

Article

Economic Review: March 2016

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1 . Main points

GDP growth in the final quarter of 2015 was unrevised at 0.5%. GDP grew by 2.2% in 2015, down from 2.9% in 2014, with household consumption and investment the main contributors to growth. Net trade reduced growth for the fourth year running.

The labour market continues to perform strongly, with the employment rate at a historic high and the unemployment rate back to its pre-downturn average. Nominal and real wage growth have both eased a little in recent months, although this may in part reflect rising job flows into low-skilled occupations.

The number of unemployed people per job vacancy has been declining since 2011 and is now close to historic lows. This points to a reduction in spare capacity in the labour market, raising the risk of skills shortages.

Retail sales volumes in the Christmas period (November to January) were more than 3% higher than a year earlier, the third consecutive year of solid growth, although slower than in each of the preceding two years.

Extensive analysis of OECD data over a 17 year period shows that average revisions to UK GDP growth estimates for periods up to 3 years after initial publication are among the smallest across 18 OECD and G20 economies, and show no systematic bias.

The UK is in the group of countries with the lowest mean revisions to quarterly GDP growth rates, of less than +/- 0.05 percentage points, for periods up to 3 years after first publication. The UK also performs strongly on the basis of mean absolute revisions for the same periods.

GDP growth revisions over the entire period - from first publication to latest estimates - are somewhat larger in all the selected economies, reflecting the impact of major benchmark changes (such as the introduction of new international standards) and other improvements in methodology. The UK shows larger revisions to GDP growth estimates than many other countries over this longer period, but this is mainly due to the switch from RPI- to CPI-based deflation in 2011, a methodological improvement that was not implemented in other countries at the time.

2 . Introduction

GDP grew by 0.5% in the fourth quarter of 2015¹, and by 2.2% for the year 2015 as a whole. While this continues a six-year period of continuous expansion, it marks an easing in GDP growth compared to 2014 when growth was 2.9%. Household consumption has driven GDP growth over much of the recovery, supported by investment.

The labour market has continued to strengthen. The employment rate is now at an historic high, and the unemployment rate has returned to its pre-downturn rate. Inactivity has come down and the unemployed to vacancy ratio has continued to trend down, all pointing to signs of tightening in the labour market.

However, wage growth as measured by the AWE series has moderated in nominal and real terms in recent months. While it remains stronger than during much of the economic recovery – in real terms in particular – this weakening suggests that compositional effects may have been an important drag on average earnings growth in recent months. This finding is supported by the growing number of job to job flows into relatively low-skilled positions.

Inflation rose slightly to 0.3% for the twelve months to January, reflecting very different movements in the prices of goods and services over this period. Goods inflation turned negative in late 2014, and has remained around -2% since early 2015, until it reduced slightly in January 2016. Services inflation, by contrast, has been around 2½ % throughout 2014 and 2015, but after rising slightly in December it fell back to 2.3% in January. A large portion of this price change for goods is due to falling energy prices. Due to the reduced expenditure on energy related goods, as the price has come down, so the weight associated with energy and its components in the CPI basket has been reduced in the 2016 CPI weights.

Retail sales growth, in value terms, has been falling more quickly than growth in volume terms, indicating that while consumers have reduced the growth in their nominal expenditure, they are not experiencing the same slowing in growth in the volume of their purchases. Retail sales growth, excluding fuel, came down during 2015. However this edition finds that growth in the November 2015 to January 2016 period - covering the Christmas and January sales period - was much stronger than in Christmas periods between 2005 and 2012, but has eased compared with the previous year.

January is an important month in the public sector finances as tax revenues from self-assessment returns are received in January, and this is one of two months (January and July) when corporation tax payments for smaller businesses are made. The January surplus, and therefore the associated reduction in the cumulative PSNB ex (excluding public sector banks), increased compared to the previous five years and reflects the improving health of the economy, particularly in nominal terms.

This edition of the Economic Review also provides an overview of the UK's performance of average revisions to GDP growth, compared to a group of OECD and G20 countries for the period 1998 to 2015, expanding upon an OECD report that was published in July 2015. The analysis shows that average revisions to UK GDP growth estimates are among the smallest across 18 OECD and G20 economies, and show no signs of bias.

Notes for Introduction

1. For calendar years, the first quarter (Q1) refers to January to March, the second quarter (Q2) refers to April to June, the third quarter (Q3) refers to July to September and the fourth quarter (Q4) refers to October to December. This annotation – Q1, Q2, Q3 and Q4 – will be used in the rest of this document to refer to these three month periods.

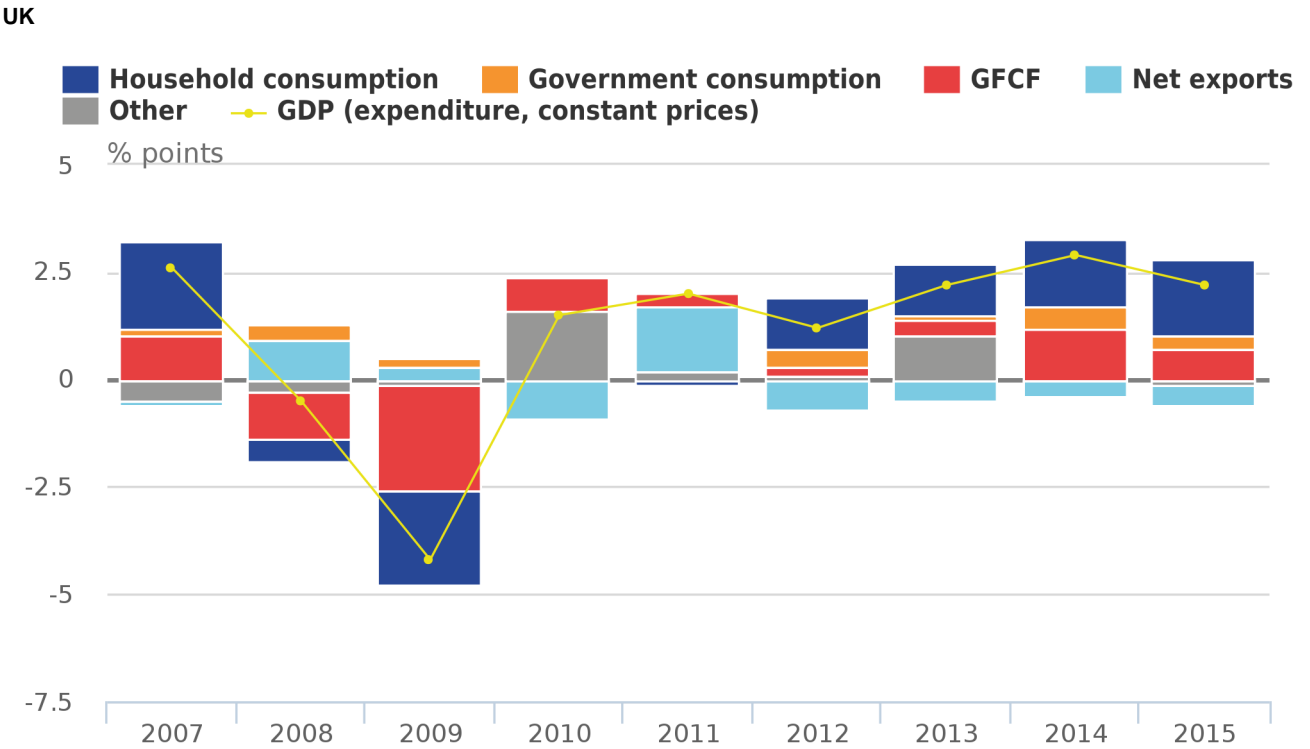
3 . GDP

GDP growth for the final quarter of 2015 was unrevised at 0.5%, resulting in a level of GDP 1.9% higher than in the same period in 2014. While growth has continued for the sixth successive year, it moderated somewhat between 2014 and 2015, dropping from 2.9% to 2.2%. GDP growth has averaged 2.0% per year since 2009, making growth in 2015 slightly above the recent average.

Much of the growth in the expenditure measure of GDP in recent years has been driven by household consumption and investment, and by compensation of employees and gross operating surplus under the income measure. A large part of this is due to the magnitude of household consumption and compensation of employees compared with GDP, but it also reflects their growth relative to other components. Other income has also made a steady contribution to GDP growth under the income measure, which encompasses returns to self employment.

Government consumption made modest, positive contributions to growth in 2014 and 2015 of 0.5 and 0.3 percentage points, respectively, compared with an average of 0.2 percentage points over the past 6 years. Net exports have tended to act as a drag on GDP growth, and this trend continued in 2015, with a downward contribution of 0.5 percentage points (against GDP growth for the year of 2.2%).

Figure 1a: GDP growth (%) and contributions to growth (ppts) - expenditure measure (constant prices) and income measure (current prices), 2007 to 2015



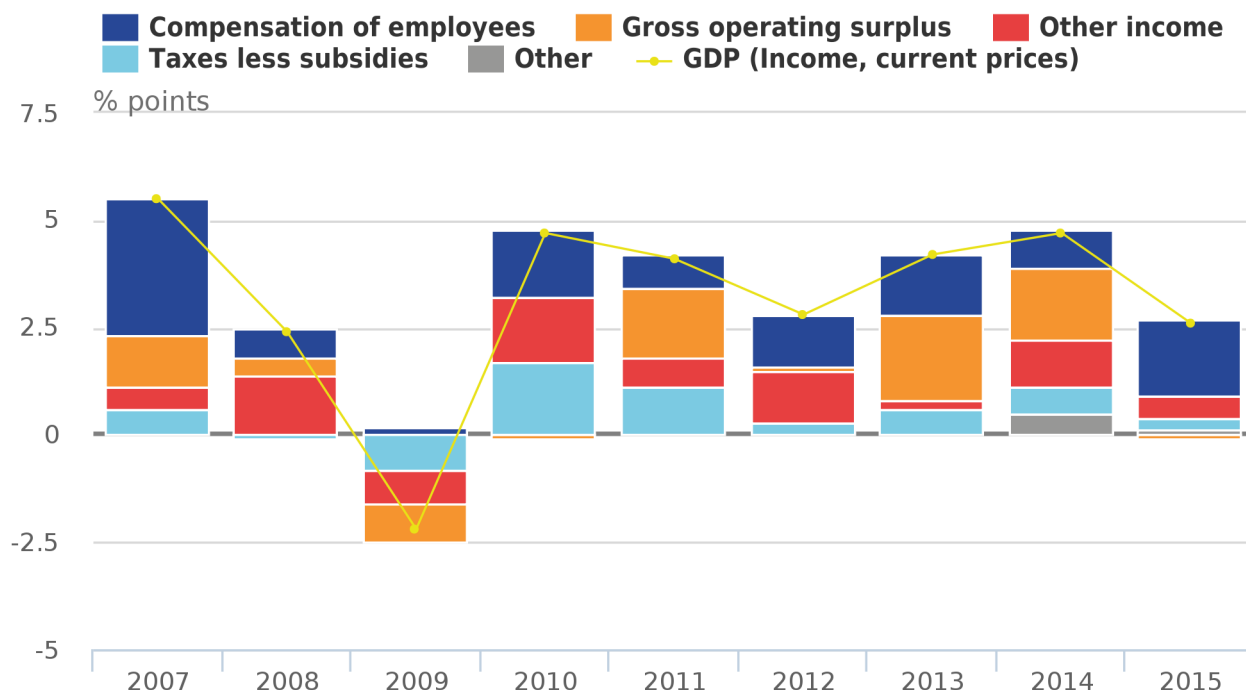
Source: Office for National Statistics

Notes:

1. GFCF stands for Gross Fixed Capital Formation. ‘Other’ includes the statistical discrepancy and change in inventories. Figures may not sum due to rounding

Figure 1b: GDP growth (%) and contributions to growth (ppts) - expenditure measure (constant prices) and income measure (current prices), 2007 to 2015

UK



Source: Office for National Statistics

Notes:

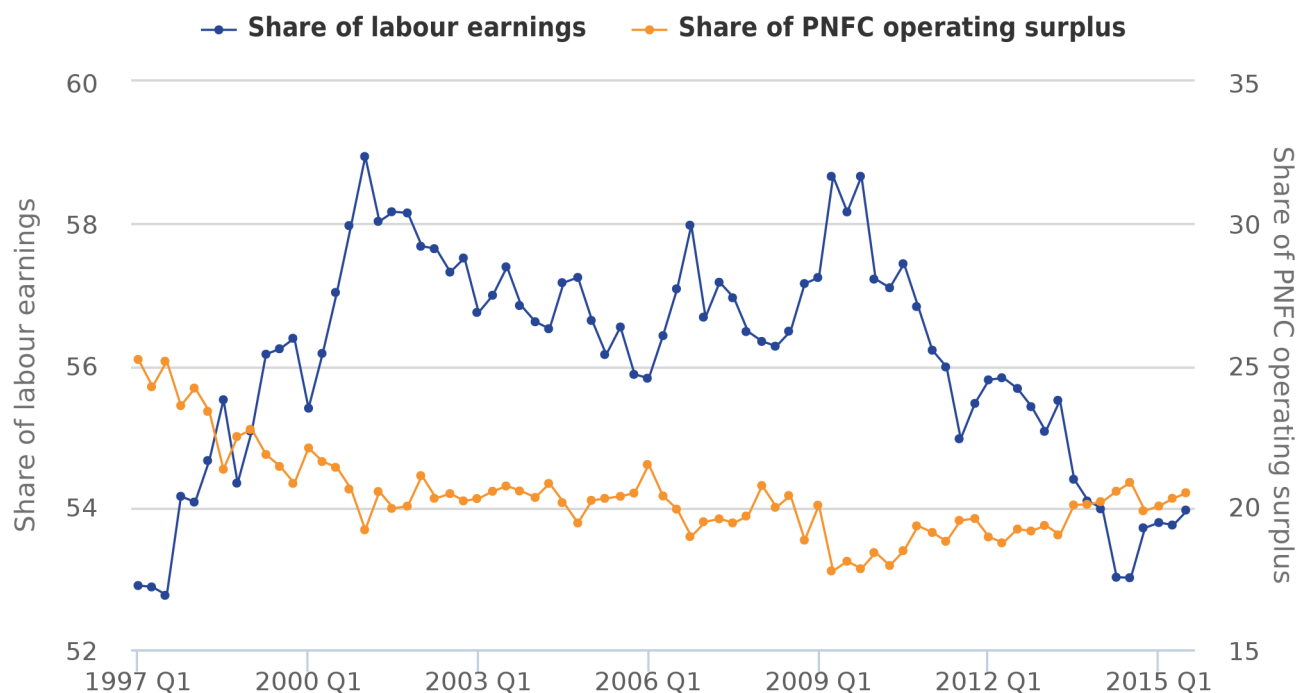
1. 'Other' includes statistical discrepancy. Figures may not sum due to rounding.

The labour and profit share of GDP – based on compensation of employees (CoE), private non-financial corporations' gross operating surplus (PNFC GOS) and shares of self-employed mixed income apportioned to labour and profit using relative CoE and PNFC GOS shares – make up around 55% and 19% of the income measure of GDP respectively between 2010 and 2015.

The share of profits, based on gross operating surplus as a proxy for profitability, has risen from 18% in 2009 to 20% in 2015, while the share of GDP attributable to compensation of employees – the remuneration of labour, including payments of employers' pension and social contributions on behalf of employees – has fallen from 58% in 2009 to 53% in 2014, before recovering slightly towards 54% during 2015. Figure 2 shows the distinctive fall in the share accounted for by labour income and the parallel stability in the share of profitability for the private non-financial corporate sector since the downturn. This is due to a combination of factors including more modest wage growth since the downturn, compared with before the downturn, and GDP rising faster than compensation of employees. Although employment has been rising strongly and is now at historic highs, the relatively modest wage growth and the stronger growth of GDP have both served to lower the share of compensation of employees.

Figure 2: labour earnings (including pension contributions) and private non-financial corporation gross operating surplus (corporate profitability), as a share of GDP, current prices, Q1 1997 to Q4 2015

UK



Source: Office for National Statistics

Notes:

1. The labour and profit share of GDP is based on compensation of employees (CoE), private non-financial corporations' gross operating surplus (PNFC GOS) and shares of self-employed mixed income apportioned to labour and profit using relative CoE and PNFC GOS shares.

Notes for GDP

1. The labour and profitability share of mixed income is calculated using equivalent shares for the wider economy, as proxy apportioning of mixed income to returns to labour and return to capital.

4 . Labour market

In spite of the recent moderation of GDP growth, the UK's labour market has continued to perform strongly in recent months. The employment rate among those aged 16 to 64 increased to 74.1% in Q4 2015 – rising well above its average rate of 72.7% between 2000 and 2007 – the highest level since records began (Figure 3). The unemployment rate among those aged over 16 fell from 5.3% in the 3 months to September 2015, to 5.1% in the 3 months to December 2015, while the headline inactivity rate fell to 21.8% in the same period – close to a record low. [Average weekly hours worked](#) – which had moderated notably in recent months – rebounded strongly in the 3 months to December 2015. Much of this came from growth in the average hours worked of those in full-time employment, which increased from 37.2 hours per week in the 3 months to September, to 37.6 hours per week in the 3 months to December.

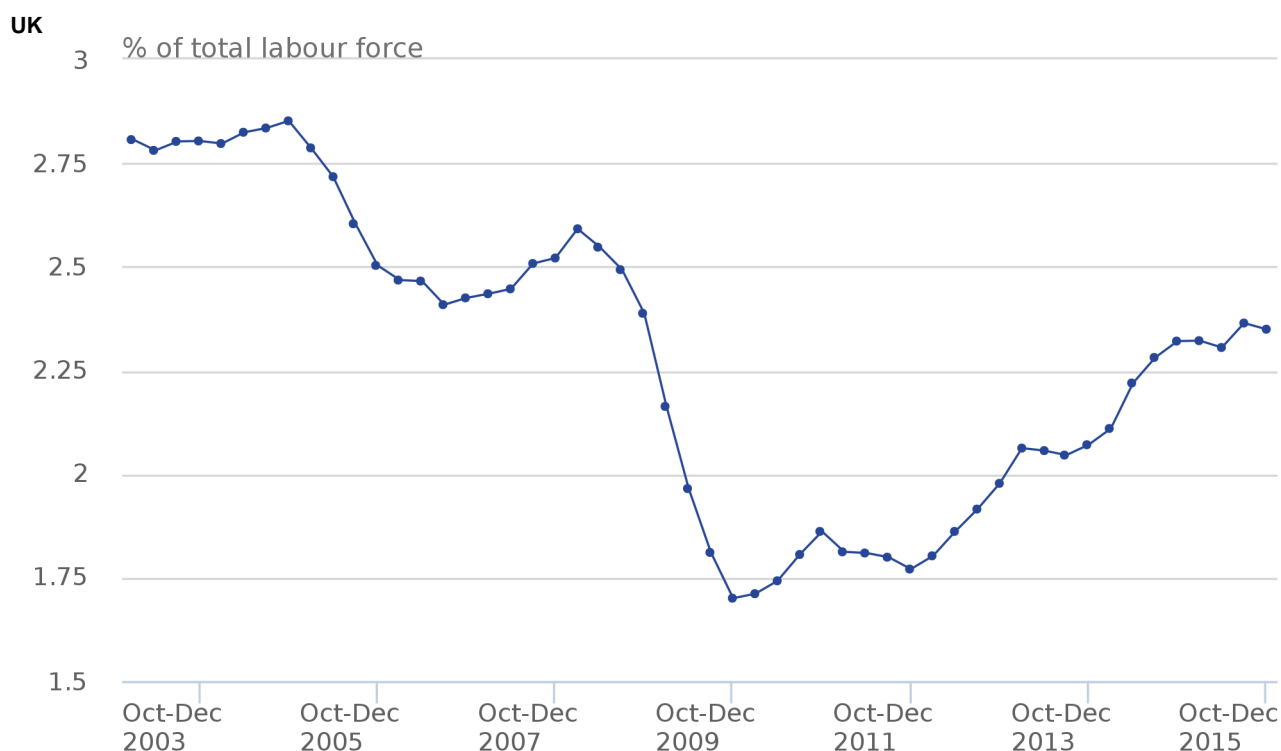
Figure 3: Employment rate, ages 16 to 64, 3 months to February 1995 to 3 months to December 2015,
 % of population



Source: UK

The recent strength of the labour market is also reflected in the degree of mobility within the labour force. Figure 4 shows the rate of job-to-job moves – defined as the proportion of employees who change employer between one quarter and the next – and highlights the sharp fall in job mobility following the downturn. The rate of job-to-job moves fell from around 2.5% of employees to around 1.7% during 2008 and 2009, as the economic outlook became more uncertain and workers became less confident about moving from one post to another. However, since the start of the economic recovery, and in particular since 2012, job-to-job moves have recovered. Led by a growing number of moves initiated by resignations, the rate was close to 2.4% in the 3 months to December 2015 – among the highest levels since the economic downturn began.

Figure 4: Job-to-job move rate, ages 16 to 69, 4-quarter moving average, 3 months to March 2003 to 3 months to December 2015

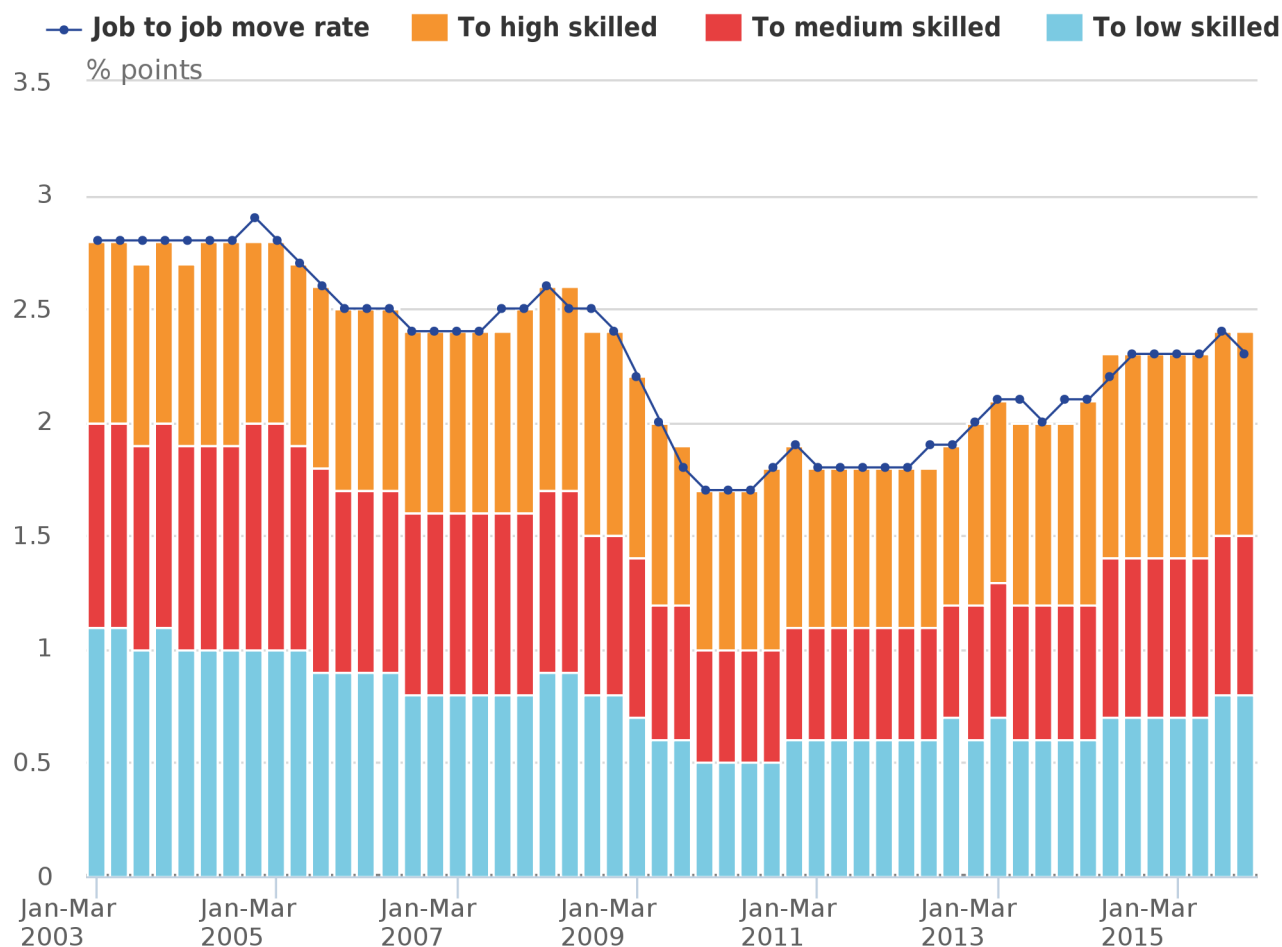


Source: Office for National Statistics

Much of the growth in job-to-job flows has been driven by the continued recovery in job mobility among low skilled posts. Figure 5 breaks the job-to-job move rate into the contributions from moves into 3 forms of occupation broadly categorised into high, medium and low skilled. It shows that falling contributions from the low and medium skilled categories account for much of the fall in mobility during the economic downturn: these groups accounted for 0.6 percentage points of the 0.7 percentage points fall in the move rate between 2007 and 2009. Mobility in the high-skilled group fell to a more limited extent, but recovered relatively quickly. The most recent uptick in mobility appears to have largely been driven by higher job-to-job moves among low-skilled employees, accounting for more than half the increase in the move rate over the past 2 years.

Figure 5: Contributions to job flows rate across occupational groups, ages 16 to 69, 4-quarter moving average, three months to March 2003 to 3 months to December 2015

UK



Source: Office for National Statistics

Notes:

1. Skill level is derived from the Standard Occupation Classification. Major groups 1 to 3 are classified as high skill, major groups 4 to 6 are classified as medium skill, major groups 7 to 9 are classified as low skill.
2. Standard Occupation Classification changes from SOC 2000 to SOC 2010, probabilistic mapping used to map SOC 2010 to SOC 2000.
3. Contributions may not sum to total due to rounding and non-response.

The fall in unemployment and the strength of demand for labour are both strong indicators of tightening in the labour market. Figure 6 maps the ratio of unemployment to vacancies, indicating it has been falling since October 2011 and is now close to its pre-downturn level. Over a longer time-frame, the ratio is close to historical lows, on a par with its level in 2001, 2004 and late 2007. This indicates that there is less spare capacity in the labour market to meet rising demand for employees.

However, while the economic recovery has had a marked impact on labour market quantities – including the numbers of people in employment, hours worked and job-to-job flows – its impact on nominal wages has been more subdued. The annual growth of weekly regular pay has moderated in recent months, falling from 2.8% in the 3 months to June, to 2.4% in the 3 months to September, to 2.0% in the 3 months to December 2015. While this remains stronger than the average rate of growth during the economic recovery as a whole, it is notably weaker than the outturn in recent months, confounding expectations that the tightening labour market would lead to stronger earnings growth.

Figure 6: Unemployed to vacancy ratio (thousands) and nominal regular weekly earnings growth (inverted, %), 3 months to February 2003 to 3 months to December 2015

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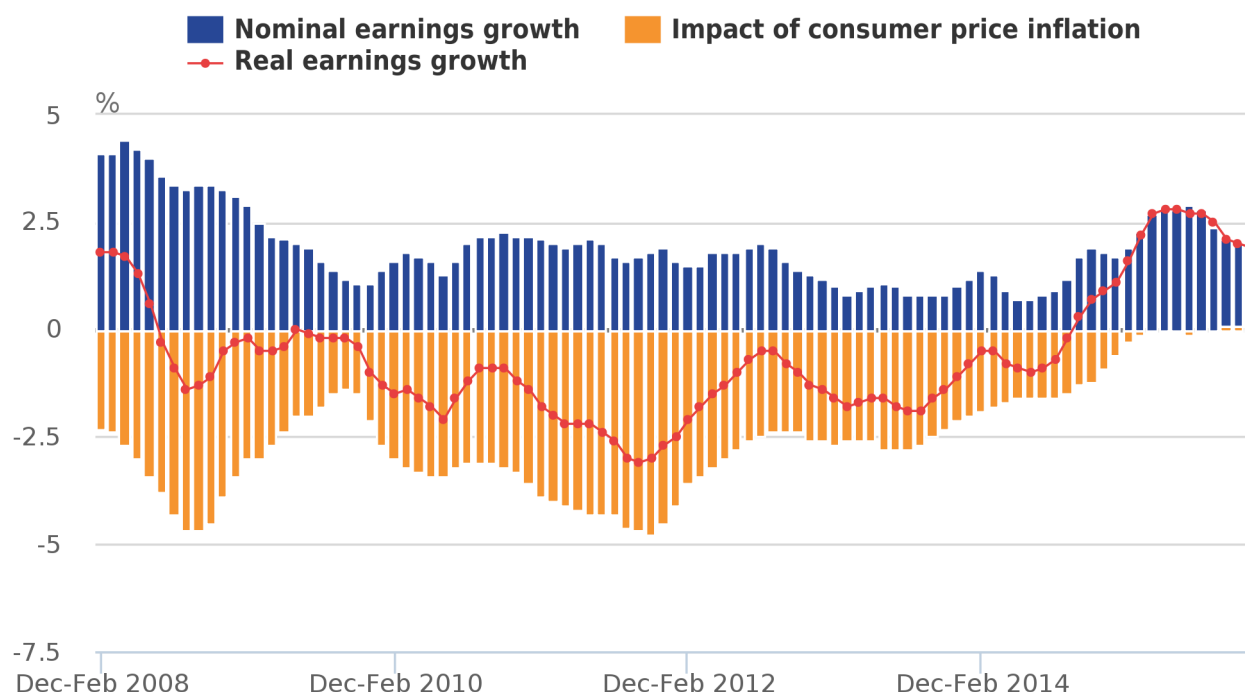
Source: Office for National Statistics

However, although the growth of average pay has softened again in recent months, broader measures of the typical experience of pay growth have been relatively resilient over the same period. As examined in a previous edition of the Economic Review, the growth of average earnings can be affected by changes in the [composition of the workforce](#) – for example when a large group of relatively highly-paid individuals leave the workforce, or where a large number of low-paid workers move from unemployment to employment. In both these cases, compositional effects can affect the growth of average pay, absent any change for the vast majority of workers.

One measure of pay growth which limits the impact of these compositional effects is the median rate of earnings growth – calculated by examining the distribution of earnings growth, rather than changes in average pay. This yields a measure of the typical experience of earnings growth for individuals in employment in consecutive periods, providing a sense of how inflationary pressure in the labour market is affecting pay growth, excluding the impact of workers joining or leaving the workforce. This [alternative measure of pay growth continued its broad recovery in the 3 months to December 2015](#). It suggests that weekly pay was 2.8% higher than a year earlier in Q4 2015, slightly down from 3.0% and 2.9% in Q2 and Q3 2015 respectively, but stronger than the headline average weekly earnings measure. Supported by evidence of a growing inflow into low-skilled positions, this suggests that composition effects may have been an important factor in the development of average nominal earnings growth in recent months.

Figure 7: Contributions to real earnings growth from nominal earnings growth and inflation, 3 months on same 3 months a year ago

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Source: Office for National Statistics

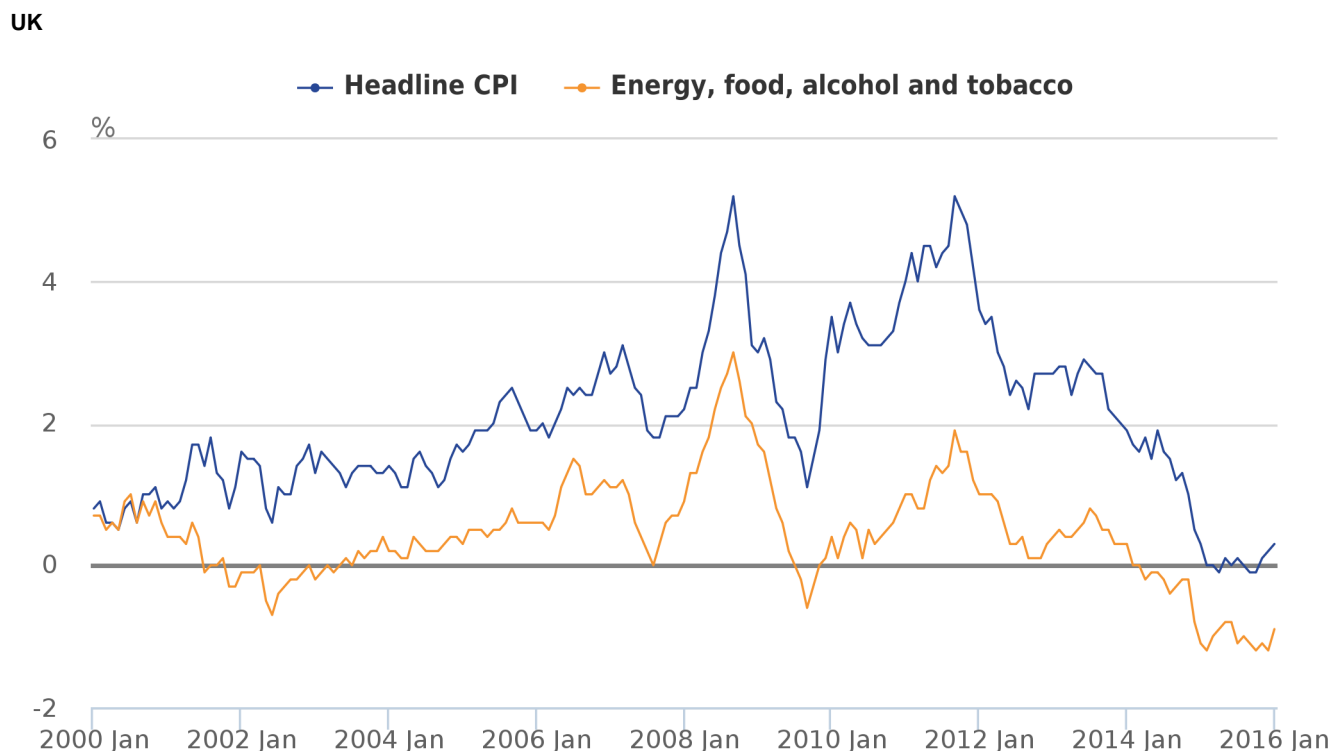
However, while nominal wage growth has moderated, the slow-down in inflation has helped to support real earnings growth in recent months. Inflation as measured by the Consumer Prices Index (CPI) was 0.0% on average during 2015 – indicating that average consumer prices were unchanged between 2014 and 2015 – rising slightly to 0.3% in January 2016. This period of stability in the price level – which is unprecedented in the [history of the modern CPI and last recorded in modelled estimates of inflation in the 1950s](#) – has delivered sustained increases in the real value of earnings for the first time since the start of the economic downturn in 2008. Average nominal earnings growth of 2.4% during 2015 also delivered average real earnings growth of 2.4% during the same period, following falls in real earnings of 1.2%, 1.6% and 0.2% in 2012, 2013 and 2014 respectively.

5 . Inflation

Headline Consumer Prices Index (CPI) inflation rose marginally in January 2016 but remained well below the official inflation target of 2%. The sustained low level of inflation over the past year has been primarily due to falling prices for energy, which appears to have fed through to prices for fuel in transport, and food. The appreciation of sterling during the first half of 2015 also served to hold down import prices, which has its biggest impact on imported raw materials, energy and some manufactured goods.

Figure 8 illustrates the contribution to inflation from energy, food, alcohol and tobacco – the components of inflation that differentiate headline from core inflation – and shows the extent to which these components have weighed on headline inflation in recent months. After making a positive contribution to overall CPI inflation for much of the 2004 to 2013 period, the prices of these products – which are thought to be among the more volatile elements of inflation and less sensitive to control through monetary policy – made a substantial negative contribution in 2015. While these components have made negative contributions in previous periods – notably in the early 2000s and following the oil price shock in 2009 – Figure 8 illustrates that the recent weakness is unparalleled since at least 2000. Whether energy and food prices continue to pull down on inflation depends on whether prices of these products continue to fall, rather than stay flat at a low price level, in which case the contribution would be close to zero.

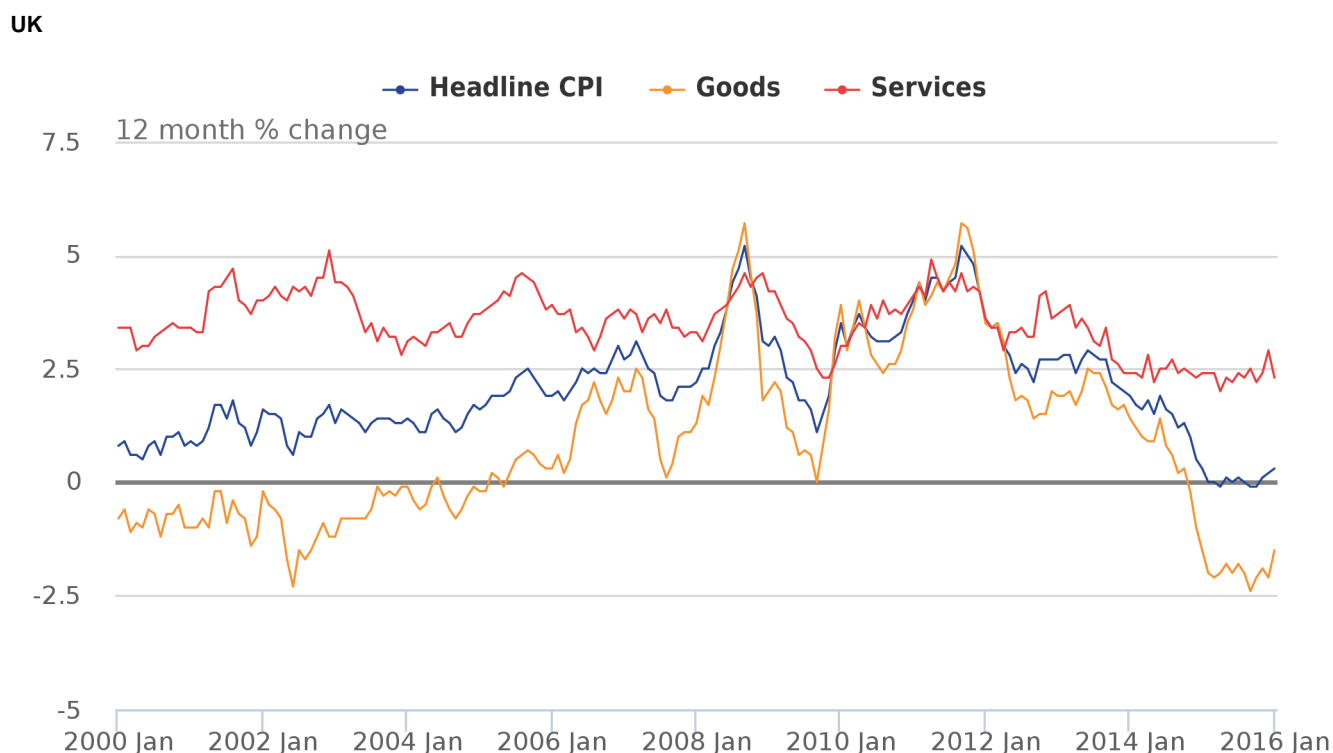
Figure 8: Headline CPI inflation and contribution from energy, food, alcohol and tobacco (12 month percentage change), January 2000 to January 2016



Source: Office for National Statistics

Changes in the oil price and the exchange rate tend to have a greater impact on the prices of goods than on the prices of services. Figure 9 shows goods and services inflation rates since 2000, indicating both that goods prices have grown more slowly than services prices during much of this period, and that their rates of inflation tend to be more volatile. Goods price inflation – which fell on average for much of the early 2000s – increased markedly during 2007, 2008 and 2011, before falling back into negative territory for much of the last year. While services inflation has moderated in recent months, it has been more resilient throughout this period – running between 2% and 4% for much of the time since 2000 – and less variable. This is likely to reflect the greater dependence of goods prices on international supply chains, energy prices and the relatively large portion of services which are non-tradable. Over the past year, goods inflation has averaged -1.9% whilst services inflation has averaged 2.4%.

Figure 9: Headline CPI inflation and goods versus services inflation, January 2000 to January 2016

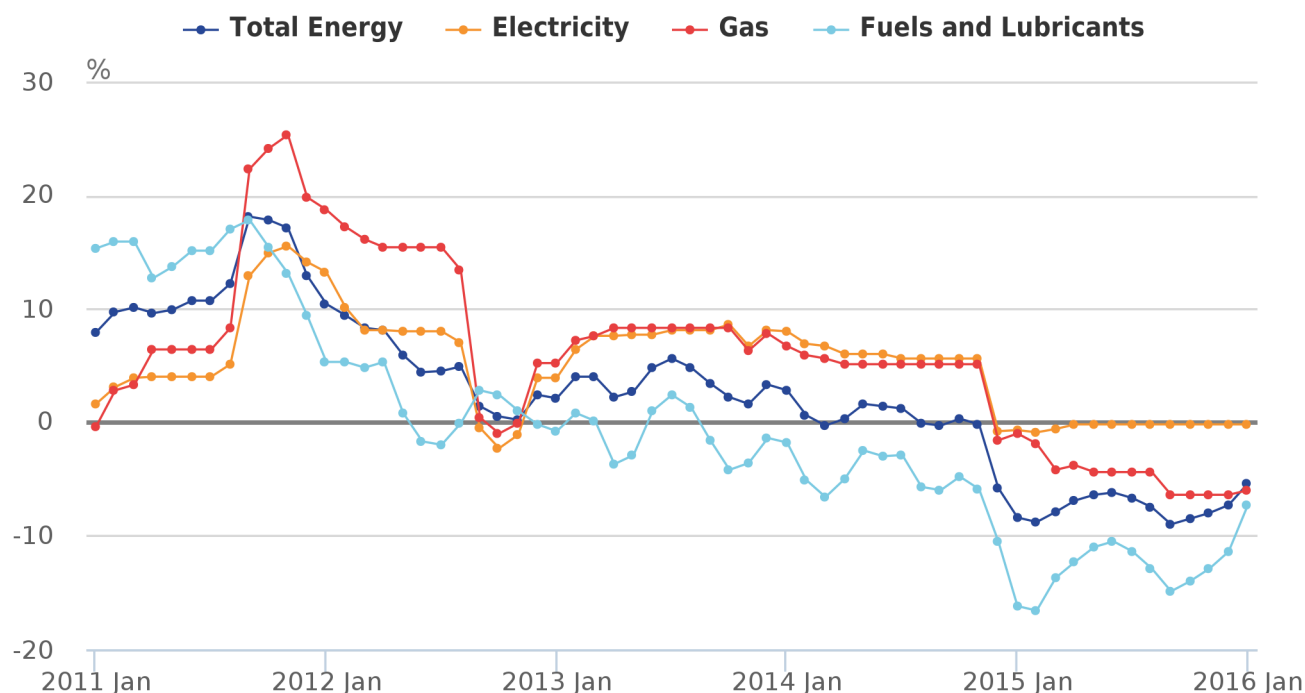


Source: Office for National Statistics

Figure 10 shows the volatile nature of the price of energy and its main components in recent years. Energy inflation was strong in 2011, peaking at 18.1% in the year to September 2011, driven by strong inflation in all main components. Between May 2012 and December 2014, energy inflation became more stable and remained between -1% and 6%, although electricity and gas price inflation remained considerably higher. Energy inflation (12 month rate) then began to fall sharply in late 2014, reaching a trough of -9% in September 2015, driven mainly by a fall in the price of fuels and lubricants, which fell 14.9%, and gas which fell 6.4%, largely due to falls in oil prices. In contrast, electricity price inflation was broadly flat during 2015.

Figure 10: Annual price changes for energy and its main components; fuels and lubricants, electricity and gas, January 2011 to January 2016

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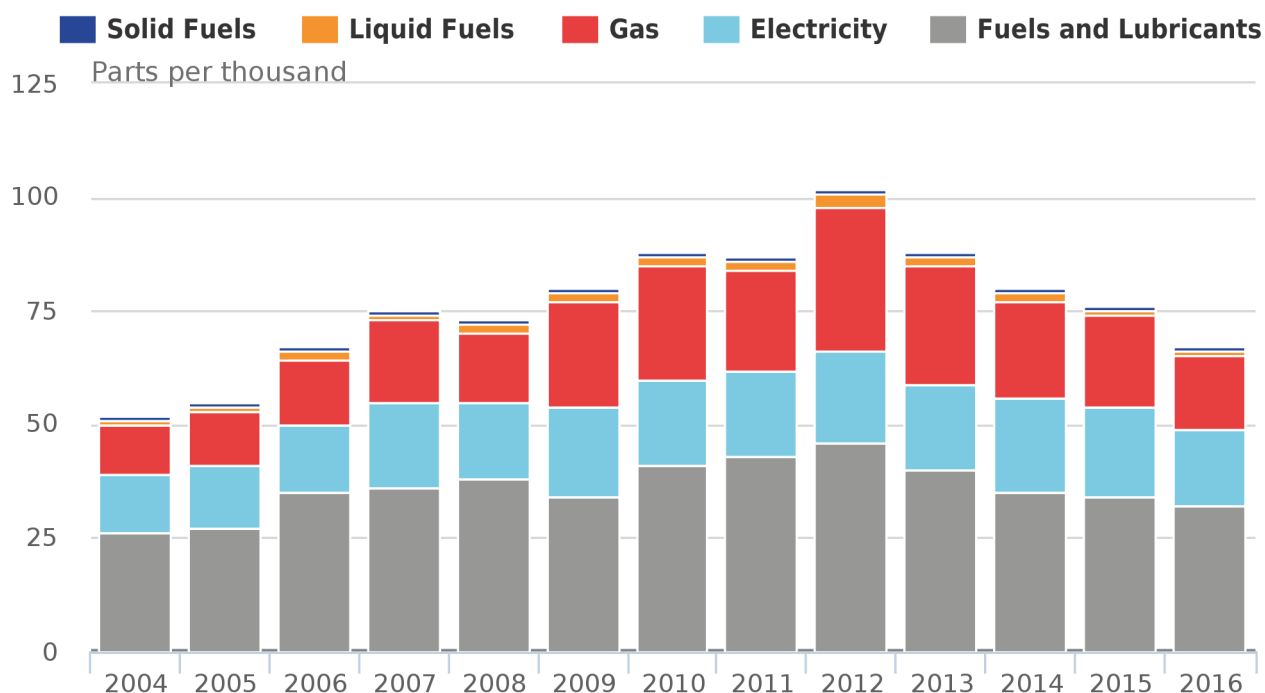


Source: Office for National Statistics

The rate of inflation for these energy components, combined with changes in their weight in the CPI, account for a large portion of recent movements in the CPI. The weights in the inflation basket are reviewed and revised each January to reflect updated information on the patterns of consumer expenditure. Items which account for a larger (smaller) proportion of total household spending are given a greater (lesser) weight in the index. Between 2004 and 2012, the total weight of energy in the CPI basket almost doubled, from 52 parts per 1,000 to 102, reflecting the increasing proportion of total consumer spending on energy (Figure 11). Of this near doubling in the energy weight, the greatest proportion was due to fuels and lubricants, which increased from 26 to 46 parts per thousand, and gas, which increased from 11 to 32 parts per thousand. As energy price inflation has moderated, its weight has also started to come down. Since 2012, the total weight of energy fell steadily from 102 to 62, out of 1,000, and this was again driven by a reduced weight associated with gas – 32 to 16 – and fuels and lubricants for which the weight reduced from 46 to 32. After increasing from 13 to 20 between 2004 and 2009, the weight of electricity has been less variable than for gas and fuels and lubricants, varying between 19 and 21 until 2015 and now standing at 17 in 2016. .

Figure 11: CPI weights for energy components, parts per thousand, 2004 to 2016

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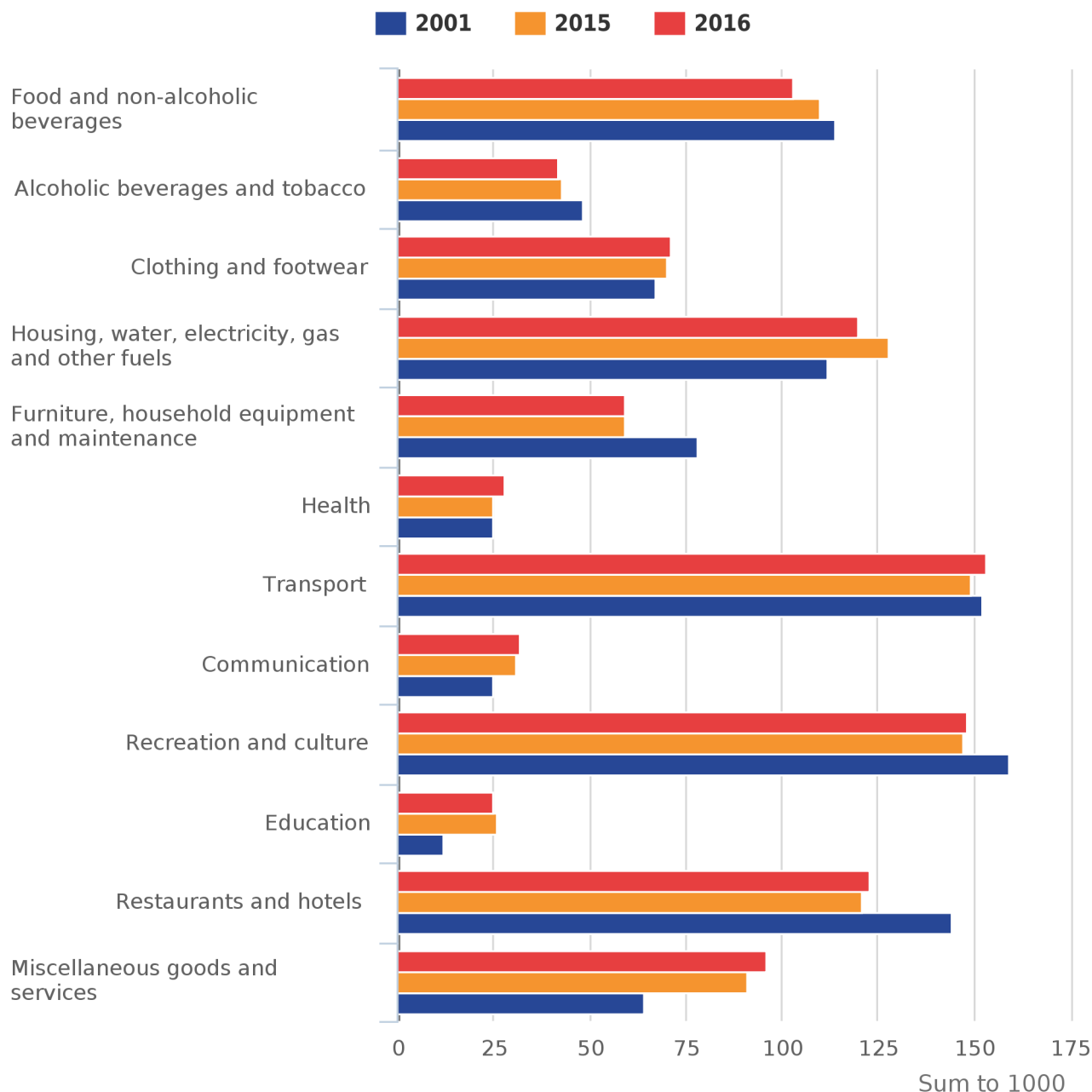


Source: Office for National Statistics

The updating of weights in January 2016 have not been substantial in the main, but there have been more noticeable increases in the weight attributed to transport, health and miscellaneous services, (with less weight attributed to food and non-alcoholic beverages, and housing and utilities), (Figure 12). However, comparing weights over the past 15 years highlights some more significant shifts in spending, and therefore weights attributed to those categories in the CPI basket. In particular, there has been a notable increase in weight attributed to miscellaneous goods and services, to education and to housing and utilities prices, while there have been marked reductions in prominence for restaurants and hotels, furniture and household equipment and to a lesser extent for food and non-alcoholic beverages. Miscellaneous services have experienced considerable increases in its weight and, while this has been across the sub-categories of miscellaneous services, it has been particularly pronounced for personal effects and financial services. These shifts in weights of elements of the consumer basket reflect a combination of rising or falling prices as well as increases or decreases in consumption of the relevant goods and services.

Figure 12: Changes in annual weights of the main categories of the CPI basket (sum to 1000) over 15 year period

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Source: Office for National Statistics

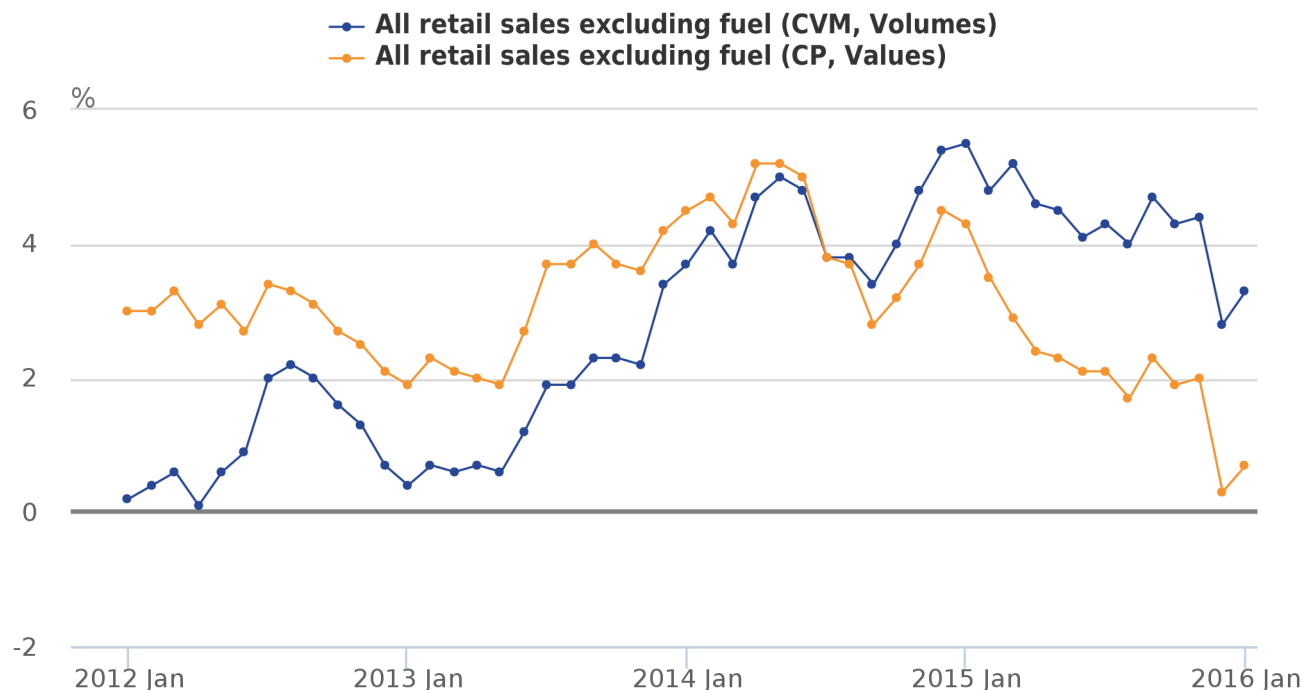
6 . Retail sales

The recent weakness of inflation has also affected patterns of growth in retail sales, excluding fuel, for which growth in volume terms has been stronger than values in recent months. During 2015, consumers were able to cut back sharply on the rate at which they were increasing spending with a much smaller impact on volumes. Figure 13 shows growth of retail sales excluding fuel in volume and value terms, for 3 month periods compared with the same 3 months the year before, smoothing some of the volatility inherent in retail sales growth and providing a clearer picture of the trends emerging from the data.

Figure 13 also shows that year-on-year retail sales growth (excluding fuel) for the 3 months to January 2016 – around the Christmas period – weakened from 5.5% in 2015 to 3.3% in 2016. The growth in retail sales, excluding fuels, came from predominantly food stores, non-specialised non-food stores, household goods stores and non-store retailing, so fairly broad-based.

Figure 13: Retail sales growth, excluding fuel (percentage change, 3 month on 3 month a year ago), January 2012 to January 2016

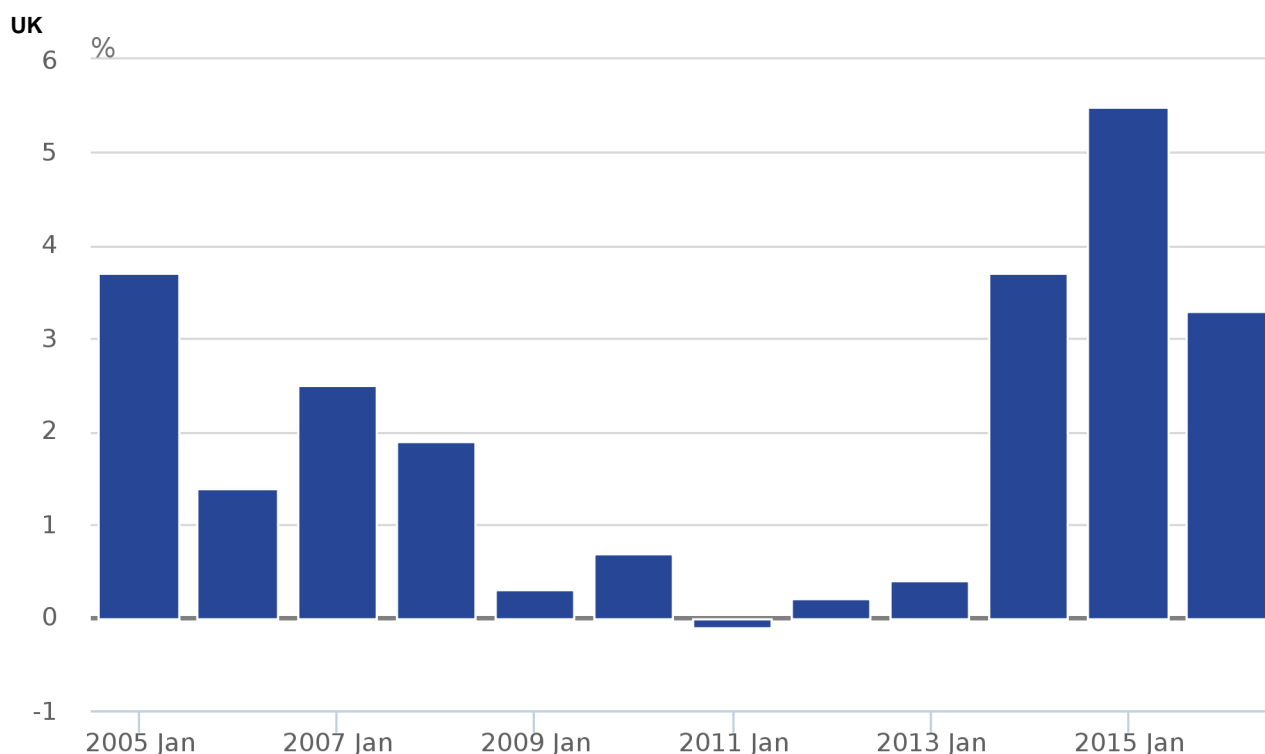
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Source: Office for National Statistics

Focusing on retail sales growth, excluding fuel, during the 3 months around the Christmas shopping period (November 2015 to January 2016), compared with the same period in previous years, Figure 14 indicates that the volume of retail sales over the Christmas period (November to January) has been rising since 2011, particularly in 2014 and 2015. Although growth eased during the 3 months to January 2016 compared with the same period in 2015, it is still considerably stronger growth than in the 5 years between 2009 and 2013. Growth around the Christmas period has also been stronger in the past 3 years, averaging 4.2%, than in the years leading up to the downturn, when growth averaged 2.4% (2005 to 2008). Retail spending patterns around Christmas are difficult to interpret because of the day on which Christmas falls, but looking at the November to January period should mitigate the impact of this effect.

Figure 14: Retail sales growth (excluding fuel, volumes) during the 3 month period around Christmas (November to January), % growth 3 month on 3 month a year earlier, 2005 to 2016



Source: Office for National Statistics

The improvement in retail sales, excluding fuel, around the Christmas period in recent years has been accompanied by strong growth in non-store retailing, as Figure 15 shows. The stronger growth of non-store retailing, which includes online and mail order retail, may reflect the nature of this component and the changing spending pattern of consumers. However, non-store retailing makes up a much smaller proportion of the range of retail businesses covered by the Retail Sales Index compared to predominantly food and non-food stores. Consequently, the improvement in retail sales growth in the November to January period was driven by growth in store-based retail sales, rather than non-store retailing despite its much stronger growth.

Figure 15: Composition of retail sales growth (excluding fuel, volumes) around Christmas compared to the previous year (November to January), % growth 3 month on 3 month a year ago, 2010 to 2016

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Source: Office for National Statistics

7 . Leap Year Effects

A number of adjustments are made to economic statistical series to take account of seasonal patterns, adjust for survey reporting periods and the like. Statistical adjustment methods are inherent in compiling statistical series as survey response or administrative data is converted into aggregate, seasonally adjusted time series. There are a number of factors that are regularly adjusted for, but one that is less regular in that it is not annual is the leap year adjustment. A leap year adds an additional day to February and this may affect movements in some ONS time series. This effect, if present, is likely to be identifiable in monthly time series, and is routinely estimated and removed as part of the process of seasonal adjustment where such an effect is found to be statistically significant. It is difficult to estimate a leap year effect robustly in quarterly and annual time series and therefore only monthly series may be adjusted for leap year effects.

Whether a monthly series is adjusted for a leap year effect largely depends on the reference and survey period. Where a series measures a stock at a particular point in time, such as the Claimant Count measuring the number of people claiming particular benefits on the second Thursday of the month, data are unlikely to be affected by a leap year. Price statistics such as the CPI and RPI are also collected on particular days of the month and so are unlikely to be directly affected. Additionally, statistics which are released monthly may have a survey period or questions designed without reference to the calendar month, so are also unlikely to be directly affected. The Labour Force Survey, for example, covers a 13 week period and questions often refer to a particular week. The Retail Sales Index asks respondents for data based on a 4 or 5 week period. In each of these cases, the reference periods are based on weeks, so are unaffected by the additional day in the calendar month.

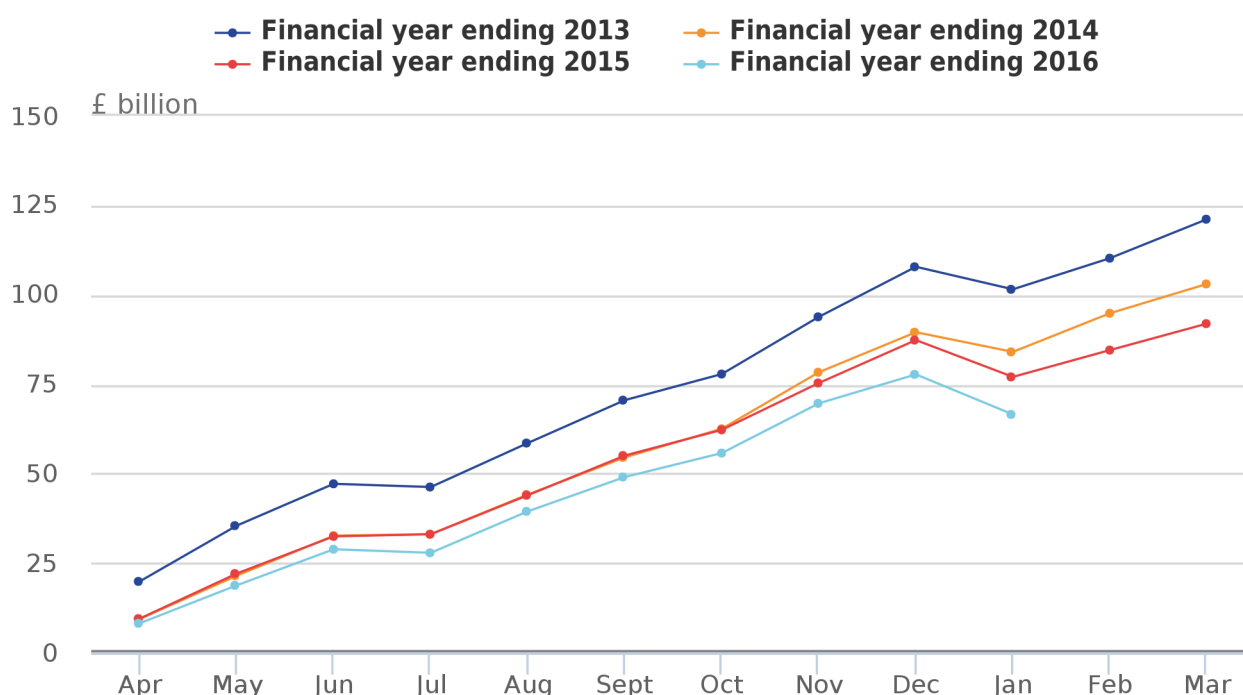
Data which are affected by leap years are most likely those which do cover calendar months and refer to flows rather than stocks, such as the Index of Production, Index of Services, and Output in the Construction Industry. In these cases, and where 4 or more years of data are available, X-13ARIMA-SEATS modelling is used to account for leap year effects in addition to seasonally adjusting data and accounting for trading day effects. Leap year effects are assumed to be constant over the time series, and regression analysis is used to estimate the effect of leap years on the series. A more detailed [methodological note on leap year effects](#) was published on 29 February 2016.

8 . Public Sector Finances

The continuation of the economic recovery and strength of employment growth have both contributed to reductions in Public Sector Net Borrowing. Figure 16 shows the performance of cumulative Public Sector Net Borrowing excluding public sector banks (PSNB ex) for the latest financial year-to-date (April 2015 to January 2016), and the previous 3 financial years. It shows that there was a marked reduction of around £18 billion between 2012/2013 and 2013/2014. However, the reduction between 2013/14 and 2014/15 (£11.1 billion) was smaller, particularly in the first half of that financial year. The reduction in the latest financial year to date (April 2015 to January 2016), accumulates to a fall in borrowing of £10.6 billion, to £66.5 billion, in the first 10 months of the financial year.

Figure 16: Cumulative public sector net borrowing excluding public sector banks (PSNB ex.), selected financial years

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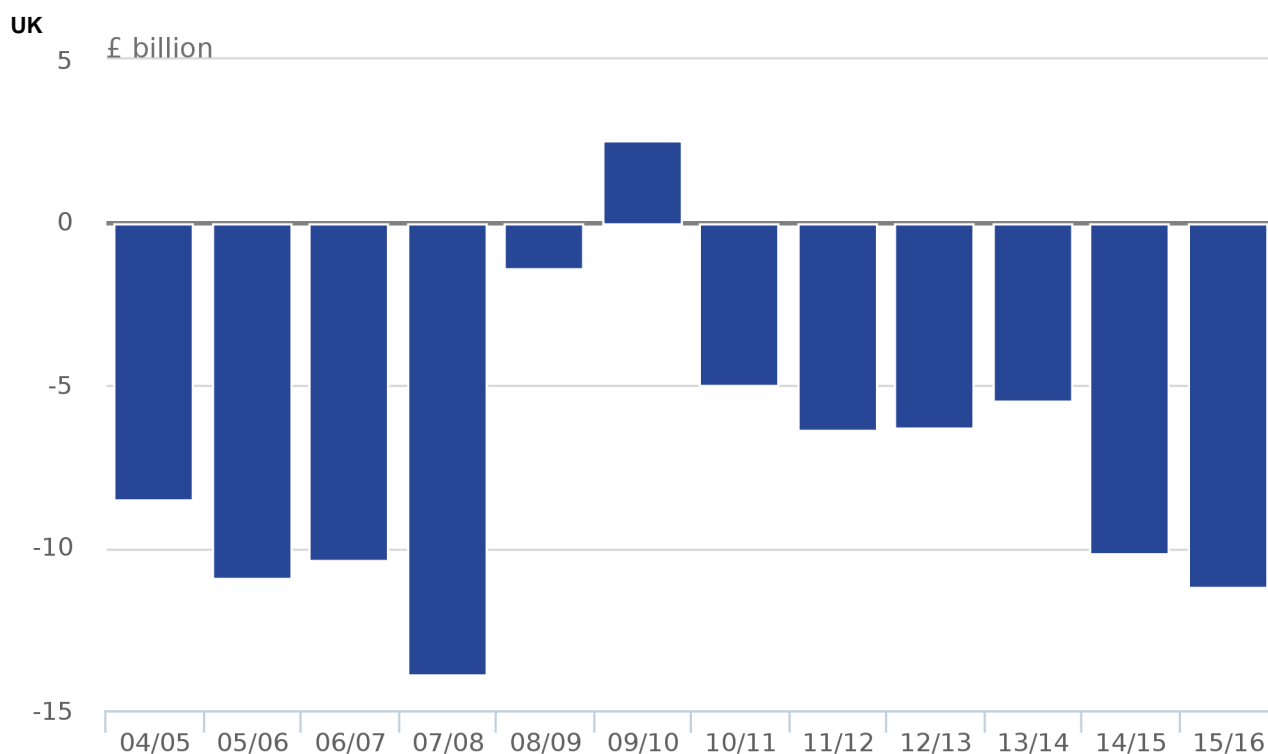
Source: Office for National Statistics

Notes:

1. Financial years are April to March.

Figure 17 shows the persistently negative borrowing which occurs in January each year, largely due to the increase in self-assessment and corporation tax revenues in this month. PSNB ex tends to move into surplus during January due to this increase in tax receipts. Figure 17 shows the size of the surplus each January since 2004/05. In the 4 years prior to the economic downturn, the average surplus in January was around £11 billion. During the downturn in 2008 and 2009, the surplus was much lower than in previous Januarys – indeed it also remained in deficit in January 2010. This reflects the impact of the downturn on household incomes and company profits, so reducing the level of associated tax receipts, since the downturn, as tax revenues have recovered the surplus in January has improved. The surplus in January of 2014/15 and of 2015/16 is broadly comparable with the January figures prior to the downturn (£10.2 billion and £11.2 billion respectively).

Figure 17: Public sector net borrowing excluding public sector banks (PSNB ex) in January of each financial year, 2004/05 to 2015/16



Source: Office for National Statistics

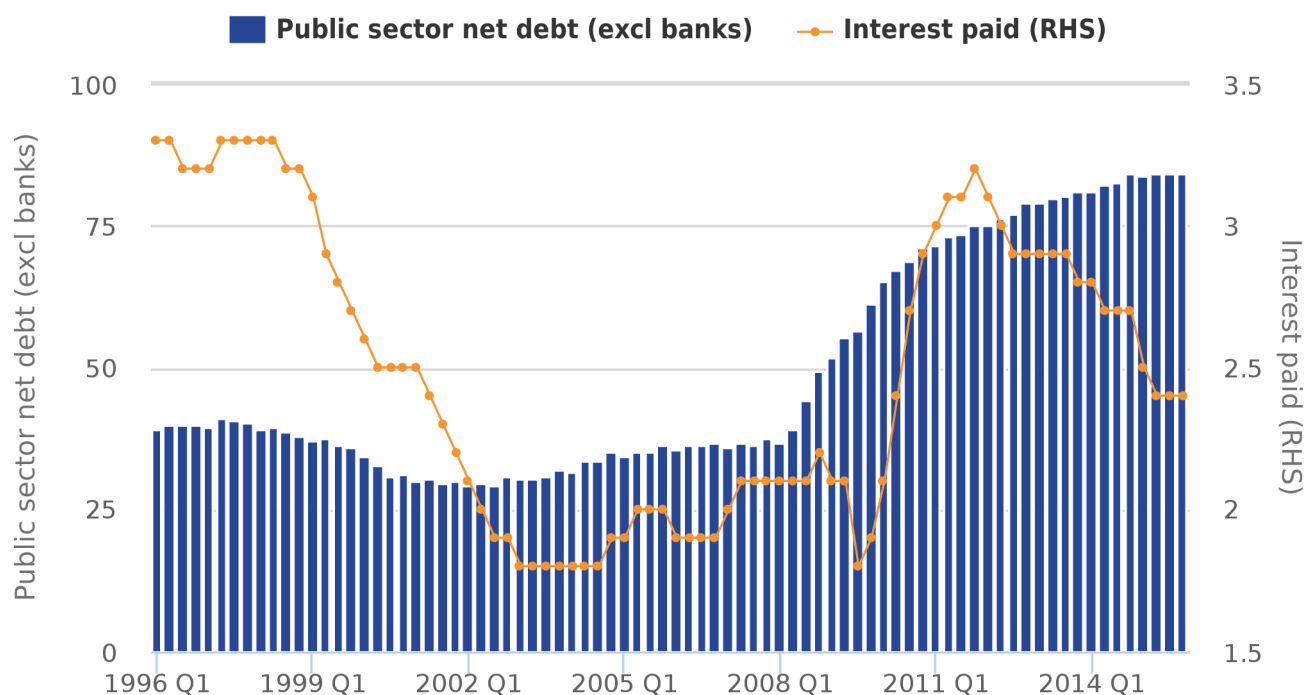
Much of the strength in government revenues for January comes from higher tax receipts on income, particularly receipts from self-assessed income tax. Income tax-related payments in January 2016 increased from £28.5 billion to £30.3 billion, of which self-assessed income tax receipts were £12.4 billion. In recent years around half the annual receipts of the self assessed income tax have occurred in January, with 3-quarters of capital gains tax and 20% of corporation tax receipts.

Public sector net borrowing, excluding public sector banks, reflects the position in each financial year. The accumulation of these financial year balances, as well as interest paid on that accumulated balance, is referred to as public sector net debt, excluding public sector banks (PSND ex) and reflects the scale of an economy's accumulated outstanding debt. At the end of January 2016, the UK's PSND ex. stood at £1,581.6 billion, and the provisional estimate of PSND ex as a percentage of GDP stood at 82.8%. However, as a proportion of GDP, relatively low and falling interest payments on debt have been obtained in recent years, despite relatively high and increasing PSND ex.

Figure 18 shows that during and following the economic downturn, both debt and interest payments rose sharply as a per cent of GDP. As the rise of PSND ex started to moderate and interest rates came down, so interest payments as a share of GDP came down markedly. Average interest payments in 2015 were 2.4% of GDP, slightly lower than the average interest payment of 3.0% prior to the year 2000, even though the debt-to-GDP ratio had more than doubled. As explored in the "[Longer-term trends - Public Sector Finance](#)" article, this was broadly down to the lower levels of interest rates on government debt in the post-downturn period.

Figure 18: Public sector net debt (ex) and Interest paid on debt, Q1 1996 to Q4 2015

UK



Source: Office for National Statistics

Notes for Public Sector Finances

1. 2012/13 denotes the financial year April 2012 to March 2013.

9 . International comparison of revisions to GDP (chained volume measure)

The Organisation for Economic Co-operation and Development (OECD) published a report, in July 2015, on revisions to quarterly GDP across a range of OECD countries in July 2015 ([Revisions of quarterly GDP in selected OECD Countries](#)), to investigate and compare the revisions performance across a select group of countries. In January 2016 the ONS also published the latest in a series of revisions articles which document the UK's GDP revisions performance over time ([Blue Book 2014 and Blue Book 2015 revisions analysis and impact](#)). The ONS article showed that GDP revisions remain small and unbiased over the initial Blue Book revisions periods, and noted the July 2015 comments by the OECD that "France, Italy, Norway and the United Kingdom record the lowest mean revisions for both quarter on quarter and year on year growth rates". However, our January 2016 article also acknowledged the perception that the UK has seen more upward revisions beyond the typical 5-year revisions analysis period than many other countries, in part due to the move in 2011 from using the Retail Price Indices (RPI) to using the Consumer Price Indices (CPI) as the main source of deflation for the expenditure measure of GDP. The article stated that further work was ongoing within ONS, both on international comparisons of GDP revisions and on estimating the impact of the move from using RPI to CPI for deflation on the UK revisions performance.

This section focuses on the UK's revisions performance, for GDP in chained volume measures, and expands the OECD's comparison across countries by adding to the number of countries used, as well as adding the latest quarterly data to the comparative analysis.

How does the UK revisions performance compare with that of other countries?

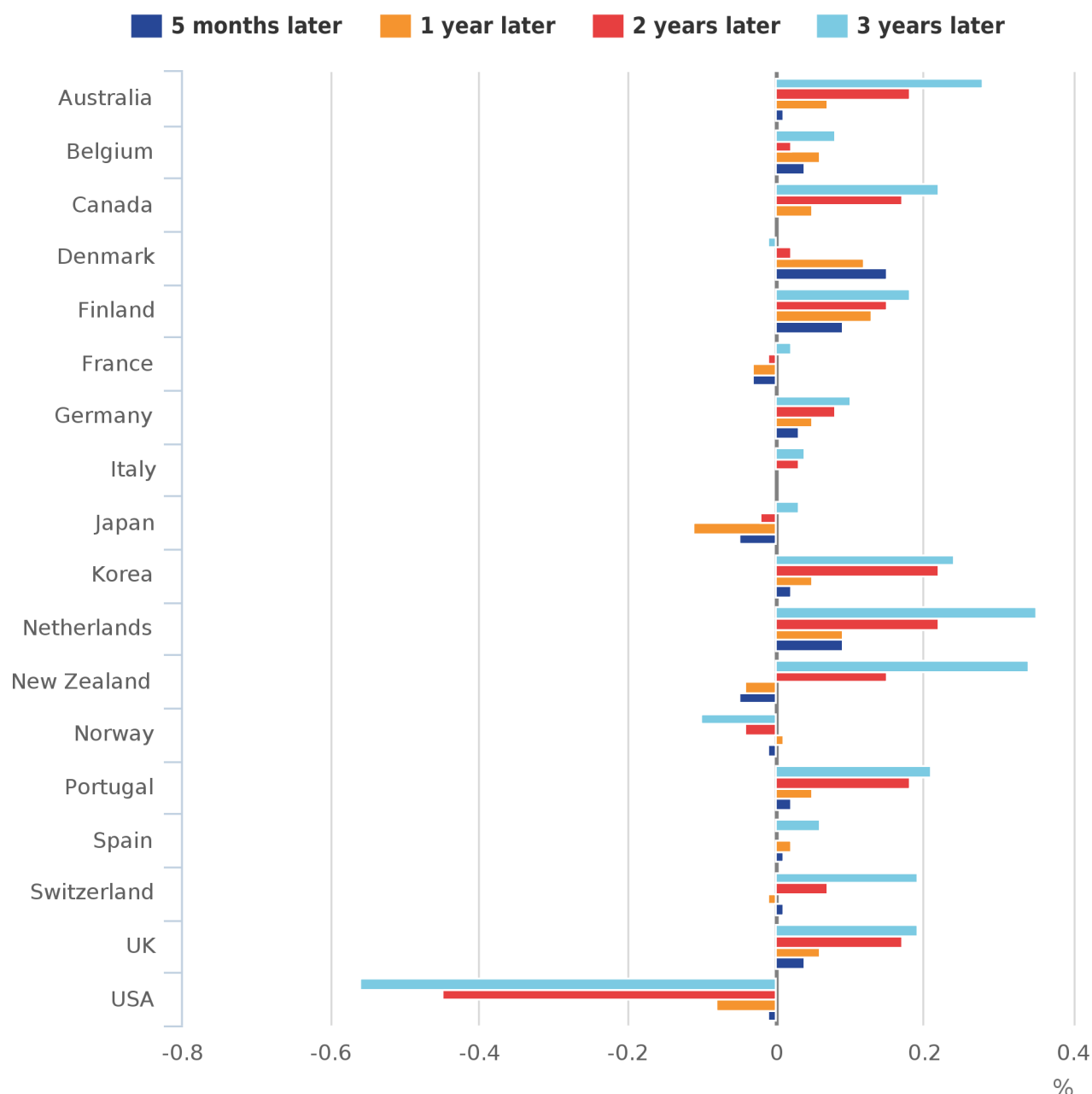
Figure 19 contrasts the mean revisions to GDP growth (quarter on quarter) for a selection of OECD countries, as well as some other G20 countries, at 4 stages in the estimation process – 5 months, 1 year, 2 years and 3 years after the period in question. The comparison covers GDP estimates between the fourth quarter of 1998 and the second quarter of 2015, in order to include as many countries as possible in the comparison. Although the OECD analysis covers a period starting in 1994, this limits the number of countries that can be included in the analysis. It is based on data from the [OECD real-time data and revisions database](#). Figure 19, shows similar comparative analysis but for GDP growth of quarter on the same quarter a year ago.

Figure 19: Comparison of revisions to GDP growth across selected OECD and G20 countries, quarter on quarter, chained volume measure, for the period Q4 1998 to Q2 2015



Source: Organisation for Economic Co-operation and Development real time data and revisions database

Figure 20: Comparison of revisions to GDP growth across selected OECD and G20 countries, quarter on quarter a year ago, chained volume measure, for the period Q4 1998 to Q2 2015



Source: Organisation for Economic Co-operation and Development real time data and revisions database

These figures show that most countries have upwards revisions across all data vintages, meaning that most countries underestimate GDP growth in their early estimates. The exceptions to this are Japan, Norway and the USA; France and New Zealand tend to see negative revisions to earlier estimates, followed up by upward revisions to later estimates.

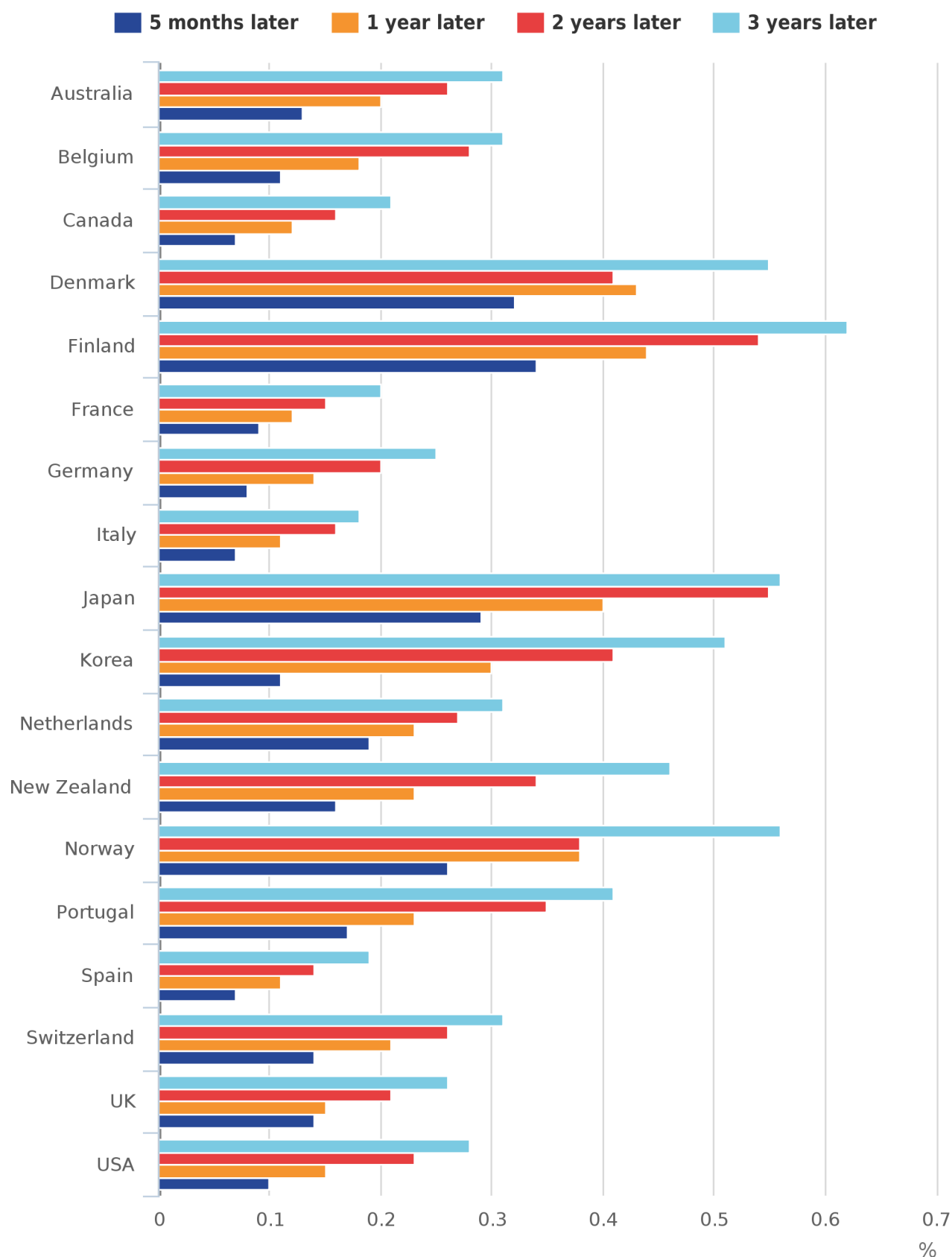
In Figure 19 for quarter on quarter revisions, the UK is, as stated by the OECD, in the group of countries with the lowest mean revisions, alongside Belgium, Finland, France, Italy, Portugal and Spain; all of these countries have mean revisions of less than ± 0.05 percentage points across all vintages up to 3 years after first publication. Denmark has the unusual situation where the first revisions are larger than later revisions. The highest mean revisions are reported by Australia, Denmark, Korea and the USA, with at least one revision vintage for each of these countries over the ± 0.10 percentage point threshold.

Figure 20 shows the mean revisions for quarter on the same quarter of a year ago, and the pattern is similar. The UK's 2 and 3 year revisions performance is slightly worse than in the quarter on quarter analysis (Figure 19) but with revisions below the +0.20 percentage point category, the UK revisions performance remains good and broadly similar to most countries. The top performing countries here are Belgium, France, Germany, Italy, Norway and Spain at less than +/- 0.10 percentage points.

As well as looking at the mean revision, the absolute mean revision is a useful indicator as to the size of revisions. This is because it avoids the offsetting contributions on the mean revision from negative and positive revisions. So if a country has large revisions which can be both positive and negative in equal measure then it will have a zero mean revision, but might show a substantial mean absolute revision. A downside to the absolute mean however, is that because it does not show the sign of revisions, it does not give an indication of any possible directional bias.

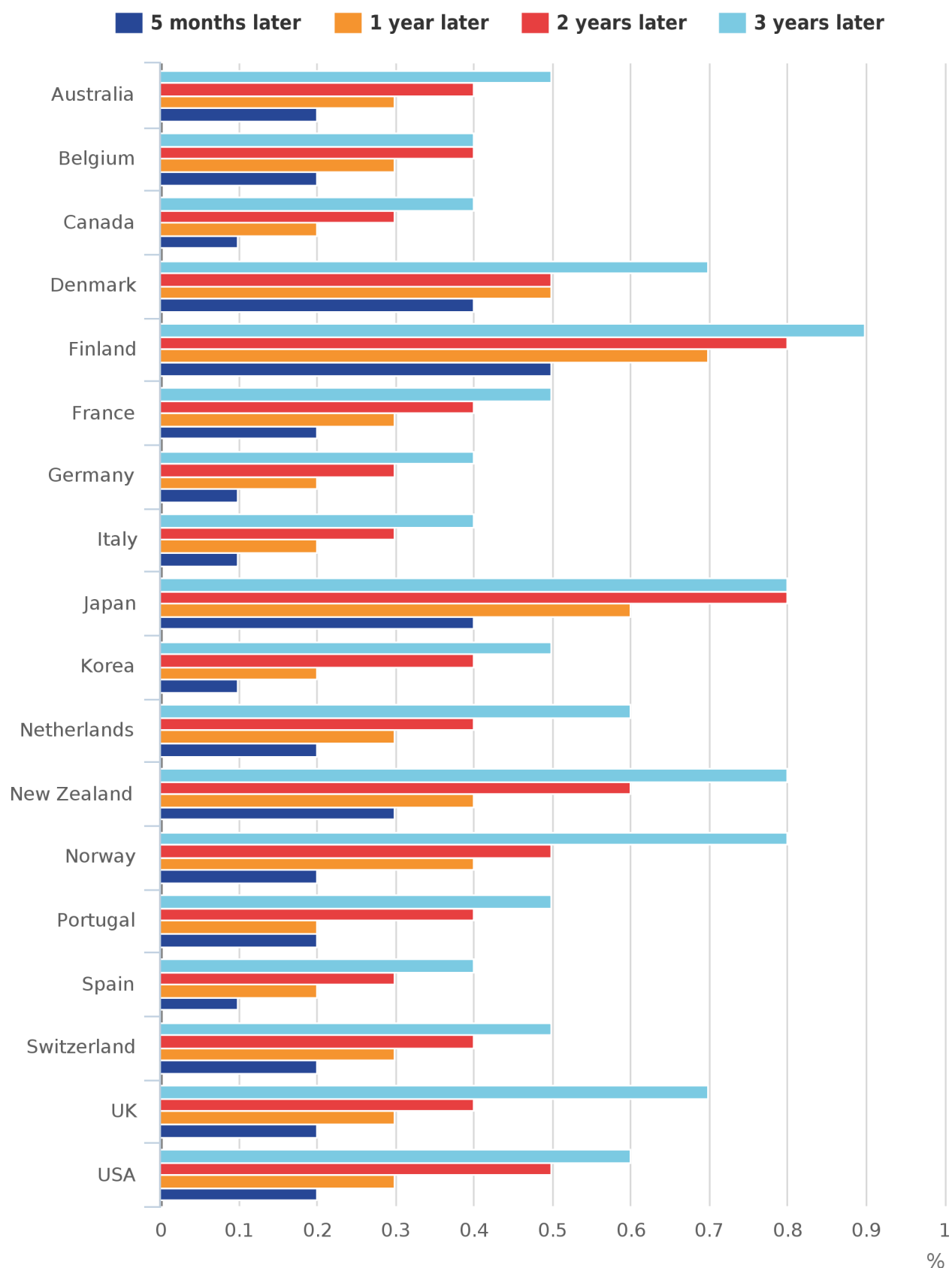
For completeness Figures 21 and 22 show the absolute mean revisions for the same time periods and countries as Figures 19 and 20.

Figure 21: Comparison of absolute mean revisions to GDP growth across selected OECD and G20 countries, quarter on quarter, chained volume measure, Q4 1998 Q4 to Q2 2015



Source: Organisation for Economic Co-operation and Development real time data and revisions database

Figure 22: Comparison of absolute mean revisions to GDP growth across selected OECD and G20 countries, quarter on quarter a year ago, chained volume measure, Q4 1998 to Q2 2015



Source: Organisation for Economic Co-operation and Development real time data and revisions database

These figures show that the UK's absolute mean revision performance in relation to other countries is comparable with the mean revision performance.

Is the UK revisions performance biased?

While the magnitude and direction of revisions is important, it is also important to identify if there is a bias within a country's revisions. Table 1 shows the mean revisions at different intervals, as per Figures 21 and 22, and indicates where the mean revision is statistically significant at the 10%, 5% and 1% level.

Table 1: Mean revision and statistical significance at different revision intervals for quarter on quarter (QoQ) and quarter on the same quarter a year ago (QoY) GDP growth rates, Q4 1998 to Q2 2015

Country	Chained volume measure, percentage points							
	5 months later		1 year later		2 years later		3 years later	
	QoQ	QoY	QoQ	QoY	QoQ	QoY	QoQ	QoY
Australia	*0.06	0.01	*0.11	0.07	**0.10	**0.19	*0.13	**0.28
Belgium	0.01	0.04	0.03	0.05	0.01	0.03	0.05	0.08
Canada	0.01	0.00	0.00	0.05	***0.04	**0.17	0.06	**0.22
Denmark	**0.11	**0.15	0.04	0.10	0.01	0.03	0.02	-0.02
Finland	0.03	0.09	-0.03	0.14	0.02	0.16	0.01	0.19
France	**0.03	-0.02	-0.03	0.01	-0.01	***0.17	0.02	***0.21
Germany	0.03	0.03	0.04	0.05	**0.07	0.08	0.06	0.11
Italy	0.00	0.00	0.00	0.00	-0.01	0.03	0.00	0.06
Japan	-0.05	-0.06	-0.05	-0.10	-0.08	-0.01	-0.03	0.03
Korea	0.03	0.02	0.04	0.05	0.10	*0.23	0.10	*0.23
Netherlands	0.04	**0.09	0.03	0.09	0.04	**0.21	0.06	*0.35
New Zealand	-0.03	-0.05	-0.02	-0.03	0.00	0.16	0.07	0.33
Norway	-0.03	-0.01	-0.07	0.02	-0.04	-0.05	-0.08	-0.09
Portugal	0.03	0.01	0.02	0.04	0.03	**0.18	0.03	**0.24
Spain	0.00	0.01	0.00	0.03	0.01	0.00	0.02	0.07
Switzerland	0.02	0.01	0.01	-0.00	0.00	0.07	0.06	0.19
UK	0.02	0.04	0.01	0.06	0.03	0.17	0.04	0.17
USA	0.00	-0.01	-0.01	-0.09	**0.10	*0.46	*0.14	*0.56
Average	0.01	0.02	0.01	0.03	0.01	0.07	0.03	0.12

Source: Organisation for Economic Co-operation and Development real time data and revisions database

Note:

1. Statistical significance levels 1%* 5%** 10%***

Note: For statistical significance, this analysis uses the Heteroskedasticity and Autocorrelation Consistent (HAC) variance of the mean revision, as described in the OECD Statistics Working Group paper, 2005 OECD paper

Table 1 presents the data behind Figures 21 and 22 and confirms that the UK is amongst a group of countries with no statistically significant revisions across these 4 revision vintages. Other countries with a similar performance are Finland, Italy, Japan, Norway, Spain and Switzerland. Countries with some bias in some of their estimates at the 5% or 10% significance level include Canada, Denmark, France, New Zealand and Portugal. The countries with the highest levels of bias, often at the 1% significance level include Australia, Korea, the Netherlands and the USA.

Consequently, in terms of statistical significance of revisions, as well as absolute revisions, the UK revisions performance up to 3 years after the first GDP estimates is at least as good as most other countries, and better than many, and shows no systematic bias. It should be noted that major benchmarks are more likely to affect the longer time span revisions so countries such as the Netherlands who only benchmark periodically may not be showing true “bias” in their quarterly GDP growth estimates.

How does the revisions performance change when latest estimates are included?

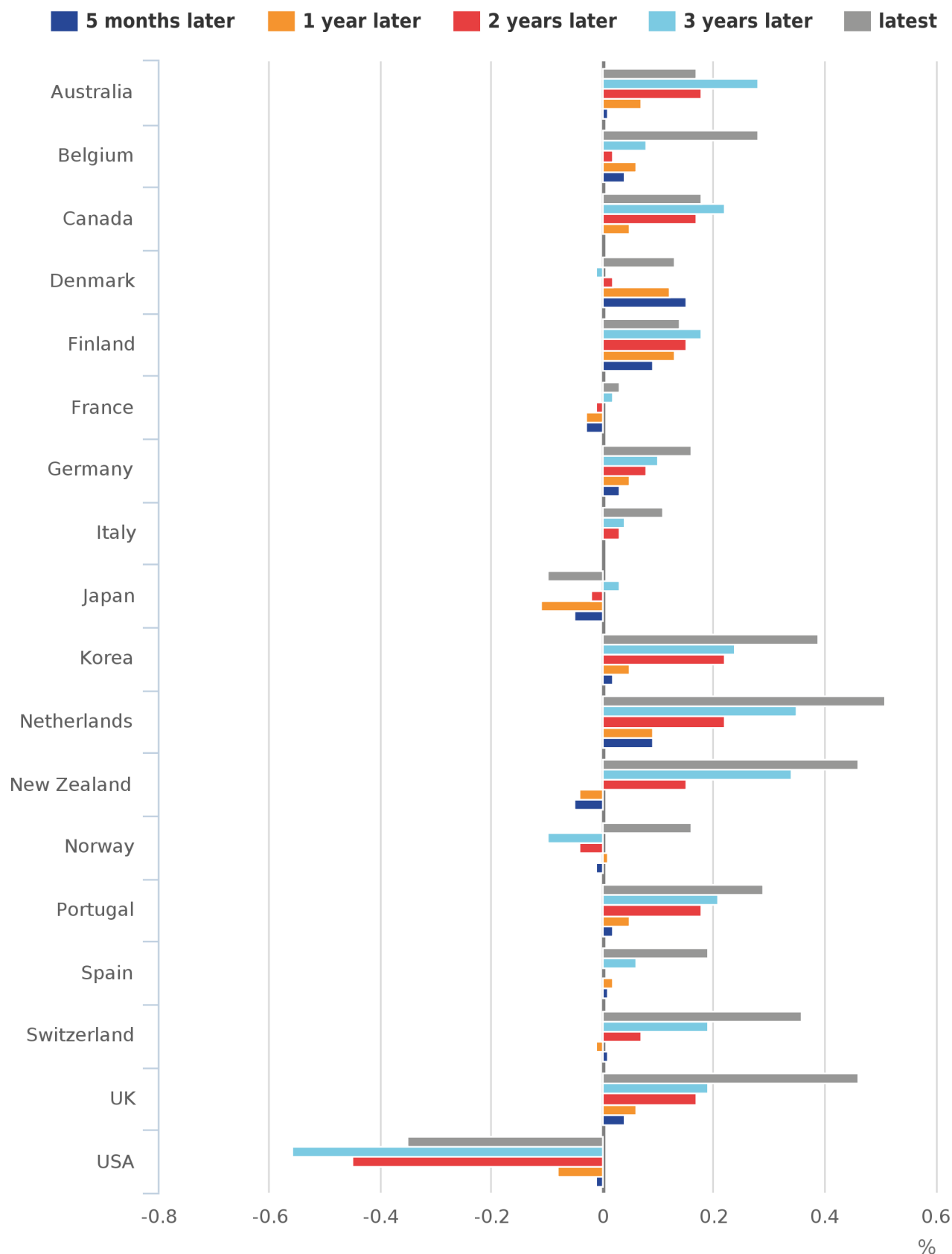
Major benchmarks and longer-term methods improvements become even more relevant if we expand the analysis to include all revisions right up to the latest GDP releases of data in December 2015 for the time span Q4 1998 to Q2 2015. The same GDP growth revisions for quarter on quarter and quarter on quarter a year ago are shown in Figures 23 and 24, with revisions from the first estimate to the latest included.

Figure 23: Mean GDP growth revisions, including latest estimates, for quarter on quarter growth, chained volume measure, for selected OECD and G20 countries, Q4 1998 to Q2 2015



Source: Organisation for Economic Co-operation and Development real time data and revisions database

Figure 24: Mean GDP growth revisions, including latest estimates, for quarter on quarter a year ago growth, chained volume measure, for selected OECD and G20 countries, Q4 1998 to Q2 2015



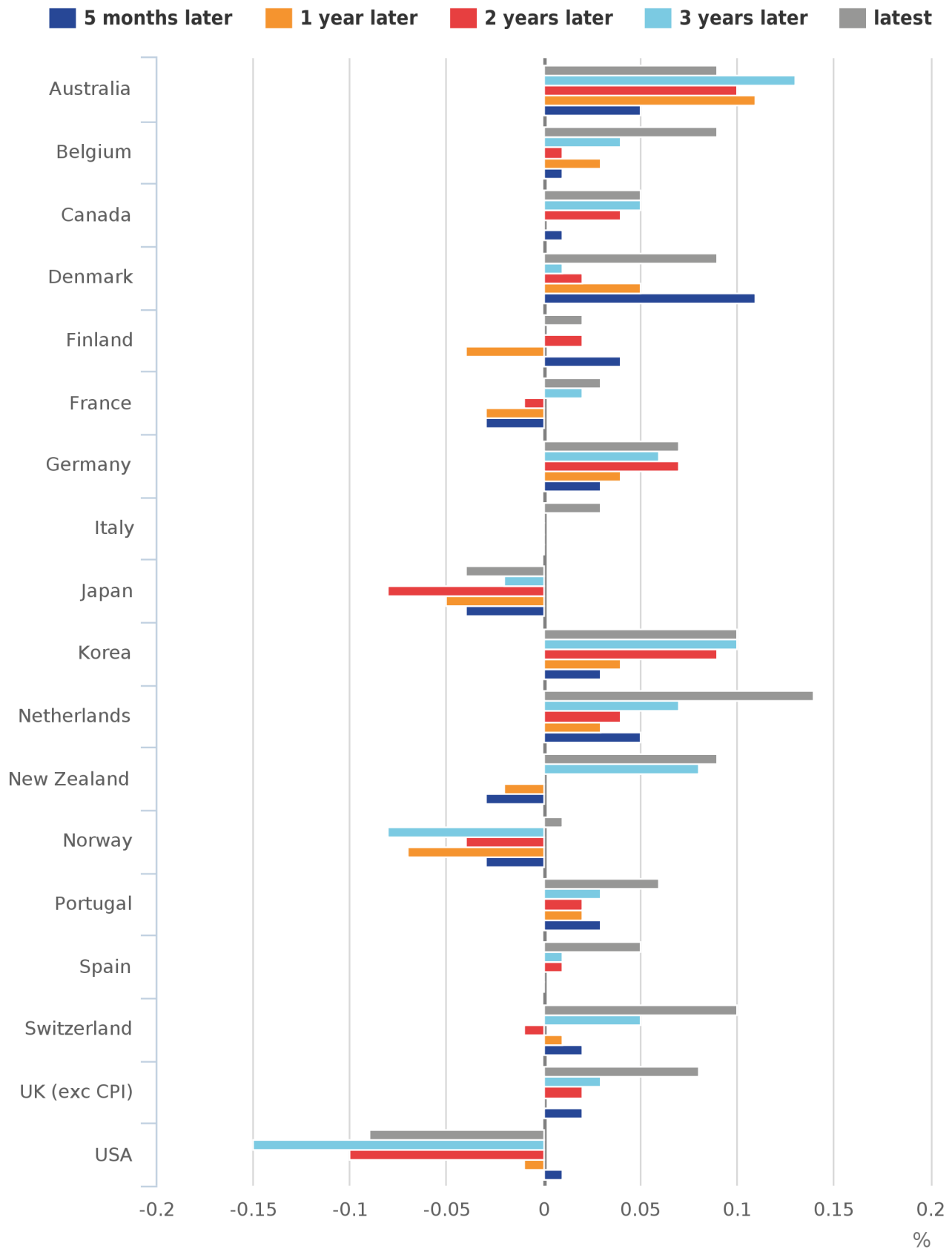
Source: Organisation for Economic Co-operation and Development real time data and revisions database

Figures 23 and 24 show that the “latest” bar for most countries is by far the biggest revision, suggesting that revisions for many countries go on beyond the initial 3 year period of the OECD analysis. This can be explained by the later revisions being caused by more fundamental methodological improvements and changes to the national accounts framework, which tend to improve the accounts by identifying new concepts which can add to both GDP levels and, sometimes, to growth. For the UK, this was picked up by the recent [Independent Review of UK Economic Statistics](#) which gave similar possible explanations for the tendency for GDP to be revised up beyond the 3 to 4 year window of source data revisions. For many European countries the later revisions may also be explained in part by the completion of the European System of Accounts 1995 (ESA95) gross national income (GNI) reservations, where many countries implemented a large number of improvements ahead of the October 2015 deadline.

The UK “latest” bars in Figures 23 and 24 are particularly noticeable, and are second only to the Netherlands in size. This is partly due to a number of GNI ESA95 reservations being completed in recent years in the UK’s national accounts. However, within the January 2016 article we also noted that a further, important reason for the UK revisions performance being below average when looking beyond the initial data revisions could be the switch from using the RPI to the CPI as the main source of deflators for the expenditure approach to GDP, in Blue Book 2011. This was an improvement which the UK decided to implement as it was demanded by users and is in line with international best practice. However, this change would not have happened in other countries and so is a source of upward revision unique to the UK. The growth rate in RPI is typically higher than CPI. This “wedge” in the annual growth rates of quarterly data averaged just under 0.1 percentage points per quarter over the period 1997 to 2010. The use of a deflator with a lower growth rate would, all else being equal, tend to produce higher growth rates in the volume estimates of the statistic that is being deflated – in this case consumption, and hence the expenditure estimates of GDP.

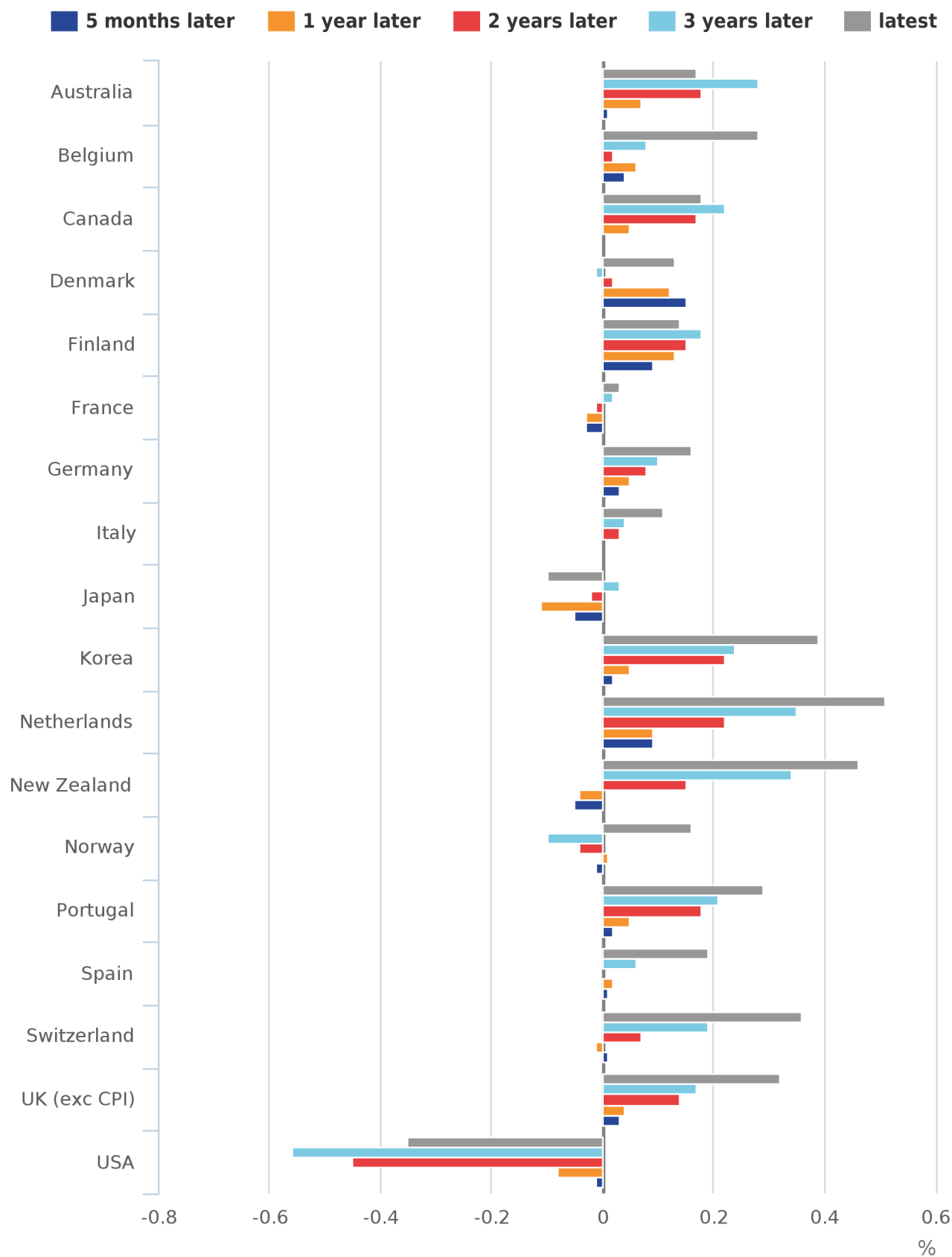
To assess the impact of this improvement that was unique to the UK, we have isolated and removed GDP revisions caused by the switch from RPI to CPI deflation. Figures 25 and 26 show the same analyses as Figures 23 and 24 but the UK bars have been replaced with a version of GDP without the CPI switch included.

Figure 25: Mean GDP growth revisions, including latest estimates but removing the impact of the switch to CPI for the UK, for quarter on quarter growth, chained volume measure, for selected OECD and G20 countries, Q4 1998 to Q2 2015



Source: Organisation for Economic Co-operation and Development real time data and revisions database

Figure 26: Mean GDP growth revisions, including latest estimates but removing the impact of the switch to CPI for the UK, for quarter on quarter a year ago growth, chained volume measure, for selected OECD and G20 countries, Q4 1998 to Q2 2015



Source: Organisation for Economic Co-operation and Development real time data and revisions database

This shows that when revisions for the UK are expressed on a more comparable basis the outcome is to reduce the size of the revisions for the “latest” vintage. Indeed without the revisions caused by the switch from RPI to CPI, the UK quarter on quarter performance for first estimate to “latest” is better than that for Australia, Belgium, Denmark, Korea, the Netherlands, New Zealand, Switzerland and the USA. For completeness Table 2 shows the same analysis as Table 1, highlighting statistical significance, except that the “3 years later” columns have been replaced with the revisions to the very latest estimate, and the UK now has 2 rows in the table, the first using published GDP and the second using the GDP estimates adjusted to remove the CPI revision.

Table 2: Mean revision and statistical significance at different revision intervals for quarter on quarter (QoQ) and quarter on the same quarter a year ago (QoY) GDP growth rates, Q4 1998 to Q2 2015

Country	Chained volume measure, percentage points							
	5 months later		1 year later		2 years later		To latest (Dec 2015)	
	QoQ	QoY	QoQ	QoY	QoQ	QoY	QoQ	QoY
Australia	*0.06	0.01	*0.11	0.07	**0.10	**0.19	**0.09	0.17
Belgium	0.01	0.04	0.03	0.05	0.01	0.03	***0.09	**0.28
Canada	0.01	0.00	0.00	0.05	***0.04	**0.17	0.05	***0.18
Denmark	**0.11	**0.15	0.04	0.10	0.01	0.03	0.09	0.13
Finland	0.03	0.09	-0.03	0.14	0.02	0.16	0.02	0.14
France	** -0.03	-0.02	-0.03	0.01	-0.01	***0.17	0.03	**0.22
Germany	0.03	0.03	0.04	0.05	**0.07	0.08	0.07	0.16
Italy	0.00	0.00	0.00	0.00	-0.01	0.03	0.03	0.11
Japan	-0.05	-0.06	-0.05	-0.10	-0.08	-0.01	-0.04	-0.10
Korea	0.03	0.02	0.04	0.05	0.10	*0.23	0.10	*0.39
Netherlands	0.04	**0.09	0.03	0.09	0.04	**0.21	*0.14	*0.51
New Zealand	-0.03	-0.05	-0.02	-0.03	0.00	0.16	0.09	**0.46
Norway	-0.03	-0.01	-0.07	0.02	-0.04	-0.05	0.01	0.16
Portugal	0.03	0.01	0.02	0.04	0.03	**0.18	0.06	**0.29
Spain	0.00	0.01	0.00	0.03	0.01	0.00	0.05	0.19
Switzerland	0.02	0.01	0.01	0.00	0.00	0.07	0.10	**0.36
UK	0.02	0.04	0.01	0.06	0.03	0.17	***0.12	**0.46
UK excluding CPI	0.02	0.03	0.00	0.04	0.02	0.13	0.08	***0.32
USA	0.00	-0.01	-0.01	-0.09	** -0.10	* -0.46	** -0.09	* -0.35
Average less UK excluding CPI)	0.01	0.02	0.01	0.03	0.01	0.07	0.05	0.21

Source: Organisation for Economic Co-operation and Development real time data and revisions database

Note:

1. Statistical significance levels 1%* 5%** 10%***

Table 2 shows that most countries have larger revisions when expressed relative to the latest position. For many countries these revisions are significant, especially for quarter on the same quarter of a year ago growth rates. So, while the comment that the long-term revisions for the UK are larger than our initial revisions is correct, the same can be said of most other countries and the UK revisions are only significant for quarter on quarter GDP growth at the 10% significance level. Importantly, after the RPI to CPI deflator improvement is removed, the UK's mean revision for quarter on quarter GDP growth is no longer statistically significant, and the quarter on quarter a year ago revision falls from being significant at the 5% level to only being significant at the 10% level.

10 . Reference tables

Table 3: UK demand side indicators

	2014	2015	2015	2015	2015	2015	2015	2015	2016
			Q2	Q3	Q4	Oct	Nov	Dec	Jan
GDP ¹	2.9	2.2	0.6	0.4	0.5				
Index of Services									
All Services ¹	3.3	2.5	0.5	0.6	0.7	0.1	0.3	0.2	..
Business Services & Finance ¹	3.8	2.5	0.5	0.6	0.7	0.0	0.4	0.3	..
Government & Other ¹	1.9	0.4	0.1	0.3	0.2	-0.2	0.1	0.4	..
Distribution, Hotels & Rest. ¹	4.7	4.8	1.1	0.9	1.4	0.6	0.3	-0.1	..
Transport, Stor. & Comms. ¹	3.1	4.2	1.0	0.9	0.9	0.3	0.7	0.2	..
Index of Production									
All Production ¹	1.3	1.0	0.7	0.1	-0.5	0.1	-0.8	-1.1	..
Manufacturing ¹	2.7	-0.2	-0.6	-0.4	0.0	-0.4	-0.3	-0.2	..
Mining & Quarrying ¹	-0.5	6.6	7.6	2.2	-2.3	1.2	-1.4	-4.0	..
Construction ¹	7.5	3.4	0.5	-1.7	-0.4	0.4	-1.1	1.5	..
Retail Sales Index									
All Retailing ¹	3.9	4.6	0.9	1.0	1.1	-0.2	1.3	-1.4	2.3
All Retailing, excl.Fuel ¹	4.3	4.2	1.1	0.9	0.6	-0.5	1.3	-1.3	2.3
Predom. Food Stores ¹	0.8	2.2	0.4	0.4	1.1	-0.8	0.5	1.3	1.1
Predom. Non-Food Stores ¹	6.6	4.6	1.3	0.9	-0.2	-0.3	1.7	-3.6	3.6
Non-Store Retailing ¹	11.8	13.4	3.4	3.8	2.3	-0.3	2.7	-1.7	1.4
Trade									
Balance ^{2, 3}	-34.0	-34.7	-4.8	-8.6	-10.4	-3.6	-4.0	-2.7	..
Exports ⁴	-1.4	-0.2	2.0	-2.1	-0.8	-1.6	-1.3	-0.8	..
Imports ⁴	-1.4	-0.1	-2.6	0.7	0.6	4.4	-0.3	-3.6	..
Public Sector Finances									
PSNB-ex ^{3,5}	-2.1	-18.5	-3.6	-2.4	-3.6	-0.5	0.8	-3.9	-1.0
PSND-ex as a % GDP	84.1	84.3	84.3	84.1	84.3	84.0	84.2	84.3	82.8

Source: Office for National Statistics

Notes:

1. Percentage change on previous period, seasonally adjusted, CVM

2. Levels, seasonally adjusted, CP

3. Expressed in £ billion

4. Percentage change on previous period, seasonally adjusted, CP

5. Public Sector net borrowing, excluding public sector banks. Level change on previous period a year ago, not seasonally adjusted

Table 4: UK supply side indicators

2014 to 2016

	2014	2015	2015	2015	2015	2015	2015	2015	2016
			Q2	Q3	Q4	Oct	Nov	Dec	Jan
Labour Market									
Employment Rate ^{1, 2}	72.9	73.7	73.4	73.7	74.1	74.0	74.1
Unemployment Rate ^{1, 3}	6.2	5.4	5.6	5.3	5.1	5.1	5.1
Inactivity Rate ^{1, 4}	22.2	22.0	22.1	22.0	21.8	21.9	21.8
Claimant Count Rate ⁷	3.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2
Total Weekly Earnings ⁶	£480	£492	£491	£494	£495	£494	£495	£496	..
CPI									
All-item CPI ⁵	1.5	0.0	0.0	0.0	0.1	-0.1	0.1	0.2	0.3
Transport ⁵	0.3	-2.1	-2.1	-2.4	-1.6	-2.6	-2.1	-0.2	-0.7
Recreation & Culture ⁵	0.9	-0.6	-0.8	-0.8	-0.3	-0.4	-0.1	-0.3	-0.1
Utilities ⁵	3.0	0.5	0.4	0.3	0.3	0.2	0.3	0.3	0.4
Food & Non-alcohol. Bev. ⁵	-0.2	-2.6	-2.3	-2.5	-2.7	-2.7	-2.4	-2.9	-2.6
PPI									
Input ⁸	-6.6	-12.8	-12.0	-13.6	-12.0	-12.3	-13.1	-10.4	-7.6
Output ⁸	0.0	-1.7	-1.6	-1.8	-1.5	-1.5	-1.6	-1.4	-1.0
HPI ⁸	10.0	6.7	5.6	5.6	7.1	6.8	7.7	6.7	..

Source: Office for National Statistics

Notes:

1. Monthly data shows a three month rolling average (e.g. The figure for February is for the three months Jan to Mar)
2. Headline employment figure is the number of people aged 16-64 in employment divided by the total population 16 to 64
3. Headline unemployment figure is the number of unemployed people (aged 16+) divided by the economically active population (aged 16+)
4. Headline inactivity figure is the number of economically active people aged 16 to 64 divided by the 16 to 64 population
5. Percentage change on previous period a year ago, seasonally adjusted
6. Estimates of total pay include bonuses but exclude arrears of pay (£)
7. Calculated by Jobseeker's Allowance claimants plus out-of-work Universal Credit claimants divided by Jobseeker's Allowance claimants plus out-of-work Universal Credit claimants plus workforce jobs
8. Percentage change on previous period a year ago, non-seasonally adjusted

11 . Authors

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12. Background notes

1. Details of the policy governing the release of new data are available by visiting the [UK Statistics Authority website](#) or from the Media Relations Office email: media.relations@ons.gsi.gov.uk