

Economic Review, October 2015

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Abstract

The main economic stories from National Statistics produced over the latest month, painting a coherent picture of the UK economic performance using recent economic data.

Main points

- The Quarterly National Accounts indicated that the UK economy grew by 0.7% in Q2 2015. They also introduced a range of methodological changes and new data which strengthened cumulative output growth during the recovery. In Q2 2015, GDP is now estimated to be 5.9% above its pre-downturn level, compared with 5.2% on previous estimates.
- The UK's current account balance has improved from a deficit of 6.3% of GDP in Q4 2014 to a deficit of 3.6% of GDP in Q2 2015. This was largely a result of an improvement in the balance on trade in the three months to June 2015, while the balance on primary income remained in deficit.
- The revisions to output and changes to the path of hours worked resulted in small upwards revisions to productivity growth over the 2008 to 2015 period. Output per hour worked grew by 0.9% in Q2 2015, and has now exceeded its pre-downturn level, largely driven by stronger productivity in the services industries.
- Unemployment is close to its long-term, pre-downturn average and wage growth in both the whole economy and private sector has picked up in recent months. A range of broader labour market indicators also point to tightening labour market conditions.
- The fraction of mortgagor households who are highly leveraged fell from 13.9% to 13.2% between 2012 and 2013. A quarter of these households were based in London, and a further 27% lived in the East and South East of England in 2013. The median leverage of mortgagor households has increased slightly during the economic recovery, likely reflecting the relative movements of household income and house prices.
- Average mortgagor household gearing has fallen during the recovery, reflecting the fall in interest rates on mortgage products. The distribution of gearing has become more concentrated, with a larger fraction of households reporting mortgage repayments of between 15% and 20% of disposable income. The fraction of highly geared households has fallen markedly over this period, likely reflecting new limits on lending and a reduced in-flow of new, highly-g geared mortgagor households.

Introduction

The Quarterly National Accounts (QNA) indicated that GDP rose by 0.7% in Q2 2015, unrevised from previous estimates. The QNA also introduced a range of new methods and newly available survey data, measurement changes and changes to classifications. Taken together, these revise GDP growth upwards during 2011, 2012 and 2013 by 0.4, 0.5 and 0.5 percentage points respectively, and down in 2010 and 2014. In Q2 2015, GDP is now thought to be 5.9% above its pre-downturn level, compared with 5.2% on previous estimates.

Data for the UK's Balance of Payments in Q2 2015 was also released alongside the QNA. Since reaching a record deficit of 6.3% of GDP in Q4 2014, the UK's current account has narrowed to a deficit of 3.6% in the latest quarter. This Review examines the drivers of this recent improvement, finding that main driver was a fall in the deficit on trade rather than the primary income balance, which remained in deficit in the three months to June 2015.

The revisions to estimates of GDP also have an impact on the recovery of productivity in recent years. In Q2 2015, output per hour worked grew by 0.9%, reflecting both the increase in total output and a slight fall in the total number of hours worked in the three months to June 2015. This Review presents the most recent estimates, as well as the industries that have driven the UK's recovery in productivity since Q1 2008.

Against this stronger backdrop, this edition of the Review presents evidence that the labour market has continued to tighten over recent months – reflected in labour market quantities, prices and worker behaviour. It examines a broad range of labour market indicators for evidence of falling spare capacity, and it examines the extent to which fiscal and monetary policy have normalised following the recent economic downturn.

As debate about the appropriate timing for a lift-off as interest rates continues, this edition of the Review uses micro-level data from the Living Costs and Food survey to examine the leverage and gearing of households. It finds that the fraction of mortgage households who are highly leveraged – defined as households with mortgage debt more than 4.5 times their disposable income – fell from 13.9% to 13.2% between 2012 and 2013. A quarter of these households were based in London, and a further 27% lived in the East and South East of England in 2013. It also finds that the median leverage of mortgage households has increased slightly during the economic recovery, likely reflecting the relative movements of household income and house prices.

Finally, this edition of the Review examines the gearing of households over recent years using the same data source. It finds that average mortgage household gearing has fallen during the recovery, reflecting the fall in interest rates on mortgage products. The distribution of gearing has also become more concentrated, with a larger fraction of households reporting mortgage repayments of between 15% and 20% of disposable income. The fraction of highly geared households has fallen markedly over this period, likely reflecting new limits on lending and a reduced in-flow of new, highly-g geared mortgage households.

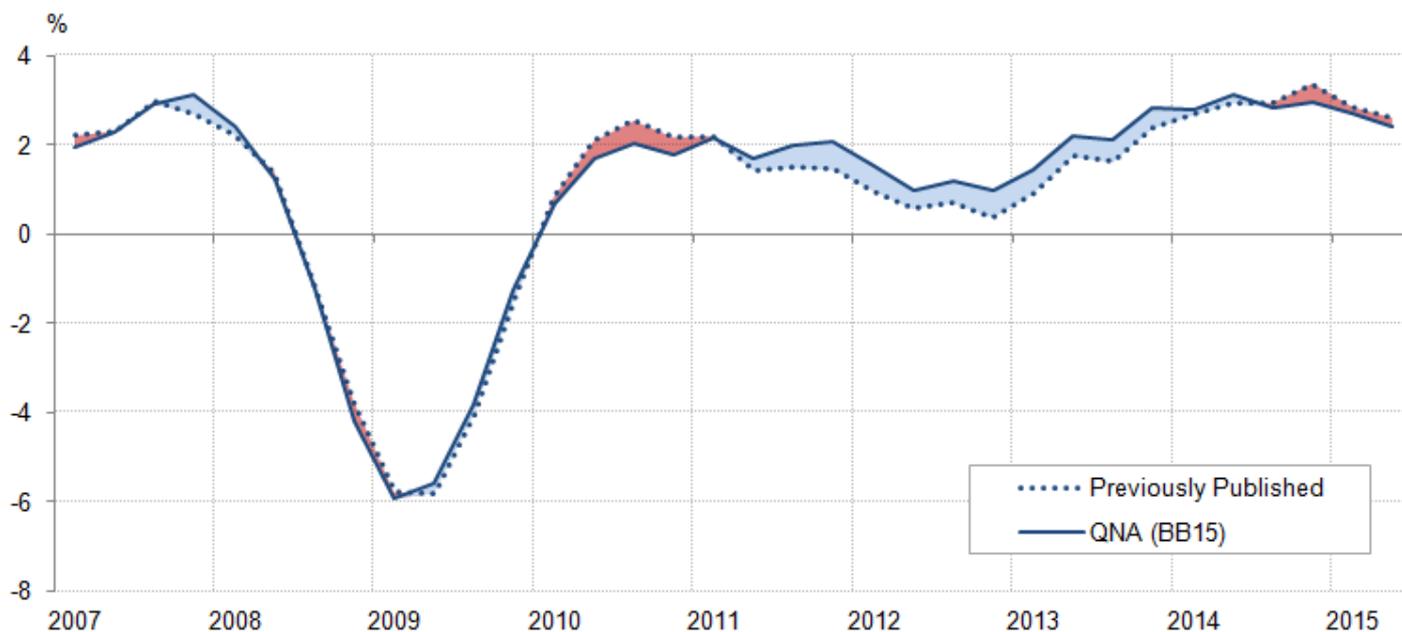
GDP

The Quarterly National Accounts (QNA) indicated that the UK economy grew by 0.7% in Q2 2015, unrevised from the previous estimate. UK GDP is now estimated to have grown each quarter since Q1 2013: the tenth quarter of continuous economic expansion.

The QNA also introduced a range of revisions to the UK's statistical record arising from new data and [methodological improvements consistent with Blue Book 2015 \(373.7 Kb Pdf\)](#) – the UK's Annual National Accounts. Newly available survey data, a range of measurement changes – including those relating to estimates of Gross National Income (GNI) – as well as the impact of classification decisions combine to change the pace of growth over the post-downturn period in particular (Figure 1). Output growth has been revised up by 0.4, 0.5 and 0.5 percentage points in 2011, 2012 and 2013 respectively, and revised down in 2010 and 2014. Small downwards revisions over the most recent four quarters also combine to reduce the UK's quarter on same quarter a year ago growth in Q2 2015 from 2.6% to 2.4%. Together, these changes mean that UK GDP is now estimated to have been 5.9% larger in Q2 2015 than in Q1 2008, compared with 5.2% in the previously published data.

Figure 1: GDP growth: Blue Book 2015 compared with previously published, quarter on same quarter a year earlier

Chained volume measure, seasonally adjusted, %



Source: Office for National Statistics

Notes:

1. Blue Book 2015 series calculated from Quarterly National Accounts published on 30 September 2015. Previously published series calculated from second estimate of GDP for Q2 2015. Areas shaded blue (red) indicate upwards (downwards) revisions to quarter on same quarter a year ago growth.

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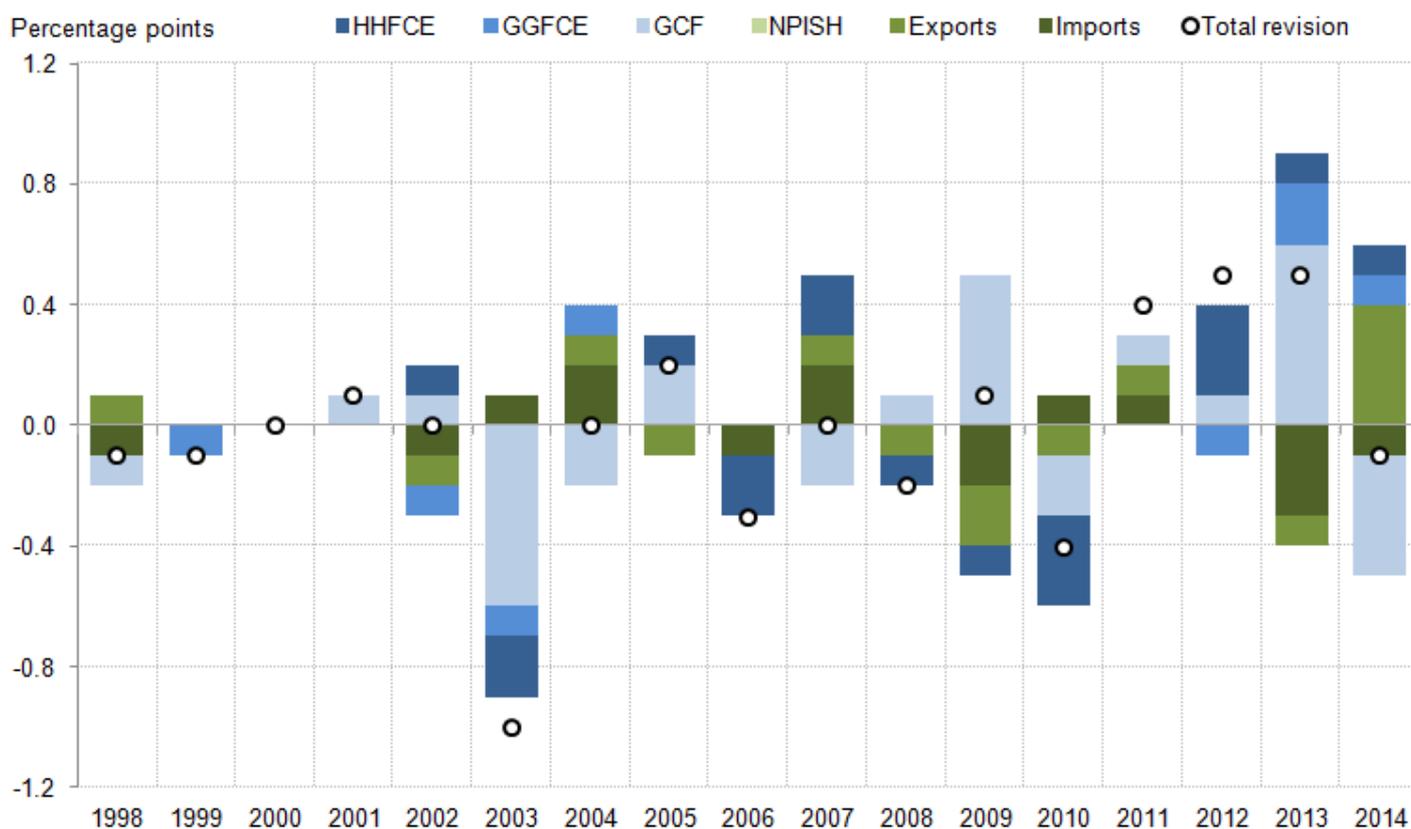
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While the revisions had a relatively modest impact on the growth rate of real GDP, there were some more substantial, although largely offsetting changes to the components of total expenditure (Figure 2). Gross Capital Formation (GCF) – which includes investment (Gross Fixed Capital Formation (GFCF), inventories and acquisitions less disposals of valuables – had among the largest impacts on the growth rate of GDP. A combination of new methods – [including a new deflator for software investment](#) and changes to the treatment of valuables and inventories – led GCF to have the largest or joint largest impact on GDP growth in 12 of the 17 years presented. Changes to trade – [including the treatment of non-monetary gold \(257.9 Kb Pdf\)](#), new trade in services data and the correction of an error on insurance – led to changes to the contribution of net trade to GDP growth, while revisions to household and government consumption had a relatively modest impact. In 2014, the small revision to annual GDP growth masks a shift in expenditure from GCF to exports. Further details on these changes can be found in [an article which accompanied the QNA \(373.7 Kb Pdf\)](#).

Figure 2: Contributions to the revision to real GDP growth: expenditure components

Percentage points



Source: Office for National Statistics

Notes:

1. HHFCE stands for household final consumption expenditure. NPISH stands for non-profit institutions serving households. GGFCE stands for general government final consumption expenditure. GCF stands for gross capital formation. Figures may not sum due to rounding.

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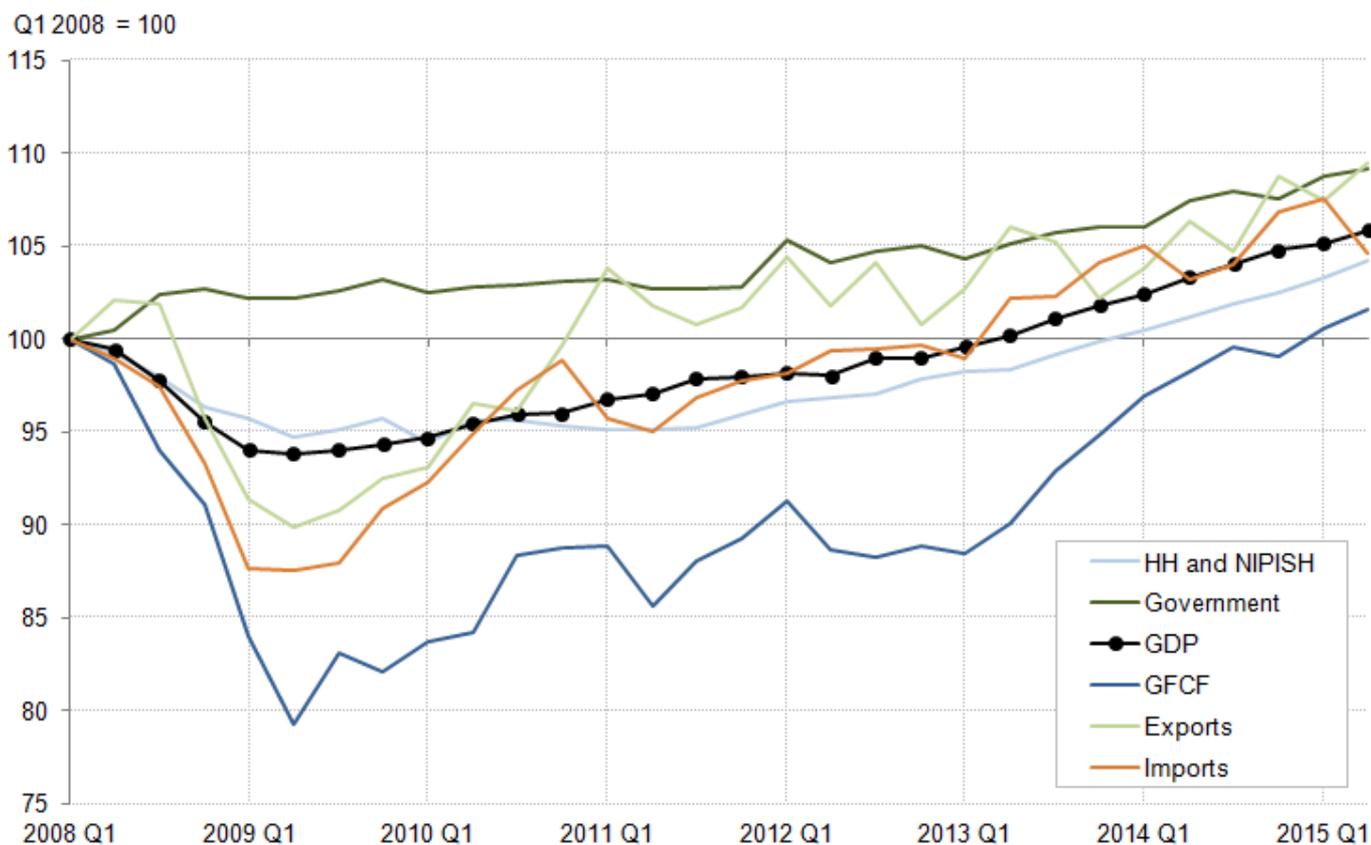
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However, the changes to the constituent parts of GDP do not fundamentally alter the overall economic narrative of the post-downturn period. Figure 3 shows new estimates of the main components of the expenditure measure of GDP, indexed to their pre-downturn levels. Consistent with previous estimates, GFCF experienced the largest falls of these components – as firms cut back investment in the light of growing uncertainty, lower demand, and falling economic output. Aggregate household consumption fell by a smaller amount in 2008 and 2009, and its recovery has been more gradual, if more consistent, supported at least in part by [strong growth in the number of households](#). Government consumption and net trade were less affected still by the economic downturn. Much of the growth since the start of 2013 has been driven by the marked recovery of investment. GFCF was more than 14.9% higher in Q2 2015 than in Q1 2013, albeit only 1.6% above its level in Q1 2008.

Figure 3: Expenditure components of GDP, indexed to pre-downturn peak

Chained volume measure, seasonally adjusted, Quarter 1 2008=100



Source: Office for National Statistics

Notes:

1. HH & NPISH stands for households and non-profit institutions serving households. GFCF stands for gross fixed capital formation.

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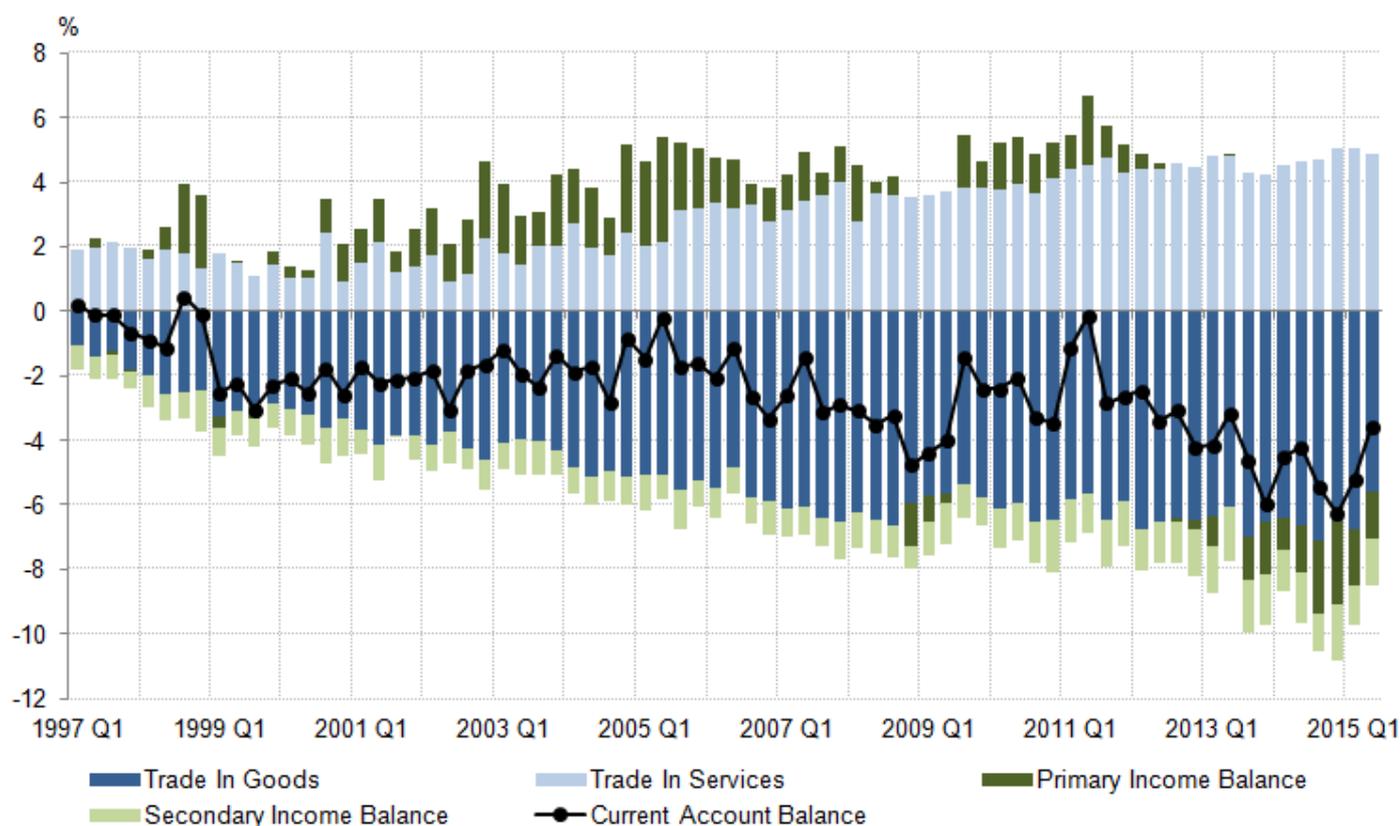
The QNA also contained revised data on the level and growth of GDP per capita and households' income. In Q2 2015, GDP per capita – which captures the average level of output per person in the population – is now estimated to have been 0.6% above its pre-downturn level. Real households' disposable income per capita – which has been broadly static since the onset of the economic downturn – grew by 1.8% in Q2 2015, and is now thought to be 2.3% above its level in Q1 2008.

Current account

Balance of Payments data for Q2 2015 were published alongside the Quarterly National Accounts (QNA) and showed a marked improvement in the current account balance. The current account – which captures the value of income flows to and from the UK associated with trade, investment and government transfers – provides a key indication of the balance of UK growth. A sustained current account deficit (surplus) indicates that an economy is running down (increasing) its net stock of assets held overseas, with possible implications for both the value of the currency and patterns of asset ownership. The UK's current account balance fell to a record deficit at the end of 2014, but has improved over the past two quarters. The current account balance narrowed from a record deficit of 6.3% of GDP to a deficit of 5.2% of GDP between Q4 2014 and Q1 2015, and fell to 3.6% of GDP in Q2 2015. However, much of the improvement in the most recent quarter was due to a stronger balance on trade, while there was only a slight fall in the deficit on primary income.

Figure 4 decomposes the current account into the balances on its four components – trade in goods, trade in services and the balances on primary and secondary income – expressed as a fraction of GDP. It shows that the UK ran a small current account deficit through much of the 2000s, reflecting the net effect of a deficit on trade in goods, offset by a surplus on primary income and trade in services. It also indicates that the fall in the balance to a record deficit in 2014 was largely a result of a fall in the primary income balance from a consistent surplus to a considerable deficit: suggesting that UK earnings on assets overseas had fallen in value relative to the earnings of foreign investors in the UK. In the most recent quarter, the balance on trade narrowed markedly – mostly as a consequence of a [narrowing of the deficit on trade in goods](#) – while the underlying deficit on primary income remains. More precisely, much of the most recent improvement in the current account has arisen because of a fall in the deficit on trade, rather than because of a reversal in the deficit on primary income. Furthermore, the balance on trade deteriorated in July, so it remains to be seen how much of the stronger Q2 2015 figure is sustained.

Figure 4: Current account balance as a fraction of GDP, %



Source: Office for National Statistics

Notes:

1. Primary income comprises of compensation of employees, investment income and other primary income. Secondary income comprises flows of income between countries unrelated to the exchange of specific goods or services, and therefore includes most inter-government transfers.

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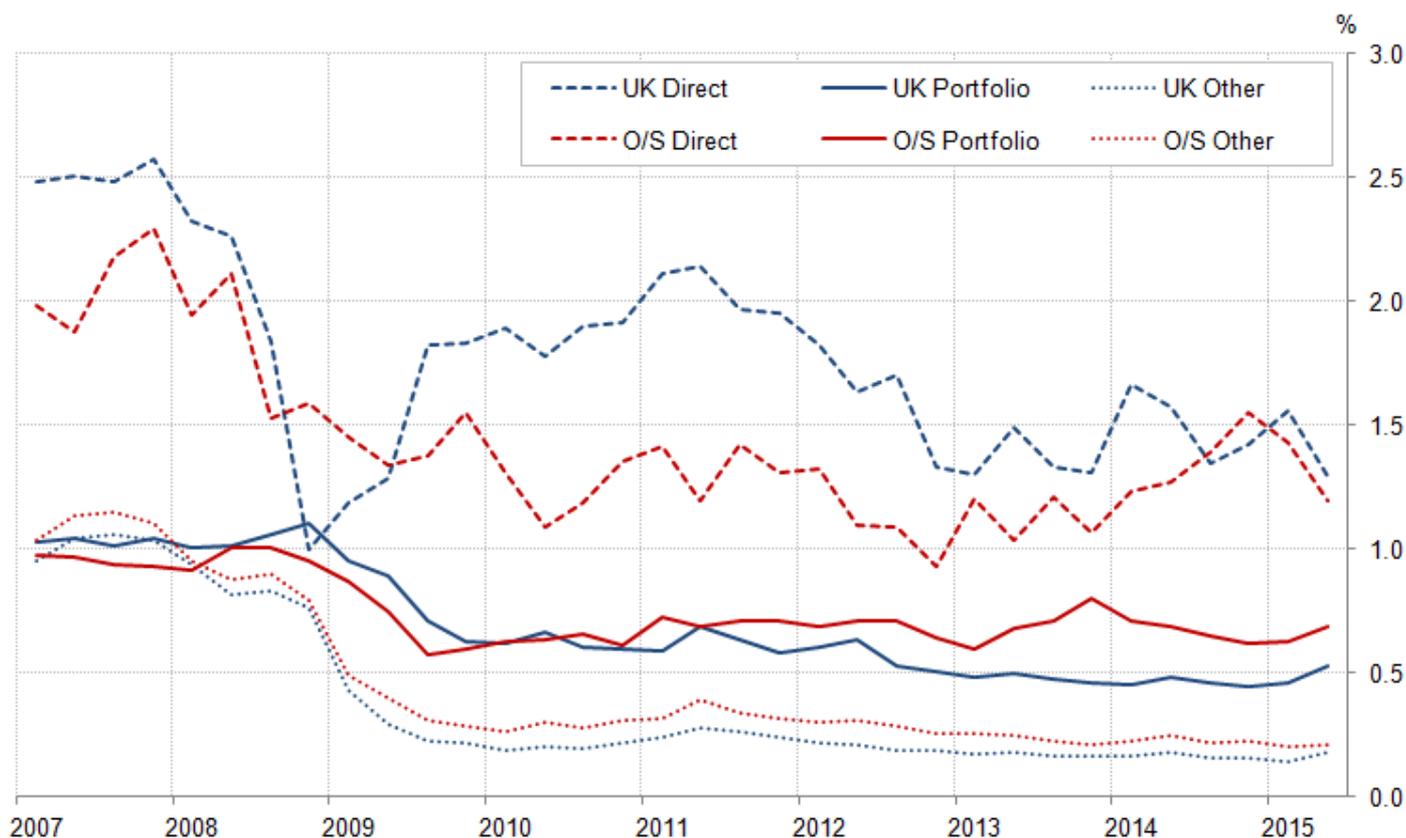
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The fall in the balance on primary income reflects a combination of different effects, including a relative fall in the rates of return on UK assets held overseas. As set out in [previous editions of the Economic Review](#), the balance on primary income depends on the relative quantities of assets held by UK investors overseas and overseas investors in the UK, and the relative rates of return that they earn on their respective portfolios. All else equal, larger holdings of assets by UK investors overseas (overseas investors in the UK) will tend to increase (reduce) the balance on primary income. Equally, a relative fall in the rate of return earned by UK investors (overseas investors) will tend to reduce (increase) the balance on income.

While the [total value of UK assets overseas has fallen](#) relative to the value of holdings in the UK by overseas agents, a fall in the relative rate of return on UK assets abroad appears to have played an important role in the development of the deficit on primary income. Figure 5 shows the rates of

return generated by UK and overseas investors for three forms of investment: direct investment, portfolio investment and other investment. It shows that during much of 2010, 2011 and 2012, the UK received a higher rate of return on its direct investment assets than overseas investors gained from assets in the UK, while the differences for portfolio and other investments were relatively slight.

Figure 5: Rates of return: Direct, portfolio and other investment assets, %



Source: Office for National Statistics

Notes:

- Investment by UK (overseas) investors abroad (in the UK) is denoted by UK (O/S). Direct investment includes investment where an investor holds at least 10 per cent of the voting rights. Portfolio investment includes equities (less than 10 per cent of voting rights) and debt securities. Other investment includes mainly deposits and loans. Note that the Balance of Payments also records a rate of return for outward reserve asset holdings, although no comparable data is available for overseas investors in the UK. Positions are measured using a four quarter moving average of non-seasonally adjusted data, while earnings data correspond to each respective quarter and are seasonally adjusted.

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However, in the period since 2012 – coinciding with the fall in the balance on primary income – the rates of return on direct investment have converged while overseas investors now earn more on portfolio investment than UK investors. This effect has carried forward into the most recent quarter,

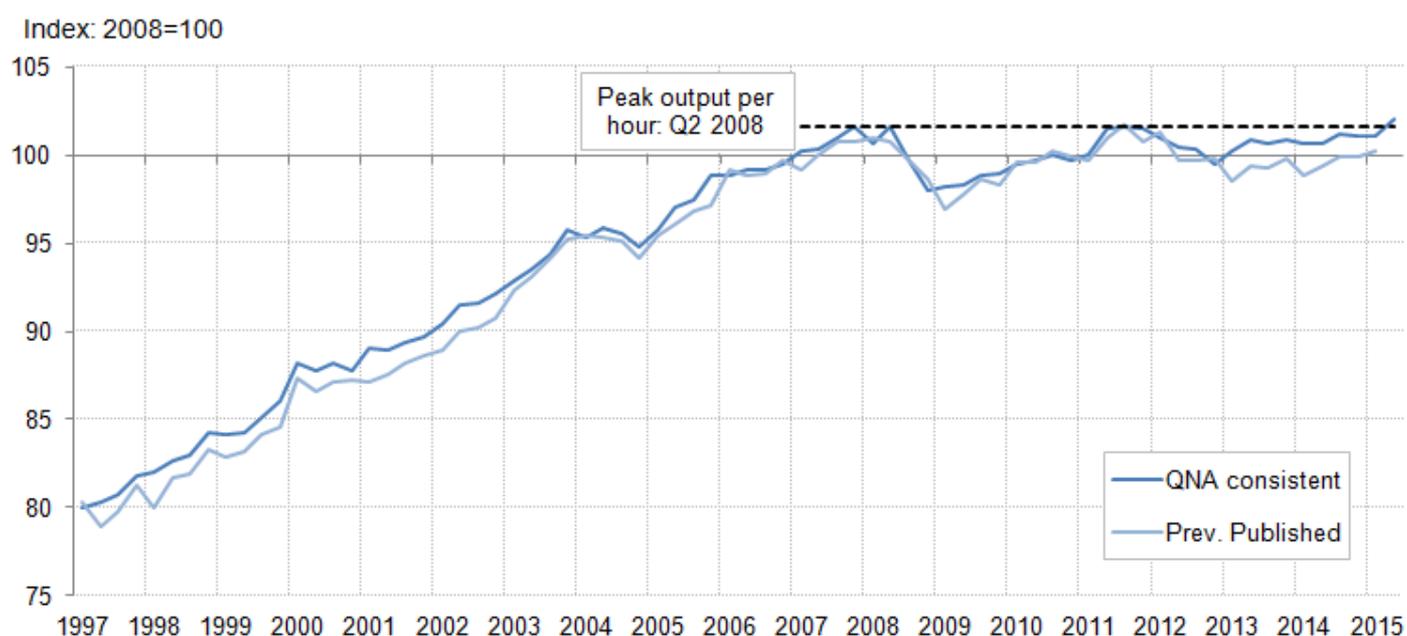
when the relative rates of return on FDI investments in particular were closely matched. While this is likely to reflect the relative strength of the UK's economic performance in recent years, it may also reflect a range of other factors, such as the industries in which the UK is invested, the impact of exchange rate movements and the relative economic fortunes of the economies in which UK asset stocks are based. ONS plans to publish a detailed examination of some of these effects on earnings from Foreign Direct Investment alongside the annual Pink Book publication on 30th October 2015.

Productivity

The [revisions introduced in the QNA \(264.7 Kb Pdf\)](#), combined with adjustments to the path of total hours worked have raised UK productivity above its pre-downturn level (Figure 6), although they do little to explain the 'productivity puzzle'. Stronger output per hour growth during 2013 in particular has reduced the deficit between the UK's recent performance and its peak level of productivity in Q2 2008. Output per hour is also estimated to have grown by 0.9% in Q2 2015, reflecting both the increase in total output and a slight fall in the total number of hours worked in the UK economy during the three months to June. Together, the revisions and the strong recent growth mean that the UK economy surpassed its previous output per hour record in Q2 2015, rising 0.4% above it over this period.

Figure 6: Output per hour

Chained volume measure, seasonally adjusted



Source: Office for National Statistics

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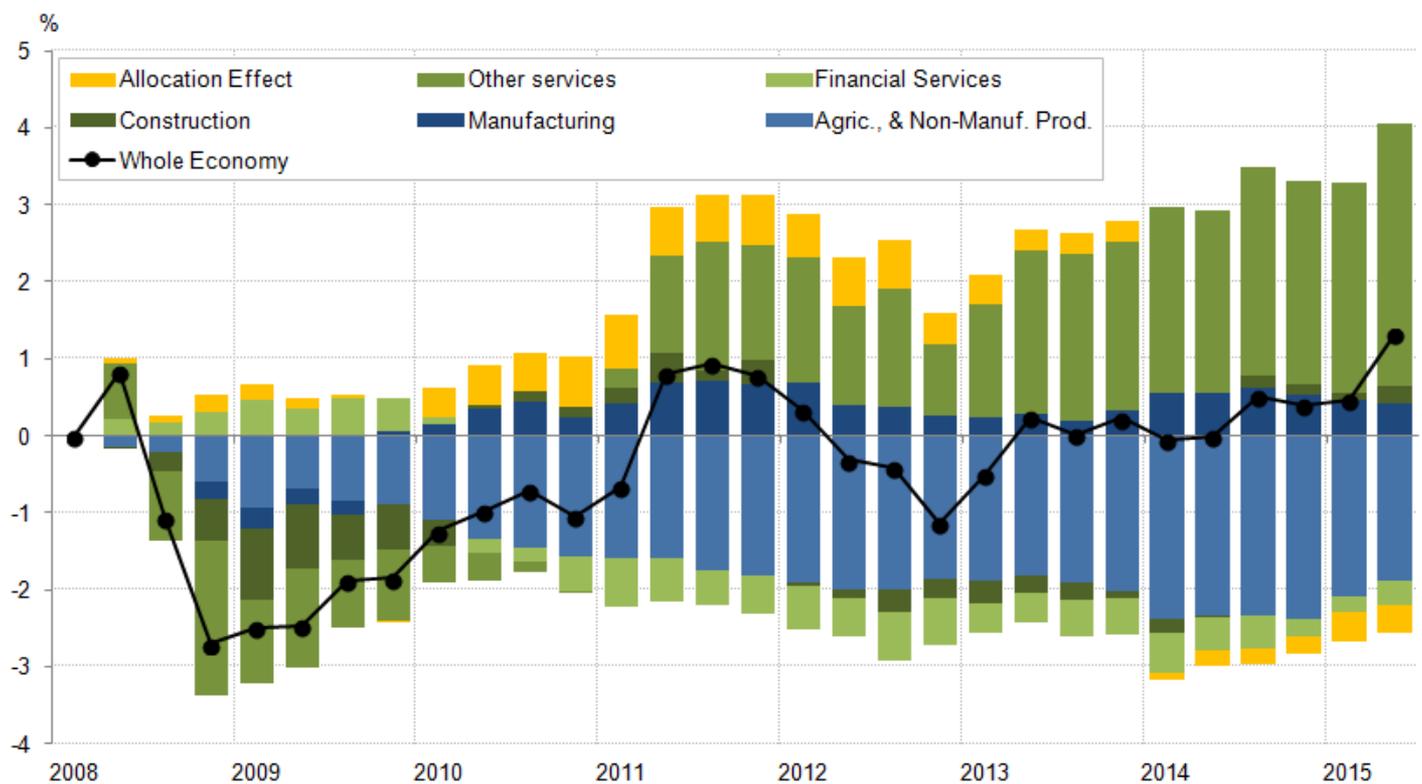
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However, as shown in Figure 6, these changes do little to redress the weakness of productivity growth since the economic downturn in 2008. Over the decade prior to the economic downturn,

output per hour grew at a compound average quarterly rate of 0.5%, supporting cumulative growth in the level of productivity of 22.8% over this period. Had productivity continued to grow at this rate, output per hour in Q2 2015 would be almost 15 percentage points higher than the recent estimate.

Figure 7 deconstructs the growth of output per hour since Q1 2008 into the cumulative contributions from different industries, reflecting the revised output data published as part of the QNA. It suggests that much of the recent strengthening of output per hour since Q2 2014 has been driven by a partial recovery in the productivity of non-manufacturing production, as well as stronger contributions from construction and services. Productivity in manufacturing industries has made a relatively stable contribution over recent quarters, while financial services output has made a negative, if falling contribution to output per hour growth relative to Q1 2008. Finally, Figure 7 also shows a weakening in the allocation effect – which captures the impact of workers flowing between industries and movements in relative prices – between mid 2013 and Q2 2015. This finding is consistent with workers moving from higher productivity jobs to lower productivity jobs over the recent period, and supports earlier work which [indicated growth in the number of low-skilled roles over this period](#).

Figure 7: Contributions to growth in output per hour of different industries



Source: Office for National Statistics

Notes:

1. Since this analysis was originally undertaken in April 2014 Economic Review, the methodology has been updated. Using a simple form of the Generalised Exactly Additive Decomposition (GEAD) approach, the pure productivity component of industry i is simply the growth of pure productivity in i weighted by its share of nominal GVA in the base period. In this specification the allocation component is comprised mainly of a relative size change effect, where changes in relative size can reflect changes in shares of labour input or changes in relative output prices, or both. See the productivity release for further details.

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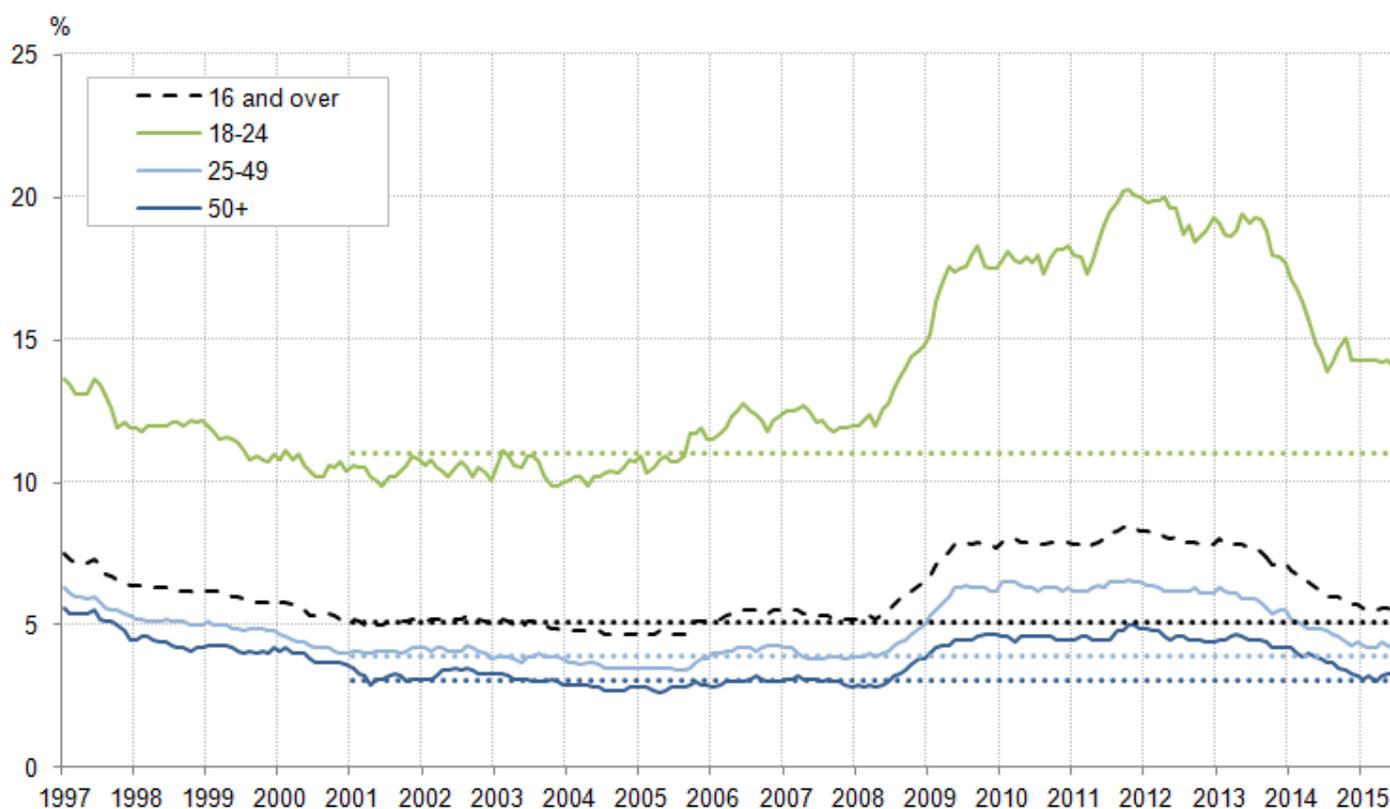
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Labour market tightening and the normalisation of economic policy

The recent unusual performance of productivity has been one of the defining features of the current recovery, and has placed questions about the degree of spare capacity in the UK's labour market at the heart of economic policy making. Absent a recovery in productivity, output growth is dependent on drawing in more factor inputs for productive use. As the availability of those factor inputs falls, their price – and the price level in general – is likely to rise. Productivity growth, by contrast, enables the economy to deliver more output using the same quantity of factor inputs, keeping inflationary pressure low. More precisely, expectations about productivity growth and of the degree of spare capacity determine expectations about the potential for further, non-inflation accelerating output growth.

Evidence of a tightening labour market has started to emerge – in terms of labour market quantities, prices and the behaviour of workers. Figure 8 shows the headline unemployment rate relative to its 2001 to 2007 average, as well as equivalent rates for workers of different ages. It shows that while the unemployment rate among 18 to 24 year olds remains elevated, the headline rate and those for workers aged over 24 have come down markedly from their post-downturn levels, and are now close to their long run averages. The headline rate has fallen from 7.7% in the three months to July 2013, to 6.2% in the three months to July 2014, to just 5.5% in the three months to July 2015 – slightly higher than its average of 5.1% between 2002 and 2007. While the pace of this fall has slowed in recent months, this appears to be partly a [consequence of a larger in-flow from inactivity to unemployment](#).

Figure 8: Headline unemployment rate, and unemployment by age group, %

Source: Office for National Statistics

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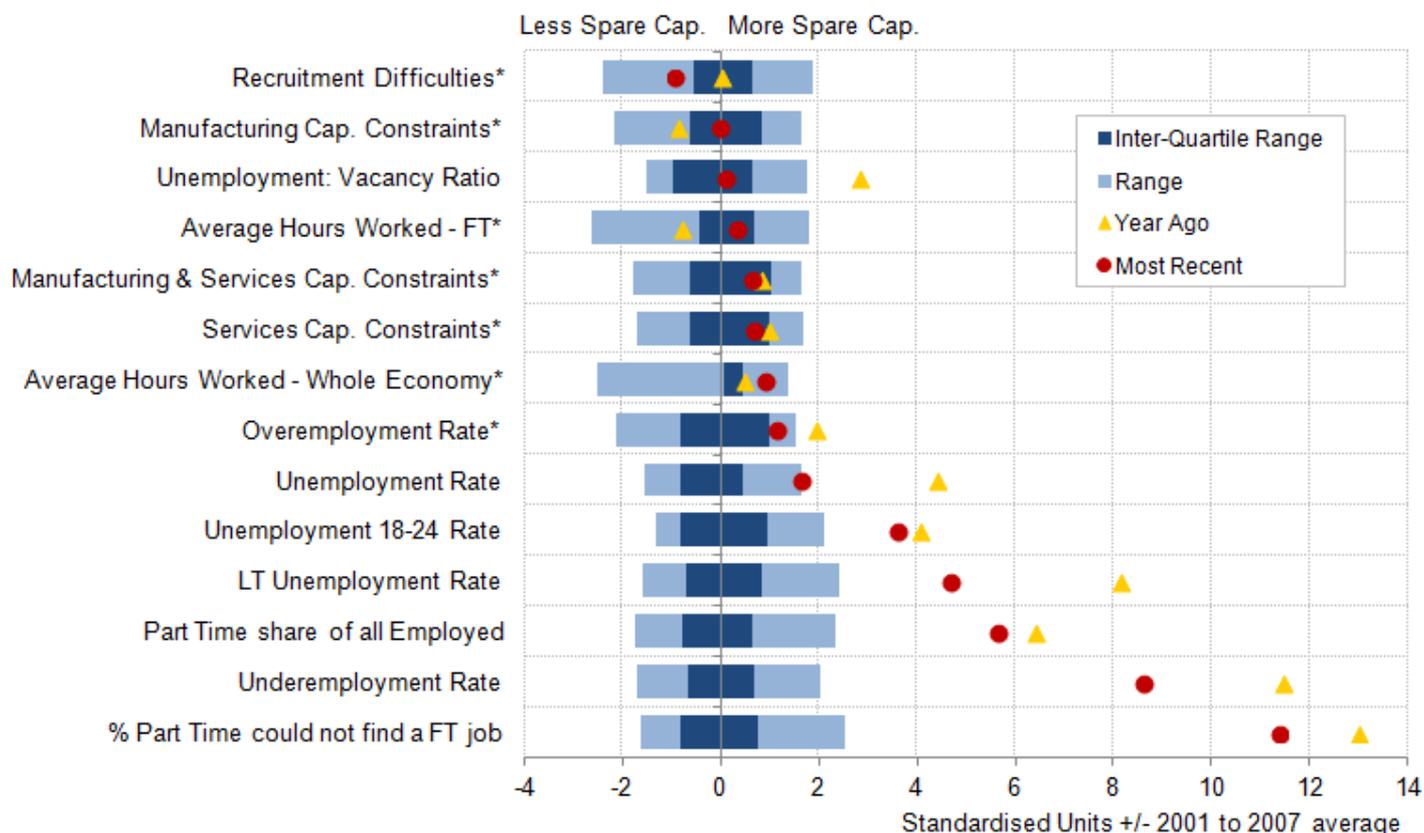
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The fall in unemployment has been accompanied by a marked resurgence in rates of pay growth, as well as in the number of job to job moves undertaken by workers. Whole economy regular weekly pay is estimated to have grown by 2.9% in the year to the three months ending July 2015, while in the private sector, average weekly regular pay is estimated to have grown by 3.4% over the same period. For both the whole economy and the private sector, nominal pay growth over this period has been stronger than at any point since early 2009. Combined with low and relatively stable inflation, real average weekly pay is now estimated to have grown for 11 consecutive months – albeit from a level well below the pre-downturn peak. A [resurgence in job to job moves](#) – perhaps reflecting growing confidence in the labour market – also appears to suggest that conditions are tightening.

Figure 9 examines a broad range of measures which can be used to judge the degree of spare capacity, both within firms and within the labour market. Variables which capture the degree of capacity utilisation – including average hours worked, capacity constraints and recruitment difficulties – are inverted to give a measure of spare capacity, and all variables are standardised and shown relative to their long-run average. Red dots – which indicate the most recent observation – to the left of the axis indicate lower-than-average spare capacity, while points to the right of the axis indicate higher-than-average spare capacity. Yellow triangles indicate the variables' value a year ago.

Figure 9: Indicators of labour market spare capacity: standardised units relative to the 2001-2007 average, several measures



Notes:

1. Source: Office for National Statistics and Bank of England
2. Most recent data for Recruitment Difficulty and Capacity Constraints were collected between late June and late July 2015. The remaining labour market indicators were collected in the three months to July 2015. 'Year ago' therefore refers to the period between late June and late July 2014 and the three months to July 2015, for the respective sets of indicators.
3. All variables are standardised using their average and spread from 2001 to 2007. Standardised units are used for illustrative purposes in order to present several measures on a common basis and may not indicate probabilities due to non-normal distributions in the data. Points to the right of the axis indicate a greater degree of spare capacity than average over the period 2001-2007, while points to the left of the axis indicate lower than average spare capacity.
4. Recruitment Difficulties and Capacity Constraint measures for services and manufacturing are taken from the Bank of England's Agents' Summary of Business Conditions. Prior to 2005, the recruitment difficulty series captured skill shortages published by the Bank of England. Services & Manufacturing Capacity Constraints are calculated by weighting the respective series by their shares in UK output.
5. Asterisk (*) denotes the variable has been inverted to give a measure of spare capacity.

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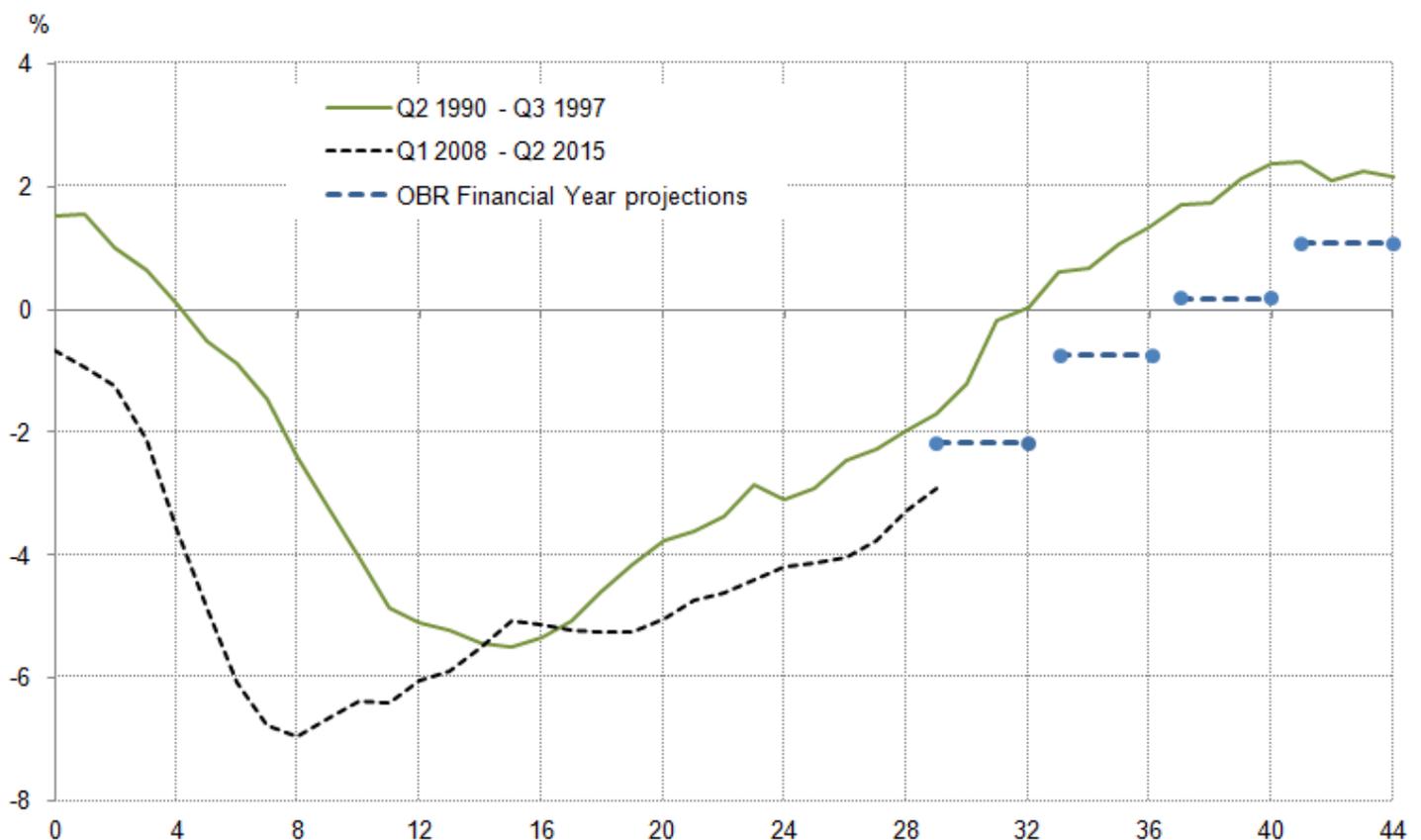
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On these measures, the picture is more mixed. Most measures of unemployment and part-time employment remain above their long run averages, as does the proportion of part-time workers seeking full-time work, indicating that there is some spare capacity left in the labour market. However, the direction of recent changes is clear: close to three-quarters of the indicators currently lie to the left of their positions a year earlier, indicating a marked tightening of labour market conditions, and a similar number of these indicators now lie within the range of outcomes experienced over the 2001 to 2007 period. While the share of part time workers seeking full time employment remains elevated, this too has come down markedly. Comparing Figure 9 with an [equivalent picture from January 2015](#) shows the extent of the tightening of some of these indicators over the last year.

The return of economic growth and the tightening of the labour market have raised questions about the appropriate policy stance and in particular about the normalisation of economic policy. As in previous economic contractions, fiscal policy appears to have played a key role in supporting the economy during the downturn in 2008 and 2009 (Figure 10). Fiscal policy loosened markedly at the start of the downturn, as the balance on the current budget fell rapidly from a deficit of 0.7% in the rolling 12 month period ending in March 2008 to a deficit of 7.0% of GDP some eight quarters after the pre-downturn peak in output. This fall mirrors the policy response to the economic downturn in the early 1990s. In this earlier case, fiscal policy responded more slowly, but the balance on the current budget fell from a surplus of 1.6% of GDP to a deficit of 5.5% of GDP 15 quarters after the pre-downturn peak.

Figure 10: Current budget balance as a fraction of GDP: multiple downturns, rolling twelve month current budget balance, % of GDP



Source: Office for National Statistics

Notes:

1. Balance on current budget excluding public sector banks (NSA) (JW2T) relative to GDP at current prices (NSA) (BKTL). Office for Budget Responsibility (OBR) projections are taken from the Public Sector Finances data bank, October 2015.

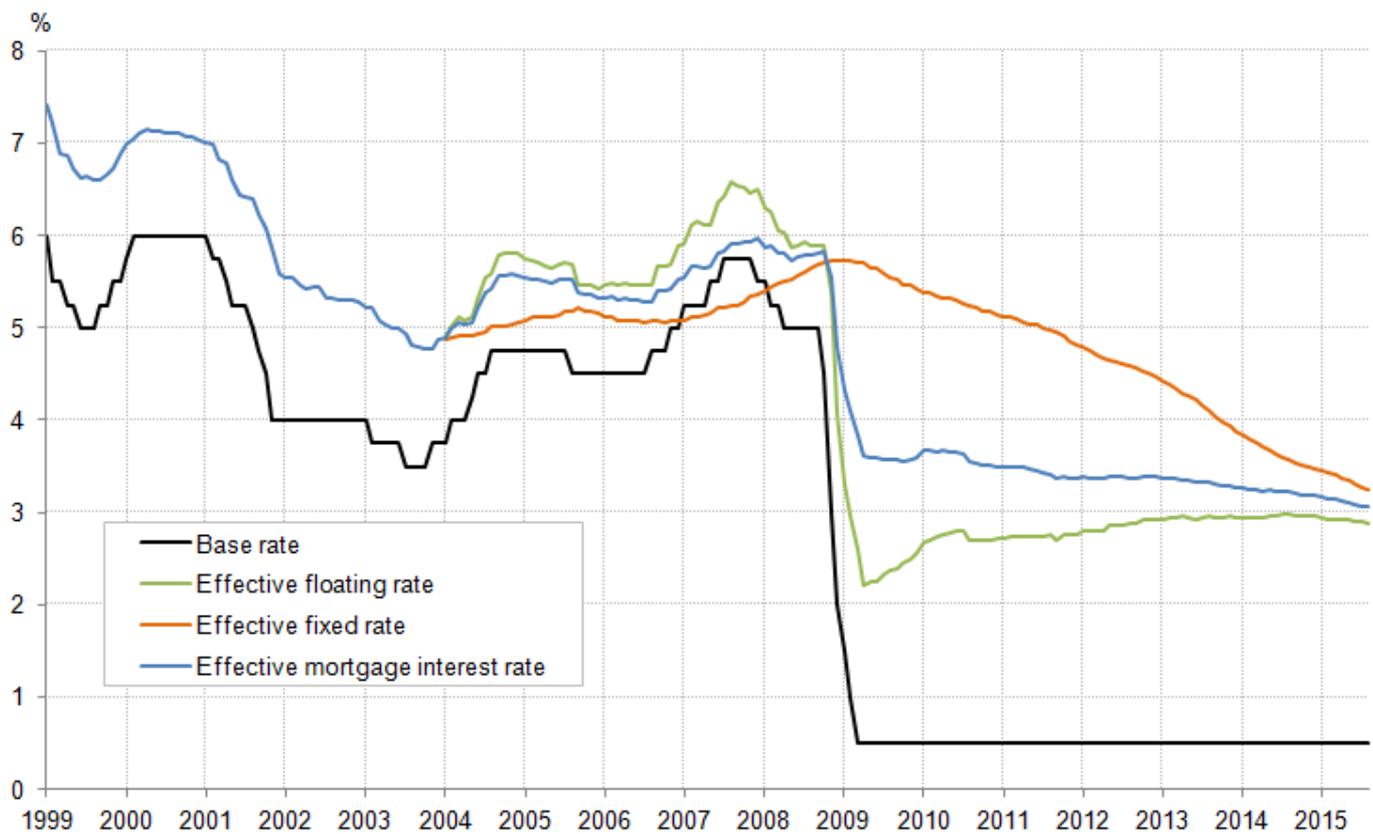
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The gradual normalisation of fiscal policy after these shocks also appears relatively similar. In Q2 2015, the balance on the current budget was in deficit by around 2.9% of GDP, compared with a deficit of 2.0% of GDP the same length of time after the peak in output in the 1990s downturn. Following this earlier downturn, the balance on the current budget returned to a surplus eight years after the initial shock. Following the more recent downturn, the Office for Budget Responsibility (OBR) has projected that this point is only likely to be reached between 9 and 10 years after the initial shock. However, these trends should be set against the context for each downturn – including the magnitude of the loss of output, the level and structural element of the budget balance prior to the downturn, the pre-downturn levels of government debt, spending and taxation and the balance between the expenditure and revenue measures deployed. However, it is clear that following a relatively accommodative period, fiscal policy has, and is projected to continue to tighten in current budget terms over the medium run.

By contrast, the normalisation of monetary policy from its current, highly accommodative stance is yet to get underway. Figure 11 shows both the Bank rate – which is set by the Monetary Policy Committee – and a range of effective household interest rates over the 1999 to 2015 period. It shows the sharp fall in the Bank rate – to a record low of 0.5% in March 2009 – and the more gradual reduction in many household rates over the following 6 years. Households with variable rate mortgages experienced among the fastest falls in their interest costs, while the effective fixed rate – reflecting a combination of new, low-interest mortgages and a set of legacy mortgages – fell more gradually, reducing costs for households with this type of mortgage more slowly. Quantitative Easing, the Funding for Lending Scheme and new rules regarding eligibility criteria for mortgage lending may all have played a role, however it is clear that the stance of monetary policy remains exceptionally accommodative.

Figure 11: Interest rates: Bank rate and effective household rates: %**Notes:**

1. Source: Bank of England

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The relative pace of the normalisation of fiscal and monetary policy remains a matter of debate, as do the timing and pre-conditions for any rise in the Bank rate. Further information is contained in the recent speeches of several members of the Monetary Policy Committee, including [Andrew Haldane](#), [Martin Weale](#) and [David Miles](#), the last of whom recently left the MPC at the end of his term in office.

Interest rates & households

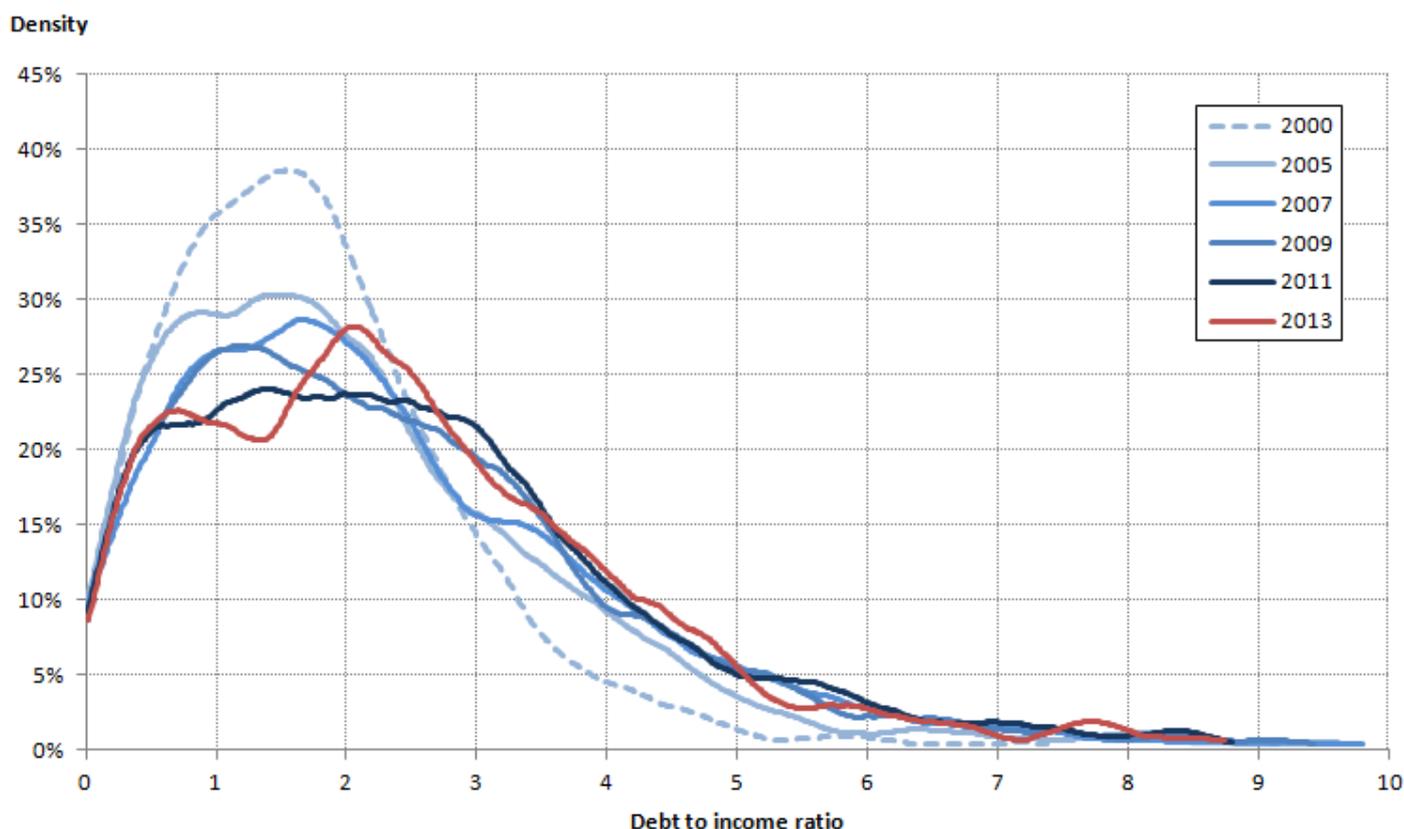
The debate over the appropriate stance for monetary policy depends to a large extent on expectations about the impact of changes in the interest rate, both on financial markets, but also on firms and households in the UK economy. The fall in interest rates in 2008 and 2009 is widely credited with [lower than expected levels of corporate insolvencies](#) and [home reposessions](#), and with supporting household consumption – both by lowering the cost of servicing household debt and by reducing the cost of current period consumption relative to that in future periods. As a consequence, monetary policy is likely to have made a substantial contribution to the relative resilience of employment following the downturn. As the economic recovery has continued and

as conditions in the labour market have started to improve, the terms of the economic policy debate have increasingly shifted towards the impact and timing of monetary policy tightening – a decision made more difficult by the recent fall in the oil price which has made judgements about the ‘underlying’ degree of inflationary pressure more challenging.

The direct effect of higher interest rates on the household sector depends on a range of factors, including the relative levels of household leverage and gearing, as well as the nature of household borrowing – the vast majority of which is mortgage debt secured on dwellings. If households have used the period of low interest rates to reduce their levels of debt relative to income – their leverage – and their interest payments relative to income – their gearing – then the direct effect of a rise in interest rates will be relatively muted. In contrast, if households have ‘normalised’ low interest rates and retained floating rate mortgage products, then they may have adopted a more highly leveraged position than is optimal in the long-run, resulting in considerable mortgage distress if interest rates return to their previous, higher levels.

The UK Economic Accounts provide some information about the levels of secured and unsecured debt in the household sector as a whole. They suggest that following a substantial rise in leverage between 2001 and 2008, total household long-term debt fell from its peak of 131.2% of income in Q3 2008 to 118.5% of income in Q2 2015. The gearing of the household sector also fell back over the post-downturn period, reflecting both lower interest rates and lower debt to income ratios. Interest payments fell from 5.9% of household income in Q4 2008 to 3.5% in Q4 2011, [stabilising at broadly this level during the following three years](#). However, it is the distribution of that debt among households that is key for the transmission of monetary policy. The concentration of leverage among relatively few households – which can persist even if the sector as a whole is deleveraging – reduces the resilience of households to interest rate rises, and amplifies the potential shock to household consumption and GDP.

Figure 12 examines the distribution of leverage among households using micro-level data from the Living Costs and Food survey (LCF), showing the distribution of mortgage debt to disposable income ratios among those UK households with mortgages for selected years. Consistent with the UK Economic Accounts data, the LCF records a marked increase in household leverage between 2000 and 2005, as the density of the distribution shifts to the right over this period. Both the median and mean debt to income ratios rise between these years: the mean ratio increases from 2.5 to 2.8, and the distribution becomes notably denser where mortgage debt is between 3 and 5 times annual disposable income. On the eve of the economic downturn in 2007, the median debt to income ratio among mortgagor households was 2.1, 26% higher than in 2000.

Figure 12: Distribution of Debt to disposable income ratios, selected years

Source: Office for National Statistics

Notes:

1. This analysis is based on a kernel density estimate covering mortgagor households, estimated at 1000 points, and using a bandwidth parameter of 0.2. Points at which an unweighted density implies an observation size of less than 10 have been excluded to avoid disclosure.

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While the process of household leveraging appears to have slowed temporarily during the downturn, moderate debt to income ratios of between 2 and 4 appear to have become more prevalent during the economic recovery. In 2009, the distribution of debt to income ratios shifts slightly to the left and the median ratio falls from 2.19 in 2008 to 2.16. However, between 2009 and 2013 the distribution becomes more compressed around moderate debt to income ratios, driven largely by a shift from low- to moderate leverage. The fraction of mortgagor households with debt to income ratios below 2 falls from 46.4% in 2009 to 43.2% in 2013, while the fraction with debt to income ratios between 2 and 4 rises by 2.4 percentage points to 38.3% over the same period. The median debt to income ratio increased to 2.27 in 2013.

The fraction of highly leveraged mortgagor households – those with debt to income ratios above 4 – has changed relatively little over this period. This is consistent with more stringent limits on the

access to credit reducing the number of relatively new, highly-leveraged households entering the market. Following concerns about the build up of leverage, the Bank of England [imposed limits on the supply of credit to highly leveraged households in October 2014](#) – defined as those with debt to income ratios above 4.5. While the LCF survey data pre-date this announcement, they give some idea of how many households would have fallen into this category in recent years (Table 1). In 2013:

- 1.1m households had a debt to income ratio above this level, representing around 13.2% of all mortgagor households and slightly lower than in the previous two years
- a quarter of these households were based in London in 2013, and a further 27% were located in the East or South East of England¹
- more than half the mortgagors in the bottom income decile fall into this group, while the bottom two income deciles account for more than 27% of all households with a debt to income ratio above 4.5

Table 1: Mortgagor households with mortgage debt worth more than 4.5 times their disposable income, count and % of all mortgagor households

	Number of households	Share of all mortgagor households
		percentage
1999	397,000	3.8
2000	375,000	3.7
2001	464,000	4.4
2002	426,000	4.2
2003	532,000	5.3
2004	785,000	7.9
2005	866,000	9.2
2006	1,148,000	11.8
2007	1,237,000	12.8
2008	1,349,000	13.8
2009	1,277,000	13.4
2010	1,191,000	13.2
2011	1,303,000	14.5
2012	1,230,000	13.9
2013	1,117,000	13.2

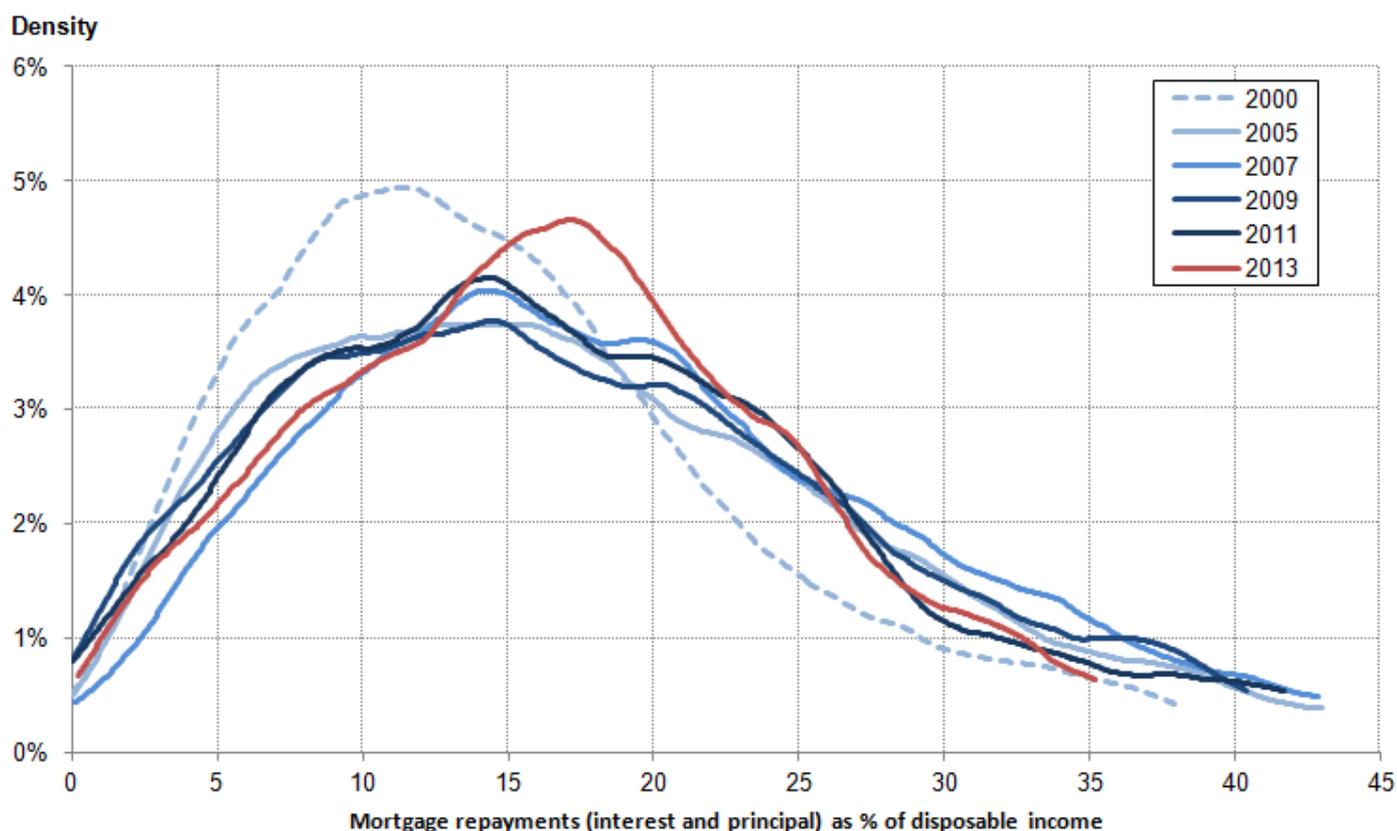
Table source: Office for National Statistics

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The increasing prevalence of moderate degrees of leverage among households is mirrored in the distribution of gearing, which shifted to lower levels during the economic recovery, partly as a consequence of lower interest rates. Figure 13 shows the distribution of gearing among mortgagor households for recent years, capturing the fraction of income accounted for by mortgage interest and repayments. Two periods are clearly identifiable in these data. Firstly, mortgagor household gearing increased markedly between 2000 and 2007, reflected in lower densities at low levels of gearing and the upward shift in the right-hand tail of the distribution. Over this period, a growing fraction of household income was absorbed by servicing mortgage debt, reflecting both changes in leverage and interest rates.

Figure 13: Distribution of mortgage repayments (interest and principal) to income ratios



Source: Living Costs and Food Survey - Office for National Statistics

Notes:

1. This analysis is based on a kernel density estimate covering mortgagor households, estimated at 1000 points, and using a bandwidth parameter of 1.4. Points at which an unweighted density implies an observation size of less than 10 have been excluded to avoid disclosure.

Download chart

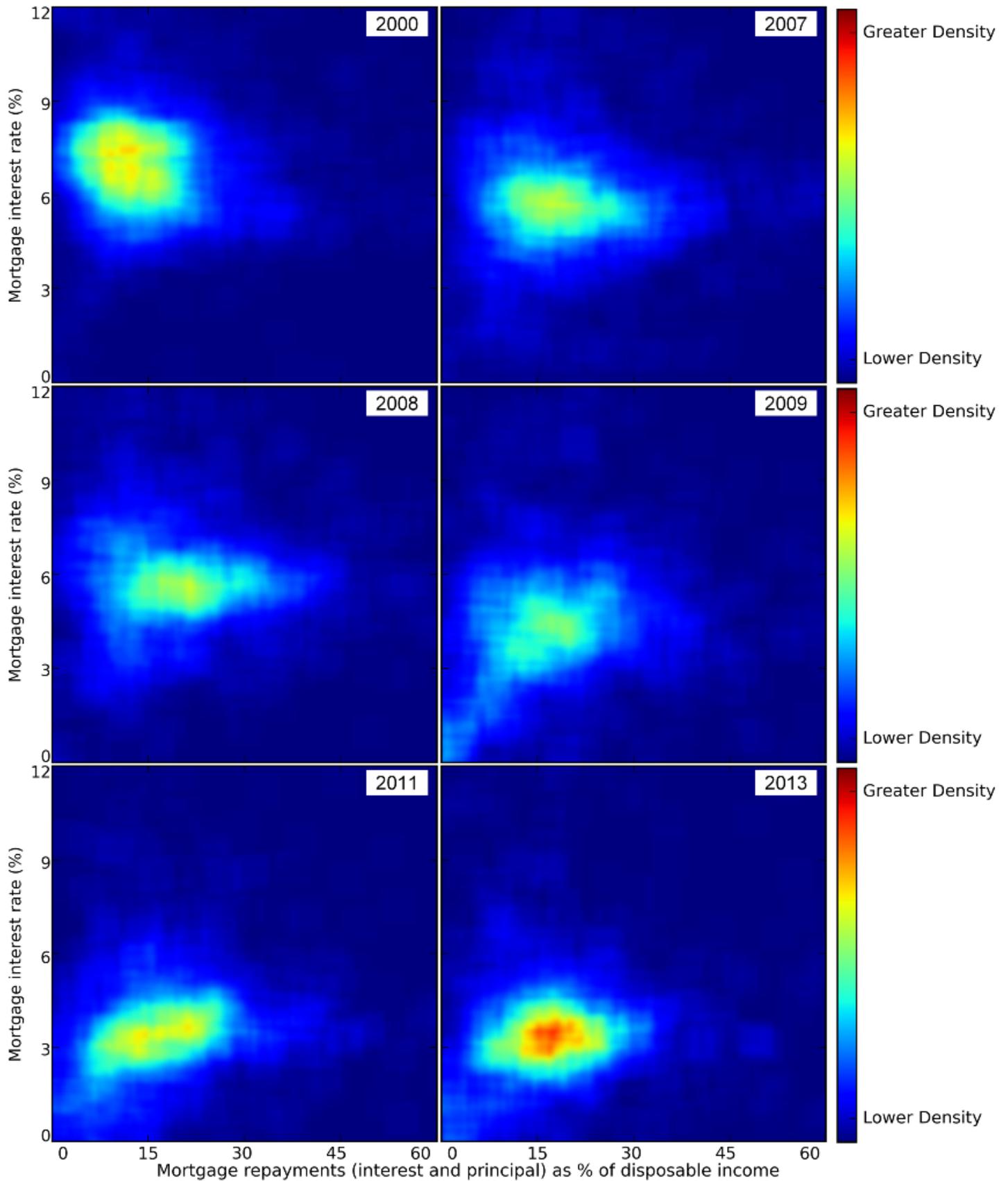
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Secondly, following the fall of Bank rate, the distribution shifts to the left between 2007 and 2013. By 2013, the fall in household interest rates (see Figure 11), trends in capital repayments and

the imposition of new lending criteria shift a large portion of the weight in the right-hand tail of the distribution towards the centre. Coupled with a fall of the number of households with low levels of gearing, the distribution is more concentrated now than since the beginning of the 2000s. This likely reflects both the evolution of household incomes and house prices over this period, as well as constraints on new borrowers who typically have higher repayment to income ratios.

The growing concentration of levels of household gearing also partly reflect the concentration of the distribution of interest rates that households pay for their mortgage. Figure 14 combines data on the gearing of households – on the horizontal axis – with data on the effective interest rate paid by households – on the vertical axis – to deliver a set of heatmaps showing the evolution of these variables in recent years. Each panel refers to a different year, while the brighter the colour, the greater the density of households at a given level of interest rate and gearing. The top two panels show the snapshots for 2000 and 2007: a period during which levels of mortgagor leverage and gearing increased markedly. Over this period, the centre of the distribution shifts to the right and slightly downwards as the median interest rate falls from 7.0% to 5.9%, and the median repayments share of income rises from 14.1% to 18.7%. The diversification of household positions is particularly marked, demonstrated by the growth of the light blue region between these two periods, suggesting that the range of interest rates and household gearing changed considerably between 2000 and 2007.

Figure 14: Heatmaps of interest rates and share of income accounted for by interest payments



Source: Living Costs and Food Survey - Office for National Statistics

Notes:

1. This analysis covers mortgagor households

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(973.5 Kb)

The second two panels of Figure 14 compare equivalent heatmaps for 2008 and 2009, including the marked fall in interest rates. The density of households clearly shifts down and to the left over this period, likely reflecting the fall in interest rates on variable mortgages immediately following the downturn. The share of income accounted for by interest also falls, although the range of different positions remains relatively broad, likely reflecting the very different economic circumstances of different households during the economic downturn.

The third pair of panels in Figure 14 shows the equivalent heatmaps for 2011 and 2013. These indicate an amplification of the trend that started in 2009, as the low interest rate environment has by this time captured both households setting out on the housing ladder – whose first mortgages reflect these benign conditions – and a growing number of remortgaging households, moving away from fixed rate deals which they agreed at higher rates. On this measure, mortgagor households are now more concentrated in terms of their mortgage interest rates and their interest share of income than at any point in the past decade. While equivalent data for 2014 will be available in early 2016, these results provide some sense of the position of households as they prepare for possible future interest rate increases.

Notes

1. This finding is similar to that of the Resolution Foundation in their publication 'Mortgaged Future: Modelling household debt affordability and access to refinancing as interest rates rise' (May 2014), who also find that affordability is a particular issue in London, the South East and East of England.

Reference Tables

Table 1: UK Demand side indicators

	2013	2014	2014	2015	2015	2015	2015	2015	2015
			Q4	Q1	Q2	May	Jun	Jul	Aug
GDP¹	2.2	2.9	0.8	0.4	0.7	:	:	:	:
Index of Services									
All Services ¹	2.8	3.2	0.9	0.4	0.6	0.2	0.6	0.2	:
Business Services & Finance ¹	3.6	3.9	1.4	0.1	0.6	0.2	0.7	0.1	:
Government & Other ¹	1.4	1.4	-0.2	0.2	0.1	0.1	0.1	0.0	:
Distribution, Hotels & Rest. ¹	4.1	4.7	1.4	1.2	1.0	-0.2	0.7	0.0	:
Transport, Stor. & Comms. ¹	2.2	3.0	1.1	0.8	1.4	0.7	1.2	0.8	:
Index of Production									
All Production ¹	-0.8	1.4	0.1	0.3	0.7	0.3	-0.4	-0.4	:
Manufacturing ¹	-1.1	2.7	0.1	-0.1	-0.5	-0.6	0.2	-0.8	:
Mining & Quarrying ¹	-3.3	-0.5	0.6	0.5	7.5	4.6	-3.8	0.4	:
Construction¹	1.6	8.1	0.6	0.2	1.4	-1.0	0.9	-1.0	:

	2013	2014	2014	2015	2015	2015	2015	2015	2015
			Q4	Q1	Q2	May	Jun	Jul	Aug
Retail Sales Index									
All Retailing ¹	1.5	4.0	2.3	0.8	0.7	0.3	-0.2	0.0	0.2
All Retailing, excl. Fuel ¹	2.0	4.4	2.3	0.5	0.9	0.4	-0.3	0.3	0.1
Predom. Food Stores ¹	-0.1	0.8	1.4	0.2	0.1	1.3	-0.5	-0.2	-0.9
Predom. Non-Food Stores ¹	1.8	6.6	2.6	0.1	1.4	-0.3	-0.7	0.4	1.2
Non-Store Retailing ¹	17.8	12.1	5.0	4.0	2.4	-0.1	3.2	2.2	-1.5
Trade									
Balance ^{2,3}	-34.2	-34.5	-9.5	-10.5	-3.5	-0.6	-0.8	-3.4	:
Exports ⁴	3.8	-1.1	2.9	-2.2	3.7	1.5	-0.4	-5.2	:
Imports ⁴	3.7	-1.0	2.8	-1.3	-1.7	-1.8	0.2	0.6	:
Public Sector Finances									
PSNB-ex ^{3,5}	-25.8	-2.5	-2.6	-7.9	-6.1	-2.8	-0.6	0.3	1.4
PSND-ex as a % GDP	79.4	81.6	81.6	80.8	81.5	80.9	81.5	80.8	80.6

Table source: Office for National Statistics

Table 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

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Table 2: UK Supply side indicators

	2013	2014	2014	2015	2015	2014	2015	2015	2015
			Q4	Q1	Q2	May	Jun	Jul	Aug
Labour Market									
Employment Rate ^{1, 2}	71.5	72.9	73.2	73.5	73.4	73.4	73.5	:	:
Unemployment Rate ^{1, 3}	7.6	6.2	5.7	5.5	5.6	5.6	5.5	:	:
Inactivity Rate ^{1, 4}	22.4	22.2	22.3	22.1	22.1	22.1	22.1	:	:
Claimant Count Rate ⁷	4.2	3.0	2.6	2.4	2.3	2.3	2.3	2.3	2.3
Total Weekly Earnings ⁶	£475	£480	£486	£488	£491	£492	£489	£496	:
CPI									
All-item CPI ⁵	2.6	1.5	0.9	0.1	0.0	0.1	0.0	0.1	0.0
Transport ⁵	1.0	0.3	-0.4	-2.5	-2.1	-1.5	-1.8	-1.9	-2.6
Recreation & Culture ⁵	1.1	0.9	0.6	-0.4	-0.8	-1.0	-1.0	-0.6	-0.9
Utilities ⁵	4.1	3.0	2.5	0.9	0.4	0.4	0.4	0.4	0.4
Food & Non-alcohol. Bev. ⁵	3.8	-0.2	-1.6	-2.9	-2.3	-1.8	-2.2	-2.7	-2.4
PPI									
Input ⁸	1.2	-6.6	-9.4	-13.5	-12.2	-12.4	-13.0	-12.6	-13.8
Output ⁸	1.3	0.0	-0.8	-1.7	-1.7	-1.6	-1.6	-1.6	-1.8

	2013	2014	2014	2015	2015	2014	2015	2015	2015
			Q4	Q1	Q2	May	Jun	Jul	Aug
HPI⁸	3.5	10.0	10.0	8.5	5.6	5.6	5.7	5.2	:

Table source: Office for National Statistics

Table notes:

1. Monthly data shows a three month rolling average (e.g. The figure for February is for the three months Jan - Mar)
2. Headline employment figure is the number of people aged 16-64 in employment divided by the total population 16-64
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 JSA claimants divided by claimant count plus workforce jobs
8. Percentage change on previous period a year ago, non-seasonally adjusted

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Background notes

1. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

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