growth over time since 2002 has been driven almost entirely by variation in the ‘underlying’ rate of earnings growth. This is because compositional effects, such as rising education levels, have consistently been acting to raise average earnings over this period at quite a uniform rate (particularly for hourly pay).

Panel a shows that, between 2007 and 2012, compositional changes acted to increase mean real hourly wages by an average of 0.6% per year. This means that the ‘raw’ fall of 0.4% per year in the years after the crisis struck was substantially understating the ‘underlying’ fall of 1.0% per year. The role of compositional effects has actually remained very stable over the past two years. Between 2012 and 2014, they continued to push

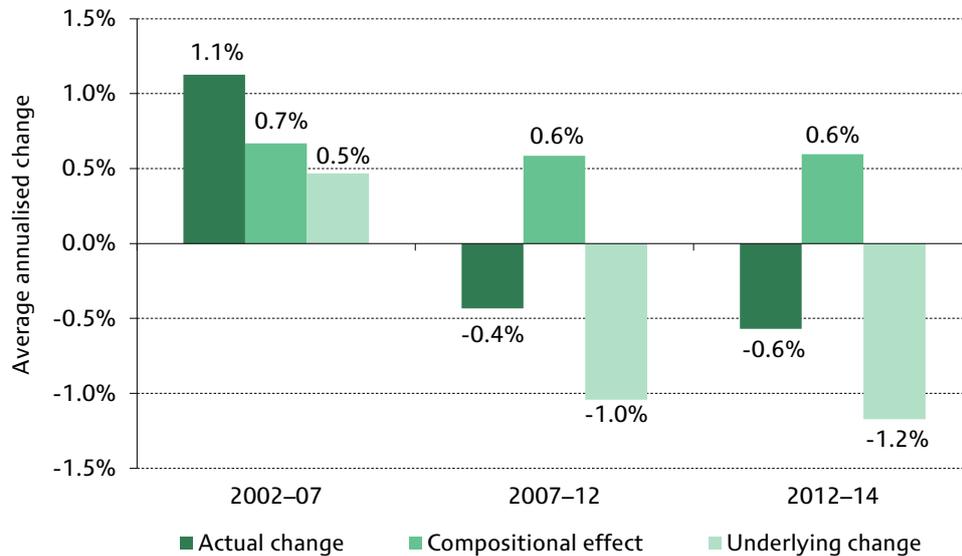
¹⁸ The fall in median earnings from 2008 to 2014 has been larger when adjusting for inflation using the CPI than the RPIJ. Adjusting for CPI inflation, median weekly earnings fell by 1.5% per annum, while median hourly earnings fell by 1.3% per annum.

¹⁹ For more details on this, see the note to Figure 2.5. This analysis is very similar to that carried out in R. Blundell, C. Crawford and W. Jin, ‘What can wages and employment tell us about the UK’s productivity puzzle?’, *Economic Journal*, 2014, 124, 377–407.

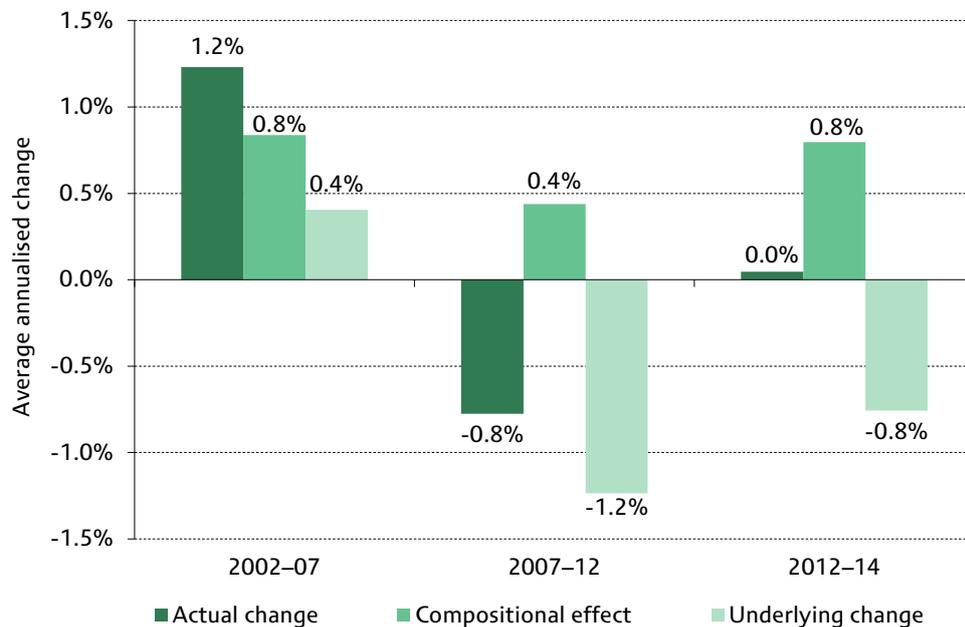
average hourly wages up at the same rate as over the previous five years, so the 'raw' fall of 0.6% per year masks an 'underlying' fall of 1.2% per year.

Figure 2.5. Decomposing changes in mean real earnings

(a) Hourly wages



(b) Weekly earnings



Note: 2014 figures are for quarters 1 to 3 only. Includes only employees aged 16 to 59. Earnings deflated using RPI inflation. Hourly wages are *usual* hourly wages. Compositional effects calculated by Oaxaca decomposition, where the change in log hourly (or weekly in panel b) earnings between two periods ($Y_1 - Y_0$) is decomposed into a compositional effect $B_1(X_1 - X_0)$ and underlying (remaining) change $(B_1 - B_0)X_0$. Regressions used to estimate effects are the regression of log real hourly wages or weekly earnings on a sex dummy, dummies for age groups (16-17, 18-24, 25-34, 35-44, 45-54, 55-59), dummies for highest qualification (degree, secondary education, elementary/none), dummy for working part-time, dummies for number of children (0, 1, 2, 3, 4, 5+), nine occupation dummies, 20 regional dummies and 15 industry (SIC1992) dummies. Regressions are weighted using LFS weights.

Source: Authors' calculations using the Labour Force Survey.

Panel b shows that the basic story is similar for weekly earnings. One difference is that the impact of compositional effects in pushing average weekly earnings up was half as large over 2007–12 as it was over 2002–07 or 2012–14. This makes sense in the context of a large increase in the relative prevalence of part-time work after the recession hit – a trend which has since stabilised, and partially reversed (see Section 2.2).

Note that we obtain similar results about the relative roles of compositional and underlying changes if we compare 2013 with 2014, in order to look at earnings changes specifically over the latest year.²⁰ The overall conclusion that compositional effects are, on average, increasing real wages is also true in both the public and private sectors, and for both men and women.

In summary, we can rule out a story that says that the continued weakness of earnings is due to compositional effects, such as lower-paid types of people returning to work after losing jobs during the recession. Cyclical compositional effects might be playing some role, but they are being dominated by the continuation of longer-run compositional changes, such as increasing education levels, that should act to raise pay. Earnings growth remains weak because earnings growth for given types of workers remains weak.

Earnings and productivity

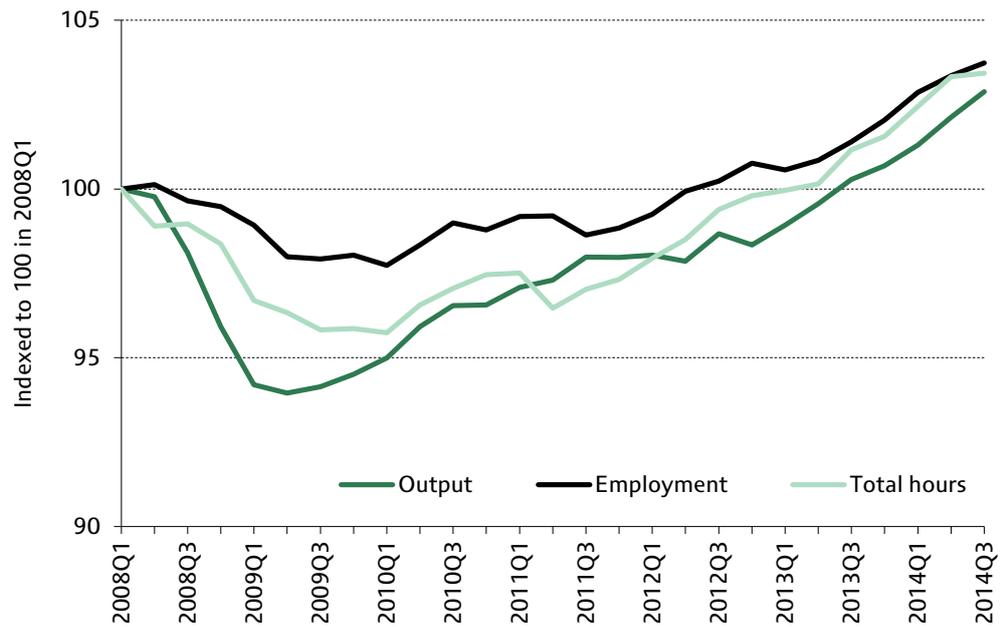
In a competitive labour market, workers' remuneration should reflect their productivity. A lack of earnings growth might therefore reflect a lack of productivity growth. The relationship may not be perfect though. Labour markets are not always perfectly competitive so, for example, employers might use their market power to hold wages lower than productivity would warrant; and there will be 'frictions' or 'rigidities' in pay-setting, which mean that remuneration does not track productivity perfectly in real time. Over a long period, however, total remuneration in the UK has tracked productivity quite closely.²¹ There are other components of remuneration besides earnings though (e.g. employer pension contributions), and these might also drive a wedge between trends in earnings and productivity. We discuss this briefly towards the end of this subsection.

Weak productivity performance has been a key feature of the UK economy since the recession. It explains why output growth has been so much less robust than employment growth (or, conversely, why employment has been so surprisingly robust since the large falls in GDP). Figure 2.6 shows the paths of GDP, employment and total hours worked since 2008Q1. During the recession, output fell much faster than either employment or total hours worked. In other words, productivity fell considerably, both in terms of output per worker and output per hour, as shown in Figure 2.7. Since mid-2009, output has grown faster than either employment or total hours, but as Figure 2.7 shows, even in 2014Q3 productivity is still a little below its pre-crisis level more than six years ago. It is also striking that this 'recovery' in productivity happened between late 2009 and late 2011, with no overall productivity growth since then. This puts productivity far below the level implied by its pre-crisis trend: output per hour was growing at 2.4% per year in the

²⁰ Compositional effects still acted to increase rather than suppress average earnings growth between 2013 and 2014. However, as is shown in Figure 2.3, mean real earnings in the LFS rose rather than fell between 2013 and 2014.

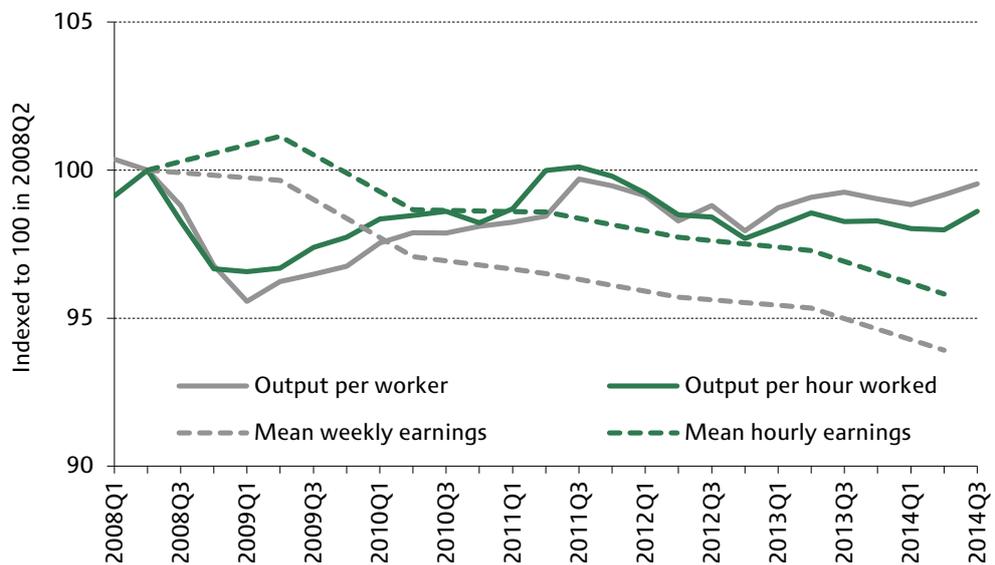
²¹ J. Pessoa and J. Van Reenen, 'Decoupling of wage growth and productivity growth? Myth and reality', Centre for Economic Performance (CEP), Discussion Paper 1246, 2013, <http://cep.lse.ac.uk/pubs/download/dp1246.pdf>.

Figure 2.6. Changes to total output, employment and hours worked since 2008Q1



Source: Output measured by real GDP (ONS series ABMI), employment measured by total employment for those aged 16 and over (ONS series MGRZ) and total weekly hours worked measured by ONS series YBUS.

Figure 2.7. Changes to productivity and real earnings, adjusted using GDP deflator, since 2008



Note: Output per worker is real GDP divided by employment. Output per hour is real GDP divided by total hours worked. Earnings measured in April of each year (so the change is shown relative to 2008Q2 rather than 2008Q1). ASHE results adjusted for methodological changes in 2011. Mean earnings are adjusted for inflation using the GDP deflator.

Source: Output measured by real GDP (ONS series ABMI), employment measured by total employment for those aged 16 and over (ONS series MGRZ), total weekly hours worked measured by ONS series YBUS, and earnings measured in the Annual Survey of Hours and Earnings.

decade prior to 2008.²² Much of the ‘puzzle’ about the weakness of earnings is therefore really a puzzle about productivity.²³

If anything, though, productivity has performed slightly less badly than workers’ earnings. The most direct comparison to make is between trends in output per hour and trends in real hourly pay deflated using the GDP deflator. The GDP deflator is the most appropriate when making comparisons with productivity because it accounts for the prices of all domestically-produced output (e.g. including exports, which are excluded from consumer price indices) and does not account for changes in the price of output produced abroad (unlike household inflation indices, which include imports).

Figure 2.7 shows that, on this basis, output per hour in 2014Q2 was about 2.0% below its 2008Q2 level, whereas real hourly pay in April 2014 was more than 4% lower than in April 2008.²⁴ A comparison between trends in real weekly earnings and output per worker similarly suggests that the earnings measure has performed worse than the productivity measure.

It is worth noting that the discrepancy between productivity and real earnings trends probably feels somewhat larger from the point of view of the workers themselves. This is because the real value of wages to workers has been reduced by factors that do not affect the real cost to firms of employing them – namely, rising import prices and the rise in the main rate of VAT in January 2011. An easy way to see this is to compare the real earnings falls shown in Figure 2.7 with the figures obtained when using a household inflation index that accounts for these factors (rather than the GDP deflator). Between April 2008 and April 2014, mean real hourly earnings fell by 4.2% according to the GDP deflator but by 5.6% according to the RPIJ (and by a much larger 8.5% according to the CPI, but this does not account for large falls in mortgage interest costs).

If one additionally accounts for reductions in the generosity of employer pension promises (which are effectively deferred pay), total remuneration has fallen by even more since the start of the crisis – in absolute terms and relative to productivity.²⁵ For example, for employees aged 20–59 in the LFS, mean weekly earnings fell by 3.5% from 2007 to 2012. However, using the calculations of the value of workplace pensions in Cribb and Emmerson (2014), the fall in real weekly earnings including pensions was

²² For links to IFS research on growth and productivity, see <http://election2015.ifs.org.uk/growth-and-investment>.

²³ For research on this ‘productivity puzzle’, see R. Disney, W. Jin and H. Miller, ‘The productivity puzzles’, in C. Emmerson, P. Johnson and H. Miller (eds), *The IFS Green Budget: February 2013*, 2013, http://www.ifs.org.uk/budgets/gb2013/GB2013_Ch3.pdf and A. Barnett, S. Batten, A. Chiu, J. Franklin and M. Sebastián-Barriol, ‘The UK productivity puzzle’, *Bank of England Quarterly Bulletin*, 2014 Q2, 114–28, <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q201.pdf>.

²⁴ It is difficult to measure public sector productivity well, and there may be less reason to expect pay to track productivity in the public sector. ‘Market sector’ productivity (similar to private sector productivity) has performed less well than productivity for the economy as a whole (see Office for National Statistics, ‘Labour productivity, Q3 2014’, *Statistical Bulletin*, 2014, http://www.ons.gov.uk/ons/dcp171778_389391.pdf) but, as shown in Section 2.4, earnings have also fallen by more in the private sector than in the public sector. The basic story therefore seems to be the same if one looks at the private sector specifically: earnings growth has, if anything, been a little lower than productivity growth.

²⁵ For more details, see J. Cribb and C. Emmerson, ‘Workplace pensions and remuneration in the public and private sectors in the UK’, IFS Briefing Note BN151, 2014, <http://www.ifs.org.uk/publications/7396>. There are three main reasons for pay growth including pensions to be lower than headline pay. First, at least until the recent introduction of automatic enrolment into workplace pensions, there has been falling pension coverage in the private sector, particularly among more generous defined benefit schemes. Second, the proportion of the workforce working in the public sector has fallen, and public sector workers have higher pension coverage and more generous schemes than private sector workers. Finally, reforms to public sector pensions by the Labour and coalition governments have reduced the value of public sector pensions.

7.8% over the same period. Changes to employer pension provision are partly a response to the fact that past pension promises turned out to be more generous and more expensive than intended, so it would not be surprising if cutbacks in that generosity bore little or no relation to current changes in productivity (in addition, the new promises may well turn out to be more or less generous than currently intended, depending on factors such as longevity and asset returns). Changes to pension provision certainly have important additional consequences (e.g. for the distribution of resources between generations), but we continue to focus just on workers' current pay for the remainder of this chapter.

In summary, productivity is key to understanding both of the standout features of the labour market since the recession: robust employment and weak earnings growth. Workers' pay does seem to have fallen by even more than productivity over the past few years, but the major puzzle is over why productivity has fallen so much, rather than over the relationship between productivity and pay.

2.4 Earnings for different groups

This section looks at how earnings have changed across the population and highlights some of the key ways in which this has varied across groups. As in Section 2.3, our analysis is mainly restricted to the earnings of employees, although we discuss the earnings of the self-employed at the end of the section.

Figure 2.8a shows changes in real weekly earnings since 2008 at different points of the earnings distribution (using the Annual Survey of Hours and Earnings, referring to earnings in April of each year). Overall, ASHE suggests that real earnings are 6–7% lower in 2014 than in 2008 with little difference across earnings groups. However, the timing of these falls has varied, with earnings inequality rising and then contracting again. Between 2009 and 2011, when real weekly earnings were declining sharply, proportionate falls were larger towards the bottom of the earnings distribution: 9.7% at the 10th percentile, 7.1% at the median and 6.6% at the 90th percentile. Between 2011 and 2014, the opposite pattern applied: real earnings stopped falling at the 10th percentile (rising by 0.4%) but fell by 2.4% at the median and 4.4% at the 90th percentile.²⁶ The net result is that weekly earnings inequality was actually slightly lower in 2014 than in 2008 (driven by the trend since 2011).

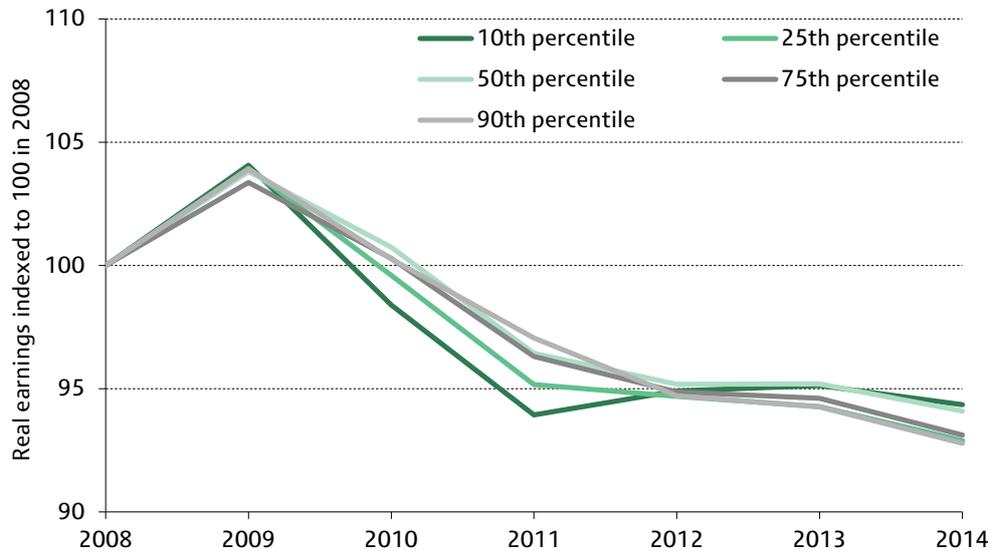
Figure 2.8b shows that the story for hourly pay is similar, though not identical. Because much of the rise in weekly earnings inequality between 2009 and 2011 was due to a rise in part-time work, inequality in real hourly pay stayed roughly constant over that period. As with weekly earnings, inequality in real hourly wages then fell between 2011 and 2014. Taking the period between 2008 and 2014 as a whole, real hourly wages fell by

²⁶ It is important to appreciate that labour market trends are not the same as trends in living standards. Indeed, inequality in net household income fell rapidly between 2008 and 2011, and is likely to be rising now (though we have no household income data beyond 2012–13): the opposite of the trends in weekly earnings inequality described above. The main explanations for the difference relate to the fact that earnings account for a higher share of the overall income of high-earning households than of low-earning households. State benefits and tax credits were broadly price-indexed between 2008 and 2011 (i.e. unlike earnings, they were kept broadly constant in real terms), and this did far more to cushion the living standards of low earners (and non-workers) than of high earners, on average. Since then, large cuts to the working-age social security budget have been implemented and this will affect low earners (and non-workers) more than high earners. For more details, see C. Belfield, J. Cribb, A. Hood and R. Joyce, *Living Standards, Poverty and Inequality in the UK: 2014*, IFS Report R96, 2014, <http://www.ifs.org.uk/publications/7274> and J. Browne, A. Hood and R. Joyce, 'Household incomes set to start growing again, but slowly and unequally', IFS Observation, 2014, <http://www.ifs.org.uk/publications/7454>.

3.3% at the 10th percentile and by 6.4% at the 90th percentile. The conclusion that pay has fallen by more at the top of the distribution than at the bottom is therefore stronger in the case of hourly pay.²⁷

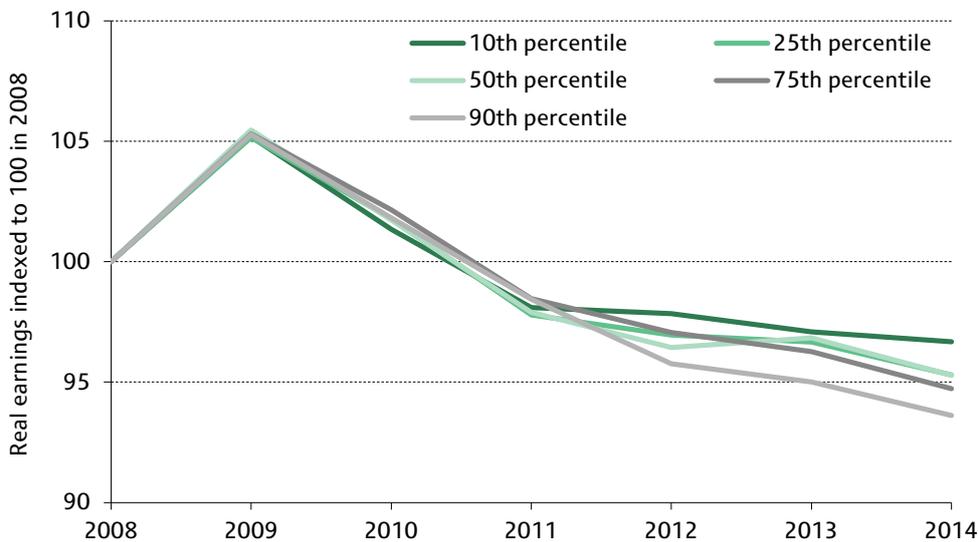
Figure 2.9 shows the path of real weekly earnings in the private and public sectors (where the public sector excludes financial corporations). We use AWE data for this because they remove the effects of the reclassification of financial corporations such as RBS and Lloyds Banking Group from the private to the public sector, which would

Figure 2.8a. Changes to real weekly earnings since 2008, by percentile point



Note: Results adjusted for methodological changes in 2011. Earnings observed in April of each year.
Source: Authors' calculations using Annual Survey of Hours and Earnings.

Figure 2.8b. Changes to real hourly wages since 2008, by percentile point

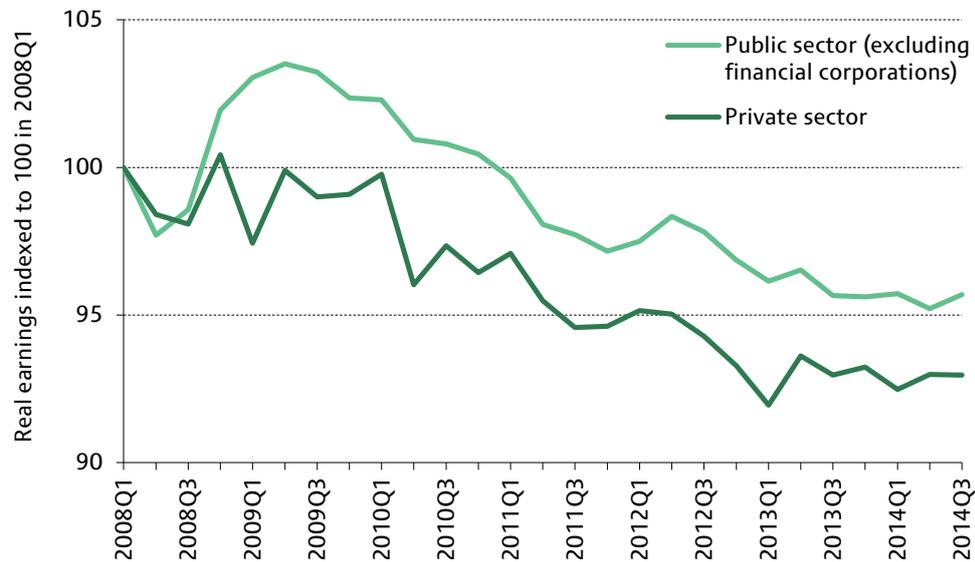


Note: Results adjusted for methodological changes in 2011. Earnings observed in April of each year.
Source: Authors' calculations using Annual Survey of Hours and Earnings.

²⁷ Changes in weekly and hourly earnings inequality among male employees are very similar to the overall patterns shown in Figures 2.8a and 2.8b. For females, however, the changes in earnings inequality are less clear.

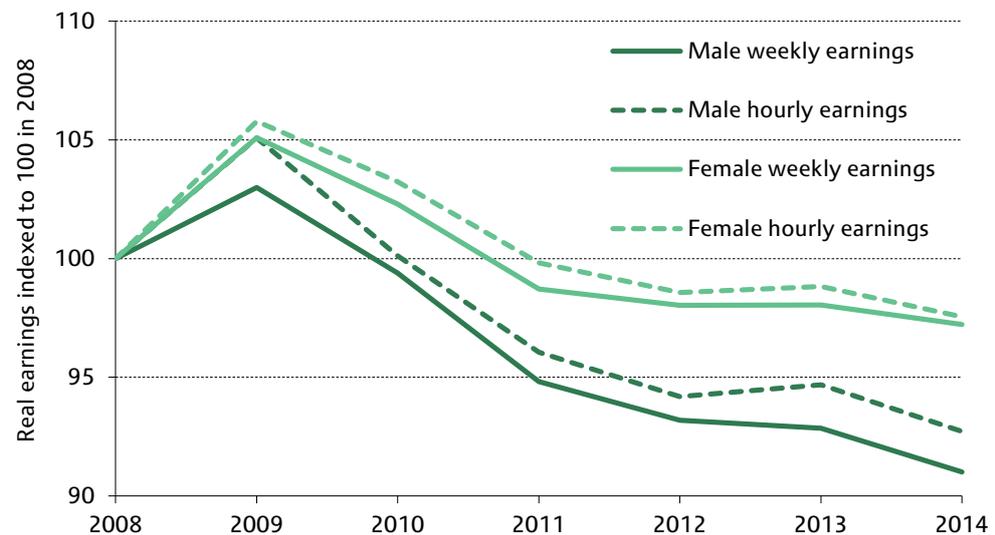
otherwise distort the results.²⁸ With negative inflation on the RPIJ measure, public sector earnings rose markedly in real terms in late 2008, but in the private sector the impacts of recession were already evident and there was no such real growth. Since late 2009, mean earnings in the private and public sectors have fallen by similar amounts overall (policies to restrain public sector pay began in 2011). Mean private sector weekly earnings in

Figure 2.9. Change in real average weekly earnings since 2008Q1, by sector



Source: Average weekly earnings, ONS series K54V and K54Z.

Figure 2.10. Changes to real median weekly and hourly wages since 2008, by sex



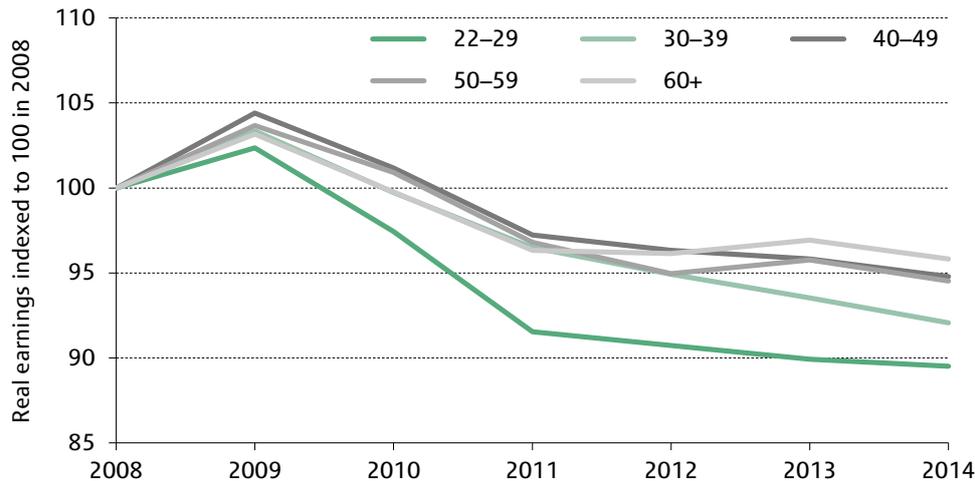
Note: ASHE results adjusted for methodological changes in 2011. Earnings observed in April of each year. Source: Authors' calculations using Annual Survey of Hours and Earnings.

²⁸ The ASHE and LFS data do not allow us to strip out the effects of these reclassifications robustly.

2014Q3 were 7.0% below their 2008Q1 level, while public sector earnings were 4.3% below their 2008Q1 level. Continuing pay restraint in the public sector combined with a forecast recovery in private sector pay, however, are likely to unwind this differential between public and private sector earnings changes since the crisis. For a detailed analysis of the evolution of the public-private sector pay differential, see Cribb, Emmerson and Sibieta (2014).²⁹

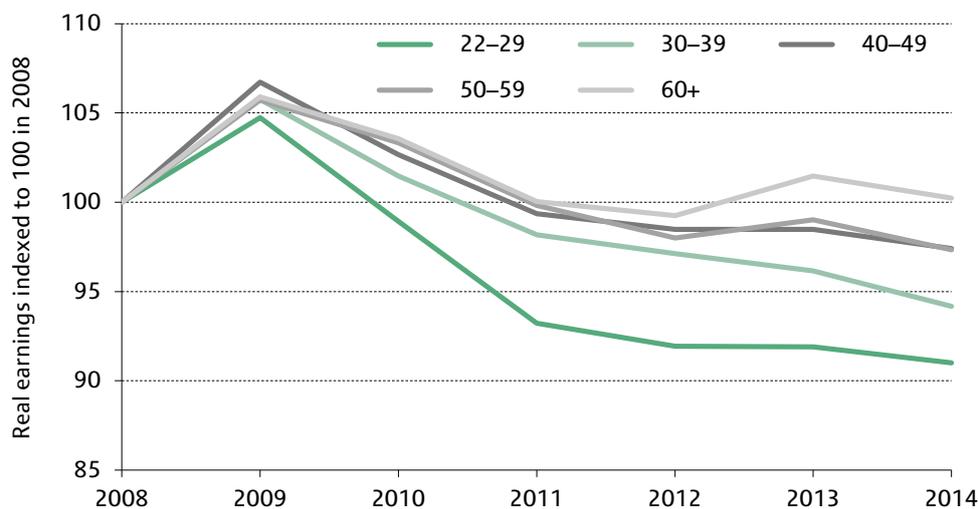
In Section 2.2, we showed that the employment trends of women since the recession have been more favourable than men's. Figure 2.10 shows that women have also seen

Figure 2.11a. Changes to real median weekly earnings since 2008, by age group



Note: ASHE results adjusted for methodological changes in 2011. Earnings observed in April of each year. Source: Authors' calculations using Annual Survey of Hours and Earnings.

Figure 2.11b. Changes to real median hourly wages since 2008, by age group



Note: ASHE results adjusted for methodological changes in 2011. Earnings observed in April of each year. Source: Authors' calculations using Annual Survey of Hours and Earnings.

²⁹ J. Cribb, C. Emmerson and L. Sibieta, *Public Sector Pay in the UK*, IFS Report R97, 2014, <http://www.ifs.org.uk/publications/7395>.

considerably smaller falls in median earnings than men. Between 2008 and 2014, real median weekly earnings fell by 9.0% for men and by 2.8% for women; for hourly wages, the falls were 7.3% and 2.5% respectively. One (partial) explanation for these trends is that women are disproportionately likely to work in the public sector: according to the LFS, in 2014 women are almost 18 percentage points more likely to work in the public sector than are men. As we saw above, real earnings have fallen less in the public sector than in the private sector since the crisis.

Figure 2.11a shows changes in median weekly earnings by age. The period of rapidly falling earnings, between 2009 and 2011, hit young workers harder than others: median earnings of those aged 22–29 fell by 10.6%, compared with falls of just under 7% at older ages. Since then, trends by age have been more uniform, with further falls in real earnings for all age groups shown, but less rapid falls than before. Since 2011, those in their 30s have seen the largest earnings falls and those aged 60 and above the smallest. The net result is that, between 2008 and 2014, there is a clear pattern across the age spectrum, with larger falls in earnings at younger ages.³⁰ As shown in Figure 2.11b, the pattern across age groups is even more pronounced when looking at hourly wages, with real hourly pay having returned to its pre-crisis level for employees aged 60 and over, but still 9% lower for employees aged 22–29. This suggests that the hours worked by older employees have tended to fall relative to the hours worked by young employees.

Earnings growth for employees in the same job for at least a year

Recently, some attention has been given to figures on earnings growth for those who have been in continuous employment in the same job for at least a year. It has been highlighted that earnings changes look less weak when focusing on this group.³¹ Figure 2.12 reproduces ASHE data recently published by the ONS. It shows, for full-time workers only, the nominal year-on-year change in overall median earnings in each year; it also shows the nominal change in median earnings for the group of workers who were in the data in both the applicable year and the previous one (this is not a trivial restriction – see below) and who have been in the same job continuously in the interim. We also show the rate of RPIJ inflation alongside these.

Year-on-year increases in pay are larger if one focuses on those in continuous employment in the same job for the past year than if one compares the whole population of employees one year with the whole population of employees in the previous year (which is the normal practice). This is not unusual – it was true before the crisis and has been true throughout the period shown. There is also little sign that the magnitude of the difference between these two measures of earnings growth has changed since the crisis (i.e. the ‘continuous employment’ and ‘all employees’ lines in the figure are approximately parallel) – though the gap was larger in 2014 than in 2013, a matter that is discussed further below. Figure 2.13 shows that the same story applies when we look at *all* employees in continuous employment in the same job, rather than just those in full-time work upon which the published ONS figures are based (this figure extends only to 2013,

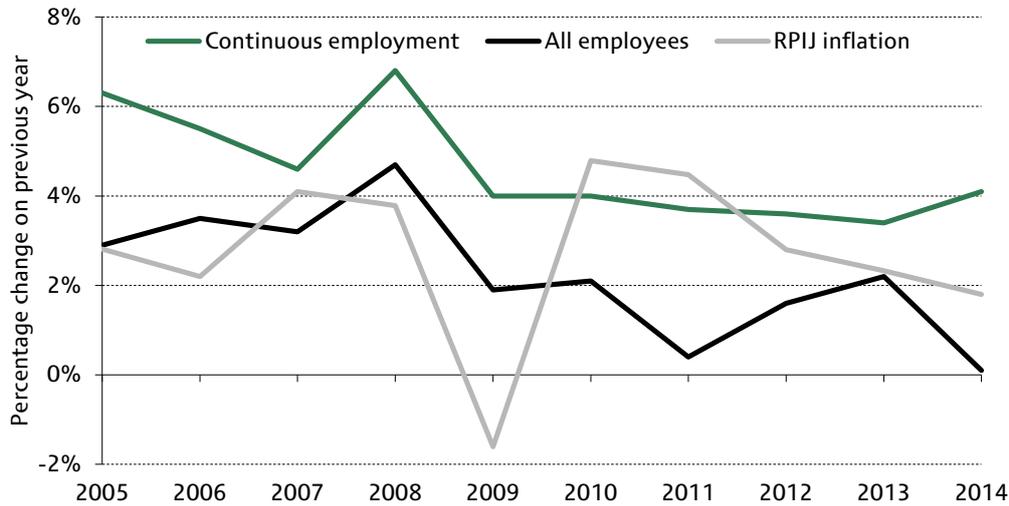
³⁰ Weekly earnings have fallen even more for those aged 18–21 than for those aged 22–29, but the interpretation of this is hampered by large increases in education participation, which mean that the kinds of people in work at these young ages have potentially been changing substantially. We therefore focus here on ages from 22 upwards.

³¹ These figures were cited in Budget 2014 (see page 12 of https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/293759/37630_Budget_2014_Web_Accessible.pdf) and in Autumn Statement 2014 (see page 15 of https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/382327/44695_Accessible.pdf).

because calculating it requires access to the full ASHE data set and this is not available for 2014 at the time of writing).

One key reason for earnings changes looking less weak for those in continuous employment is that this measure is picking up pay progression with age (or job tenure). It is following the evolution of earnings for a fixed group of individuals from one year to the next, so the entire sample ages by one year over the period being assessed: it is not, for

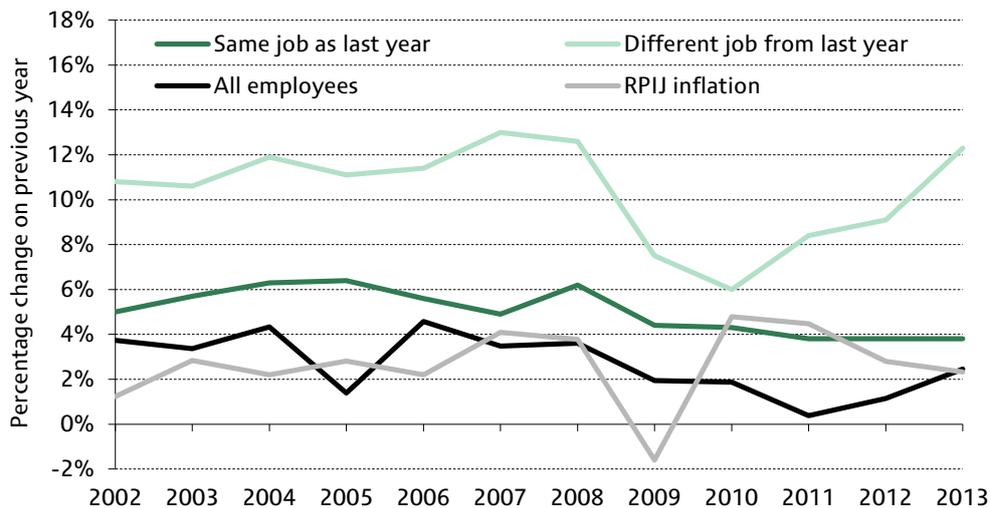
Figure 2.12. Nominal growth in median weekly earnings for full-time employees in continuous employment in the same job (ONS analysis)



Note: RPIJ inflation is measured in April of each year using ONS series KVR8.

Source: Figure 2 of Office for National Statistics, 'Annual Survey of Hours and Earnings, 2014 provisional results', 2014, http://www.ons.gov.uk/ons/dcp171778_385428.pdf.

Figure 2.13. Nominal growth in median weekly earnings for all employees in the same job as last year and for those who have changed jobs since last year



Note: Growth in median wages is calculated between April of the labelled year and April of the year before. Changing job can be changing job within a firm or by moving to a job in another firm. Earnings growth only calculated for those who are observed in both the labelled year and the previous year, and individuals whose pay is affected by absence or who are not on adult rates of pay are excluded, in keeping with the ONS's methodology. Analysis is restricted to main jobs, thus excluding secondary jobs.

Source: Authors' calculations using Annual Survey of Hours and Earnings, various years.

example, 'refreshed' by replacing a cohort of retirees with a cohort of new labour market entrants. Effectively, it builds in, by construction, an important compositional effect: that induced by comparing the earnings of a group with the earnings of a group who are one year older (and one year more experienced in their current job). Given that, on average, earnings increase with age and/or experience, this effect will act to overstate economy-wide earnings growth.

A second likely reason for the difference between the two measures of earnings growth is that individuals in continuous employment are a select group of people. For example, they are almost certainly more highly educated on average than those experiencing spells of non-employment. Previous research has shown that more highly educated individuals are likely to see higher earnings growth as they age.³²

These effects seem to dominate an offsetting factor: as Figure 2.13 shows, employees who switch jobs tend to see particularly high pay rises upon doing so, and those people are excluded from the measure that looks only at those staying in the same job.

The effects of pay progression as people move through their working lives are, of course, interesting (as long as they are distinguished appropriately from other factors affecting pay levels). A common misconception is that falls in economy-wide earnings necessarily imply falls in earnings for particular individuals over time. This is not the case. To take a simple example, imagine a recession that reduces average earnings and hits all age groups equally hard. This means that, at any age, earnings are lower after the recession than they were for people of that age before the recession. For people at a stage in working life when they would typically be moving up pay scales, this could simply mean that they are now experiencing *smaller rises* in pay than their predecessors did at the same age, and hence falling behind the pay levels that their predecessors had reached. This point can be made rather more clearly by following cohorts of people born in particular years as they age. Previous analysis by IFS researchers has shown that the recession hit earnings through a combination of smaller-than-normal rises in pay with age, some actual falls in pay with age for particular cohorts, and new labour market entrants starting on lower pay than previous ones.³³

The published ONS analysis reproduced in Figure 2.12 does suggest that real growth in median earnings among full-time employees in continuous employment increased significantly between 2013 and 2014, from 1.1% to 2.3%. In fact, real growth of 2.3% is not far from the typical growth seen using the same measure before 2010 (though still lower than in four of the five years before 2010).

It is also noteworthy that this stands in contrast to the story that ASHE tells for overall real median earnings (for full-time employees), which *fell* by 1.7% in 2014 having fallen by just 0.1% in 2013. It is possible that this reflects some compositional changes to the workforce captured by ASHE. The continuous-employment measure, by following a fixed group of individuals in fixed jobs, purges the data of certain compositional effects – in particular, it precludes any shifts in the prevalence of individual or job characteristics that are fixed over time, such as sex, region or industry. However, there are other possible explanations for the difference too, and our analysis of the LFS in the previous section

³² C. Belfield, J. Cribb, A. Hood and R. Joyce, *Living Standards, Poverty and Inequality in the UK: 2014*, IFS Report R96, 2014, <http://www.ifs.org.uk/publications/7274>.

³³ C. Belfield, J. Cribb, A. Hood and R. Joyce, *Living Standards, Poverty and Inequality in the UK: 2014*, IFS Report R96, 2014, <http://www.ifs.org.uk/publications/7274>. See in particular figure 5.10.

Table 2.5. Individuals in continuous and non-continuous employment (ASHE)

	Same job, observed last year in ASHE	Same job, not observed last year in ASHE	Not same job, observed last year in ASHE	Not same job, not observed last year in ASHE
<i>Panel A: Proportion of employees in each group</i>				
2008	69.3%	9.8%	6.4%	14.5%
2010	72.2%	13.1%	4.1%	10.6%
2013	69.9%	14.1%	5.7%	10.2%
<i>Panel B: Real median weekly earnings in each group (£ per week)</i>				
2008	500.15	442.15	440.18	329.05
2010	502.17	421.22	419.30	312.47
2013	470.22	406.94	409.71	292.02

Note: Earnings expressed in April 2014 prices, deflated using RPIJ. Individuals whose pay is affected by absence or who are not on adult rates of pay are excluded, in keeping with the ONS's methodology. Analysis is restricted to main jobs, thus excluding secondary jobs.

Source: Authors' calculations using Annual Survey of Hours and Earnings, various years.

suggested that compositional changes are actually continuing to push wages *up*, not down. Without access to the underlying ASHE data set for 2014, or published analysis of compositional effects in ASHE of the kind that we produced in Section 2.3 using the LFS, it is difficult to know what to conclude about the 2014 figures shown in Figure 2.12. Note also that the gap between the continuous-employment and overall earnings growth measures widened by a similar amount in 2011, only to close again the following year.

Finally, it is wise to treat these figures with some caution because of issues that ASHE appears to have in reliably following workers over time. Table 2.5 splits the ASHE sample into four groups.³⁴ The first accounts for about 70% of the sample and is the group from which the statistics discussed previously are drawn: those in the same job for the last year whose earnings are recorded both this year and last. However, a further 14% (in 2013) appear to have been in the same job for the last year but do not appear in the ASHE data last year, so the change in their earnings is unknown. In other words, about one-sixth of those in the same job for the past year have to be excluded from any analysis of earnings changes for this group. This excluded group is far from random: their median earnings are 13% lower (in 2013) than those of people staying in the same job who are observed in both years. Their earnings growth may well be different too.

In summary, much of the fall in real average earnings since the crisis is driven not by individuals seeing falls in pay as they age, but by them seeing *smaller increases* – and hence falling behind the real earnings levels of similarly experienced individuals before the crisis. Measures of earnings growth for those in continuous employment serve as a useful reminder, then, that workers may still be seeing real pay increases as their careers progress even if economy-wide earnings levels are falling. Because pay tends to increase with age, and because those in continuous employment are a select group, the fact that earnings changes look more favourable when looked at in this way is neither surprising nor new – and there is little evidence that the degree to which this measure looks more favourable has changed since the crisis. We have also provided some practical reasons to

³⁴ Since ASHE micro-data for 2014 are not yet available to researchers, we are only able to produce this analysis up to 2013.

be cautious about the precise figures, given the features of the ASHE data from which they are derived.

Earnings for the self-employed

As was shown in Table 2.1, about 15% of workers are now self-employed (up from 13% in 2007), but so far this chapter has examined employment income only for employees. The employment income of self-employed workers is genuinely more difficult to measure in a timely and accurate way,³⁵ and it is not captured in any of ASHE, AWE or the LFS.

However, we can shed some light on the earnings of the self-employed using data from the Households Below Average Income (HBAI) series, which is based on the Family Resources Survey (FRS). Because of the lagged nature of the recording of self-employment income in these data, they could not sensibly be used to look at short-run changes in self-employment incomes.³⁶ But we can assess the distribution of self-employment income and how this generally compares with the distribution of employee earnings, as in Figure 2.14.

Average reported self-employment incomes are lower than average employee earnings. HBAI records weekly self-employed earnings in 2010–11 to 2012–13 of £438 at the mean and £248 at the median, compared with £519 and £407 respectively for employee earnings (in April 2014 prices).

Figure 2.14. Distribution of reported weekly employment income among employees and the self-employed, 2010–11 to 2012–13



Note: Employee earnings and self-employment income expressed in April 2014 prices, deflated by RPIJ.
Source: Authors' calculations using Households Below Average Income data, 2010–11 to 2012–13.

³⁵ For more details on these difficulties, see Sir Andrew Dilnot's letter to Rachel Reeves MP and Chuka Umunna MP regarding measuring the earnings of self-employed people (<http://www.statisticsauthority.gov.uk/reports---correspondence/correspondence/letter-from-sir-andrew-dilnot-to-rachel-reeves-mp-and-chuka-umunna-mp-04092014.pdf>).

³⁶ Self-employed individuals report their profits over the last accounting period available, so the amounts reported can often refer to periods at least a year or two before the date of interview. The amounts are then updated to the date of interview in line with growth in the average earnings of employees (the AWE index).

The distribution is also a very different shape for the self-employed, with more dispersion. More than 40% of self-employed people, but less than 20% of employees, reported earnings of less than £200 per week in 2010–11 to 2012–13. However, 9.3% of the self-employed earned over £1,000 per week, which is actually slightly higher than the 8.5% figure for employees. Overall, then, the self-employed have lower average earnings because they are more likely to have low earnings (rather than because they are less likely to have high earnings).

In summary, reported self-employment earnings tend to be both lower and more unequally distributed than employee earnings. The increase in self-employment may therefore be having significant consequences for the distribution of labour income.

Some caveats are worth bearing in mind, however. First, self-employment income will tend to be more volatile from year to year, so at least some of the greater inequality in annual self-employment income is likely to reflect transitory volatility across years rather than persistent or permanent differences between individuals.

Second, there is a substantial amount of evidence that self-employed individuals under-report their income to tax authorities on average,³⁷ and some evidence – based on how much they say they spend – that they also under-report their incomes to household surveys of the kind analysed here.³⁸ (Note that variation in reporting accuracy across self-employed individuals could also contribute to the greater inequality in reported self-employment incomes.)

Third, the rise in self-employment since the recession may be being driven by individuals who are different from individuals who were self-employed previously. Therefore, compositional changes in the self-employed population may be driving changes in the distribution of self-employment earnings. This is one potential explanation for a finding from the OBR's analysis of HMRC data, which showed that, among those subject to income tax, a higher proportion of the self-employed declared relatively low incomes in 2011–12 than in 2007–08.³⁹ (There is not currently more recent tax data available.)

2.5 Prospects for earnings

The latest AWE data for September–November 2014 show mean weekly earnings rising by 1.7% in nominal terms on the same months a year earlier, and by 2.1% in the private sector specifically. This compares with inflation of 1.6% as measured by the RPIJ and 1.2% as measured by the CPI in September–November 2014. This suggests that modest real earnings growth is returning to the private sector, although overall average real earnings remain relatively constant due to lower nominal growth in the public sector.

Table 2.6 sets out the OBR's forecasts for growth in nominal mean earnings and in the CPI (the OBR does not forecast RPIJ inflation), as of the Autumn Statement in December 2014. It also compares these with previous vintages of the same forecasts. The numbers

³⁷ For a survey, see J. Slemrod, 'Cheating ourselves: the economics of tax evasion', *Journal of Economic Perspectives*, 2007, 21(1), 25–48.

³⁸ E. Hurst, G. Li and B. Pugsley, 'Are household surveys like tax forms: evidence from income underreporting of the self employed', National Bureau of Economic Research (NBER), Working Paper 16527, 2010, <http://www.nber.org/papers/w16527>; C. Pissarides and G. Weber, 'An expenditure-based estimate of Britain's black economy', *Journal of Public Economics*, 1989, 39, 17–32.

³⁹ Page 40 of Office for Budget Responsibility, *Welfare Trends Report*, 2014, http://budgetresponsibility.org.uk/wordpress/docs/Welfare_trends_report_2014_dn2B.pdf.

highlight that the recent fall in inflation will probably be important in boosting real wages in the short run: the OBR is expecting little change in the rate of nominal earnings growth between 2013–14 and 2015–16 but much lower inflation, and hence (finally) some significant real earnings growth, in 2014–15 and 2015–16. (Note also that figures on inflation released since the Autumn Statement have shown it continuing to fall quickly.) The current forecast suggests that we will return to real earnings growth of around 2% from 2017–18. However, the table also highlights that these forecasts have changed significantly over time. The situation remains highly uncertain and the forecasts will no doubt change again.

One of the key areas of contention is over the extent to which different possible indicators of labour market ‘tightness’ or ‘slack’ are really good measures of wage pressures. It is uncontroversial to say that we would expect firms to be under more pressure to raise pay when it is harder for them to attract and/or retain a worker at a given wage to perform a particular role (i.e. when the labour market is ‘tighter’). But it is not clear which observed metrics best capture the degree of this tightness. In its November 2014 Inflation Report, the Bank of England highlighted ‘considerable uncertainty around both the current degree of slack and its likely evolution’.⁴⁰

The level of unemployment – and hence the size of the pool of ‘available’ workers – is one obvious and traditional metric of labour market tightness. The very large real wage falls during and shortly after the recession might have led one to believe that real wages have actually become increasingly sensitive to unemployment levels.⁴¹ But as Figure 2.15 shows, continued weak or non-existent real wage growth recently has coincided with a

Table 2.6. OBR forecasts of growth in nominal earnings and prices (CPI) at Autumn Statements 2011–14

	<i>AS 2011</i>		<i>AS 2012</i>		<i>AS 2013</i>		<i>AS 2014</i>	
	Earnings (%)	CPI (%)						
2010–11	0.6	3.1						
2011–12	1.7	5.2	2.6	5.2				
2012–13	2.1	2.5	2.6	2.2	1.1	2.2		
2013–14	3.5	2.1	2.2	2.6	2.4	2.7	1.7	2.7
2014–15	4.4	2.0	3.0	2.2	2.5	2.2	1.8	1.2
2015–16	4.5	2.0	3.9	2.0	3.4	2.1	2.1	1.2
2016–17	4.5	2.0	4.0	2.0	3.6	2.0	3.3	1.8
2017–18			4.0	2.0	3.7	2.0	4.0	2.0
2018–19					3.7	2.0	3.9	2.0
2019–20							3.8	2.0

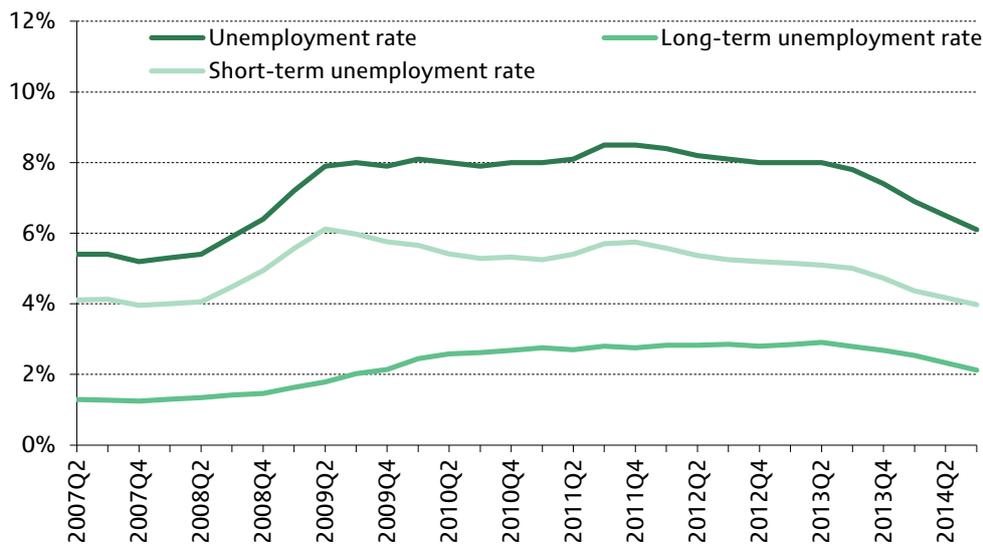
Note: CPI inflation is the forecast for the September of the given financial year. Out-turn data are shown in bold.

Source: Table 4.1 in the Office for Budget Responsibility’s Economic and Fiscal Outlook (November 2011, December 2012, December 2013 and December 2014).

⁴⁰ Page 33 of Bank of England, *Inflation Report: November 2014*, 2014, <http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf>.

⁴¹ This was argued in P. Gregg, S. Machin and M. Fernandez-Salgado, ‘Real wages and unemployment in the Big Squeeze’, *Economic Journal*, 2014, 124, 408–32, using both national-level unemployment and earnings data and variation in unemployment and earnings across regions.

Figure 2.15. Unemployment rate (16- to 64-year-olds)



Note: Long-term unemployment rate is defined as the proportion of the labour force that has been unemployed for over 12 months. Short-term unemployment is the proportion of the labour force that has been unemployed for up to 12 months.

Source: Authors' calculations using ONS series LF2Q and LF36.

fall in the unemployment rate of 2 percentage points over the two years to 2014Q3⁴² (and the Bank of England expects it to have fallen to 5.75% by the end of 2014 – only just above its estimate of the medium-term equilibrium unemployment rate of 5.5%).⁴³

The apparent lack of a wage response so far is particularly striking given that short-term unemployment – which may be a better measure of tightness or slack, as the short-term unemployed are probably more substitutable for existing workers than the long-term unemployed are – has fallen particularly rapidly. And unemployment measures are by no means telling a different story from all other possible measures of slack. The Bank of England shows that the number of job-to-job moves has also risen markedly since 2012 and is now close to its pre-crisis level.⁴⁴ This might indicate that firms are facing increasing competition from potential recruiters of their staff (which, for many firms, is arguably a more relevant metric of wage pressures than the size of the pool of unemployed workers).

One uncertainty is over the relevance of ‘under-employment’ for thinking about labour market slack. Bell and Blanchflower (2014) argue that the weakness of earnings is far less surprising than simple unemployment trends suggest, given the rise in measures of under-employment (see Section 2.2).⁴⁵ On the other hand, Martin Weale, who currently sits on the Bank’s Monetary Policy Committee, has cautioned that under-employment

⁴² The very latest data (for September–November 2014) show an unemployment rate for 16- to 64-year-olds of 6.0%, 0.1 percentage point lower than in 2014Q3 (July–September).

⁴³ Pages 26 and 32 of Bank of England, *Inflation Report: November 2014*, 2014, <http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf>. The Bank of England’s estimate of the long-term equilibrium unemployment rate is around 5%.

⁴⁴ Chart 3.6 of Bank of England, *Inflation Report: November 2014*, 2014, <http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf>.

⁴⁵ D.N.F. Bell and D.G. Blanchflower, ‘Commentary: labour market slack in the UK’, *National Institute Economic Review*, 2014, 229, <http://ner.sagepub.com/content/229/1/F4.short?rss=1&rssource=mfr>.

may not be a good indicator of labour market slack, as the desire to work more may itself be caused by the state of the economy (e.g. the job loss of a partner).⁴⁶

We can be somewhat more confident about a couple of points. First, it is likely that earnings will grow faster in the private sector than in the public sector. The government has announced a 1% nominal increase in basic settlements for public sector workers in 2015–16, and the OBR forecasts public sector earnings to grow by less than earnings in the whole economy for each year from 2015–16 to the end of the forecast period in 2019–20. It is also quite conceivable that a government looking for further deep cuts to public service spending (see Chapter 7) would consider further measures to reduce public sector pay – especially if prices are lower than was expected when the last round of pay restraint was announced. Second, although the timeliest earnings data (AWE) do not tell us about earnings changes at different points of the distribution, it is likely that some employees towards the bottom of the hourly wages distribution are seeing relatively fast earnings growth. In October 2014, the minimum wage rose by 3.0% (from £6.31 to £6.50 per hour), which is well above mean earnings growth of 1.4% recorded in the October AWE data (and well above inflation).

One potential issue for the labour market in coming years is likely to be the further reductions in the size of the public sector workforce. Current OBR forecasts predict a fall in general government employment of 1 million (20%) from early 2015 to early 2020.⁴⁷ While some of this is likely to come from freezes in recruitment, it is inconceivable that this could be implemented without significant numbers of redundancies. The extent to which former public sector employees are able to find new jobs that suit the skills they have will be an important determinant of their earnings in the future.

In the longer term, it is important to emphasise that the crucial factor is likely to be labour productivity growth. Low productivity growth can explain much of the large divergence of earnings levels from their pre-crisis trend, and over long periods workers' remuneration has grown broadly in line with productivity.

2.6 Conclusion

This chapter has set out what we know about workers' earnings since the recession from the various available sources of information.

On any measure, average earnings remain well below their pre-crisis level in real terms and any growth remains weak. There has been much variation though. Women have seen lower falls in earnings than men (as well as more favourable trends in employment). Young adults saw particularly steep falls in earnings between 2009 and 2011. Real earnings have, if anything, fallen by somewhat less at lower points in the earnings distribution (driven by the trend since 2011). Private sector workers have so far experienced larger earnings falls than public sector workers, largely because of the period between the onset of recession and the beginning of the current period of public sector pay restraint in 2011. As that restraint continues, public sector earnings are likely to fall back again relative to private sector earnings.

⁴⁶ M. Weale, 'Slack and the labour market', speech given at the Thames Valley Chamber of Commerce, 20 March 2014, <http://www.bankofengland.co.uk/publications/Documents/speeches/2014/speech716.pdf>.

⁴⁷ See Office for Budget Responsibility, *Economic and Fiscal Outlook: December 2014*, 2014, <http://budgetresponsibility.org.uk/economic-fiscal-outlook-december-2014/>.

Why has the return to robust real earnings growth been taking so long? It is not simply due to compositional changes in the workforce dragging down the numbers. In fact, overall, the long-running shift in the employed population towards higher-wage 'types' is continuing – for example, with increased education levels. We estimate that compositional changes have acted to *increase* average weekly earnings by 0.8% since 2012. Earnings growth remains weak because earnings growth for given types of workers remains weak. We cannot rely on the unwinding of some cyclical change to the composition of the workforce to boost average earnings growth going forwards.

On the contrary, something has been holding down pay for given types of workers. There is an important and unresolved debate about the extent to which wage pressures are building, which relates to uncertainty about the true amount of 'slack' in the labour market. For example, reductions in unemployment (and short-term unemployment in particular) and increases in the number of job-to-job moves might suggest increasing pressures on firms to raise wages to attract or retain the workers that they want; continued high levels of 'under-employment' – workers saying they want more hours than they currently work – might point in the other direction. There is reasonable disagreement over the relative importance of these factors as indicators of wage pressures.

The big picture, though, is that any 'puzzle' about why earnings have fallen so much since the recession (and why employment has been so strong) is largely a productivity puzzle. If anything, earnings growth has been even weaker than productivity growth in recent years, but in the long run a return to strong earnings growth will have to be underpinned by improvements in productivity.