Office for
National Statistics

Economic & Labour Market Review

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In brief

Appointment of the National Statistician

Jil Matheson has been appointed as the new National Statistician and will take up the post on 1 September 2009. She succeeds Dame Karen Dunnell who retires at the end of August 2009. The appointment is made by Her Majesty the Queen on the advice of the Prime Minister. The National Statistician is the Head of the Government Statistical Service and an executive member of the Board of the UK Statistics Authority – where she is the Authority's chief executive and principal adviser on statistical matters.

The National Statistician will be fully involved in the recruitment of the new Director General, Office for National Statistics, with operational responsibility for the management and direction of the Office for National Statistics.

More information

www.statisticsauthority.gov.uk/national-statistician/index.html

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✉ national.statistician@statistics.gsi.gov.uk

70 per cent of households had Internet access in 2009

New data, published by ONS on 28 August 2009 in the *Internet access: households and individuals* statistical bulletin, reveals that 18.3 million households in the UK (70 per cent) had Internet access in 2009. This is an increase of just under 2 million households (11 per cent) over the last year and 4 million households (28 per cent) since 2006 when the statistics were first compiled.

London, with 80 per cent of households, is the region with the highest level of access. The region with the lowest access level was Scotland, with 62 per cent.

The number of households with a broadband connection increased to 63 per cent from 56 per cent in 2008. And of those households with access to the Internet, 90 per cent had access to a broadband connection.

In the three-months prior to interview, 37.4 million adults (76 per cent of the UK adult population) accessed the Internet. In 2009 the number of adults who had never accessed the internet fell to 10.2 million (21 per cent). Of those adults who were recent internet users (having accessed in the three months prior to interview), 64 per cent had purchased goods or services over the Internet.

More information

www.statistics.gov.uk/statbase/Product.asp?vlnk=5672

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Half a million more working-age people in workless households

The number of working-age people in workless households in April-June 2009 was 4.8 million, up 500,000 on a year earlier, as revealed in new data from the Labour Force Survey. The number of children in workless households rose by 170,000 to 1.9 million.

The workless household rate – that is the percentage of households in which no adults work – increased by 1.1 percentage points from a year earlier to 16.9 per cent. This is the highest rate since 1999 and the largest year-on-year increase since 1997, from when comparable estimates are available.

The number of workless households increased by 240,000 from a year earlier to 330,000. The number of working households was 10.7 million, down 410,000 from a year earlier. Of those households that are workless, the workless household rate was highest for lone parent families at 40.4 per cent, followed by one-person households at 30.1 per cent.

Across the UK the workless household rate was highest in the North East of England, at 23.2 per cent, with the lowest rate in the East of England at 12.2 per cent.

For working age people, the employment rate for lone parents was 56.7 per cent, up 0.4 percentage points from the previous year. This continues the increasing trend since comparable estimates are available in 1997, when it stood at 44.6 per cent. The largest fall in the employment rate over the year, for those with dependent children, was for married or cohabiting fathers, down 2.1 percentage points, to 88.8 per cent.

More information

www.statistics.gov.uk/statbase/Product.asp?vlnk=8552

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Social Trends: Life begins at 40!

The belief that 'life begins at 40' looks to be true for Social Trends, one of the flagship publications of the Government Statistical Service. ONS is proud to publish Social Trends, and to continuously develop it, recognising the significant input of many people who contribute content to Social Trends and help to quality assure it. Social Trends celebrates its 40th year in 2010 and to mark the anniversary is changing its publishing strategy by making some chapters available online earlier than usual. The theme for this edition is 'forty years of social trends in the UK'. After the 40th edition, it is intended to phase out the print publication to evolve into a fully fledged web only publication.

The aim of developing an electronic-only Social Trends is to:

- increase opportunities for publicising and promoting Social Trends content
- ensure more timely release of topic-based statistical summaries, and
- strengthen links with material published elsewhere

Social Trends is currently available as a printed publication as well as being available electronically on the Office for National Statistics website at: www.statistics.gov.uk/socialtrends and full reports for each edition from Social Trends 30 onwards are available from the Social Trends Archive as interactive pdf files where Excel spreadsheets containing the data used in the publication can be accessed and downloaded by clicking the relevant chart or table.

More information

www.statistics.gov.uk/socialtrends39

Contact

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ONS published corrected version of Total Public Service Output and Productivity

A production error has been corrected in the Total Public Service Output and Productivity article, which was originally published on the ONS website on 9 June 2009, and appeared in the August edition of ELMR. The error affected the education inputs estimates and, therefore, the education productivity estimates, the total public service inputs estimates and the total public service productivity estimates.

Estimates for all time periods presented in the article were affected, but this did not alter the main findings of the analysis. For example, the conclusion that 'total productivity fell by 3.2 per cent, an annual average of 0.3 per cent' has been corrected to 'total productivity fell by 3.4 per cent, an annual average of 0.3 per cent'.

The corrected article can be found at www.statistics.gov.uk/cci/article.asp?ID=2212

ONS apologises for any inconvenience caused.

More information

www.ons.gov.uk/about-statistics/ukcemga/index.html

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UPDATES

Updates to statistics on www.statistics.gov.uk

5 August

Index of production

0.6% quarterly fall

www.statistics.gov.uk/cci/nugget.asp?id=374

7 August

Producer prices

Factory gate inflation falls 1.3%

www.statistics.gov.uk/cci/nugget.asp?id=248

11 August

UK trade

Deficit widened to £2.2 billion in June

www.statistics.gov.uk/cci/nugget.asp?id=199

12 August

Average earnings

Regular pay slows in year to June 2009

www.statistics.gov.uk/cci/nugget.asp?id=10

Employment

Rate falls to 72.7%

www.statistics.gov.uk/cci/nugget.asp?id=12

18 August

Inflation

CPI inflation 1.8%, RPI inflation -1.4%

www.statistics.gov.uk/cci/nugget.asp?id=19

20 August

Public sector

£5.1 billion current budget deficit in July

www.statistics.gov.uk/cci/nugget.asp?id=206

Retail sales

Retail sales growth continues in July

www.statistics.gov.uk/cci/nugget.asp?id=256

26 August

Work and worklessness among households

Half-a-million more people in workless households

www.statistics.gov.uk/cci/nugget.asp?id=409

27 August

Business investment

10.4% down in second quarter 2009

www.statistics.gov.uk/cci/nugget.asp?id=258

28 August

Index of services

0.6% three-monthly fall into June

www.statistics.gov.uk/cci/nugget.asp?id=558

GDP growth

Economy contracts by 0.7% in Q2 2009

www.statistics.gov.uk/cci/nugget.asp?id=192

FORTHCOMING RELEASES

Future statistical releases on www.statistics.gov.uk

1 September

Mergers and acquisitions involving UK companies – Q2 2009

4 September

Output in the construction industry – Q2 2009

8 September

Index of production – July 2009

9 September

UK trade – July 2009

10 September

New orders in the construction industry – July 2009

11 September

Producer price index – August 2009

15 September

Consumer price indices – August 2009

16 September

Labour market statistics – September 2009

Digest of engineering turnover and orders – July 2009

Public sector employment – Q2 2009

17 September

Retail sales – August 2009

18 September

Public sector finances – August 2009

21 September

Low pay 2009

24 September

Population Trends

25 September

Business investment Q2 2009 – revised results

Investment by insurance companies, pension funds and trusts – Q2 2009

Quarterly population estimates (experimental) – Q2 2009

29 September

Quarterly national accounts – Q2 2009

UK economic accounts – Q2 2009

Balance of payments – Q2 2009

Consumer trends – Q2 2009

30 September

Blue Book 2008 – times series data: part 1

Government deficit and debt under the Maastricht Treaty

Mid 2008 household estimates

Productivity – Q2 2009

UK business: activity, size and location

Index of services – July 2009

Economic review

September 2009

Graeme Chamberlin
Office for National Statistics

SUMMARY

The UK economy contracted for a fifth successive quarter in 2009 Q2. However, compared to the previous two quarters, the pace of falling output has slowed considerably, raising hopes that the UK is nearing a turning point. Despite this the latest figures disappointed, especially when set aside other major economies that saw positive growth return in the second quarter. The production sector appears to be on the cusp of recovery but the services industries, and in particular business services, continues to drive the downturn. On the demand side inventories have now turned around, but investment remains weak. Preliminary estimates of business investment give little sign for optimism. The labour market continues to worsen, as unemployment rises and employment falls. Finally the rate of consumer prices inflation has remained below the Inflation Target of 2 per cent, and is expected to fall further as last year's increases in gas and electricity prices fall out of the annual calculation.

GROSS DOMESTIC PRODUCT

Pace of contraction slows

The *UK Output, Income and Expenditure* statistical bulletin reported that the economy shrank by a further 0.7 per cent in the second quarter of 2009. While this is a slight upward revision from the 0.8 per cent contraction published in the *Preliminary Estimate*, it has done little to change the current story of a deep and prolonged recession. Gross Domestic Product (GDP) has now fallen for five successive quarters and is 5.5 per cent lower than in the same quarter of last year. (**Figure 1**)

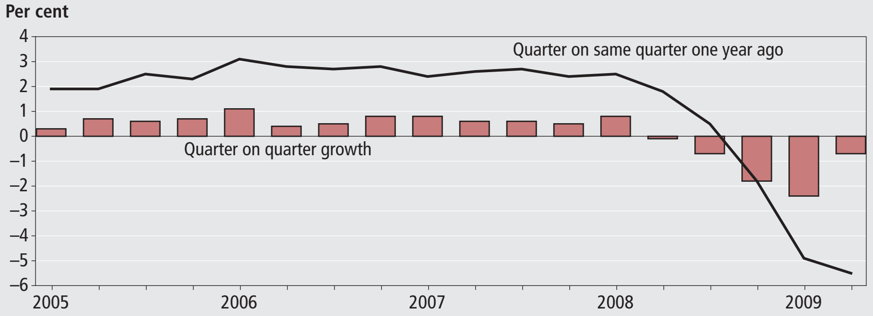
The latest data can be viewed in both a positive and a negative light.

Starting with the positive, although the economy remains steadfast in recession at least the rate of fall in output has moderated. In the first quarter of the year output fell by a massive 2.4 per cent, and this had followed on from a 1.8 per cent drop in the final quarter of 2008. The slower rate of decline raises optimism that the worst has now passed and that the UK is heading towards a turning point. Similar views have been reported in most of the important business surveys. And in the Bank of England *Inflation Report*, the central projection in their forecast of GDP growth shows that the pace of decline will fall throughout the reminder of 2009 with a recovery starting in early 2010.

On the downside, GDP figures in quarter two were worse than expected. A number of business surveys had reported tentative signs of growth in April and May, meaning some commentators had actually called the end of the recession. Although the general consensus was that this call was premature, it was still believed that the speed of recession would have slowed to a greater extent than it did.

Latest GDP figures for other major economies compounded the disappointment. In the second quarter, Japan grew by around 0.9 per cent, Germany by 0.3 per cent, and France also by 0.3 per cent. In the US, even though output continued to fall, it did so at a much lower rate of around 0.25 per cent. Therefore, data for the second quarter shows the UK to be relatively slow in emerging from recession.

Figure 1
UK GDP growth



Source: ONS UK output, income and expenditure

Services now the main driver of falling output

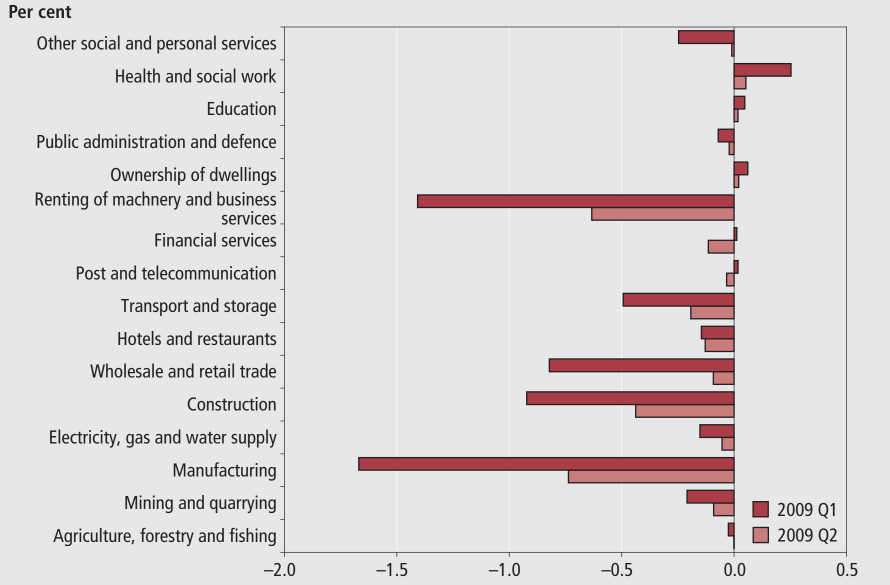
Figure 2 presents a breakdown by industry of the growth in output during 2009 Q2. The same breakdown is also presented for the first quarter of the year, so the evolving pattern of industry growth can be viewed.

The most notable feature is the significant slowing in the speed at which the production industries (extraction, manufacturing and utility supply) were contracting. In the first quarter of 2009 output fell by 5.1 per cent compared to 0.6 per cent in the second quarter. This trend was mainly driven by manufacturing which accounts for about four-fifths of all production. Here output fell by a very modest 0.2 per cent in the second quarter following on from a 5.1 per cent fall previously.

Due to this moderation it is now the services sector that accounts for the largest share of the drop in output, although the pace of decline has also slowed in these

Figure 2

Contributions to output growth by industry in 2009 Q1 and 2009 Q2



Source: ONS UK output, income and expenditure

industries. The single largest contribution has come from the business services industries which includes a multitude of activities such as management consultancy, accountancy, legal, human resources and architecture. It appears that the more 'discretionary' parts of corporate spending have been the hardest hit as a result of the domestic and global downturn.

As the orientation of the UK economy is more towards services, and the relative share of manufacturing is lower, it might explain why the same bounce in output that was seen in Japan, Germany, France and to a lesser extent in the US was subdued in the UK.

Construction output has also seen an increase in its relative importance to the downturn. Output fell by 2.2 per cent in the latest quarter compared to 6.9 per cent in the first, but its contribution to the fall in total output now exceeds that of production. Continued weakness is mainly the result of a sharp fall in private house building, as demand is choked off by uncertainty over the direction of house prices, tougher restrictions in credit availability and growing unemployment. Nervousness and pessimism concerning the economic outlook in the corporate sector has also resulted in a marked fall in commercial property development.

The construction industry has been and continues to be adversely affected by the credit crunch. Not only is the demand for residential and commercial property sensitive to the price and availability of long-term credit, the industry as a whole requires significant access to finance in order to fund longer-term developments. It is therefore highly prone to the funding difficulties experienced by much of the corporate sector as a result of increasingly nervous investors and banks looking to reign in riskier lending to sure up their balance sheets.

Investment continues to fall rapidly in 2009

UK Output, Income and Expenditure marks the second vintage of published GDP data pertaining to 2009 Q2 and provides the first estimates for the demand or expenditure parts of the National Accounts. Although the detail and scope of the data is at its infancy the trends in the main aggregates such as consumption, investment, government spending and trade are shown. Further and significant details on the components of these aggregates are available in the Quarterly National Accounts which is the third vintage of GDP data and is published towards the end of September.

In **Figure 3**, the quarterly growth in GDP during 2009 Q1 and 2009 Q2 has been broken down into the relative contributions of these main expenditure components.

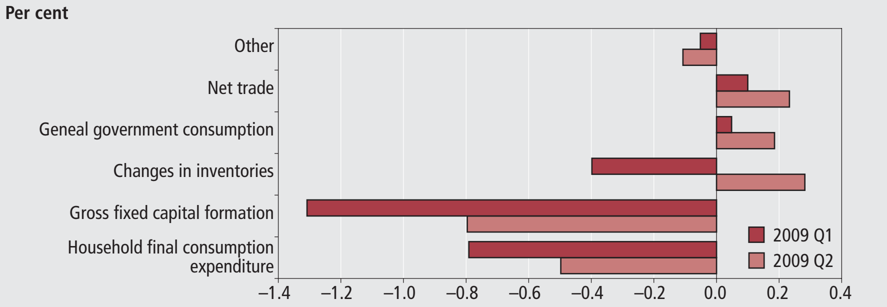
Household consumption is the largest single component of total demand in the UK. During the second quarter it fell by 0.7 making a -0.5 per cent contribution to total growth. This compares to the 1.3 per cent fall in the first quarter and -0.8 per cent contribution to growth.

Investment (or gross fixed capital formation) has been the largest driver of falling demand in the last two quarters. Given that it mainly consists of business investment and investment in residential dwellings it can hardly be surprising. Business surveys have reported weak investment intentions, mainly due to uncertainty over future demand. And the evidence from the output of the construction industry, which shows sharp falls in the house building sector, is clearly consistent with declining spending on dwellings. Second quarter investment spending fell by 4.5 per cent making a -0.8 per cent contribution to total GDP. But the downturn is clearly less striking than in the first quarter when investment fell by 7.5 per cent making a -1.3 per cent contribution to GDP growth.

The biggest turnaround in activity came from inventories. In the first few quarters of the recession this category was chiefly responsible for falling output, as firms dramatically reduced their stocks of raw materials, works in progress, and finished goods in response to expectations of lower future demand and output. Although

Figure 3

Contributions to GDP growth in 2009 Q1 and 2009 Q2 by main expenditure components[1]



Source: ONS UK output, income and expenditure

Note:

1 The 'other' components includes the consumption of non-profit institutions, changes in valuables and the statistical discrepancy.

inventories are very small in terms of the level of GDP, they do tend to play a significant part in accounting for changes in GDP, especially over the economic cycle. The abrupt disposal of inventories in the downswing followed by an equally strong accumulation in the upswing means that recessions associated with strong stocks cycles tend to be V-shaped.

A view reported in many business surveys is that firms have been so aggressive in cutting their inventories over the last year that an increase in production was necessary in order to replenish stocks and meet current orders; and that this inventory bounce is the main factor explaining the improvement in second quarter growth which happened to be concentrated in the production sector. These industries are more likely to hold inventories and be subject to stock cycles. It also explains why countries with relatively high manufacturing bases such as Japan and Germany have seen the largest drop in GDP during the recession and also the strongest return to positive growth.

As services industries hold comparatively few inventories any bounce would have a weaker effect on GDP. Therefore countries with a relatively large services sector, such as the UK, may have experienced smaller output losses during the recession but correspondingly a slower return towards positive growth.

While stockbuilding can boost output growth in the short run it generally does not have a sustained effect on demand. In the long term this is driven by consumption and investment, so it is perhaps premature to talk about recovery until the household and corporate sector shows more optimism. In fact, the inventory bounce in the second quarter will only be a temporary innovation unless firms start reporting a significant pick up in new orders. In the UK this is yet to fully materialise, with surveys such as the Confederation of British Industry (CBI) *Industrial Trends Survey* and the Purchasing Managers Index (PMI) *Report on Manufacturing* indicating that future orders remain fragile and stock adequacy levels are still high.

GDP would have fallen further than it did in 2009 Q2 had it not been for the positive contributions from government consumption and net-trade (exports minus imports) which added a combined 0.4 percentage points to growth. Government spending tends to rise automatically during a downturn through increased transfer payments (eg unemployment benefits). But in any case, it is unlikely the government would attempt to reverse its own fiscal stimulus by cutting spending in the midst of the recession. However, post general election spending cuts appear very likely as the new government turns its attention to reducing the current budget deficit.

The positive contribution to growth from net-trade is a quirk of the recession. Exports fell by 2.7 per cent in the second quarter which was more than outweighed by the 3.4 per cent drop in imports. Improvements to net trade and their positive contribution to UK GDP and the Balance of Payments have therefore happened automatically as a consequence of imports falling faster than exports. This may reflect the relative weakness of the UK's external position (current account) prior to the recession and thus the greater need for rebalancing in the UK economy. Alternatively it may also be a sign that aggregate demand has fallen more heavily in the UK than the elsewhere and/or a reflection of the competitive gains arising from sterling depreciation in late 2008.

RETAIL SALES

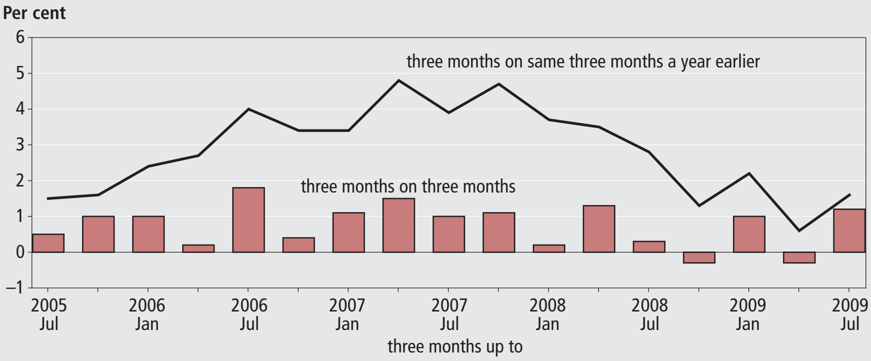
Volumes continue to be supported by strong discounting

Recession watchers usually play close attention to retail spending. As it reflects the more 'discretionary' components of household consumption it might be a good indicator of confidence and is sensitive to the current economic outlook. However, as **Figure 4** shows, growth in UK retail sales has remained fairly robust. Growth has slowed but unlike general household consumption it has generally stayed in positive territory. Latest data corresponding to the three months to July 2009 reported a 1.2 per cent increase relative to the previous three-month period. Looking at the three-month on same three-month period a year earlier saw retail spending grow by 1.6 per cent – and on this measure retail sales is yet to fall since the start of the recession.

Despite the slowdown many commentators were surprised there wasn't a contraction in retail sales. Rising unemployment, tight credit availability, the impact of last year's energy price increases on real incomes and falling house prices were expected to weigh more heavily, especially as households looked to sure up their own balance sheets and reduce debts. Official data has at times in the last year been at odds with business survey data from the British Retail Consortium (BRC) and the CBI, both of which have been vocal about the dire trading conditions on the high street.

There are however a number of factors that may explain the relative buoyancy of retail spending. The most important is presented in **Figure 5** – which shows that spending in real terms has generally been greatest where it is supported by falling prices (discounting). This certainly appears to be the case for parts of the predominately non-food segment of retail sales, specifically in non-specialised stores, clothing and footwear stores and non-store retailing. An article by Anagboso and McLaren in last month's *Economic and Labour Market Review* highlights this factor in accounting for the pattern of retail sales in the current downturn when compared to the recession of the early 1990s. Large cuts in domestic interest rates and a temporary reduction in the rate of VAT may have complemented this effect. Strong discounting, and its impact on retailers' margins, could also reconcile the hard times felt on the high street with the official data on rising sales volumes (ie values and volumes measures give different interpretations on the patterns of sales).

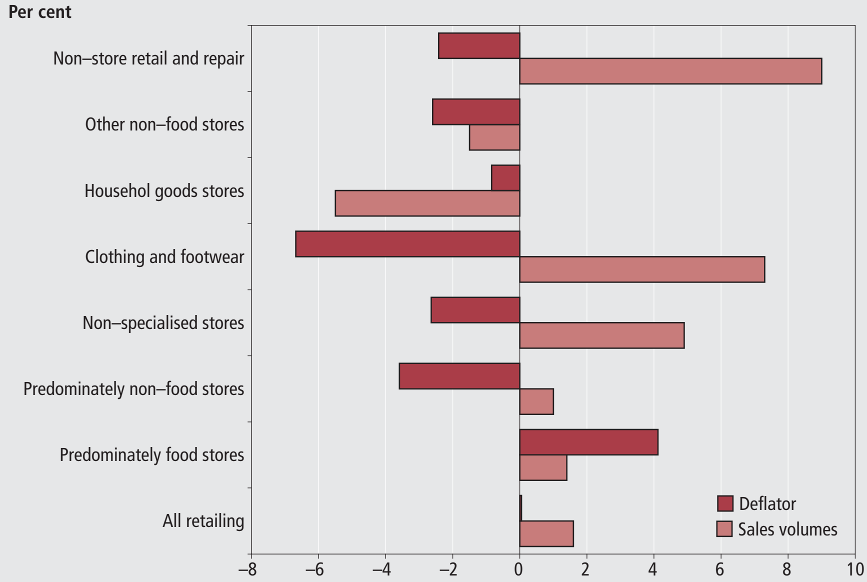
Figure 4
Retail sales growth



Source: ONS Retail Sales

Figure 5

Retail sales growth and deflators by main components[1]



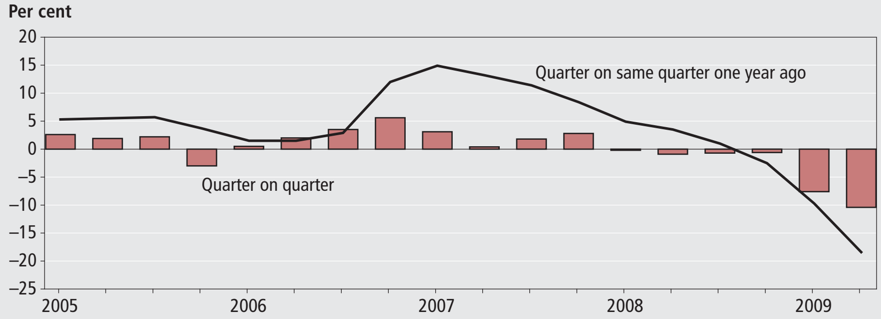
Note:

Source: ONS Retail Sales

1 Growth rates are based on the percentage change in the three-months to July 2009 relative to the same three-month period in 2008.

Figure 6

Growth in business investment



Source: ONS business investment preliminary results

Strong growth in non-store retailing, mainly the result of growing internet shopping, has continued despite the general recessionary environment. As Figure 5 shows, this part of retail sales grew by 9 per cent in the three months to July compared to the same period a year earlier. Undoubtedly there has been and still is a growing movement away from the high street to on-line which might also account for some of the difference between ONS data (which includes internet spending) and BRC data (which does not).

Finally it should be considered that only a third of total household spending is on goods sold in retail establishments and overall household consumption has fallen significantly in the recession (see Figure 3). It is therefore not the case that official data is reporting growth in all household spending but just a part of it that has been supported by strong price falls. For example, spending on motor vehicles and in hotels and restaurants have been particularly affected by the downturn and the tightening of consumer credit. A detailed breakdown of household consumption activity by categories of spending in 2009 Q2 will be available in *Consumer Trends* which is published alongside the *Quarterly National Accounts* at the end of the month.

BUSINESS INVESTMENT

A sharp fall in 2009

Preliminary results for business investment in the second quarter are now available (see **Figure 6**). The noticeable feature of the data has been the rapid drop in the two most recent quarters (2009 Q1 and 2009 Q2) of 7.6 per cent and 10.4 per cent. As a result, business investment was 18.4 per cent lower in the second quarter of 2009 compared to the same period in 2008.

As investment is recognised as a leading indicator of GDP, recent trends are not encouraging for those looking for signs of a sustained recovery. Instead the data points to ongoing weakness in business confidence. Many business surveys have reported negative balances for investment intentions. Although tighter funding conditions has been important the biggest factor has been uncertainty over future demand.

Furthermore, the fall in UK business investment has been broad-based (see **Figure 7**) – an indication that fragile business confidence across the entire range of industries is being driven by common factors, notably the ongoing recession and uncertainly over the timing and strength of the recovery.

LABOUR MARKET

Unemployment rate rises to 7.8 per cent

Although the speed at which output is falling slowed in the second quarter this moderating trend does not appear to have carried over to the labour market. In the second quarter the unemployment rate stood at 7.8 per cent (2.435 million), up from 7.1 per cent (2.215 million) in quarter one and up from 5.4 per cent (1.685 million) a year earlier. Rising unemployment over the last year has been mirrored in the falling employment rate (**Figure 8**). In 2009 Q2 the working age employment rate was 72.7 per cent, down from 73.6 per cent in the previous quarter and 74.7 per cent in the same quarter of 2008.

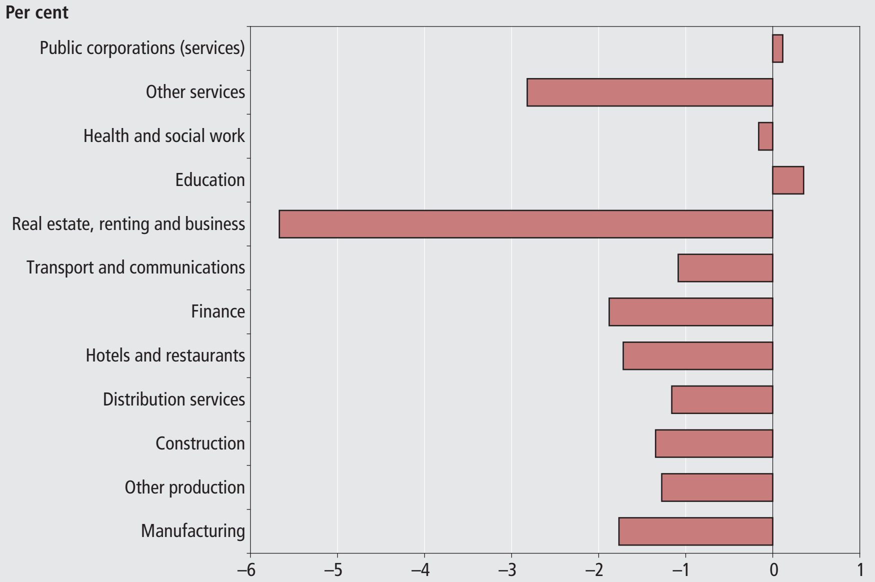
Weak demand and falling output in the real economy has clearly followed through to the labour market. However, because firms face costs in changing the size of their workforces the usual dynamic is for unemployment and employment to lag changes in output – meaning that firms are unlikely to start recruiting again until they are certain a sustained recovery is underway. Therefore the labour market could continue to weaken even after output begins growing again and the economy officially emerges from recession.

Inactivity rate up

In the second quarter the number of economically inactive of working ages increased by 127,000. The corresponding rise in the inactivity rate from 20.7 per cent to 21 per cent is the largest three-month

Figure 7

Contributions to the growth in business investment by industry – 2009 Q2



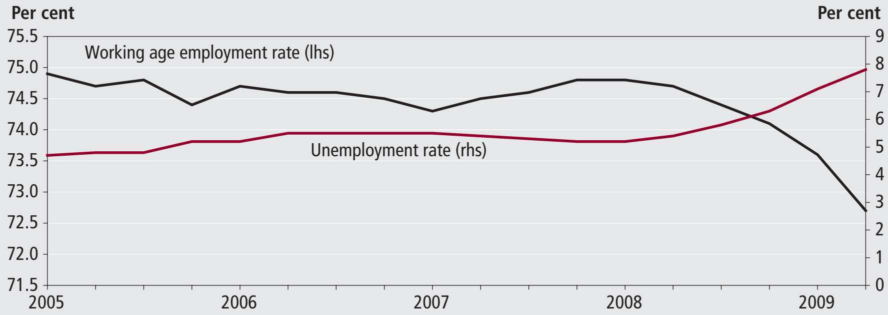
Note:

Source: ONS Business investment preliminary results

1 Growth rates are based on the percentage change in the three-months to July 2009 relative to the same three-month period in 2008.

Figure 8

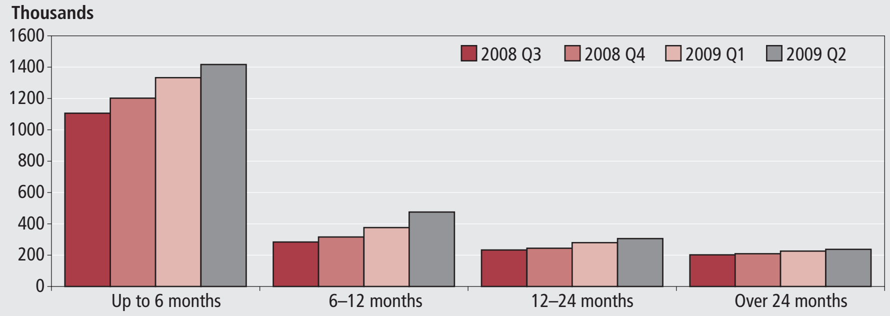
Unemployment and employment rates



Source: ONS Labour Market Statistics

Figure 9

Numbers of unemployed by duration



Source: ONS Labour Market Statistics

change since the period November 1991 to January 1992. But in terms of annual changes the rise in inactivity was more modest, with the latest data showing a rise of 83,000 in the number of working age inactive and a 0.1 percentage point increase in the inactive rate relative to the second quarter of 2008.

During the last year changes in inactivity have been relatively small compared to movements in employment and unemployment. Total in employment of working age has fallen by 619,000 and headline numbers of unemployed have grown by 750,000. It therefore appears that large falls in employment have corresponded to large increases in unemployment, but in comparison changes in the numbers of economically inactive have been much smaller.

Faced with poor labour market options it is conceivable that workers, for one reason or another, may stop actively seeking work and become inactive. If this were true it would dampen the effects of the recession on measured unemployment by increasing the flows into the inactive population. However, it is generally thought that these flows are more likely to come from the long-term unemployed – who after a prolonged period of unsuccessful job search may feel increasingly alienated from the labour market – and reduce their search intensity.

Figure 9 shows the total number of unemployed by duration. Clearly most of the currently unemployed have been so for less than six months, which is consistent with the sharp rise in redundancies over the last year driving inflows into unemployment. However, it is now evident that the numbers in the 6-12 months category are also rising indicating that those unemployed at the start of the recession are finding it harder to find jobs and exit unemployment. So as the recession persists some of the increase in unemployment is beginning to get entrenched. But because most unemployment remains towards the shorter durations it is not surprising there has been little discouraged worker effect on inactivity.

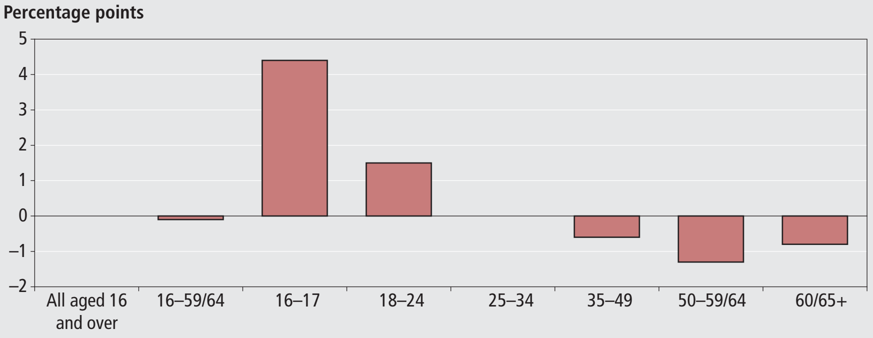
Even though the inactivity rate increased by a modest 0.1 percentage point in the course of the last year, as **Figure 10** shows, there has been less uniformity in terms of the changing pattern of inactivity by age. It is interesting to see that changes in the inactivity rate during the last year have been declining with age, so greater proportions of younger people are not actively seeking work but larger numbers of older workers are remaining active – either through employment or unemployment.

Looking at the stated reasons for inactivity in the Labour Force Survey sheds some light on these trends. In **Figure 11** changes in the proportions of the working age inactive by reason are shown in the last year.

The share of the inactive population accounted for by students has risen while those looking after family/home and the sick have fallen. This is certainly consistent

Figure 10

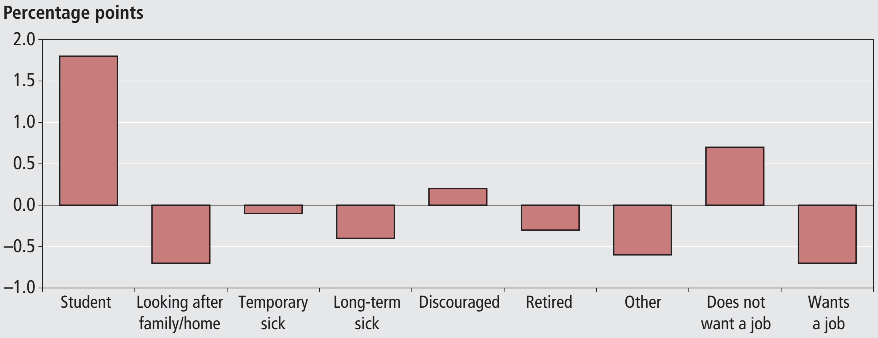
Changes in the inactivity rate by age between 2008 Q2 and 2009 Q2



Source: ONS Labour Market Statistics

Figure 11

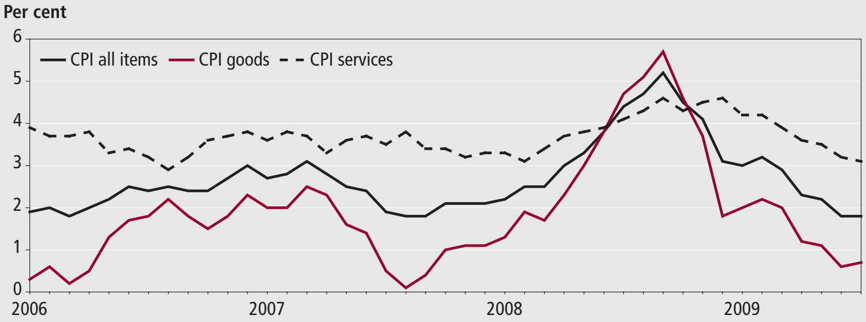
Changes in the proportion of total working age inactivity by reason between 2008 Q2 and 2009 Q2



Source: ONS Labour Market Statistics

Figure 12

CPI inflation rates



Source: ONS Consumer Price Indices

with the changing age profile of the inactive population, but it must also be considered that these are in line with longer term changes in the labour market. The issue is whether the extent of these changes has been positively affected by the recession.

There is some evidence that the recession has hit younger age cohorts the hardest with increases in unemployment disproportionately high in the 16-17 and 18-24 age categories. Employment opportunities in these groups are far more dependent on firm (graduate) recruitment schemes, which have been severely cut back in the last year as firms look to restructure and reduce their workforces. Given the lack of opportunities in the labour market it is reasonable to believe that inactivity may rise for these cohorts, especially because further education is an alternative option.

Figures 10 and 11 also provide some evidence that inactivity due to retirement is now making a smaller contribution to inactivity despite the ageing population. Here the considerable fall in stock markets over the last year has had a detrimental effect on pension wealth. Older age cohorts are also more likely to release equity from their properties by trading down, so the 13-20 per cent fall (depending on the price index used) in UK house prices since the peak in the summer of 2007 has also had an adverse effect on wealth. These factors might be encouraging households to postpone retirement in order to build up a larger pool of assets to fund retirement lifestyles.

The discouraged worker affect has become more important but is still at very low levels relative to the other reasons given for inactivity. Of course this may reflect the nature of the survey, with individuals perhaps unwilling to admit that they are not actively looking for work, especially when another plausible reason can be given. The survey though does show that although total inactivity rates have remained fairly constant there has been a rise in the proportion that do not want a job with a corresponding fall in the proportion that do.

INFLATION

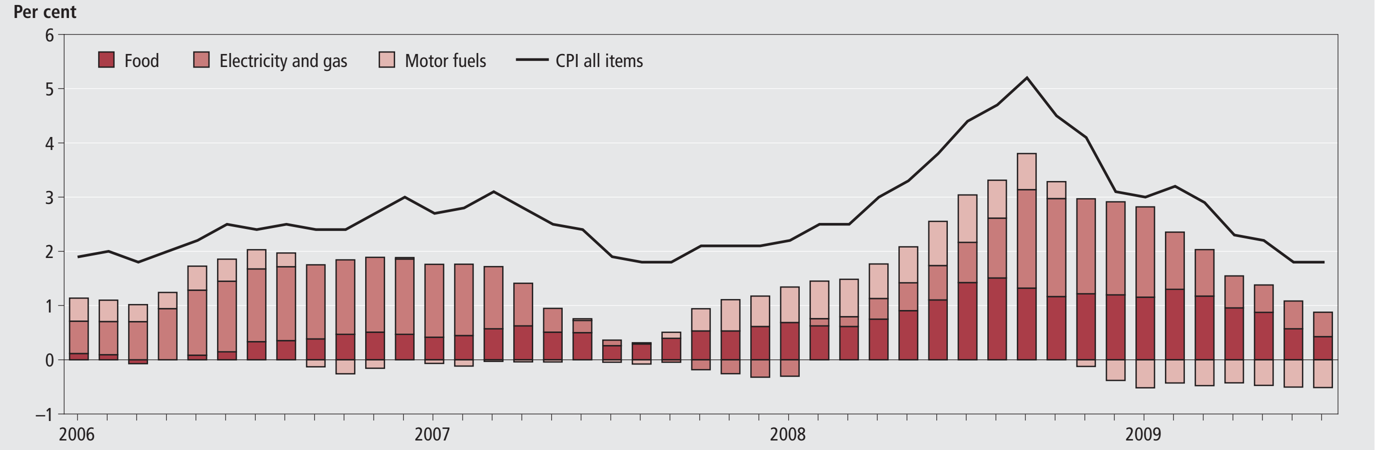
Consumer prices inflation stays below target

Inflation, measured on the official Consumer Prices Index (CPI) remained at 1.8 per cent over the year to July 2009 (**Figure 12**). This is unchanged from the previous month and means that inflation remains below the 2 per cent target followed by the Bank of England Monetary Policy Committee. Also shown in Figure 12 are the respective CPI inflation rates for goods and services. These account for approximately 55 per cent and 45 per cent respectively of the total CPI basket. While goods prices inflation has been more volatile, and driven the overall changes in the CPI, inflation in services prices has shown much greater stability (or persistence). This is suggestive of two things.

The first is that inflation over the last year, and the immediate outlook for inflation have been driven by large movements in a few goods prices- notably food, gas and electricity, and motor fuels. In **Figure 13** the relative contributions of each of these components to overall CPI inflation are presented. The significant increases in each of these were the main drivers of the spike in inflation that peaked at 5.2 per cent last September. Since then the effect of these parts of the basket has diminished. Motor fuel prices (petrol and diesel), although increasing in recent months, are below their level of last year when oil prices pushed towards $150 per barrel. As a result they are now making a negative contribution to the annual CPI inflation rate. Inflation may fall further as

Figure 13

Contributions of food, electricity and gas and motor fuels to CPI inflation rate



Source: ONS Consumer Price Indices

last summer's increases in gas, electricity and food prices fall out of the annual comparison. It has been forecast that this impact might be sufficient to drive CPI inflation below 1 per cent, requiring an open letter from the Governor of the Bank of England to the Chancellor for the exact opposite reason that letters have been written in the last year.

The second feature of Figure 12 is the relative persistence of inflation in services which accounts for almost half the CPI basket. Many services prices are set annually, so inflation tends to remain very constant and then is prone to discrete jumps. The best example is education, which tends to be driven by the level of university tuition fees which are set annually and remain almost unchanged in the index for the entire year.

As the labour content of services output is generally higher input prices are more proportionately influenced by earnings and these tend to be more sticky, especially in a downward direction. Workers tend to resist cuts to their nominal pay, so it could be that the cost structure of services output is far less responsive to underlying commodity prices than the cost of goods output. Services also tend to be more heterogeneous, so competitive effects on prices are less – again reducing the extent to which prices may respond to underlying input costs. The upshot is that persistence in services inflation may put a floor under the extent to which CPI inflation will fall. So while consensus opinion is that CPI inflation will continue to fall it may exceed expectations, and the deflation that many worried about at the start of the year now looks increasingly unlikely.

Key indicators

The data in this table support the Economic review by providing some of the latest estimates of Key indicators.

Seasonally adjusted unless otherwise stated

	Source CDID	2007	2008	2008 Q4	2009 Q1	2009 Q2	2009 May	2009 Jun	2009 Jul
GDP growth – chained volume measures (CVM)									
Gross domestic product at market prices	ABMI	2.6	0.7	–1.8	–2.4	–0.7	..	..	..
Output growth – chained volume measures (CVM)									
Gross value added (GVA) at basic prices	ABMM	2.6	0.8	–1.8	–2.5	–0.7	..	..	..
Industrial production	CKYW	0.3	–3.1	–4.6	–5.1	–0.6	–0.6	0.5	..
Manufacturing	CKYY	0.6	–2.8	–5.2	–5.5	–0.2	–0.6	0.5	..
Construction	GDQB	2.7	0.2	–5.0	–6.9	–2.2	..	..	..
Services	GDQS	3.5	1.3	–1.0	–1.6	–0.7	..	..	..
Oil and gas extraction	CKZO	–2.2	–5.1	–1.7	–1.7	–0.9	–2.1	1.1	..
Electricity, gas and water supply	CKYZ	0.2	0.0	–1.9	–3.7	–3.7	1.0	0.1	..
Business services and finance	GDQN	5.6	2.4	–0.6	–2.5	–0.8	..	..	..
Household demand									
Retail sales volume growth	EAPS	4.2	2.6	0.6	0.3	0.9	–0.9	1.4	0.4
Household final consumption expenditure growth (CVM)	ABJR	2.5	0.9	–1.1	–1.3	–0.7	..	..	..
GB new registrations of cars (thousands)[1]	BCGT	2,390	2,112	338	472	..	132	..	..
Labour market[2,3]									
Employment: 16 and over (thousands)	MGRZ	29,222	29,443	29,361	29,204	28,933	28,933	..	..
Employment rate: working age (%)	MGSU	74.6	74.5	74.1	73.6	72.7	72.7	..	..
Workforce jobs (thousands)	DYDC	31,471	31,661	31,296	31,188	..	..	..	..
Total actual weekly hours of work: all workers (millions)	YBUS	936.1	940.7	934.0	921.0	917.2	917.2	..	..
Unemployment: 16 and over (thousands)	MGSC	1,653	1,776	1,971	2,215	2,435	2,435	..	..
Unemployment rate: 16 and over (%)	MGSX	5.3	5.7	6.3	7.1	7.8	7.8	..	..
Claimant count (thousands)	BCJD	863.6	905.1	1,091.4	1,366.7	1,533.2	1,536.3	1,557.8	1,582.7
Economically active: 16 and over (thousands)	MGSF	30,875	31,220	31,333	31,419	31,368	31,368	..	..
Economic activity rate: working age (%)	MGSO	78.9	79.1	79.2	79.3	79.0	79.0	..	..
Economically inactive: working age (thousands)	YBSN	7,940	7,872	7,858	7,828	7,955	7,955	..	..
Economic inactivity rate: working age (%)	YBTL	21.1	20.9	20.8	20.7	21.0	21.0	..	..
Vacancies (thousands)	AP2Y	657	618	530	465	431	443	431	427
Redundancies (thousands)	BEAO	127	163	259	286	277	277	..	..
Productivity and earnings annual growth									
GB average earnings (including bonuses)[3]	LNNC	..	..	3.0	–0.3	2.5	2.3	2.5	..
GB average earnings (excluding bonuses)[3]	JQDY	..	..	3.6	3.0	2.5	2.6	2.5	..
Whole economy productivity (output per worker)	A4YN	..	..	–1.8	–4.2	..	..	..	..
Manufacturing productivity (output per job)	LOUV	..	..	..	..	..	–5.9	–4.9	..
Unit wage costs: whole economy	LOJE	..	..	3.0	3.6	..	..	..	..
Unit wage costs: manufacturing	LOJF	..	..	..	..	..	7.3	6.6	..
Business demand									
Business investment growth (CVM)	NPEL	11.9	1.7	–0.6	–7.6	–10.4	..	..	..
Government demand									
Government final consumption expenditure growth	NMRY	1.2	2.8	1.1	0.2	0.8	..	..	..
Prices (12-monthly percentage change – except oil prices)[1]									
Consumer prices index	D7G7	2.3	3.6	3.9	3.0	2.1	2.2	1.8	1.8
Retail prices index	CZBH	4.3	4.0	2.7	–0.1	–1.3	–1.1	–1.6	–1.4
Retail prices index (excluding mortgage interest payments)	CDKQ	3.2	4.3	3.8	2.4	1.4	1.6	1.0	1.2
Producer output prices (excluding FBTP)[4,5]	PLLV	1.9	4.7	5.0	3.6	1.3	1.2	0.3	0.2
Producer input prices[5]	RNNK	3.0	21.6	9.0	0.7	–8.7	–8.5	–11.8	–12.2
Oil price: sterling (£ per barrel)	ETXR	36.11	52.10	35.69	31.33	38.44	38.00	42.33	40.16
Oil price: dollars ($ per barrel)	ETXQ	72.44	98.37	57.24	44.94	59.82	58.67	69.27	65.75

Seasonally adjusted unless otherwise stated

	Source CDID	2007	2008	2008 Q4	2009 Q1	2009 Q2	2009 May	2009 Jun	2009 Jul
Financial markets[1]									
Sterling ERI (January 2005=100)	BK67	103.5	90.9	83.6	77.1	80.6	79.9	83.4	83.0
Average exchange rate /US$	AUSS	2.0018	1.8528	1.5699	1.4346	1.5503	1.5429	1.6366	1.6366
Average exchange rate /Euro	THAP	1.4619	1.2588	1.1957	1.1010	1.1389	1.1295	1.1682	1.1622
3-month inter-bank rate	HSAJ	5.95	2.75	2.75	1.60	1.15	1.15	1.15	0.90
Selected retail banks: base rate	ZCMG						0.50	0.50	0.50
3-month interest rate on US Treasury bills	LUST	3.29	0.11	0.11	0.13	0.20	0.14	0.20	0.18
Trade and the balance of payments									
UK balance on trade in goods (£m)	BOKI	–89,754	–92,877	–22,294	–20,821	–19,633	–6,174	–6,451	..
Exports of services (£m)	IKBB	150,645	170,399	45,523	41,882	40,288	13,878	13,943	..
Non-EU balance on trade in goods (£m)	LGDT	–47,768	–53,633	–13,621	–12,708	–10,886	–3,215	–3,648	..
Non-EU exports of goods (excl oil & erratics)[6]	SHDJ	98.8	105.8	99.5	92.6	90.2	89.6	88.8	..
Non-EU imports of goods (excl oil & erratics)[6]	SHED	113.3	113.5	109.8	101.3	94.1	90.6	91.8	..
Non-EU import and price index (excl oil)[6]	LKWQ	102.6	115.3	125.3	130.9	126.7	127.4	124.0	..
Non-EU export and price index (excl oil)[6]	LKVX	101.8	109.8	115.9	121.5	118.3	118.4	116.6	..
Monetary conditions/government finances									
Narrow money: notes and coin (year on year percentage growth)[7]	VQUU	5.8	7.3	7.3	8.4	8.7	8.7	8.7	8.8
M4 (year on year percentage growth)	VQJW	12.7	12.9	16.4	17.7	13.8	16.3	13.8	14.1
Public sector net borrowing (£m)	–ANNX	33,546	63,618	30,065	23,329	41,747	19,163	13,415	8,016
Net lending to consumers (£m)	RLMH	12,905	11,546	1,835	137	364	153	71	–217

External indicators – non-ONS statistics

		2009 Jan	2009 Feb	2009 Mar	2009 Apr	2009 May	2009 Jun	2009 Jul	2009 Aug
Activity and expectations									
CBI output expectations balance[1]	ETCU	–43	–44	–48	–32	–17	–17	–14	–5
CBI optimism balance[1]	ETBV		–64			–40			–16
CBI price expectations balance	ETDQ	–15	–13	–12	–19	–15	–8	–14	5

Notes:

Source: Office for National Statistics

1 Not seasonally adjusted.
2 Annual data are the average of the four quarters except for workforce jobs (June).
3 Monthly data for vacancies and average earnings are averages of the three months ending in the month shown. Monthly data for all other series except claimant count are averages of the three months centred on the month shown.
4 FBTP: food, beverages, tobacco and petroleum.
5 Now derived from not seasonally adjusted series.
6 Volumes, 2003 = 100.
7 Replacement for series M0 which has ceased publication.

Further explanatory notes appear at the end of the Key times series section.

Independent forecasts

August 2009

UK forecasts

The tables below supplement the Economic Review by providing a forward-looking view of the UK economy. The tables shows the average and range of independent forecasts for 2009 and 2010 and are extracted from HM Treasury's Forecasts for the UK Economy.

2009

	Average	Lowest	Highest
GDP growth (per cent)	–4.2	–4.7	–3.1
Inflation rate (Q4, per cent)			
CPI	1.1	–0.6	2.5
RPI	–1.2	–2.8	0.0
Claimant count (Q4, million)	1.90	1.60	2.60
Current account (£ billion)	30.1	–56.0	–11.0
Public Sector Net Borrowing (2009–10, £ billion)	180.1	152.1	205.0

2010

	Average	Lowest	Highest
GDP growth (per cent)	0.8	–0.8	2.0
Inflation rate (Q4, per cent)			
CPI	1.7	–0.3	3.5
RPI	2.7	–0.1	4.2
Claimant count (Q4, million)	2.17	1.57	2.80
Current account (£ billion)	–27.9	–63.3	–0.5
Public Sector Net Borrowing (2010–11, £ billion)	182.7	154.0	220.0

Notes

Forecast for the UK economy gives more detailed forecasts, and is published monthly by HM Treasury. It is available on the Treasury's website at: www.hm-treasury.gov.uk/data_forecasts_index.htm

Selected world forecasts

The tables below supplement the Economic Review by providing a forward-looking view of the world economy. The tables show forecasts for a range of economic indicators taken from *Economic Outlook* (June 2009), published by OECD (Organisation for Economic Co-operation and Development).

2009

	US	Japan	Euro area	Total OECD
Real GDP growth (per cent)	–2.8	–6.8	–4.8	–4.1
Consumer price (percentage change from previous year)	–0.6	–1.4	0.5	..
Unemployment rate (per cent of the labour force)	9.3	5.2	10.0	8.5
Current account (as a percentage of GDP)	..	..	..	..
Fiscal balance (as a percentage of GDP)	–10.2	–7.8	–5.6	–7.7

2010

	US	Japan	Euro area	Total OECD
Real GDP growth (per cent)	0.9	0.7	0.0	0.7
Consumer price (percentage change from previous year)	1.0	–1.4	0.7	..
Unemployment rate (per cent of the labour force)	10.1	5.7	12.0	9.8
Current account (as a percentage of GDP)	..	..	..	..
Fiscal balance (as a percentage of GDP)	–11.2	–8.7	–7.0	–8.8

Notes

The OECD *Economic Outlook* is published bi-annually. Further information about this publication can be found at www.oecd.org/eco/Economic_Outlook

ARTICLE

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Capitalising research and development: towards the new System of National Accounts

SUMMARY

This article extends the earlier work on capitalisation of R&D in response to the proposals in the new System of National Accounts (SNA). Major improvements include: R&D deflators, depreciation rate for non-market R&D, rate of return, and estimates of R&D capital stocks. In addition, the article highlights areas for future improvements and presents preliminary estimates for the impact of capitalisation on the UK National Accounts. R&D capitalisation raises the level of UK GDP by approximately 1.6 per cent and gross capital formation by about 9 per cent. These changes are due to capitalisation of R&D rather than an actual improvement to GDP growth, which is estimated to be minimal. These figures are preliminary, based on experimental methods, and should therefore be interpreted with caution. The authors welcome comments and complementary evidence that can be used to substantiate or revise the assumptions made throughout this article.

Research and Development (R&D) plays a vital role in modern economies through its direct impact on technological development. Advanced knowledge, created through R&D, increases the ability of the firms to innovate, develop new products, improve existing products, and increase the efficiency of the production process. If business R&D increases by one per cent, it results in a 10 to 30 per cent increase in production.[1] Firm level studies show that R&D based knowledge is useful for a number of years. In this regard, R&D is like other assets, such as plant and machinery. Yet, expenses on R&D are treated differently in the old SNA. Unlike investment in buildings, plants, and machinery R&D expenditures are classed as current expenditure on goods and services, used up in the production process.

This inconsistency is identified in the new SNA and the updated international standards on the calculation of economic aggregates, such as Gross Domestic Product (GDP), recognise spending on R&D as an investment activity. Implementing such a change is challenging due to issues regarding the valuation of R&D assets, depreciation of R&D capital stock, and possible double counting with existing assets within the SNA. Consequently, as a first step towards capitalisation, countries are encouraged to develop an R&D satellite account. A satellite account presents data in accordance with the principles and guidelines followed in the preparation of National Accounts, but expands the production boundary. For instance, the R&D satellite account includes R&D investment in the production boundary of National Accounts extending the concept of capital formation.

ONS published preliminary results on R&D capitalisation in Galindo-Rueda (2007). The capitalisation increased GDP by 1.5 per cent, on average. With useful preliminary results, the work provided a basis to further improve estimation methods and working assumptions. This paper contributes to the capitalisation agenda and improves: a) depreciation assumptions of R&D stock in the non-market sector, b) the calculation of rate-of-return, c) initial capital stock estimates, d) calculation of goods and services consumed in the production of R&D ie intermediate consumption, and e) deflators for land and building and ‘other current’ expenditures. The rest of this paper explains progress on R&D capitalisation, highlights challenging issues, with solutions adopted and direction for further improvement. Subsequently, capitalisation results from 1997-2007 are covered, and finally, conclusion offers a summary and suggestions for future work.

Capital formation and capitalisation of R&D

The previous article (Galindo-Rueda, 2007) has extensively covered conceptual issues related to the definition of R&D, treatment of unsuccessful R&D, overlap with other intangible assets, and treatment of non-market R&D. Subsequently, Evans et al, (2008) tested how changes in various assumptions affect headline estimates ie GDP, investment, and gross capital formation (GCF). Therefore this paper will only focus on the capital formation and capitalisation of R&D. **Diagram 1** shows basic steps of R&D capitalisation.

In simple terms, R&D capital is formed when a producer invests in a project that '*increase[s] the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.' (OECD, 2002)*. Economic theory and NA measure capital formation in two ways: gross and net. Gross capital formation (GCF) is the total outlay in each period, on the purchase or own-account production of an R&D asset which yields a service lasting beyond the period in which it is acquired. Net capital formation measures the balance of gross capital formation after deducting depreciation.

R&D capitalisation is the reallocation of R&D expenditure from current expenditure to investment. Since the capitalisation project is a work-in-progress, the change is tested in a satellite account, before integrating with the NA. The R&D satellite account focuses only on R&D and presents comprehensive information without disturbing the main accounts. In fact, the satellite account is an evolving 'mechanism for presenting particular topics as annexes to main National Accounts' (OECD, 2002), and provides necessary freedom to improve methodology. **Diagram 2** provides a detailed view of the steps shown in Diagram 1, presenting a schematic view of R&D's capitalisation (the focus at this stage is only on capitalisation, related issues are covered in detail later).

Each vertical block roughly represents a step of capitalisation. The horizontal box links the capital stock of Land and Buildings (L&B) and Plant and Machinery (P&M) with the rest of the account. Estimating R&D expenditure is the first step of the capitalisation process. Detailed data is collected from the UK Gross Expenditure in R&D (GERD) ONS data release, in accordance with the Frascati Manual (FM)[2]. However, FM institutional sectors differ from those of the SNA[3]. Therefore the second step links the FM institutional sectors to the SNA sectors[4]. The third major step is to strip inflation out of the expenditure data to attain real expenditures. At this stage, a parallel step is completed: calculating capital stock, from investment

Diagram 1

Basic steps for the capitalisation of research and development

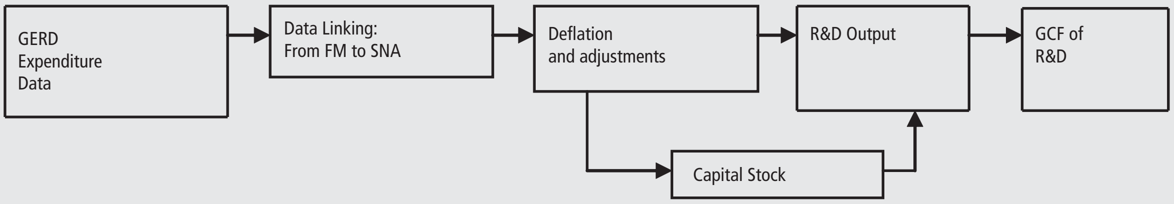
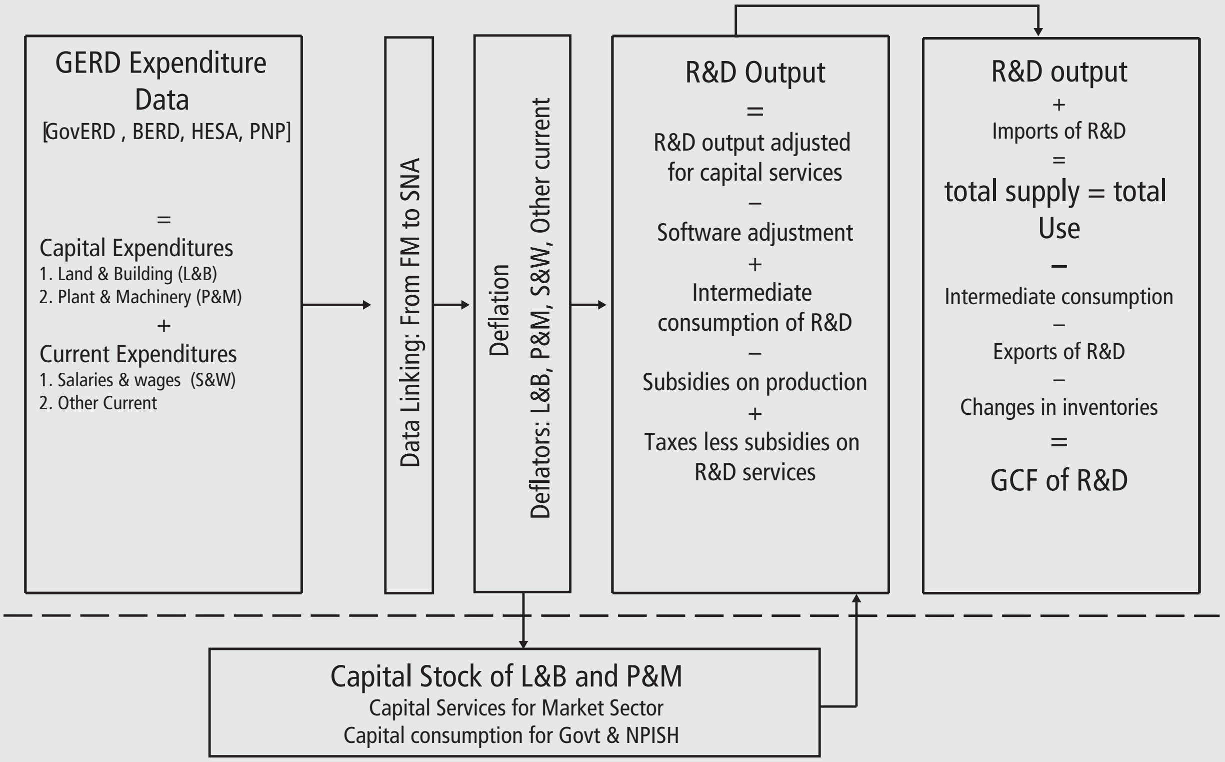

GERD Expenditure Data
Data Linking: From FM to SNA
Deflation and adjustments
R&D Output
GCF of R&D
Capital Stock

Diagram 2

Capitalisation of research and development


GERD Expenditure Data
[GovERD , BERD, HESA, PNP]
=
Capital Expenditures
1. Land & Building (L&B)
2. Plant & Machinery (P&M)
+
Current Expenditures
1. Salaries & wages (S&W)
2. Other Current
Data Linking: From FM to SNA
Deflation
Deflators: L&B, P&M, S&W, Other current
R&D Output
=
R&D output adjusted for capital services
–
Software adjustment
+
Intermediate consumption of R&D
–
Subsidies on production
+
Taxes less subsidies on R&D services
R&D output
+
Imports of R&D
=
total supply = total Use
–
Intermediate consumption
–
Exports of R&D
–
Changes in inventories
=
GCF of R&D
Capital Stock of L&B and P&M
Capital Services for Market Sector
Capital consumption for Govt & NPISH

Note:

1 GovERD = Government expenditure on R&D, BERD = Business expenditure on R&D, HESA = Higher Education Statistics Agency, PNP = Private-non-Profit, FM = Frascati Manual, ESA = European System of Accounts, other current = other current expenditure, and GCF = Gross Capital formation.

data, and capital services. Capital services or capital consumption (in the case of non-market sector) replace capital expenditure for the year; R&D output estimates are adjusted accordingly. The fourth vertical block shows output is the sum of all the costs. Furthermore, output is adjusted for double counting of R&D in software that has already been capitalised in the software account.

The other three additions to output are: a) other goods and services that are consumed in the production of R&D, including intermediate consumption of R&D, b) subsidies on production, and c) taxes less subsidies on R&D services. Essentially the capitalised output of R&D is available at this stage, but a further step is required to calculate the supply and use of R&D. At this stage the production and consumption of rest-of-the-world sector (RoW), ie imports and exports of R&D, are accounted for because total available output is the sum of own-produced and imports, and total use is the sum of domestic uses and RoW consumption. The use side also provides information on Gross Capital Formation (GCF),[5] hence completing the capitalisation process. Further analysis (eg increase in GDP, change in investment, GCF) can be undertaken depending on analytical requirements.

Our schematic presentation simplifies capitalisation. In reality the researcher needs to deal with challenging issues like: R&D ownership, price of R&D outputs, economic life length of R&D assets, R&D input in the production of other R&D assets, and adjustments for double counting where already capitalised intangible assets that have R&D components. Decision on these issues affect R&D output and other headline figures. Below we deal with some of these issues in detail.

Valuation of R&D

Earlier articles on R&D capitalisation have covered the valuation issue in detail and all debates on capitalisation of intangible assets have to grapple with the valuation problem. Since this issue is central to the specific method we have used for capitalisation, we shall cover it briefly. The valuation problem arises because of the difficulty of obtaining price data on R&D output, due to the majority of R&D being produced and used in-house. As the price information is not available, monetary value of output is difficult to ascertain.

In this situation, SNA (1993) recommends, that 'the output will usually have to be valued by total costs of production, as is the case with most own-account production' (6.164). It is evident that this approach ultimately measures the cost of production not the contribution of R&D assets to productivity, thus ignoring productivity growth. Furthermore, data requirements and quality issues become more consequential as detailed data are required and a complete break down of costs is very difficult to obtain. However, this is the most practical approach for R&D capitalisation, as all countries have adopted it; it is relatively more practical to implement, and it imposes no new data collection costs, due to widespread interest in R&D (FM based surveys provide detailed time series expenditure data on R&D).

In the UK the major source of R&D expenditure data are Gross Expenditure on R&D (GERD) annual statistical release. The Business Expenditure on R&D (BERD) collects data on expenditure by activity and divides capital and current expenditure into 'land and buildings', 'plant and machinery', 'salaries and wages' (S&W) and 'other current'[6] expenditures. The Government Expenditure on R&D survey (GovERD) supplies data on R&D performance as well as capital and current expenditure on R&D. Data for NPISH come from Higher Education Statistics Agency (HESA) and private non-profit data are gathered at ONS.

R&D ownership

The FM data provide no information on the ownership of R&D assets. The SNA requirements include identification of economic ownership ('effective management and control of the R&D output in order to ensure the expected benefits are obtained') for the classification of assets and benefits to an institutional unit. In the absence of an economic owner, benefits from the assets can not be recorded, as is the case with freely available R&D. Thus, identification of an owner is necessary for capitalisation.

In the absence of ownership information, the funder, or performer data can determine ownership. For non-market producers, the OECD (2009) recommends that 'the best approach is to use expenditures by socio economic objective (SEO) obtained from performers (i.e. GERD data) for government, higher education and NPIs and transform them to an *ownership basis using funding data*' (emphasis added). The Bureau of Economic Analysis, United States, deems the funder as the owner of R&D assets, while Statistics Canada argues the performer is a better base to determine ownership, because of better quality data. Clearly, both approaches have limitations and it is easy to find examples where a funder is not the final owner and similarly a performer does not own the R&D it performs.

Galindo-Rueda (2007) adopted a clever solution, rather than siding with either the funder or performer approach, he used a mixed approach, based upon ownership shares. He assumes that businesses only fund an R&D project if they control its benefits through ownership, therefore they retain 100 per cent ownership when they fund projects performed by other businesses, government, and Non-Profit Institutions Serving Housholds (NPISH). However, when they fund a project performed by the rest of the world (RoW), it is considered that the businesses own 90 per cent of it. Since socio economic objectives motivate government decisions, the government may share ownership with the performers. Therefore, when government funds a project that is performed by businesses, NPISH and RoW, it owns 50, 10 and 100 per cent respectively. NPISH fully own the projects they fund, and RoW owns 90 per cent of its funded projects (See **Table 1**). These assumptions are not final, but are retained for this paper until future improvements can be made, based on new information.

Linking FM data to SNA sectors

Conceptual differences and different institutional classifications require linking FM data to fit the SNA sectors. Most of the SNA and FM sectors are similar. However, a major difference arises because of separation of the Higher Education (HE) sector in the FM.[7] In countries with a high proportion of universities in the private sector, HE falls into the Non Profit Institutions Serving Households (NPISH)[8] but when most of the universities are in the public sector HE is classified as general government. Galindo-Rueda (2007) determined from classification information that the HE sector should be classified under NPISH. **Table 2** shows the linking of the two systems based on OECD (2009) recommendation.

Deflators

Real expenditures on various components of R&D are estimated and deflated accordingly. FM indicates that L&B and P&M absorb a relatively small percentage of R&D expenditures and proxy deflators are available from the relative class of gross fixed capital formation in the National Accounts. Therefore, we have used 'private commercial construction' deflator for L&B, and P&M deflator for P&M. The other two categories, S&W and 'other current'[9], have no close comparatives in the NA therefore we have developed composite deflators.

Follow the guideline from the FM we

Table 1
Share of funder's ownership in R&D performed

	Funder/Owner Ratio			
Performer	**Business**	**Government**	**NPISH**	**Rest of World**
Business	1	0.5	1	0.9
Government	1	1	1	0.9
NPISH	1	0.1	1	0.9
Rest of World	0.9	1	1	1

Source: Galindo-Rueda (2007)

Table 2
Linking between FM and SNA sectors

FM Sector	SNA Sector
Government	General Government
Research Councils (RC)	General Government
Higher Education Funding Councils (HEFC)	General Government
Higher Education (HE)	Non-Profit Institution serving Households (NPISH)
Private non-Profit (PNP)	Non-Profit Institution serving Households (NPISH)
Business Enterprise	Financial, Public and Private non-Financial Corporations
Abroad	Rest of the World (RoW)

Source: Galindo-Rueda (2007)

have constructed a weighted labour cost deflator, based on salaries data from the Annual Survey of Hours and Earnings (ASHE) and full time equivalent data from BERD. Preparing a deflator for the 'other current' category was relatively challenging because the survey does not provide a breakdown of the type of expenditures included. It is clear from the 'other current' expenditures' definition that services and administrative expenses are included. We have used firm level data in the R&D sector (SIC 73) to determine weights for the relevant class of expenditures that constitute 'other current'. In the composite deflator, the producer price index (PPI) for other goods has a 0.4 weighting and the service PPI for all services has a weighting of 0.6.

Adjustment for capital services/ consumption and rate of return

SNA and FM have conceptually different approaches to the recording of asset. The former measures the cost of capital services/ consumption, which essentially focuses on services/consumption from existing fixed capital. FM records only expenditure (purchases) of new fixed capital.[10] Therefore the satellite account capital expenditure should be replaced with capital services, for the market sector, and capital consumption for the non-market sector. This step is shown in the Diagram 2 where capital expenditures go into Perpetual Inventory Method and capital services/consumption feed back to R&D output.

Capital service calculation in a sum-of-costs method is complicated. This is due to the calculation of the rental rate (see chapter five of the ONS Productivity Handbook, 2007, pp 62-69). The rental rate for the market sector consists of return on capital, depreciation, and capital gain; for the non-market sector it includes only depreciation, and therefore capital consumption.

Our composition of the rate of return calculation on capital has been improved. Previously a risk free rate of 4 per cent, per annum, and a 3 per cent fixed inflation rate have been used to estimate the rate of return. In this updated account the risk free return remains the same, but the inflation rate has been replaced with a three year moving average of the consumer price index (CPI), to capture inflation expectations. This rate of return is applied to the market sector only, while a zero rate of return on capital is assumed for the non-market sector ie government and NPISH, as recommended by OECD (2009).

R&D in software

BERD provides expenditure data on R&D for 'computer and related activities', which represent 9 per cent of total market sector R&D expenditure. If total expenditures in this category were capitalised in the R&D satellite account, R&D in own-account software will be counted twice in the UK NA. This is because R&D in own-account software has already been capitalised in the NA, through the software account (Chamberlin, 2007). One option to avoid this overlap is to take out R&D in own-account software from the software account. But SNA (1993) recommends that 'expenditure on R&D does not include the cost of developing software' (3.64). Therefore, it cannot be taken out from the software account and to avoid double counting, should not be included in the R&D satellite account.

Because the value of software and R&D within own account software cannot be separated, the extent of double counting is unknown. In the absence of new information, this account follows Galindo-Rueda's (2007) method and assumes that 50 per cent of intramural R&D in computer related activities (BBRD/Sector59) is a good proxy for R&D capitalised in the software account. This adjustment affects the satellite account by £713 million in 2007.

Intermediate consumption of other goods and services

Intermediate consumption 'consists of the value of goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed assets' (SNA, 1993, 6.147). FM indicates it 'applies the same treatment [as SNA] to intermediate goods, which are measured by purchases instead of consumption (under heading "other current costs")' (Annex 3).

From an SNA perspective all expenditure under the 'other current category' should not be considered as intermediate consumption because 'labour costs provided by staff providing indirect services, such as security and canteen staff' belong to compensation of employees, so need to be capitalised. However other components fall under the intermediate consumption definition of NA—like purchases of goods and services from outside the unit, including overseas purchases, and scientific services and other overhead costs including, for example security, insurance, storage and computer services (OECD 2002, p 109). These expenditures are IC.

Practically, the calculation of IC is not easy for two reasons. Firstly, FM data aggregates all expenditures in 'other current' category, but it does not provide information on what has been consumed during the current period and what remains in inventories. SNA focuses upon the cost of inputs actually consumed not bought during this period, as the OECD (2009) indicates that any change in inventories is very likely to be insignificant and can be ignored. Secondly, since firms report an aggregate figure for expenditures on the 'other current ' expenditure category therefore it is difficult to separate the components that need to be expensed. Consequently, a total figure for IC is deducted, it includes IC of R&D which is explained in detail below.

Intermediate consumption of R&D

From NA perspective R&D inputs in the production of other R&D assets are a clear case of intermediate consumption. For instance the R&D sector buys R&D,

incorporates it in its products and sells the products in the market. Therefore the purchased R&D becomes IC of R&D.

OECD (2009) recommends that:

> *All expenditures on purchases of R&D or on R&D production by market producers in the Scientific Research and Development industry (Division 72 ISIC Rev. 4) should be recorded as intermediate consumption, or otherwise expensed, on the presumption that such units produce R&D for sale, and any purchases are incorporated in products for sale. Only when specific information is available to the contrary should acquisitions of R&D be recorded as gross fixed capital formation, such as cases when a unit takes out a patent and sells licences to use.*

For the non-market sector, IC is only recorded when purchased R&D does not bring the expected benefits. No separate information is available for such R&D and R&D services consumed in the production of R&D, therefore an aggregate adjustment has been made. This adjustment also includes IC of other goods and services, as discussed above. This adjustment is not satisfactory and ideally should be presented separately, but the existing data limit our options. A ratio of intramural R&D undertaken in the R&D sector (SIC 73) to total intramural R&D undertaken in the R&D sector (from BERD) is used as the basis of this adjustment. However, more detailed data are required to provide better estimates of IC in different cases.

R&D depreciation rates

Capitalisation converts R&D expenditure into an asset, which provides the owner with benefits for more than one period. Therefore benefits remaining at the end of each period need to be calculated. The calculation of these benefits depends heavily on determining the total life length of the asset. Since calculating benefits at the end of each period is costly, a depreciation rate is applied to deduct the benefits received from an asset for the given year. Research on R&D uses four main methods to determine life length and depreciation rate: a) production function approach, b) amortization models, c) patent renewal method, and d) market valuation method (Mead, 2007). Results from these studies are sensitive to the underlying assumption and different studies conclude conflicting results. Recently Germany, Israel, and the UK have conducted pilot surveys and asked the managers of businesses to report on the life length of various R&D assets.

The UK survey results will be available next year and will provide better estimates on R&D assets' life lengths. Until then, following Galindo-Rueda (2007) and other countries, we are using geometric depreciation rates of 20 per cent for the market sector. The non-market sector rate has been adjusted upward, increased from 5 per cent to 15 per cent, which is similar to the depreciation rate used by other countries.

The two sectors are differentiated to account for the different types of R&D they undertake. Performance data show that government performs more R&D in the 'basic research' and 'applied research' category (see **Table 3**). Contrarily, businesses perform less basic research and focus more on 'applied research' or 'experimental development'. It is commonly accepted that basic research has longer useful life therefore non-market sector R&D assets depreciate slower.

Measurement of R&D capital stocks

The direct measurement of R&D stock is difficult because of a large share of own account production. In the SNA framework production for own final use is measured as a sum of: intermediate consumption, compensation of employees, consumption of fixed capital, and other taxes less subsidies on production. In the R&D satellite account the accumulated costs are calculated through the perpetual inventory method (PIM). Three major steps are involved: a) determination of initial capital stock, b) calculation of R&D capital stock, and c) capital services or capital consumption.

Initial capital stock is important because it affects current capital stock until it is depreciated completely. Galindo-Rueda (2007) estimated initial capital stock with a long term growth rate, and a depreciation rate. The initial stock value is sensitive to the depreciation and growth rate, resulting in uncertainty about its accuracy. We have used published and unpublished data to improve the initial capital stock. For the business sector overall expenditure on R&D is available from 1966, with the exception of a few missing years. We have used this data for the calculation of historical capital stock through PIM.

For the non-market sector investment data are available only from 1985. Since a life length of 13 years is assumed we have used an initial stock, calculated using annual investment growth rate and depreciation. Subsequently, we used PIM to derive capital stock data. Using historical investment data reduces the uncertainty related to initial capital stock as well as other capital stock data.

The final step is to calculate R&D capital services and consumption of R&D capital, which need to be derived from the stocks of the different sectors. For the non-market sector these two are the same as they consist purely of depreciation. For business, capital services include a rate of return and capital gain.

Capitalisation results

Adding R&D to the group of recognised intangible assets increases 'total GFCF, gross operating surplus (GOS), output, gross value added (GVA), gross domestic products (GDP), and net worth' (Aspden, 2005). Most previous studies however indicate little impact on GDP growth. Having laid out the major challenges and improvements in the methodology we can now focus on the results of R&D capitalization.

GERD to GDP

The GERD to GDP ratio is an indicator of R&D intensity. It captures the contribution of R&D to the economy as a whole and is thus an indicator of the impacts of R&D capitalization on GDP and investment. As a result of capitalising R&D, the GERD to GDP ratio is consistently shifted downwards by 0.03 per cent. It varies around 1.75 per cent, which is close to the OECD average and comparable to countries such as Canada, the Netherlands and Australia (OECD, 2007). There is no discernible trend in the observed time period and the ratio is still some way off the 2.5 per cent goal set by the government's Science and Innovation Investment Framework 2004-2014 and the 3 per cent target of the European Union. **Figure 1** shows GERD to GDP ratios, which do not fluctuate over time. A similar trend is obvious from the R&D expenditure share of the business, government and NPISH.

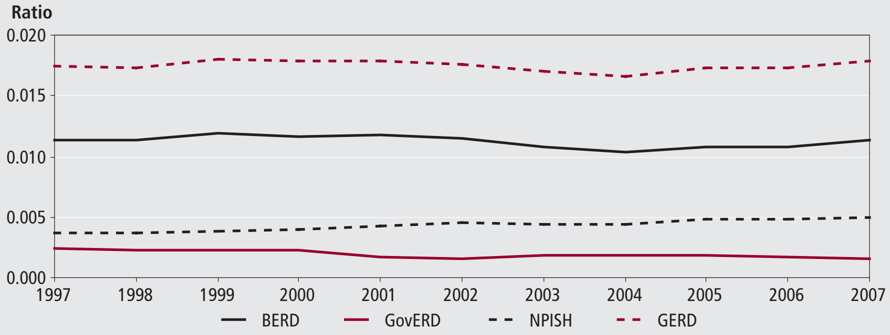
Table 3
R&D expenditure on types of R&D, 2007

Percentages

	Business	Government
Basic Research	*7*	*49*
Applied Research	*36*	*33*
Experimental Development	*57*	*17*

Source: GERD

Figure 1
GERD to GDP ratio



Source: GERD data

Table 4
Estimation of R&D output, 2007

£ million

	Business	Government	NPISH	Total
Starting point: Frascati Manual intramural R&D expenditure	16,110	2,238	7,075	25,423
less software adjustment	733	0	0	733
plus adjustment for tangible fixed assets	836	20	64	919
plus intermediate consumption (IC) of R&D in production of R&D	125	17	55	197
less subsidies on production	762			762
plus taxes less subsidies on R&D services	564			564
Total Supply	**16,140**	**2,275**	**7,194**	**25,609**

Source: Authors' calculation based on ONS data

Table 4 summarises the calculation of total R&D output for 2007. The total R&D output for the UK has been £25.6 billion, roughly two thirds of which occurred in the market sector. The large contribution of NPISH is due to higher education which accounts for more than 90 per cent of its R&D output. The government share is relatively low as it funds significant amounts of R&D, but performs relatively little.

Ownership assumptions are used to attribute expenditure to the uses of different sectors. **Table 5** shows R&D Uses in the UK economy from 1997 to 2007. It shows that uses, and hence supply, have increased steadily throughout the past decade, growing on average at 6 per cent per year. Government uses have remained steady during this time period while NPISH has increased its uses to about 20 per cent of the total in 2007.

Comparison with Blue Book (BB) data

In order to calculate the impact caused by the capitalization of R&D it is necessary to compare the figures from the satellite account with those published in the BB. To do so, BB data on R&D output and intermediate consumption need to be split into institutional sectors. Previously constant employment shares were used to slice the BB data. The use of sector employment shares is not entirely satisfactory because employment shares are based on the total number of employees in each of the sectors.

This is not representative of the labour actually employed in the performance of R&D and even less of the amount of R&D performed. Similarly, the shares may vary due to changes in economic conditions therefore the shares should account for this change. We have replaced the constant employment shares with R&D performance shares from GERD. Now the share of R&D performed in each sector form the basis of the split of BB data. These shares are calculated annually and attribute on average 64 per cent of R&D to business enterprises, 25 per cent to NPISH and 11 per cent to government.

Double Counting of Other Goods and Services

Table 6 shows the impact of the new measurement approach by contrasting new output estimates with those published in the BB. BB data is disaggregated using the R&D performance shares described earlier. Since the business sector was previously not valued at cost, business output more than doubles as a result of including own account R&D.

However, the difference in the non-market sector requires an explanation, since the non-market sector was previously valued at cost and thus already included own account R&D. The main reason is the broad coverage of R&D activity. The non-market sector shows significant changes because the FM definition of R&D is broader than the SNA definition, used in the BB. This would mean that more activities are now considered R&D. However, these newly included expenses were previously captured in expenditure on

Table 5
R&D uses

£ million

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total Uses (= Total Resources)	15,911	16,725	18,161	19,153	20,007	21,583	22,485	23,329	26058	27,803	29,717
Used by Corporations	8,695	8,911	9,796	10,300	10,368	10,897	11,076	12,048	13,406	14,917	15,903
GFCF	8,382	8,565	9,348	9,872	9,927	10,451	10,672	11,837	13227	14,795	15,778
IC	313	346	448	428	441	446	404	211	179	122	125
Used by Government	2,718	2,730	2,783	2,955	2,534	2,571	3,260	3,463	3,499	3,505	3,614
GFCF	2,652	2,660	2,701	2,872	2,468	2,508	3,193	3,427	3,469	3,485	3,597
IC	65	70	83	83	66	63	67	36	30	19	17
Used by NPISH	2,513	2,669	2,902	3,282	3,714	4,219	4,303	4,473	5,045	5,444	5,882
GFCF	2,410	2,556	2,760	3,134	3,553	4,041	4,137	4,383	4,966	5389	5,827
IC	103	113	142	148	161	178	166	90	79	55	55
Uses by RoW (exports)	1,986	2,415	2,679	2,616	3,391	3,896	3,846	3,345	4,107	3,937	4,318

Source: Authors' calculation based on ONS data non-R&D goods and services. Therefore it is necessary to make an adjustment to the non-R&D side of the NA. Further research will be necessary to investigate the exact nature of the double counting and making adjustment accordingly.

Table 6
Difference in R&D output measures, 2007

£ million

	Satellite Account	Blue Book	Difference
Business	17,100	6,828	10,272
Government	2,275	949	1,327
NPISH	7,194	2,999	4,195

Source: Authors' calculation based on ONS data

Table 7
Summary of impact on goods and services account, 2007

£ million

Resources		Uses	
R&D output	15,794	R&D IC	–7,468
Other output (non–market Capital Services)	8,084	Other IC (double counting)	–1,457
Other output (double counting)	–9,715	Exports (adjustment)	–1,205
Imports (adjusted)	321	Gov FC (services)	3,488
		Gov FC (Reclassified)	–1,984
		NPISH FC (services)	4,596
		NPISH FC (Reclassified)	–6,273
		NPISH R&D FC (elim)	–332
		R&DGFCF	25,202
		Inventories (elmination)	–83
Total Supply R&D	16,114	Total Demand R&D	16,114
Total Supply Other Godds & Servcies	–1,631	Total Demand OGS	–1,631
Total resources	**14,484**	**Total Uses**	**14,484**

Source: Authors' calculation based on ONS data

Table 7 indicates the adjustment for the non-market sector as well as other impact on the goods and services account. The net impact of the capitalization is that R&D supply increases by £16 billion, while other goods and services is reduced by £1,631 million.

Capitalisation Impact on GDP

The main effect of capitalisation is on GDP as the classification of R&D has changed from intermediate consumption to capital. This implies a reduction in intermediate consumption and an increase in gross value added. **Table 8** shows that the capitalisation of R&D increases GDP by 1.6 per cent, on average, roughly two thirds of which can be attributed to the market sector. This increase is slightly higher than Galindo-Rueda's (2007) estimate of 1.5 per cent. This is due to the changes in methodology outlined earlier as well as data revisions. The increase in GDP is comparable to the one observed in Canada, 1.6 per cent for 2004, (Statistics Canada, 2008) which has a similar GERD to GDP ratio.

Table 8
Impact of capitalisation on GDP

£ million

	GDP (BB)	GDP Including Business Sector R&D	Per cent increase	GDP Including all sectors GDP	Per Cent Increase
1997	830,094	838,955	*1.07*	843,956	*1.67*
1998	879,102	888,060	*1.02*	892,958	*1.58*
1999	928,730	938,233	*1.02*	943,231	*1.56*
2000	976,533	986,607	*1.03*	991,837	*1.57*
2001	1,021,828	1,032,108	*1.01*	1,037,554	*1.54*
2002	1,075,564	1,086,457	*1.01*	1,092,041	*1.53*
2003	1,139,746	1,150,871	*0.98*	1,156,693	*1.49*
2004	1,202,956	1,214,323	*0.94*	1,220,851	*1.49*
2005	1,254,058	1,266,985	*1.03*	1,274,241	*1.61*
2006	1,325,795	1,339,958	*1.07*	1,347,856	*1.66*
2007	1,398,882	1,413,886	*1.07*	1,421,970	*1.65*

Source: Authors' calculation based on ONS data

Impact on investment

Another interesting policy question is the change in investment due to R&D capitalisation. Total national investment should increase as a result since R&D expenditures are now investment in R&D assets. **Table 9** shows that on average investment increases by 9 per cent as a result of capitalising R&D. It is important to consider that capital expenditure in R&D production needs to be removed from the overall GFCF estimates to avoid double counting when deriving the augmented GFCF.

Table 9
Impact on investment

£ million

	BB GCF	Augmented GCF	Per cent increase
1997	138,307	150,805	*9.04*
1998	155,997	169,018	*8.35*
1999	161,722	175,500	*8.52*
2000	167,172	181,999	*8.87*
2001	171,782	186,777	*8.73*
2002	180,551	197,009	*9.12*
2003	186,700	203,945	*9.24*
2004	200,415	219,066	*9.31*
2005	209,758	229,299	*9.32*
2006	227,370	248,936	*9.48*
2007	248,766	271,726	*9.23*

Source: Authors' calculation based on ONS data

Conclusion

R&D creates new products and resources for the future. As a result it becomes one of the determinants of firm productivity and long term economic growth. If R&D is classified as intermediate consumption or not recoded as an asset in the NA it understates the national investment, net wealth and savings. This article is another contribution to the R&D capitalisation agenda and shows how capitalisation can be achieved, and the effect upon NA aggregates.

This updated account has made several changes to the capitalisation methodology. Firstly, the depreciation rate for non-market R&D has been increased from 5 per cent to

15 per cent. Secondly, the L&B deflator is replaced with a more appropriate deflator from NA, and 'other current' expenditure deflator weights have been updated based on expenditure data. Thirdly, the constant inflation component of nominal rate-of-return is replaced with a three year moving average derived from the Consumer Price Index (CPI). The allocation of Blue Book data is now based on shares of R&D performed in the market and non-market sectors than employment shares from Interdepartmental Business Register (IDBR).

Capitalising R&D produces several changes in the NA. GDP increases modestly, by 1.6 per cent, on average, and GCF goes up by 9 per cent. Total R&D output increased by 6 per cent from 1997 and total R&D output is £25.6 billion in 2007. This however has not changed the GERD to GDP ratio substantially. Capitalisation also has other downstream effects eg a decrease in non-market sector's consumption, an increase in property income for the business sector, among others.

Several areas have been identified for future improvements. These include: integrating life lengths information from a new survey on Investment in Intangible Assets; gathering further information on the magnitude of the software overlap; refining ownership assumptions; deriving capital services for non-market sector from GovERD data; adjustment for work in progress, inventories and possibly time lags; and further investigation on the nature of double counting in the non-market sector as well as the treatment of international R&D.

Notes

1 For more details on the impact of R&D in 16 OECD countries see: Lichtenberg and van Pottelsberghe (2001).
2 The name signifies the first meeting of experts on R&D statistics in June 1963 in Frascati, Italy. The manual covers conceptual and practical issues related to R&D, data collection on R&D, and wider issues of innovation, and knowledge economy.
3 SNA is an internationally agreed system that provides a coherent framework for recording and presenting the main flow of economic activity.
4 Business, Government, Non-Profit Institutions Serving Households (NPISH), and the Rest of the World (ROW).
5 We have avoided using GFCF, Gross Fixed Capital Formation, because R&D and other intangibles are not fixed capital. As an alternative we have used GCF, gross capital formation.
6 Other current category includes, 'purchases of goods and services from outside the unit, including overseas purchases, and scientific services …. Administrative and other overhead costs including for example security, insurance, storage and computer services should be recorded here.' (OECD, 2002)
7 This sector includes: 'all universities, colleges of technology and other institutions of post-secondary education, whatever their source of finance or legal status'. It also includes 'all research institutes, experimental stations and clinics operating under the direct control of or administered by or associated with the higher education institutions' (OECD, 2002, p 68).
8 For more detail on linking see: Carol (2006). Allocating HE to NPISH depends on the breakdown between the public and private universities; for example, Canada classifies Higher Education in the general government sector (Statistics Canada, 2008).
9 For definition, see footnote 6.
10 Another issue is the treatment of land. FM includes expenditure on land as part of expenditures on L&B, but SNA excludes land from the list of assets. We did not adjust for land because disaggregated data are not available.

ACKNOWLEDGEMENTS

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ARTICLE

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The housing market and household balance sheets

SUMMARY

This article investigates the impact of the significant rise and fall in UK house prices over the last decade on the balance sheets and behaviour of households – specifically relating to consumption, saving, indebtedness and wealth. Data is taken from the quarterly UK Economic Accounts which records income, spending and saving flows as well as the household sector's holdings of financial assets and liabilities. This article is intended to follow up on the 'Recent developments in the UK housing market' article published in last month's *Economic and Labour Market Review.*

Key messages

This article sets out to analyse the effects of housing market developments over the last decade, and more recently, on the balance sheets and behaviour of the household sector. The main conclusions are:

- Between 1997 and the peak in the summer of 2007 average UK house prices rose three-fold from £74,200 to £219,256. Since then prices have fallen by 13.6 per cent to £189,350 in 2009 Q2 (according to the Communities and Local Government house price index).
- Between 1997 and 2007 total lending secured on dwellings increased rapidly in line with house prices. However, lending has since fallen sharply due a strong fall in new mortgage approvals. In 2008 mortgage approvals were half the level in 2007 and a third of the level reported in 2006.
- Household consumption increased steadily as a proportion of disposable incomes up until 2007. Lending available for consumption also increased over this time – predominately driven by a large increase in mortgage equity withdrawal (MEW) which in turn was generated by sustained growth in house prices.
- Most MEW though has occurred automatically through the sale of inherited properties or by trading down – with most of the proceeds used to purchase financial assets or repay debts rather than fund consumption.
- The ratio of total household financial liabilities to disposable incomes increased from 1.0 to 1.7 between 1987 and 2007 with the majority of the increase accounted for by loans secured on dwellings. This reflects the strong growth in house prices over the decade on levels of mortgage borrowing. When combined with recent falls in equity markets the ratio of household net financial wealth to disposable incomes is at it lowest point since 1991.
- Total household wealth (or net-worth) also consists of non-financial wealth. Between 1997 and 2007 the ratio of non-financial wealth to disposable incomes increased from 4.0 to 5.6 – all of which was accounted for by rising house prices on wealth in residential buildings. This ratio has since fallen back to 4.9 in 2008 following the subsequent fall in house prices. These changes in household wealth may have directly fed through to consumption.
- Changes in house prices have significant redistributive effects on wealth. The sustained increase in prices is likely to benefit those looking to trade down or those who have inherited (older households) but made those looking to trade up or buy for the first time (younger households) worse off. This may have non-neutral effects on household consumption by shifting wealth towards those who have more ability to determine their own consumption levels (that is away from the unborn, very young, or more credit constrained young households).

- There was a significant fall in the UK household saving ratio between 2004 and the start of 2008. This may reflect the burden of servicing growing mortgage debt on household disposable incomes. The recent increase in the saving ratio has coincided with an aggressive cut in UK interest rates, which has reduced the size of interest payments made by the sector.
- The rise in household saving and the fall in property transactions have combined to reduce the net-borrowing requirements of the household sector. In fact, in 2009 Q1 the sector almost became a net lender.
- The Household Assets Survey, currently being run by ONS, will provide detail on the distribution of household wealth and liabilities that cannot be deduced from the aggregated data published in the Economic Accounts. The results of the first wave are expected to be published by the end of 2009.
- According to calculations from the Bank of England, between 8 per cent and 11 per cent of mortgagors were in negative equity in 2009 Q1, corresponding to 700,000 to 1.1 million households. However, negative equity does not imply that households are in financial distress as long as mortgage payments can continue to be made. But due to the down-payment constraints involved in moving house, the growing incidence of negative and low equity is likely to reduce turnover in the UK property market.

Background

Last month's edition of *Economic and Labour Market Review* included an article on 'Recent developments in the UK housing market' (Chamberlin 2009). This presented a number of key housing market trends over the last decade including prices, affordability, financing, supply and changes to the size and characteristics of the UK population. The purpose of this article is to look at how some of these developments have impacted on household balance sheets and behaviour.

As **Figure 1** shows, house prices increased rapidly between 1997 and 2007. According to Communities and Local Government (CLG) statistics, the average mix-adjusted[1] house price was £74,200 in the first quarter of 1997. At the market peak in 2007 Q3 this average had risen three-fold to £219,256. During the decade long boom UK house prices grew at an average annual rate of approximately 11 per cent. Furthermore this was at a time when general inflation has been low by historical standards, so the increases in real house prices and the ratio with respect to average earnings have been particularly striking[2].

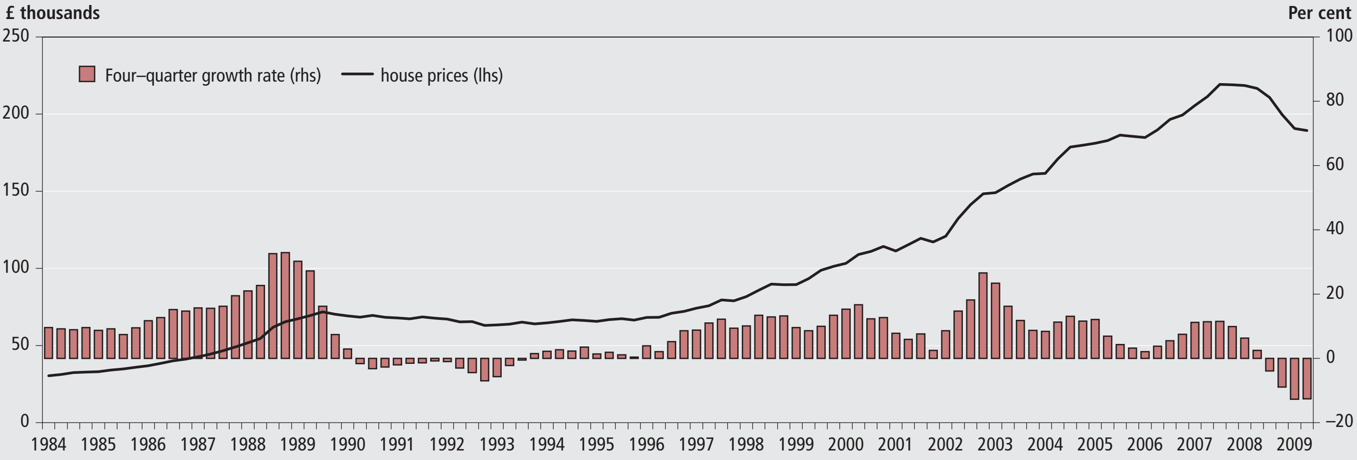
Since the summer of 2007 house price growth has gone into reverse. In 2009 Q2 average prices had fallen by around £30,000 (or 13.6 per cent) from their peak to £189,350 – roughly their level at the beginning of 2006. However, more recent monthly data suggests prices are beginning to stabilise – perhaps indicating that a turning point has been reached.

Changes in house prices have shown a strong correlation with the number of transactions and the value of mortgage lending (**Figure 2**). Although not all property is actually purchased using mortgage finance there has been a very strong correlation between the trends in numbers of mortgage approvals and volumes of housing transactions. In Figure 2 the number of approvals showed an upward trend until the end of 2006, despite the effect of strongly rising prices on affordability. Since then the fall off in approvals has been dramatic. In 2008 the number of mortgage approvals was less than half in the previous year, and only about a third of their peak in 2006.

Although it is difficult to apportion the fall in approvals to the demand and supply sides of housing finance it is likely that both will have played a role, and both will have been influenced by movement in house prices. A strongly growing market, by providing equity gains to borrowers, and increased security to lenders, is likely to increase demand and supply of mortgages. Data from CLG show that the ratio of mortgage advances to house prices remained fairly stable through the boom years even though the ratio of advances to household income moved considerably upwards[3] – evidence that credit availability was supportive of the rising market. But as prices start to fall borrowers and lenders become increasingly concerned with negative equity (where the value of the house is less than the loan secured on it) – as a result the demand for new mortgages and the willingness of financial institutions to provide them shrinks. Therefore, the demand and supply of housing finance appears to be strongly pro-cyclical[4].

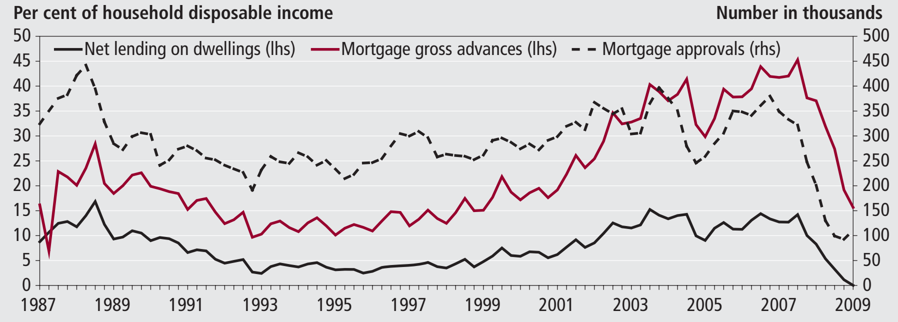
Mortgage financing has also been strongly affected by prevailing conditions in credit markets. The long upswing in UK and global housing markets coincided with a credit boom, where surpluses from emerging market and resource-rich economies kept wholesale money markets flush with liquidity and pushed down

Figure 1
UK average house prices



Source: CLG

Figure 2
Lending secured on dwellings and mortgage approvals



Source: Bank of England Bankstats

on yields. This enabled retail institutions such as banks and building societies to easily expand lending. Lending was also encouraged by financial innovation, where through the use of cleverly constructed securities and derivative assets, riskier loans could be repackaged with safer ones and resold. This gave financial institutions the feeling that default risks had been removed from their balance sheets and effectively managed to zero.

However, it is now apparent that risks were vastly underestimated and credit expansion excessive – resulting in a highly leveraged and fragile banking system.

The beginnings of the crisis emerged in the US sub-prime mortgage market, where large losses were made as defaults spiralled upwards. But as these loans had been repackaged in other derivative type assets such as structured investment vehicles (SIVs) and collateralised debt obligations (CDOs), there was no transparency as to exactly how big these losses were and where they would show up. The consequence was to bring the global credit system to a standstill.

Worried about the size and uncertainty of potential losses, banks stopped lending to each other and to the private sector, hoarding liquidity to protect their balance sheets. It was the collapse of Lehman Brothers in September, and the decision by the Federal Reserve not to mount a rescue, that panicked the financial markets and was the impetus for the hiatus in lending. The credit boom sharply turned to a credit crunch. The institutions that failed or ran into acute difficulty were those that had the greatest exposure to losses in commercial and residential property markets (such as RBS and HBOS) and those that were most dependent on wholesale funding (such as Northern Rock and Alliance & Leicester).

The combined effects of falling house prices and the drop off in mortgage approvals are reflected in the lending secured on dwellings data (also shown in Figure 2). As a proportion of household disposable income, gross lending rose quickly between 1997 and 2007 before plummeting in 2008. Net-lending, which is the difference between gross lending and repayments and redemptions, shows the same trends. However, it is noticeable that in the latest period (2009 Q1) net-lending almost fell to zero implying that gross new lending simply matched the repayments on existing loans. This is despite the recent efforts of government to increase lending through their direct control of Northern Rock and their controlling stakes in Lloyds Banking Group and the Royal Bank of Scotland[5].

The significant rise and fall in house prices and loans secured on dwellings have had a profound impact on the structure of wealth and liabilities recorded on household balance sheets. The analysis of this and the possible effects on consumption and savings behaviour of households is the main focus of the article.

Each quarter ONS publishes a full set of UK Economic Accounts, which records the financial flows (income, spending, saving) and the asset and liability position of each sector of the UK economy including households (and non-profit institutions serving households – NPISH). These are split into four main sections.

- Income Accounts record the levels of income (disposable), consumption and savings
- Capital Accounts relate the values of savings and capital spending (investment) to determine whether the sector is a net-borrower or a net-lender
- Financial Accounts measures the accumulation of different types of financial assets and liabilities
- Financial Balance Sheets measures the value of total holdings of these types of assets and liabilities

Using this information on the household sector the article proceeds as follows. First the relationship between household income, wealth and consumption is explored. In particular, what effect has the large rise in house prices and mortgage borrowing had and is likely to have as the market goes into reverse? The second and third sections look at the impact of the housing market on the household savings ratio and its net-lending/borrowing position. Although the Economic Accounts provide a good range of data on the household sector it is at the aggregate level, so the final section discusses some of the distributional issues of the rise and fall in house prices, including the size and effects of negative equity.

Household income, wealth and consumption

Household consumption is the largest part of total expenditure or aggregate demand, and it is through this channel that changes in house prices are expected to have their biggest impact on overall economic activity. This is recognised by the Bank of England in the setting of monetary policy (see Benito et al 2007). As **Figure 3** shows, there has been a good correlation between household consumption growth and house prices over the last 25 years.

There are two main channels through which rising house prices may support growth in household spending relative to incomes. The first is through a *collateral effect*, whereby rising prices make it easier and cheaper for households to borrow. The second is a direct *wealth effect*, in which case households increase consumption simply because they are richer. Significant amounts of research literature investigating the importance of these effects already exists – the aim of this section is to put this into context by looking at the evidence from household balance sheets. Of course, there are other theories that might explain the co-movements seen in Figure 3, such as changes to precautionary saving and that both time series may be driven by common factors, which are also afforded some brief discussion.

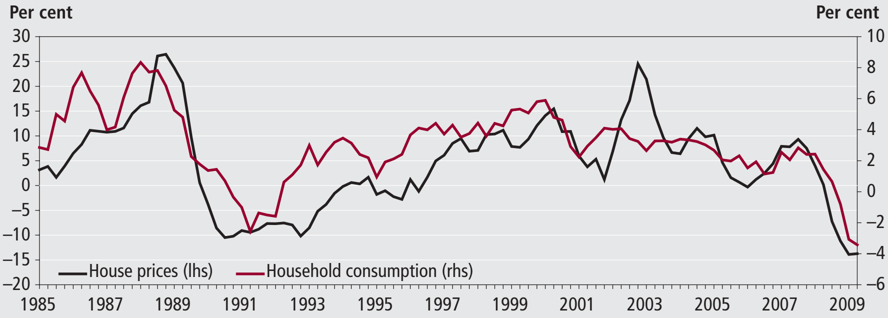
Household disposable incomes, consumption and credit

For the household sector the Income Accounts show total income by source and then, after the effects of taxes and benefits, how this is allocated between consumption and saving.

Household gross disposable income consists of two main parts (shown respectively in Tables A37 and A38 of the Economic Accounts):

Figure 3

Real house price and household consumption growth (quarter on same quarter 1 year ago)[1]

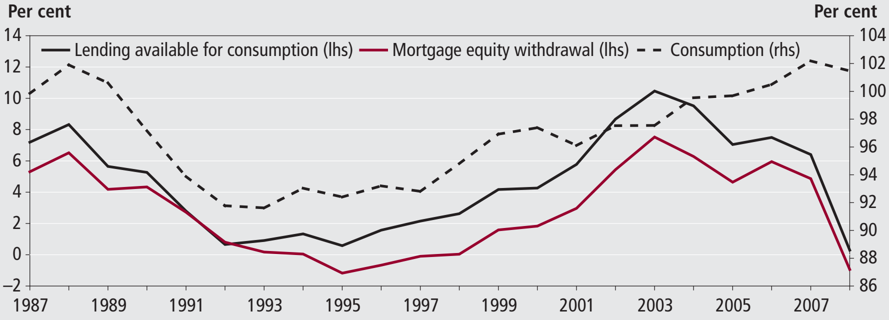


Note: *Source: CLG and ONS UK Output, Income and Expenditure*

1 Both series have been deflated using the implied household consumption deflator.

Figure 4

Household propensity to consume and lending available for consumption as a proportion of disposable income



Source: ONS Economic Accounts

- The Allocation of Primary Income Account records the gross earnings of households from various sources. This mainly consists of compensation of employees (wages and salaries and employees' social contributions), and gross operating surpluses (the incomes of the self employed and the profits from household enterprises). However, another important part of primary incomes is net property income – which is the income earned from other sectors of the economy through the ownership of financial assets minus the income paid to other sectors due to financial liabilities. For example, dividends earned from share holdings constitute property income while the interest paid on a loan (such as mortgages) is a property payment.
- The Secondary Distribution of Income Account adjusts primary incomes by net taxes and social contributions resulting in household gross disposable income. These are the funds available to households to fund consumption and saving.

As **Figure 4** shows, household consumption as a proportion of gross disposable income (often known as the propensity to consume) has been on an upward path since the mid 1990s before falling back slightly in 2008. Also shown in Figure 3 is lending available for consumption as a proportion of disposable incomes. This is the sum of net consumer advances and net mortgage equity withdrawal (MEW) which households, in addition to disposable income, can use to fund consumption.

Net consumer lending is the difference between total new consumer credit and the repayment or redemption of existing consumer debts. Between 1993 and 2004 net consumer lending grew steadily as a proportion of disposable incomes. Clearly this reflects the long cyclical upturn in the economy which improves credit demand and supply, but also a general relaxation in credit constraints. Since 2005 though consumer credit expansion slowed and fell as a proportion of household disposable incomes. This was mainly the consequence of changing attitudes of banks in the face of growing impairments (credit write-offs on bad loans). However, there was also a reduced appetite by households for this relatively expensive debt.

MEW arises when loans secured on the same stock of housing increases, the net part of this refers to MEW that isn't subsequently re-invested in housing by either buying a new property or by making improvements to the existing stock. Hence net MEW are funds released from the ownership of property available for consumption purposes and clearly this has driven overall trends in lending available for consumption. Net MEW, in turn, has followed conditions in the housing market. As house prices started rising strongly in 1997 net MEW also grew in line. The lull in 2005 and the more significant fall since the second half of 2007 are also captured in the data.

Figure 4 therefore gives the impression of a sustained increase in household consumption driven in part by equity released from growing housing wealth – which has now gone into reverse as house prices fall[6]. The process by which rising house prices eases borrowing constraints is known as a *collateral effect*.

Household consumption and collateral effects

Collateral effects describe how growing housing wealth, generated on the back of strongly rising prices, improves the availability and cost of credit. Essentially, households can use their added equity to fund consumption by either borrowing directly on their homes (for example remortgaging) or by using it as security in other loans. Both are types of MEW, and because the loan is secured, it is also cheaper than normal avenues of consumer credit.

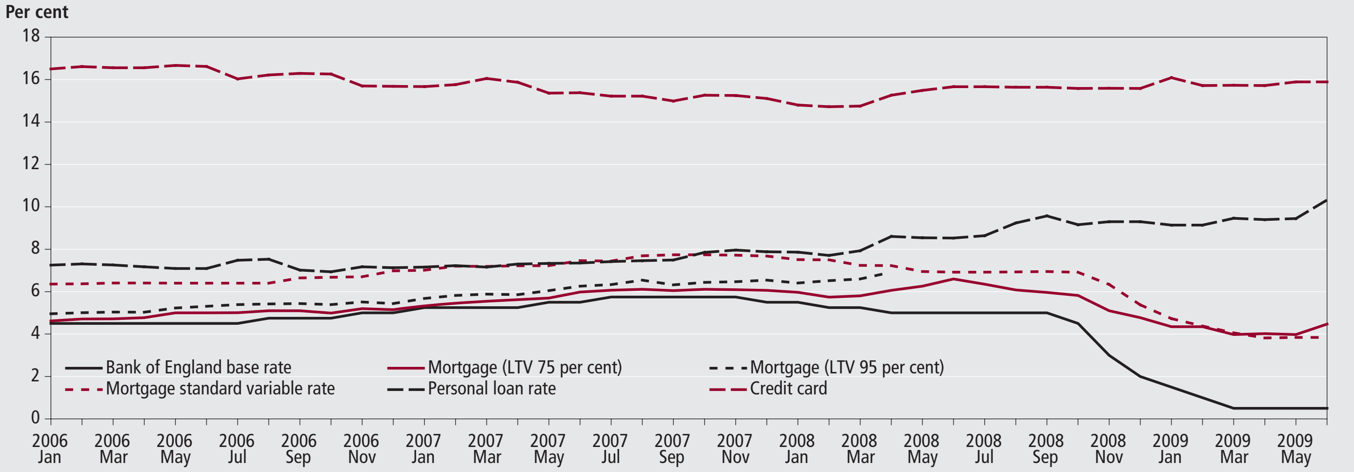
In **Figure 5** a selection of UK interest rates are presented. The base rate in the rate at which the financial sector can borrow from the central bank (the Bank of England) and this is the rate that underpins all new borrowing in the economy. A particular interest rate is usually set in relation to the base rate according to the relative time period and risks involved in the borrowing.

Lending is secured if it is backed by assets which can be sold should the borrower default (for example mortgages are secured by the property they are raised against). Therefore, as shown in Figure 5, mortgages or other loans backed on property tend to be available at lower rates than personal unsecured borrowing such as credit cards.

Nickell (2004) takes the view that the MEW channel has had a limited effect on household consumption spending arguing that little equity is actually extracted for this purpose. In fact, the bulk of MEW occurs from the last time sale of property, usually when the owner sells and moves into a

Figure 5

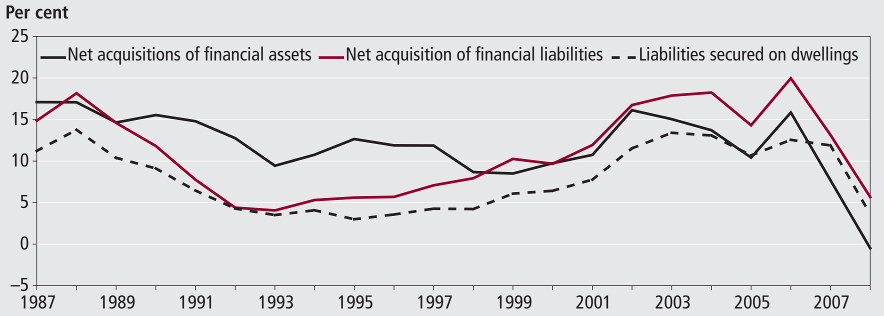
A selection of UK interest rates



Source: Bank of England Bankstats

Figure 6

Household accumulation of financial assets and liabilities as a proportion of disposable incomes



Source: ONS Economic Accounts

retirement home or by selling an inherited property, or through trading down. In these situations, the property is likely to be transferred from a vendor with little or no mortgage to a buyer with a more substantial one. Therefore the size of debt secured on the same housing stock has increased – automatically generating positive net MEW. Then as house prices continue to increase these flows become ever larger, explaining why net MEW so closely follows the movement in house prices.

But what happens to this extracted equity? **Figure 6** shows the accumulation of household financial assets and liabilities, taken from the household Financial Accounts (Table A53 in the Economic Accounts); have generally moved together and in line with the general pattern of house prices. Nickell uses this as anecdotal evidence that most equity released from the proceeds of house sales was used to fund financial assets purchases or pay off debts rather than consumption. As the accumulation of household financial liabilities is clearly driven by lending secured on dwellings it gives further credence to the argument that net MEW was being generated by the transfer of ownership between households and trends in the prices and volumes at which these transactions took place.

Benito and Power (2004) concur with this reasoning. Based on the analysis of the 2003 Survey of English Housing they find little effect of MEW on household consumption, as only a quarter of equity is released by remortgaging compared to over 60 per cent from either trading down or selling an inherited property. Furthermore the biggest motivation of those releasing equity by remortgaging was for home improvements.

However, Benito and Mumtaz (2006) did find evidence of a collateral channel working in micro-level data from the British Household Panel Survey between 1992 and 2002. Here, rising house prices helped to remove credit constraints from previously constrained households. This result is perhaps consistent with the argument that there is a non-linear relationship between house prices and collateral effects. When house prices start to grow the collateral effect may be quite strong. But after a period of continually rising prices, the numbers facing credit constraints will fall, so further increases will have much smaller marginal effects. Therefore in a falling market the increased likelihood of negative or low equity may re-impose credit constraints on the household sector.

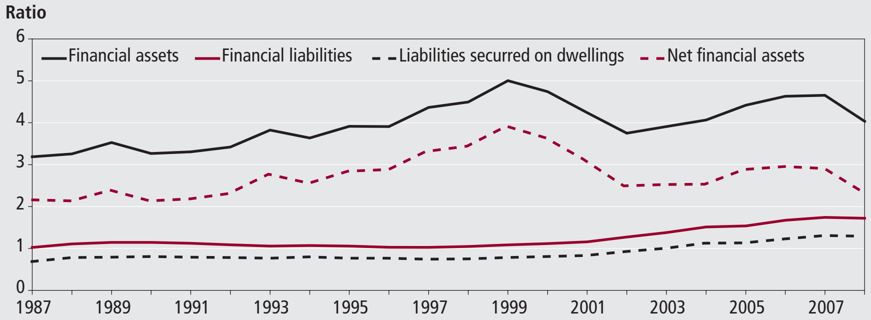
House prices and household wealth

Household Financial Balance sheets (Table A64 in the Economic Accounts) show the total value of holdings of financial assets and liabilities. These correspond to the accumulation and disposals of assets and liabilities in the Financial Accounts plus the effects of revaluations to existing holdings (see **Figure 7**).

Household indebtedness has been growing as a ratio of disposable incomes primarily because of loans secured on dwellings (see Hamilton 2003). Between 1987 and 2007 total financial liabilities as a ratio of disposable incomes have risen by 0.7 points from 1.0 to 1.7, of which 0.6 points was secured on dwellings. These ratios fell back slightly in 2008, and have clearly been driven by events in the housing market (see the trends in secured lending shown in Figure 2). Debt in real terms has also increased significantly because inflation has been relatively low and income growth modest in recent years.

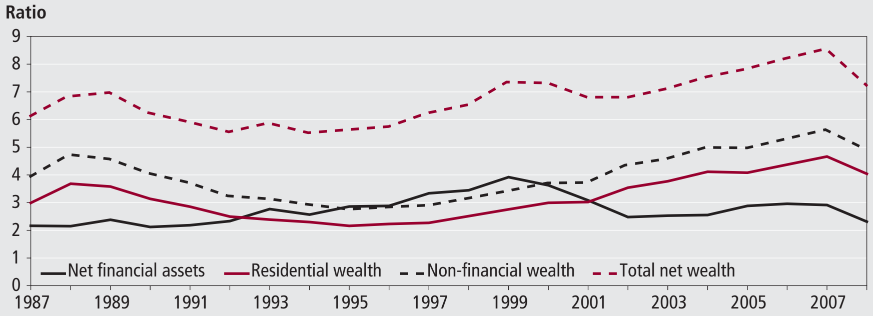
The valuation of financial assets held by households is more volatile reflecting the behaviour of equity prices and exchange rates. The impact of the dot com bubble is clearly evident in Figure 7 as financial wealth rose strongly between 1996 and 1999 before the equally large correction from 2000 to 2002. Since then, the ratio

Figure 7
Household net financial wealth as a ratio of disposable incomes



Source: ONS Economic Accounts

Figure 8
Total household net wealth as a ratio of disposable incomes



Source: ONS Economic Accounts and Blue Book

of financial wealth to disposable incomes increased from 3.8 to 4.7 between 2002 and 2007 due to higher rates of accumulation (see Figure 6) and rising stock market valuations. This was sufficient to offset the increase in financial liabilities keeping net financial wealth fairly constant relative to disposable incomes after 2002. However, both of these factors reversed sharply in 2008, and as a result, household net financial wealth is now at its lowest ratio to disposable incomes since 1991 – incidentally when the economy was previously in recession.

Total wealth of the household sector though consists of financial and non-financial (physical) wealth which is published in Table 10.10 of the Blue Book and shown in **Figure 8**. Despite the relatively flat contribution of net financial wealth, net non-financial wealth surged ahead between 1997 and 2007 – increasing from 4 times to 5.6 times disposable income. And all of this increase was accounted for by residential wealth[7] which in turn was mainly driven by the long and sustained rise in the market.

Household total net wealth (also referred to as net worth) increased markedly in the years of strong house price inflation. Since 2007 though it has fallen back as a ratio of disposable incomes as equity and house prices fell. The implications of changes in household net wealth/worth on consumption are described as *wealth effects.*

Wealth and consumption

Households may decide to alter their consumption expenditure in response to changes in wealth resulting from rising or falling asset prices (capital gains and losses). Wealth effects therefore reflect that part of consumption which is funded out of wealth rather than disposable income. Figure 8 shows that the housing market has generated a significant increase in household wealth or net worth over the last decade, and although this has been unwound in the last 18 months the falls have far from wiped the previous gains. The implications for consumer behaviour and economic activity have been of strong interest to economists and policy-makers.

The treatment of capital gains and losses in the National Accounts framework has stimulated much debate over the years. Presently they are not included in Income Accounts but the Hicksian view (see Hicks 1965) would treat capital gains and losses, even if they are unrealised, as income. Income is defined as the maximum that can be consumed while keeping current wealth in tact, so the large capital gains generated from the sustained rise in house prices increases household resources for consumption. Chamberlin and Dey-Chowdhury (2008) investigate the impact on the saving ratio of treating capital gains and losses in this way.

Estimated propensities to consume out of housing wealth are generally quite small. Disney et al (2008), using data from the British Household Panel Survey, estimated a wealth coefficient of 0.01 in a consumption function. Earlier estimates have usually been in the range of 0.01 to 0.03. Although these coefficients are small, given that wealth changes are large, they still may have quantifiably important effects on total household consumption. But often the relationship is found to be unstable over time and the findings of significant effects closely linked to the availability of credit (see Muellbauer and Murphy 2008, Benito et al 2006)

The propensity to consume out of housing wealth is generally accepted to be greater than for financial wealth. Volatility in equity markets means that capital gains and losses are viewed as more fleeting and hence do not derive such a strong consumption response. Furthermore, most household financial wealth in equities is held indirectly in pension and life insurance funds – which are illiquid and often treated as ring-fenced from consumable assets.

One school of thought is that housing wealth isn't really wealth at all and hence has limited effect on spending. This is because housing is a unique type of asset in that owner-occupiers live in it and derive a flow of future housing services from their ownership. Therefore, a general rise in house prices not only increases the value of the asset but raises the cost of future housing services. Rational forward looking consumers households would be expected to take this into account and save any increase in equity to offset higher future housing costs.

But house price movements do impart significant redistribution of wealth across households. Those who intend to increase their future consumption of housing services (by trading upwards) are made worse off by increases in house prices. While those intending to trade down and consume less housing service in the future are made better off. So typically a strong rise in house prices redistributes wealth from young to old.

As Buiter states: 'On average you live in the house you own', implying that these redistribution effects should cancel out in the aggregate. This view is strengthened even further if it is believed that households behave dynastically. That is even if an older household expected to trade down and benefit from house price growth they care about the fact that their children may intend to trade up and have been made worse off by house price developments. As a result they may use their increased equity simply to make a larger bequest, posthumously or while living. For example, the Council of Mortgage Lenders (CML) have reported that 80 per cent of first time buyers now receive some form of parental assistance, evidence that equity is being transferred from the top to the bottom of the housing market. Furthermore households expecting to trade up may count on higher future gifts, bequests, inheritances and hence are not too perturbed by negative wealth effects stemming from a strong rise in house prices.

Buiter's true argument though is that these types of redistribution are rarely neutral so some form (positive) of wealth effect on consumption should be expected. This is because wealth is transferred away from those with limited ability to determine their own consumption (the very young and the unborn) to those who do. Also politically the very young and unborn count for less – so policy makers are under less pressure to restore any notion of intergenerational equality.

Precautionary savings

A further channel through which the wealth effect may work is in reducing precautionary saving motives. A natural reason for saving is to generate buffer stocks that protect against unexpected income shocks. As Benito (2006) states: 'It is difficult to take out insurance on unanticipated events such as redundancy', so housing equity could act as that buffer.

Not only did the UK housing market deliver strong equity gains between 1997 and 2007, the high levels of transactions probably gave the impression that housing was a more liquid asset than previously thought. That is high turnover in the market, on the whole, enabled the opportunity for a quick sale without having to accept significant price reductions. Now that the housing market is in downturn the size and liquidity of housing buffer stocks may be compromised prompting an increase in precautionary saving and a fall in consumption. This would also be in response to the weakening labour market.

Joint effects on consumption and the housing market

Figure 3 shows a good correspondence between real house price and real consumption growth in the last two-and-a-half decades. But correlation does not imply causation, so it is difficult to jump to a conclusion that consumption was fuelled by the growing equity in property. An alternative, and very realistic, proposition is that both consumption and house prices are being driven by the same common factors. Benito et al (2006) suggest that both consumption and house prices will certainly be pushed in the same direction by changes in interest rates, credit availability and expectations of future income.

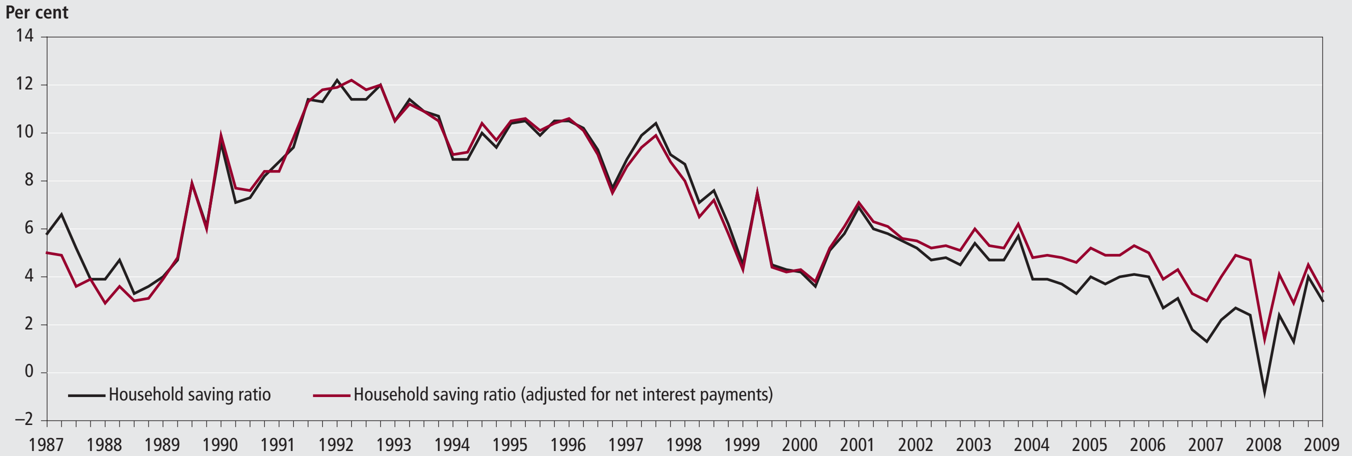
House price growth though is considerably more erratic than consumption growth (note that the time series in Figure 3 are plotted on different scales). For starters the income elasticity of demand for housing is usually estimated to be much larger than for general consumer spending, so the same change in income will have a more significant impact on housing demand than consumer demand. Furthermore, the supply of housing is more constrained on the supply-side than the bulk of consumer goods meaning shifts in demand feed through more rapidly into prices than volumes.

Household savings ratio

Saving is defined as total household resources available for consumption which are not consumed. These resources consist of gross disposable income, as defined earlier, and also a relatively small adjustment for net equity in pension funds which is designed to correctly attribute saving in private funded pension schemes to the household sector. The saving ratio then is the proportion of savings to total resources. The data underlying the measurement of the saving ratio can be found in Table A40 of the Economic Accounts and an overview of the methodology and some interesting measurement issues can be found in Chamberlin and Dey-Chowdhury (2008).

Because saving is basically the counterpart to consumption the long upward drift in the propensity to consume out of disposable income has been reflected in an equally long decline in the saving ratio (see **Figure 9**). This downward trend accelerated between 2004 and the beginning of 2008. Since then, and as the economy entered recession in the summer of 2008, the saving ratio has started to rise but still remains considerably below its historical average.

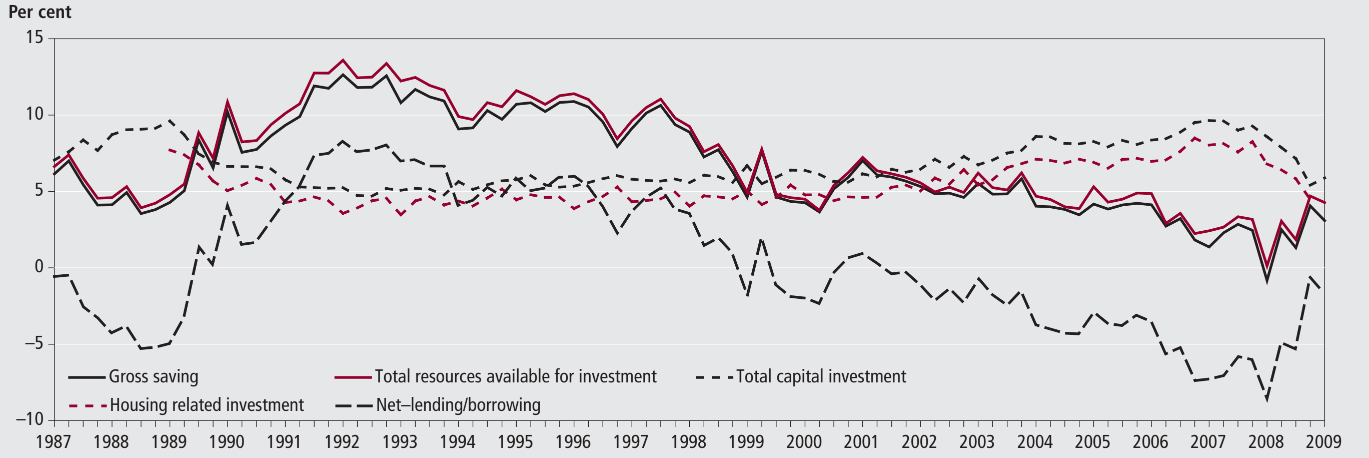
Figure 9
Household savings ratio



Source: ONS Economic Accounts

Figure 10

Household sector net borrowing/lending as a percentage of disposable incomes



Source: ONS Economic Accounts

Part of the rise in the savings ratio is the result of falling household consumption, as shown in Figure 3. Households have cut back spending in line with their weakening balance sheets and labour market prospects. However, the interaction between the stock of debt built up on residential property and interest rates has also been a contributing factor to movements in the ratio.

Strong growth in house prices along with a relaxed lending regime has seen a large rise in the stock of mortgage debt held by the household sector (see Figure 7). Therefore interest payments required to service these growing liabilities have also increased[8] – acting to reduce net property income and pushing down on measures of disposable income and the saving ratio. In fact, since 2001 net interest payments from the household sector have increased notably faster than the interest earnings of the sector.

Also presented in Figure 9 is an adjusted saving ratio where net interest income is set to zero (that is interest payments and earnings of the household sector are excluded from the calculation of the saving ratio). Here the long-term fall in the saving ratio is less pronounced – particularly between 2001 and 2008 – a reflection of the impact of the costs of servicing rapidly growing mortgage debt on the ratio.

However, since the autumn of 2008 the gap between the actual and adjusted saving ratios has closed as aggressive cuts in the Bank of England base rate are passed through to variable rate mortgages. This can be clearly seen in Figure 5. Since September 2007 the Bank of England base rate has fallen from 5.75 per cent to 0.5 per cent in June 2009. And over the same time period the standard variable mortgage rate (based on an average of UK banks and building societies) more than halved from 7.72 per cent to 3.84 per cent. This has provided a boost to household net property incomes and saving. But this also implies that future increases in interest rates (it is inevitable that rates will return to more normal levels at some point) will reverse this effect putting downward pressure on the saving ratio.

Net borrowing and lending of the household sector

The household Capital Account (Table A41 in the Economic Accounts) basically records the difference between saving and investment (spending on capital items). The difference determines the net borrowing or lending requirements for the sector (see **Figure 10**).

As Figure 10 shows, levels and trends of total capital spending for the household sector is mainly accounted for by investment in housing – this is new dwellings and the costs associated with the transfer of existing dwellings or land. The other components of household capital spending are relatively small and also include changes in valuables and inventories. Housing is defined as an investment good because it yields a flow of future housing services for the household to consume.

Although gross savings are the main source of total resources available for investment, these have to be adjusted to take account of investment subsidies and taxes.

The difference between these total resources and actual investment is the net lending or borrowing position of the sector. If investment exceeds available resources the sector funds their capital purchases by borrowing from other sectors – in this case the household sector is a net borrower. However, if these internally generated resources exceed desired investment then they can be lent to other sector of the economy – so households become net lenders.

Recent developments in the economy and the housing market have had an interesting impact on the net lending/borrowing position of the household sector. In recent years the fall in household savings and the increase in house prices feeding through to investment spending meant the sector become an increasing net borrower. However, the recent increase in the saving ratio and the large fall in property transactions has seen this situation reverse almost to the extent that the household sector becomes a net lender.

Distribution of wealth and negative equity

It was clear from the discussion of wealth effects that the aggregated household balance sheets presented in the quarterly Economic Accounts do not provide information on the distribution of income and wealth. Recent activity in the housing market is likely to have had a diverse impact across households.

Daffin et al (2009) explains how ONS plans to improve the measurement of household savings and wealth along these lines. The Household Assets Survey has been designed to collect information on household personal assets and liabilities including property (physical), financial and pension wealth. 32,000 households have been surveyed over a two year period. Wave 1 of the survey ran from

July 2006 until June 2008 with the results available by the end of 2009. Wave 2 is currently running from July 2008 to June 2010 with the results planned to be released by end of 2011. A follow up survey which commenced in October 2007 will specifically look at indebted households.

Negative equity

Falling house prices are having a negative impact on wealth, but again this will have a rather differential impact on individual households. For most the recent fall in the market will not wipe out the large equity gains of recent years – but for some negative equity is already an actuality or a real possibility. Those households who bought near the top of the market in the summer of 2007 with high loan to value ratios are the most susceptible.

Estimates reported in Hellebrandt et al (2009) are that, depending on the approach followed, between 8 per cent and 11 per cent of mortgagors were in negative equity by the spring of 2009. This constitutes 700,000 to 1.1 million households. Tatch (2009) arrives at a broadly similar number, and also reports that two-thirds of mortgagors in negative equity are only so by a small amount (less than £10,000). The incidence is less than during the housing market crash in the early 1990s and far less concentrated in the first time buyer category. Here it may be the case that first time buyers had already been (luckily for them with retrospect) priced out of the market by the time the peak was reached[9].

Although negative equity is a necessary condition for default it is not a sufficient one, so it does not necessarily create problems in paying back mortgages. In fact, prevailing low rates of interest have eased affordability, and while households can maintain payments there is no evidence of a direct link between negative equity and financial distress. Much will depend on the reaction of lenders. As Figure 5 shows, there is a large and widening gap between secured and unsecured lending rates in the current credit markets, so households may come under more acute pressure if lenders demanded repayment or treated the extent of negative equity as an unsecured loan at higher interest rates. Thus far lenders have shown no signs of doing this, indicating that it is not in their own self-interest to place further financial pressures on more severely indebted households at this time.

But lenders have responded to rising negative equity by reducing the loan to value of mortgage products. For example, in Figure 5 it can be seen that fixed rate mortgages at a 95 per cent loan to value simply disappeared in April 2008. If the market is expected to fall by double digit percentages then it makes little sense for lenders to advance loans where there is only 5 per cent equity in the property. Benito and Mumtaz (2006) also highlight that households in negative equity are more prone to credit constraints which might strengthern the downward collateral effect on household consumption.

A significant impact of negative equity though is likely to be on volumes of housing transactions. As Benito (2006) shows, there are significant down payment constraints in the UK housing market at the best of times – which will be even tighter when equity has been reduced by falling prices and mortgage availability on the better terms is only accessible at lower loan to value ratios. The down payment constraint explains the general pattern in house prices, turnover, and numbers of first time buyers in the UK market. In this respect low equity is likely to be just as troublesome as negative equity, and while negative equity is not so widespread, there is a much greater incidence of households with low equity. As a result households may be trapped in their existing homes and the restrictions on mobility may have some adverse labour market outcomes.

Notes

1. Mix-adjustments take into account changes in the composition of houses being bought or sold in any particular time period. For example, a price rise between two periods, based on a simple average of all house prices, could just reflect changes in the type or location of houses being sold, and not underlying prices.
2. See Figures 2 and 3 in Chamberlin (2009)
3. See Figure 7 in Chamberlin (2009).
4. The link between money, credit, house prices and economic activity is examined in Goodhart and Hofmann (2008). They argue that financial market liberalisation has increased the procyclicality of financial systems, making economies more susceptible to financial imbalances. As a result monetary policy should 'lean against the wind', perhaps by using countercyclical loan to value ratios on mortgages as an additional policy tool.
5. Recent data presented in the Bank of England *Trends in Lending* shows that while levels of mortgage lending have been maintained by the major UK high street banks there have been substantial falls in lending from foreign banks to UK residents.
6. Although consumption as a proportion of disposable incomes has been growing, as a proportion of primary incomes it has been fairly stable. Therefore the trend in the propensity to consume may reflect cyclical factors through the tax and benefits system. This tends to be an automatic stabiliser, pushing down on income in the upswing and pulling it up in the downturn. A further consideration is the use of fiscal drag to raise tax revenues post 1997. As income tax thresholds have been adjusted in line with inflation, which generally lags behind income growth, there have been growing numbers of workers migrating into higher tax brackets. The Institute for Fiscal Studies have reported that the number of top rate tax payers grew by over 1 million between 1997 and 2008. As a result disposable income growth has lagged behind growth in primary incomes.
7. The other components of household non-financial or physical wealth include: agricultural assets, commercial and industrial buildings, civil engineering works, plant and machinery, vehicles including ships and aircraft, stocks and works in progress, and intangibles which are mainly non-marketable tenancy rights (See Table 10.10 of the Blue Book). As a ratio of disposable incomes these are relatively small and constant compared to the residential buildings component.
8. Mortgage payments as a proportion of income is shown in Figure 6 of Chamberlin (2009). This trended upward between 1997 and 2008 mainly due to the large increase in mortgage debt, but has fallen back in the last year following substantial cuts in interest rates.
9. Figure 9 in Chamberlin (2009), showing recent trends in the proportion of first time buyers in the UK housing market, has seen a steady fall during the period of strong house price inflation. This may represent affordability constraints, but as also discussed, it might reflect the changing attitudes of young people to different tenure choices.

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ARTICLE

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Update on ONS's plans for improving the UK's National Accounts

SUMMARY

The Office for National Statistics set out its plans for the modernisation of the UK's National Accounts in June 2008. Since then the programme of work which supports this development has been given sharper focus, following consultation in late 2008 with key stakeholders. This article sets out the background to the modernisation work, describes the current scope and benefits of the new programme, and its key milestones.

Background

The UK's National Accounts published by Office for National Statistics (ONS) in the annual *Blue Book*, together with the Balance of Payments statistics in the *Pink Book*, provide a key source of information to government and others engaged in economic policy. ONS is committed to ensure that the quality of these statistics remains fit for purpose and to continue to improve them, particularly with regard to their transparency and internal coherence.

ONS has been working for some time on system changes to improve the quality of the National Accounts. ONS announced its original modernisation work in April 2007 (Beadle 2007), and updated this in June 2008 (Humphries 2008). A key driver for this work has been the lack of integration of current systems needed to produce the National Accounts.

The current systems for producing individual components of the accounts are still largely independent (see **Box 1**). The process of 'balancing' the three different estimates of Gross Domestic Product (GDP) in particular requires significant manual intervention. This approach can lead to difficulties in ensuring complete coherence between the different approaches to estimation, and a loss of transparency in how the final estimates have been compiled. This is described more fully in Beadle (2007).

The new Central ONS Repository for Data (CORD) is key to the modernisation of the National Accounts as the basis through which integration of currently disparate systems will be achieved. This is the IT platform on which modernised systems are being built. It was used successfully to support the preparation of estimates published in the *Blue Books* in both 2008 and 2009. However, most of the processing required to compile the integrated accounts and the Balance of Payments still uses other systems. To achieve complete coherence and transparency, work continues to integrate these systems into CORD.

The plans set out in Humphries (2008) left open-ended the question of when complete integration of systems would be achieved, and set out some ambitious goals for methodological improvements to benefit the overall quality of the National Accounts. In late 2008, ONS reviewed progress on these developments and made an assessment of the priorities within the overall programme. This included a period of consultation with key stakeholders on the direction and scope of the work, including discussions with the ONS Board and the UK Statistics Authority who endorsed the approach. This led to the establishment of a new phase of the modernisation work, under a new programme, ENABLE (**E**ffective **N**ational **A**ccounts and **BL**ue Book to measure the **E**conomy).

The ENABLE Programme

Programme vision

The ENABLE Programme will run to the end of March 2011. The programme will facilitate production of better quality National Accounts for the UK, based on transparent procedures which are efficient, reduce the risk of error and free up resources to add value in the production

Box 1

Current approach to the production of the National Accounts

ONS produces estimates of Gross Domestic Product (GDP) based on three different approaches using information on production, income and expenditure. The regular quarterly estimates published in *Quarterly National Accounts* and *UK Balance of Payments* statistical bulletins, are based on a range of quarterly surveys and other short term indicators. These are updated each year by the results of more complete annual surveys, with the results being published in the *Blue Book* and the *Pink Book*.

The existing methods reflect the separate development over time of systems and processes for estimating GDP. There are three stages to the GDP compilation process, from short-term indicators, to quarterly GDP estimates and, finally, to annual supply and use estimates. These are not fully integrated into the same framework. This gives rise not only to inefficiencies but also opens up potential inconsistency and incoherence.

The three different approaches to estimating GDP (production, income and expenditure) are based on different survey and administrative data sources, and each produces estimates that, like all statistical estimates, are subject to errors and omissions. Typically, the three measures produce different estimates. So Supply and Use Tables (see **Box 2**) are constructed to show a balanced and complete picture of the flows of products in the economy and show relationships between producers and consumers of goods and services. It is this framework that is used to derive a single and balanced measure of annual GDP. These definitive estimates of GDP are published at the *Blue Book* stage around 18 months after the year in question, when comprehensive information becomes available.

Box 2

Annual Supply and Use Tables

The Annual Supply and Use Tables display the transactions of all goods and services in the UK economy for a single year in matrix form. Other National Accounts statistics are concerned with the composition and value of goods and services entering final demand (for example, purchases by consumers), and with the outputs and incomes generated by the economic process. But they do not display the inter-industry transactions which link these activities. The Supply and Use Tables provide this linkage and give a firm basis for compiling a consistent single estimate of GDP at current prices.

The production of Annual Supply and Use Tables allows a close examination of the consistency of the National Accounts by linking the components of industries' gross value added, inputs and outputs, and components of final demand within a single framework. Therefore, all components of the production, income and expenditure measures of Gross Domestic Product (GDP) are reconciled during the production of these tables, giving a single annual estimate of GDP at current market prices.

The Supply Table shows the supply of goods and services, by product and type of supplier, distinguishing output by domestic industries and imports.

The Use Table shows the use of goods and services by product. That is, how the supply of goods within the economy is consumed, through intermediate consumption in the production of the other products, final consumption, capital formation and exports.

Additionally, the tables show the components of Gross Value Added (GVA): compensation of employees; mixed income, gross operating surplus and taxes and subsidies on production.

of the accounts. The programme also supports the implementation of the new international industrial classification which has been agreed within the European Union (NACE Rev 2, which in the UK appears as Standard Industrial Classification (SIC) 2007). Taken together, these developments will yield a number of benefits to users, which are described later in the article.

Scope of ENABLE

The current systems used to produce the National Accounts fall essentially into three types:

1. Local systems: used to process 'raw' data and produce components of the National Accounts, for example, the system which takes survey data for retail sales and household spending and produces estimates of final household consumption expenditure
2. Central systems: which bring together the various components from the local systems and produce estimates of 'unbalanced' GDP (that is, independent estimates of GDP based on production, income and expenditure)
3. Balancing system: to reconcile the three measures of GDP into a single 'balanced' measure.

By March 2011, the ENABLE programme will:

- migrate the current local systems needed to support the annual and quarterly National Accounts onto CORD
- fully integrate these local systems into the central systems on CORD (and provide for the quarterly alignment of the three measures of GDP, see Box 1)
- ensure all systems and outputs are consistent with the new SIC 2007
- migrate the current Public Sector Accounts (PSA) system onto CORD

Taken together, the ENABLE programme will produce a fully integrated system for the production of balanced estimates of GDP, the National Accounts and the Balance of Payments. The programme has specific focused objectives which can be completed within two years, for use in *Blue Book* 2011. This has taken out of scope some ideas set out in earlier articles. In particular, in the next two years it is not planned to develop simultaneous current and constant price balancing on CORD (see Beadle 2007 and Humphries 2008). However, development work on these issues will continue in parallel for possible introduction once the ENABLE objectives have been achieved.

Benefits to users

In essence, the programme entails the integration of currently disparate systems into one process using a single IT platform. In turn, this will:

- provide greater transparency to users for how the estimates have been compiled
- allow ONS to explain better the source of revisions to estimates
- reduce the extent to which judgement is required to adjust estimates, thereby reducing the potential for spurious accuracy, and improving overall coherence between the outputs
- improve the quality of seasonal adjustment through the introduction of X-12-ARIMA (replacing X-11-ARIMA) in the production process. X-12-ARIMA has been used for a long time at ONS to analyse time series during expert annual reviews. Introduction of X-12-ARIMA into the production process will streamline processes, raise internal consistency and promote greater accuracy by offering the possibility for more frequent parameter updates
- improve deflation by replacing Retail Price Indices (RPIs) with Consumer Price Indices (CPIs) where these are currently used as deflators. At the individual product level, RPIs do not allow for 'substitution effects', which tend to overstate inflation and therefore understate increases in volumes. CPIs take better account of these effects and improve the estimates of inflation. Further, the CPIs cover the entire population of the UK including foreign visitors whereas the RPI only includes private households and further excludes households in the top 4 per cent of incomes and those who derive at least three quarters of their income from a state pension. See McLaren (2009)
- verify, and if necessary improve, the methods currently used in local systems as they are rewritten in CORD
- reduce the risk of errors by automating most of the currently manual processes for integrating quarterly and annual estimates
- provide greater opportunities for ONS to add value for users through analysis. This will be achieved both through the development of tools within the integrated platform, and from the greater efficiency of the systems which will provide more time for analysis

Furthermore, updating the estimates onto SIC 2007 will also allow ONS to present the accounts in a framework which more closely matches the current structure of the UK economy.

Finally, while the programme has clear goals for the period up to March 2011, it should also be seen as an enabler for further developments. The fundamental architecture and statistical metadata being developed on CORD are sufficiently open to support considerable future enhancement. In particular, the longer term vision for redevelopment of National Accounts, which includes simultaneous constant and current price balancing of quarterly GDP through the Supply and Use framework, is accommodated in the current design (see Beadle 2007).

Supply and Use Tables in 2011

As described in Box 1 and Box 2 the balanced estimates of current price GDP are derived from an annual process which involves confrontation of various sources of data in a Supply and Use Table (SUT) framework. This process is important for the volume estimates of GDP since it sets the level of current price GDP, which is then price adjusted using expenditure deflators. The modernised systems for producing GDP estimates will have balancing in a SUT framework at the heart of the annual process. The transition to SIC 2007 in 2011 requires a change from the dimensions of the SUT used currently under SIC 2003, which is a matrix of 123 products and 108 industries.

In early 2009, ONS undertook a consultation with users of SUTs and the National Accounts to establish the level of detail which best matched their needs, taking account of the limitations on the quality of the data available for balancing the estimates. The outcome is the decision to balance estimates in 2011 through a SUT with 114 products and 114 industries. These dimensions reflect better the importance of service industries in the UK economy (which currently account for around 70 per cent of economic activity): about half of the products/industries in the new SUT matrix will be in this sector. This compares with the current SUT dimensions, based on SIC 2003, where only 35 of the 123 industries are in the services sector. The production sector, which will cover 55 of the 114 industries in the SUT in 2011, will still be over represented when compared to its contribution to total economic activity (around 15 per cent). This reflects the importance of monitoring this sector's use of carbon (and the role of the SUT framework in this). The need for additional detail in this sector was reflected in many of the responses received during the consultation.

Plans for the National Accounts Blue Book in 2010 and 2011

The proposed improvements to systems and methods planned in the next two years will have an impact on plans for the *Blue* and *Pink Books* in 2010 and 2011. ONS will publish in the Autumn the intended scope and basis of these publications.

Plans for the production of Input/Output analytical tables

An important by-product of the SUT balancing process is the generation of Input/Output Analytical tables (I/O tables) which provide considerable detail on the flows of goods and services between industries. ONS last published these tables in 2002, for the year 1995.

ONS now plans to produce I/O tables for the year 2005. These tables will be based on SIC 2003 using a matrix of 108 products and 108 industries. The results will be published in 2011. I/O tables will then be produced on a five-yearly cycle, with the first tables on a NACE Rev 2 (that is, SIC 2007) basis being for the year 2010.

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ARTICLE

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Regional analysis of public sector employment

SUMMARY

This article presents updated analyses of public sector employment by region. Estimates are presented for 1999 to 2008, based on figures supplied by public sector organisations for Scotland, Northern Ireland and the UK as a whole. Labour Force Survey figures are used to estimate the breakdown for the English regions and Wales. This article includes commentary on the results as well as an explanation of the calculation method and the limitations of these estimates.

This article is the latest in a series of articles providing analyses of public sector employment (PSE) by region. Regional PSE estimates have been produced by the Office for National Statistics (ONS) since 2005, using the Labour Force Survey (LFS), in conjunction with PSE estimates based on returns from public sector organisations. This article presents estimates for 2008 and updates the estimates from 1999 to 2007 produced by Barnard (2008), which featured in the July 2008 edition of the *Economic and Labour Market Review.* Further information about the method used to produce the regional estimates of PSE is discussed in Millard (2007) and described in **Box 1**.

This article uses the most up-to-date UK public sector employment estimates, which include employees in Royal Bank of Scotland Group and Lloyds Banking Group from Q4 2008. The classification of these employees to the public sector increased employment for Q4 2008 by 230,000 (not seasonally adjusted). Employees of these institutions responding to the LFS for Q4 2008 would not have known to identify themselves as public sector employees, as a decision to reclassify them to the Public Sector was not made until February 2009. Therefore, while the UK total includes the banks' employees, they will be distributed to regions in proportion to the distribution of PSE excluding the banking staff.

As in previous articles, the estimates are based on four-quarter rolling averages to reduce the effect of sampling variability of the LFS results. Presenting the estimates in this manner dampens the effect of sudden changes in employment. For example, the increased PSE employment caused by including the banking employees in Q4 2008 is spread over the four quarters between Q1 and Q4 2008.

Key findings

- In the year to Q4 2008, all regions have seen levels of PSE rise, except the North West, West Midlands and London. The largest percentage rise was in the East Midlands (4.5 per cent)
- Northern Ireland has the highest proportion of their workforce within the public sector in the 12 months to Q4 2008 (28.8 per cent), followed by Wales (23.9 per cent), North East and Scotland (both at 23.0 per cent)
- For the same time period, the regions with the smallest proportion of their workforce working in the public sector were the South East (17.0 per cent), East Midlands and East (both 17.6 per cent) and London (17.8 per cent)
- Public sector employment levels for all regions of the UK were higher in Q4 2008 than in Q4 1999 (11.7 per cent).
- The region showing the largest increase in levels of PSE between Q4 1999 and Q4 2008 is the South West (16.6 per cent). For the same period, the region that has the smallest increase in the proportion of their workforce working in the public sector is London (5.5 per cent)

Box 1

Method for producing regional estimates of public sector employment using labour force survey outputs

- The regional estimates are presented on a seasonally adjusted basis to align with the UK Public Sector Employment (PSE) series. The estimates are four-quarter rolling averages (which means they will differ from the public sector employment estimates for the UK produced on a quarterly basis by ONS), to minimise any effects related to sampling variations of the Labour Force Survey (LFS) results.
- Figures for Scotland and Northern Ireland are four-quarterly averages taken from published PSE estimates produced by the Scottish Government (SG) and the Department of Enterprise, Trade and Investment Northern Ireland (DETINI). These are not seasonally adjusted, but the four-quarter rolling averages are reasonably comparable with the corresponding figures derived from the total UK PSE seasonally adjusted series. The figures quoted in this article will therefore differ from the estimates published by SG and DETINI.
- Estimates of rates of PSE published by DETINI are typically expressed relative to the total number of employee jobs (these rates differ to rates of employment because it is possible for an individual to have more than one job at an organisation, however it is impossible for them to be 'employed' twice). The LFS-based estimate used in this article is of total employment (which has a wider definition because it also includes the self-employed, unpaid family workers and those on government schemes).
- Corresponding PSE totals for each four-quarter period back to 1999 for England and Wales combined are derived by subtracting the figures for Scotland and Northern Ireland from the corresponding UK totals.
- The LFS estimates are adjusted to bring the coverage of the estimates as close as possible to the National Accounts definition of the public sector. The adjustments are to exclude employees of universities and grant-funded educational establishments, and temporary agency workers, because they belong to the private sector.
- GPs and their practice staff, who are allocated to the public sector in the LFS, cannot be reclassified to the private sector as they cannot be distinguished from others who are part of the public sector, such as doctors and dentists working in hospitals. Therefore they remain in the LFS estimates used in this article.
- The England and Wales combined total for PSE is split into the English regions and Wales according to the regional breakdown of the adjusted LFS estimates of PSE.
- The regional PSE employment rates are an expression of the levels of PSE as a proportion of total employment within each region.

Regional public sector employment estimates

PSE estimates from data supplied directly by public sector organisations are available for Scotland and Northern Ireland and the UK as a whole. Separate PSE estimates for the English regions and Wales are not currently available from these sources and estimates have been provided in this article by combining the returns from public sector organisations with estimates from the LFS (see Box 1 for more details).

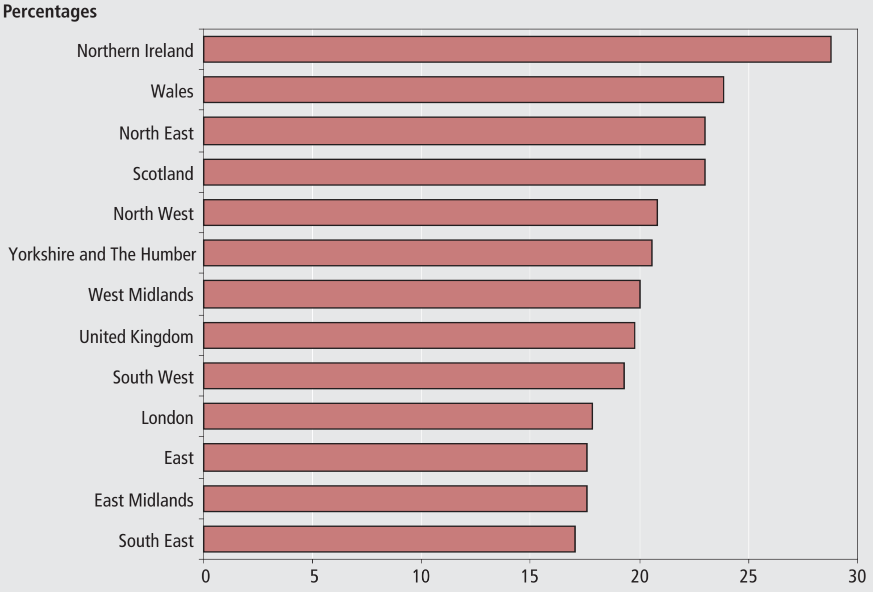
Updated estimates

Figure 1 shows public sector employment as a proportion of all employment by region and country of workplace. For the four quarters to Q4 2008, the regions that had the highest proportion of their workforce in the public sector continued to be Northern Ireland (28.8 per cent), Wales (23.9 per cent), the North East and Scotland (both 23.0 per cent). The regions with the lowest proportion of their workforce in the public sector were the South East (17.0 per cent), East Midlands and East (both 17.6 per cent) and London (17.8 per cent). This compares to total public sector as a proportion of all UK employment of 19.8 per cent for the four quarters to Q4 2008.

In the previous four quarters to Q4 2007, East Midlands had the lowest proportion of employment in the public sector (16.9 per cent) whereas in Q4 2008 the South East

Figure 1

Public sector employment as a proportion of all in employment: by region and country[1] of workplace, year to Q4 2008[2,3]



Source: Labour Force Survey; returns from public sector organisations (ONS, Scottish Government and Department of Enterprise, Trade and Investment for Northern Ireland)

Notes:

1 Public sector statistics for Northern Ireland relate to the number of public sector jobs rather than the number of people working in the public sector. HM Forces figures are not included in Northern Ireland estimates.

2 Headcount, Four-quarterly averages are based on estimates over the quarters March (Q1), June (Q2), September (Q3) and December (Q4) 2008.

3 Q4 2008 PSE estimates include the classification of Royal Bank of Scotland Group and Lloyds Banking Group.

(17.0 per cent) has the lowest proportion of PSE. This is shown in **Table 1**.

It is also possible to express PSE as a proportion of the resident population, illustrating the relationship between the size of the public sector and the size of the population it serves. Please note, mid-year population statistics are currently only available up to 2007 (**Figure 2**). Variation between regions is smaller – for the four quarters to Q4 2007, the range is between 7.8 per cent for the East and 12.5 per cent for Northern Ireland. The proportions are similar to those presented in Barnard (2008).

All regions had a higher number of public sector employees in 2008 compared with 1999 (see **Tables 1, 2 and 3**). Over the same period the region with the overall largest percentage increase in the number of people working in the public sector was the South West, which had a 16.6 per cent rise. London was the region with the smallest rise, an overall increase of 5.5 per cent.

In the year (Q4 2007 to Q4 2008) there has been a rise in PSE in the UK (0.9 per cent). The region with the largest rise in the level is the East Midlands (4.5 per cent), with increases in Yorkshire and Humberside (3.5 per cent), East (3.3 per cent), Wales (2.1 per cent), Scotland (1.7 per cent) and the South East (0.9 per cent). A rise in PSE in the year, however, is not evident across all regions, as there were declines in levels for the North West, West Midlands, London, Northern Ireland and North East.

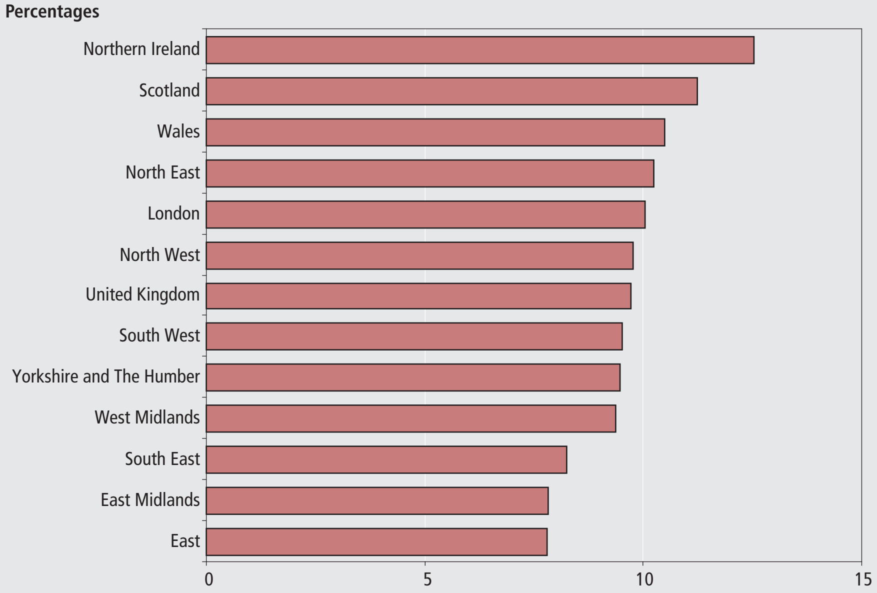
Adjusting the Labour Force Survey estimates

The LFS is a survey of households that, among other things, collects information regarding the sector of employment and region of workplace for every employed household member aged 16 years of age and over. Using estimates collected from the LFS, it is therefore possible to produce regional estimates of PSE. However, as highlighted in Millard (2007) the LFS tends to overestimate PSE, relative to the PSE statistics based on returns from public sector organisations, for a number of reasons:

- The public/private and industry classifications rely on the respondent's view of the organisation they work for, whereas PSE estimates use information directly from public sector organisations. The respondent-based approach lends itself to reporting error. Analysis has highlighted that people sometimes associate their employer by their place of work, rather than the organisation that pays their wage. For example, a person working as a catering assistant in a school might state they work for a school (thus aligning themselves as being a public sector employee), even if their wage is paid by a private catering firm (making them a private sector employee)
- The LFS public/private variable (PUBLICR) does not fully match the National Accounts definition of public sector used to produce the PSE estimates. In particular, university staff and GPs are classified under the private sector according to National Accounts definitions, whereas in the LFS they are both classified as belonging to the public sector
- The PSE method tends to lead to under-coverage of schools devolved from local government for example, foundation schools within PSE. These schools may have opted out of the local authority payroll and be missing from the PSE estimates

Figure 2

Public sector employment as a proportion of total resident population: by region and country[1], 2007[2,3]



Notes:

1 Public sector statistics for Northern Ireland relate to the number of public sector jobs rather than the number of people working in the public sector. HM Forces figures are not included in Northern Ireland estimates.

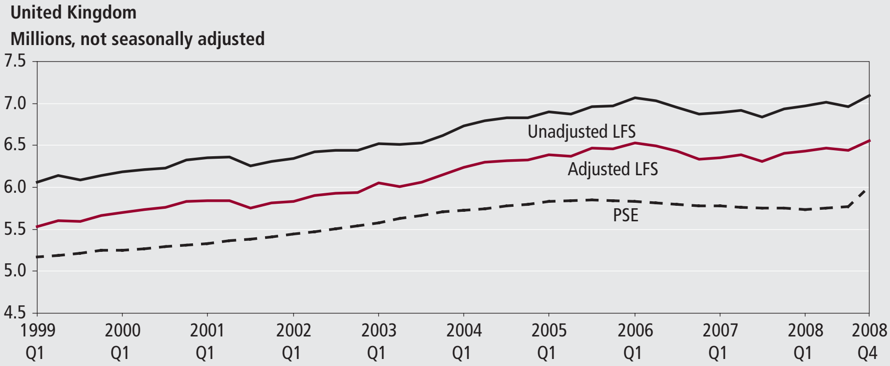
2 Headcount, Four-quarterly averages are based on estimates over the quarters March (Q1), June (Q2), September (Q3) and December (Q4) 2007.

3 Public sector employment estimates are workplace-based estimates, that is, where people work rather than where they live. Mid-year population estimates measure resident population.

Source: Labour Force Survey; returns from public sector organisations (ONS, Scottish Government and Department of Enterprise, Trade and Investment for Northern Ireland); ONS mid-year 2007 population estimates

Figure 3

Comparison of PSE estimates from public sector organisations and LFS from Q1 1999 to Q4 2008



Source: Labour Force Survey; returns from public sector organisations (ONS, Scottish Government and Department of Enterprise, Trade and Investment for Northern Ireland)

Table 1

Public sector employment[1] as a proportion of all in employment: by region and country of workplace[2,3,4]

Percentages, seasonally adjusted

Average four quarters to:[5]	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West	England	Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
PSE rate															
1999Q4	23.3	19.5	19.7	16.8	17.7	17.1	18.4	16.5	18.2	18.2	24.2	23.2	18.9	28.8	19.2
2000Q1	23.0	19.6	19.7	16.8	18.0	17.2	18.4	16.5	18.1	18.2	24.0	23.1	18.9	28.9	19.2
2000Q2	22.5	19.8	19.9	16.8	18.2	17.2	18.3	16.4	18.2	18.3	23.8	23.0	18.9	29.0	19.2
2000Q3	22.1	20.2	20.2	16.7	18.0	17.2	18.0	16.5	18.4	18.3	23.9	22.8	18.9	29.1	19.2
2000Q4	21.9	20.6	20.3	16.5	17.8	17.2	17.8	16.5	18.7	18.3	24.1	22.6	18.9	29.0	19.2
2001Q1	22.1	20.9	20.3	16.5	17.7	17.2	17.5	16.5	18.9	18.3	24.5	22.5	19.0	29.0	19.2
2001Q2	22.5	21.0	20.3	16.6	17.8	17.2	17.5	16.5	18.9	18.4	24.8	22.5	19.0	28.9	19.3
2001Q3	22.9	21.2	19.9	16.7	18.0	17.3	17.8	16.4	18.9	18.4	24.7	22.6	19.1	28.8	19.3
2001Q4	23.5	21.4	19.7	16.8	18.2	17.3	17.9	16.4	18.8	18.5	24.6	22.7	19.1	29.0	19.4
2002Q1	23.8	21.6	19.4	16.8	18.4	17.2	18.1	16.5	18.9	18.6	24.4	22.8	19.2	29.2	19.4
2002Q2	23.9	21.6	19.2	17.0	18.5	17.1	18.2	16.6	19.0	18.6	24.4	22.9	19.3	29.2	19.5
2002Q3	24.2	21.6	19.5	17.1	18.5	17.0	18.2	16.6	19.1	18.7	24.5	23.0	19.3	29.4	19.6
2002Q4	24.2	21.5	19.7	17.1	18.6	17.2	18.4	16.7	19.2	18.8	24.5	23.1	19.4	29.2	19.6
2003Q1	23.9	21.4	20.0	17.0	18.8	17.4	18.4	16.7	19.5	18.9	24.6	23.1	19.5	28.8	19.7
2003Q2	24.0	21.5	20.3	16.9	18.9	17.6	18.4	16.6	19.6	18.9	24.7	23.0	19.6	28.9	19.8
2003Q3	23.9	21.6	20.6	17.0	19.1	17.9	18.4	16.7	19.7	19.0	24.8	23.0	19.7	29.1	19.9
2003Q4	23.3	21.5	20.9	17.2	19.1	18.2	18.4	16.9	19.7	19.1	24.7	23.1	19.7	29.4	20.0
2004Q1	23.1	21.6	21.3	17.8	19.0	18.4	18.3	17.1	19.4	19.2	24.5	23.2	19.8	30.0	20.1
2004Q2	23.1	21.4	21.6	18.2	18.9	18.6	18.4	17.4	19.3	19.3	23.9	23.2	19.9	30.3	20.1
2004Q3	23.2	21.4	21.5	18.6	18.8	18.8	18.5	17.5	19.3	19.4	23.5	23.3	19.9	30.5	20.2
2004Q4	23.6	21.3	21.4	18.8	18.9	18.8	18.6	17.5	19.3	19.4	23.3	23.3	20.0	30.4	20.2
2005Q1	24.2	21.4	21.0	18.5	18.9	18.8	18.8	17.6	19.7	19.5	23.2	23.3	20.0	30.2	20.3
2005Q2	24.1	21.5	20.5	18.1	19.2	18.7	18.8	17.6	20.0	19.5	23.3	23.4	20.0	30.1	20.3
2005Q3	24.0	21.6	20.4	17.8	19.5	18.6	18.8	17.7	20.3	19.5	23.1	23.5	20.0	29.9	20.3
2005Q4	23.8	21.5	20.4	17.7	19.6	18.5	18.9	17.7	20.5	19.5	23.0	23.6	20.0	29.9	20.3
2006Q1	23.5	21.3	20.4	17.9	19.7	18.3	18.9	17.5	20.5	19.4	23.2	23.6	20.0	29.8	20.2
2006Q2	23.4	21.1	20.3	18.2	19.7	18.1	19.0	17.3	20.2	19.4	23.2	23.6	19.9	29.5	20.2
2006Q3	23.4	20.9	20.0	18.2	19.6	18.0	19.0	17.2	20.1	19.3	23.4	23.5	19.8	29.4	20.1
2006Q4	23.5	21.0	19.8	18.0	19.5	17.7	18.9	17.0	20.0	19.2	23.7	23.4	19.7	29.1	20.0
2007Q1	23.4	21.2	19.6	17.8	19.5	17.7	19.0	17.0	19.9	19.1	23.7	23.1	19.7	28.9	19.9
2007Q2	23.2	21.3	19.5	17.4	19.7	17.5	18.9	17.0	19.7	19.1	23.8	22.8	19.6	28.8	19.9
2007Q3	23.0	21.2	19.8	17.1	19.9	17.2	18.7	17.1	19.5	19.0	23.7	22.6	19.5	28.7	19.8
2007Q4	22.8	20.9	20.1	16.9	20.1	17.0	18.4	17.2	19.3	18.9	23.5	22.5	19.4	28.6	19.7
2008Q1	22.9	20.6	20.3	16.8	20.3	16.9	18.1	17.1	19.1	18.8	23.3	22.5	19.3	28.7	19.6
2008Q2	23.0	20.4	20.6	16.8	20.1	17.1	17.7	16.9	19.1	18.7	23.2	22.5	19.3	28.7	19.5
2008Q3	23.0	20.5	20.6	17.1	20.0	17.2	17.6	16.9	19.2	18.7	23.3	22.5	19.3	28.7	19.5
2008Q4	23.0	20.8	20.6	17.6	20.0	17.6	17.8	17.0	19.3	18.9	23.9	23.0	19.5	28.8	19.8

Source: Labour Force Survey; returns from public sector organisations (ONS, Scottish Government and Department of Enterprise, Trade and Investment for Northern Ireland)

Notes:

1 Headcount; rolling four-quarter averages.

2 Q4 2008 PSE estimates include the classification of Royal Bank of Scotland Group and Lloyds Banking group.

3 Public sector employment estimates for Scotland are published by Scottish Executive (SE) on a quarterly basis back to Q1 1999 from administrative records and surveys of public sector organisations in Scotland.

4 Public sector statistics for Northern Ireland relate to the number of public sector jobs rather than the number of people working in the public sector. The percentages for Northern Ireland as a proportion of all employment will differ from DETINI estimates expressed as a proportion of all jobs. HM Forces figures for Northern Ireland are not included in Northern Ireland estimates

5 Rolling four-quarterly averages are based on estimates over the quarters March (Q1), June (Q2), September (Q3) and December (Q4). For example the Q4 1999 estimate is an average taken for the quarters Q1 1999 to Q4 1999.

Table 2
Public sector employment:[1] by region and country of workplace[2,3,4]

Thousands, seasonally adjusted

Average of four quarters to:[5]	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West	England	Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
PSE level															
1999Q4	239	590	437	317	429	410	715	625	428	4,191	290	529	5,009	197	5,207
2000Q1	237	595	438	318	436	414	717	628	426	4,209	288	530	5,027	198	5,225
2000Q2	235	607	443	319	438	416	713	627	429	4,228	287	531	5,046	199	5,245
2000Q3	232	620	451	317	433	420	701	634	437	4,244	291	532	5,066	199	5,266
2000Q4	230	631	455	315	429	425	689	638	445	4,257	294	532	5,082	200	5,282
2001Q1	231	641	458	314	428	428	681	638	452	4,272	298	532	5,102	200	5,303
2001Q2	234	648	456	313	430	429	686	641	454	4,292	300	533	5,125	201	5,326
2001Q3	238	653	448	316	438	430	701	638	453	4,314	298	534	5,146	202	5,348
2001Q4	244	659	444	319	444	430	710	636	453	4,338	295	536	5,169	202	5,372
2002Q1	248	664	439	319	450	428	721	641	456	4,366	292	538	5,196	203	5,399
2002Q2	251	663	439	323	456	430	725	643	461	4,390	292	540	5,222	204	5,426
2002Q3	255	664	447	328	456	429	723	645	465	4,412	296	543	5,251	205	5,456
2002Q4	255	664	454	330	461	433	727	648	467	4,439	299	545	5,284	206	5,490
2003Q1	253	665	462	330	467	440	725	648	474	4,464	305	548	5,316	208	5,524
2003Q2	254	671	471	331	468	446	722	648	481	4,492	311	551	5,354	209	5,563
2003Q3	254	676	479	332	471	454	720	652	483	4,522	317	554	5,393	211	5,604
2003Q4	251	676	489	338	470	464	721	661	487	4,556	318	558	5,432	212	5,644
2004Q1	251	682	501	349	467	473	719	666	480	4,588	318	561	5,468	213	5,681
2004Q2	253	680	510	358	464	479	725	676	475	4,621	311	565	5,496	214	5,711
2004Q3	255	680	509	366	467	487	729	681	476	4,652	304	568	5,524	215	5,739
2004Q4	261	682	507	370	472	486	733	684	476	4,670	303	571	5,545	216	5,761
2005Q1	269	684	499	364	476	484	742	690	487	4,695	301	574	5,570	217	5,787
2005Q2	268	688	492	359	485	484	745	695	499	4,714	302	576	5,593	219	5,812
2005Q3	267	691	490	356	491	478	748	700	507	4,728	302	579	5,609	220	5,829
2005Q4	264	688	492	357	492	476	753	702	514	4,738	302	581	5,621	220	5,841
2006Q1	262	682	495	365	495	469	754	698	514	4,734	304	583	5,621	221	5,842
2006Q2	263	678	494	372	494	463	761	690	509	4,725	304	584	5,613	221	5,834
2006Q3	264	673	487	375	492	461	764	686	508	4,708	307	584	5,599	221	5,820
2006Q4	266	679	481	370	490	457	764	678	506	4,691	310	583	5,584	221	5,805
2007Q1	264	684	475	363	489	457	769	674	503	4,679	310	582	5,571	221	5,792
2007Q2	263	684	473	355	492	453	769	677	498	4,665	314	580	5,559	221	5,780
2007Q3	262	678	482	348	497	445	768	679	495	4,655	315	579	5,548	220	5,769
2007Q4	263	670	491	345	504	441	760	685	493	4,651	312	578	5,541	220	5,762
2008Q1	264	660	500	343	509	437	754	685	491	4,643	311	577	5,530	221	5,751
2008Q2	265	654	509	343	504	441	744	681	495	4,638	312	577	5,526	220	5,747
2008Q3	264	656	510	348	498	446	740	683	498	4,642	312	577	5,531	220	5,752
2008Q4	263	663	508	360	495	456	754	691	499	4,688	319	588	5,594	220	5,815

Source: Labour Force Survey; returns from public sector organisations (ONS, Scottish Government and Department of Enterprise, Trade and Investment for Northern Ireland)

Notes:

1 Headcount; rolling-four quarter averages.

2 Public sector employment estimates for Scotland are published by Scottish Executive (SE) on a quarterly basis back to Q1 1999 from administrative records and surveys of public sector organisations in Scotland.

3 Public sector statistics for Northern Ireland relate to the number of public sector jobs rather than the number of people working in the public sector. The percentages for Northern Ireland as a proportion of all employment will differ from DETINI estimates expressed as a proportion of all jobs. HM Forces figures for Northern Ireland are not included in Northern Ireland estimates.

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5 Rolling four-quarterly averages are based on estimates over the quarters March (Q1), June (Q2), September (Q3) and December (Q4). For example the Q4 1999 estimate is an average taken for the quarters Q1 1999 to Q4 1999.

Table 3
Public sector employment:[1] by region and country of workplace[2,3,4]

Thousands, seasonally adjusted

Average of four quarters to:[5]	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West	England	Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
Change on year															
2000Q4	–9	41	18	–3	–1	15	–26	14	17	66	4	3	73	2	75
2001Q1	–6	46	20	–4	–8	14	–36	11	26	63	10	2	75	2	77
2001Q2	–1	41	13	–6	–8	13	–28	14	26	64	12	2	78	2	81
2001Q3	6	33	–3	–1	4	10	0	4	16	70	7	2	79	3	82
2001Q4	14	28	–11	4	15	5	21	–2	7	82	1	4	87	3	90
2002Q1	17	23	–19	5	22	0	40	2	4	94	–6	6	94	3	96
2002Q2	17	15	–18	10	26	0	39	2	6	97	–7	8	97	3	100
2002Q3	18	11	0	12	18	–2	21	7	12	98	–2	9	105	3	109
2002Q4	11	5	10	11	17	4	17	12	14	101	4	9	114	4	119
2003Q1	5	0	23	11	17	12	4	7	18	98	13	10	121	5	126
2003Q2	4	8	33	8	12	16	–3	6	20	102	19	11	132	6	138
2003Q3	–1	13	32	4	15	25	–2	6	18	109	21	11	142	6	148
2003Q4	–4	12	35	7	9	31	–5	13	20	117	19	13	148	6	154
2004Q1	–2	17	38	18	–1	33	–6	19	6	124	13	14	151	6	157
2004Q2	–2	9	39	27	–3	34	3	28	–5	129	0	14	143	5	147
2004Q3	1	4	30	34	–5	33	9	29	–7	130	–13	14	131	4	136
2004Q4	10	6	18	32	2	21	12	24	–11	114	–15	14	113	4	117
2005Q1	18	2	–2	15	9	11	23	24	7	107	–17	13	102	4	106
2005Q2	15	8	–18	1	21	4	21	19	23	93	–9	12	97	5	102
2005Q3	11	11	–20	–11	24	–9	19	19	31	76	–2	11	85	4	90
2005Q4	3	6	–15	–12	20	–10	20	17	38	68	–1	9	76	4	80
2006Q1	–6	–2	–4	1	19	–15	12	8	26	39	3	9	52	3	55
2006Q2	–5	–9	2	14	8	–21	16	–5	11	10	2	8	20	2	22
2006Q3	–2	–18	–3	19	1	–18	15	–14	1	–20	5	5	–10	1	–9
2006Q4	2	–9	–10	13	–2	–19	11	–24	–8	–47	8	2	–37	0	–37
2007Q1	2	2	–20	–2	–6	–13	15	–23	–11	–55	6	–1	–50	0	–51
2007Q2	1	6	–21	–17	–2	–10	8	–13	–11	–59	10	–4	–53	0	–53
2007Q3	–2	5	–5	–27	6	–15	5	–6	–13	–53	7	–5	–51	0	–52
2007Q4	–3	–9	9	–25	14	–15	–4	7	–13	–40	3	–5	–42	0	–43
2008Q1	–1	–24	24	–20	21	–20	–16	11	–12	–36	1	–5	–41	0	–41
2008Q2	2	–30	36	–12	12	–12	–25	4	–3	–27	–2	–4	–33	–1	–34
2008Q3	2	–22	29	0	0	1	–28	3	3	–12	–2	–2	–17	0	–17
2008Q4	0	–7	17	15	–10	14	–6	6	6	36	7	10	53	0	53

Source: Labour Force Survey; returns from public sector organisations (ONS, Scottish Government and Department of Enterprise, Trade and Investment for Northern Ireland)

Notes:

1. Headcount; rolling four-quarter averages.
2. Public sector employment estimates for Scotland are published by Scottish Executive (SE) on a quarterly basis back to Q1 1999 from administrative records and surveys of public sector organisations in Scotland.
3. Public sector statistics for Northern Ireland relate to the number of public sector jobs rather than the number of people working in the public sector. The percentages for Northern Ireland as a proportion of all employment will differ from DETINI estimates expressed as a proportion of all jobs. HM Forces figures for Northern Ireland are not included in Northern Ireland estimates.
4. Q4 2008 PSE estimates include the classification of Royal Bank of Scotland Group and Lloyds Banking Group.
5. Rolling four-quarterly averages are based on estimates over the quarters March (Q1), June (Q2), September (Q3) and December (Q4). For example the Q4 1999 estimate is an average taken for the quarters Q1 1999 to Q4 1999.

The LFS is adjusted to bring the public sector variable closer to the National Accounts definition by taking account of some of the differences listed above. **Figure 3** compares the PSE series based on returns from public sector organisations with the LFS and 'adjusted' LFS figure and illustrates the size of the LFS overestimation. After making the adjustments, the difference between the LFS and PSE estimates is approximately halved. It is not possible to fully adjust the LFS to the National Accounts definition because we cannot adjust for every eventuality, for example it is not possible to separate numbers of GPs from hospital doctors.

Assessing the accuracy of ONS regional estimates of PSE

The analysis presented in this article uses the best method currently available to produce regional estimates of public sector employment. A comparison can be made using Scottish estimates to give an indication of the accuracy of the estimates for the English Regions and Wales.

Estimates from published PSE estimates for Scotland are compared with figures produced for Scotland based on LFS methodology. A comparison of the two estimates is shown in **Table 4**. Over the period Q4 1999 to Q3 2008, the percentage differences between the two estimates vary from plus 3.1 per cent (2003 Q3) to minus 2.1 per cent (1999 Q4). These differences might be expected due to LFS sampling variability and respondent error.

For 2008 Q4 the difference is minus 8.4 per cent, due to Royal Bank of Scotland Group and Lloyds Banking Group being included in the PSE figures from the Scottish Government but not yet reflected in the LFS estimates used for this article. Individuals working for these groups would not have classified themselves as public sector employees during the collection of the LFS for 2008 Q4, as the announcement by ONS to classify the banking groups to the public sector was made on 19 February

Table 4

Comparison between Scottish Government[1,2] and ONS PSE estimates

Scotland

Average of four quarters to:[3]	**Difference: ONS minus SG estimates of PSE** **PSE levels (thousands)**	 **PSE levels (percentage difference)**
1999Q4	–11	*–2.1*
2000Q1	–7	*–1.4*
2000Q2	–1	*–0.3*
2000Q3	2	*0.5*
2000Q4	–1	*–0.2*
2001Q1	–1	*–0.2*
2001Q2	–1	*–0.1*
2001Q3	0	*0.0*
2001Q4	1	*0.3*
2002Q1	7	*1.3*
2002Q2	5	*0.9*
2002Q3	8	*1.5*
2002Q4	9	*1.6*
2003Q1	10	*1.8*
2003Q2	10	*1.9*
2003Q3	17	*3.1*
2003Q4	10	*1.8*
2004Q1	7	*1.3*
2004Q2	5	*0.9*
2004Q3	7	*1.3*
2004Q4	5	*0.9*
2005Q1	11	*1.9*
2005Q2	10	*1.8*
2005Q3	5	*0.9*
2005Q4	1	*0.1*
2006Q1	–4	*–0.7*
2006Q2	–7	*–1.2*
2006Q3	–5	*–0.8*
2006Q4	–5	*–0.9*
2007Q1	–1	*–0.1*
2007Q2	6	*1.0*
2007Q3	11	*1.9*
2007Q4	7	*1.2*
2008Q1	6	*1.0*
2008Q2	–1	*–0.2*
2008Q3	–8	*–1.4*
2008Q4	–52	*–8.4*

Notes:

1 Public sector employment estimates for Scotland are published by the Scottish Government on a quarterly basis back to Q1 1999 from administrative records and surveys of individual public sector organisations in Scotland.

2 PSE Estimates from Scottish Government include the classification of the Royal Bank of Scotland Group, Lloyds Banking Group.

3 Rolling four quarterly averages are based on estimates over the quarters March (Q1), June (Q2), September (Q3) and December (Q4). For example the Q4 1999 estimate is an average taken for the quarters Q1 1999 to Q4 1999.

Source: Labour Force Survey; returns from public sector organisations (ONS, Scottish Government))

2009 (decision backdated to 13 October 2008). So, while the UK total includes the bank employees they will be distributed to regions in proportion to the distribution of PSE excluding the banking staff.

PSE development programme

ONS is currently working with other government departments to develop regional PSE statistics directly from existing sources, covering Northern Ireland, Scotland, Wales and England (including English regional composition). If successful, future PSE estimates will be produced using estimates from public sector organisations for all regions.

Further information

This article presents regional analyses of public sector employment. Additional tables showing regional analyses of private sector employment are contained within Regional Public Sector Employment tables available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=13615&Pos=&ColRank=1&Rank=422

This article presents the best available estimates of regional public sector employment. The best estimates of UK PSE employment are published as part of the quarterly *Public Sector Employment Statistical Bulletin* which can be found at: www.statistics.gov.uk/CCI/nugget.asp?ID=407&Pos=5&ColRank=2&Rank=224

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Methods explained

Methods explained is a quarterly series of short articles explaining statistical issues and methodologies relevant to ONS and other data. As well as defining the topic areas, the notes explain why and how these methodologies are used. Where relevant, the reader is also pointed to further sources of information.

The Balance of Payments

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SUMMARY

This article describes the main features of the United Kingdom Balance of Payments. The Balance of Payments essentially records one nation's transactions with the rest of the world – relating to conventional trade in goods and services, income flows and the transfer in ownership of financial assets across borders. The International Investment Position, or net asset position, is the part of the Balance of Payments that records net stocks of the UK's foreign assets and liabilities. The relationship between this and investment income is also analysed. Finally, the impact of the global recession and credit crunch on recent Balance of Payments data is presented.

The Balance of Payments records one nation's transactions with the rest of the world. This not only includes the conventional flows of goods and services that make up international trade, but also cross-border payments associated with the international ownership of financial assets and current transfers, including remittances by workers from one country to another. In fact, remittances have become increasingly important in recent decades as capital and labour becomes increasingly mobile and financial markets in different countries more strongly integrated. Therefore the means of production are becoming just as likely to move across borders as the actual goods and services produced.

The purpose of this article is to outline the main structure of the UK Balance of Payments so the reader can understand how international trade in goods, services and financial assets and cross-border income flows are recorded in the National Accounts[1]. In doing this the changing patterns over time are presented, along with a more recent analysis of how the current global economic downturn is being reflected in key parts of the Balance of Payments.

The Balance of Payments can effectively be broken down into two parts. The Current Account records international trade in goods and services, international income flows and current transfers. The Capital Account and Financial Account form the counter part to this, recording the changing pattern in the international ownership of assets. While the Financial Account records changes in the cross-border flows of assets the International Investment Position measures the total stocks of foreign assets and liabilities held by a nation. Some features of this, in particular its relation to investment income, are also analysed in this article.

Current Account

The Current Account consists of four parts:

- Trade in goods
- Trade in services
- Net income flows
- Current transfers

Table 1 presents the UK Current Account for 2007. Although data for 2008 are available these have been significantly affected by the turmoil in the global financial markets and the world recession so are not the best to use for demonstration purposes.

The trade in goods balance is the difference between the value of goods exported and the value of goods imported. Hence, in 2007 a £220.9 billion credit to the Current Account resulted from goods exports and a £310.6 billion debit from imports giving an overall deficit of £89.8 billion. The trade in services is recorded in the same way, with credits to the Current Account reflecting services exports and debits services imports. In 2007 the UK ran an overall surplus of £44.8 billion on the balance of trade in services.

An often cited measure is the trade balance which is the overall balance in the trade in goods and services. In 2007 this would have been negative to the tune of £45.0 billion, as the deficit in goods trades outweighs the surplus in services trade. The trade balance though is not to be confused with the overall Current Account which consists of two further, but less well-known, items.

Net income flows reflect international payments associated with the ownership of the factors of production (land, labour and capital).

Two types of income transactions are distinguished; compensation of employees which is paid to non-resident workers involved in the

Table 1
UK Current Account in 2007

£ billions

	Credit	Debit	Balance
Goods trade	220.9	310.6	–89.8
Services trade	150.6	105.8	44.8
Net income flows	291.3	270.5	20.8
Current transfers	14.0	27.6	–13.5
Current Account (total)	676.8	714.6	–37.7

Source: ONS Balance of Payments

production process and investment income which is the return for providing financial assets and rent for natural resources.

In 2007 net compensation of employees debits (outflows) exceeded credits (inflows) by £734 million. However, this clearly accounts for only a small proportion of the total given UK net income was £20.8 billion in surplus in 2007.

The remainder of net income relates to investment income – these are the payments associated with the international ownership of financial assets such as interest payments and dividends. For example, if a UK citizen owned shares in a foreign company, then any dividends earned from this would be counted as a credit. Alternatively, if a UK company borrowed money from a foreign bank then any interest payments accrued would be recorded as a debit.

As financial markets around the world become increasingly integrated it is likely that residents (households, firms, financial institutions such as banks and pension funds, non-profit institutions and the public sector) in one country will seek to diversify their portfolios of financial assets to take advantage of higher returns overseas and reduce exposures to individual country risks. Therefore the ownership of foreign assets and foreigner's ownership of UK assets have grown rapidly and investment income flows are becoming a major determinant of the Current Account.

Current transfers are the final component of the Current Account. This records a miscellaneous set of net payments including workers remittances, social security, foreign aid and contributions to international organisations such as the European Union (EU). As Table 1 shows, these flows are small compared to other parts of the Current Account and in 2007 were in overall deficit of £13.5 billion.

Current Account – some history

In sum the UK Current Account deficit was £37.7 billion or 2.7 per cent of Gross Domestic Product (GDP) in 2007. The longer-term history of the UK Current Account and its main components are presented in **Table 2**, and here it can be clearly seen that the overall UK Current Account has been predominately in deficit over the last 40 years.

Table 2
The UK Current Account and its main components

Percentage of GDP (five year averages except later years)

Year	Goods trade	Services trade	Net income	Current transfers	Current Account
1955–59	*–0.4*	*0.4*	*0.8*	*0.0*	*0.9*
1960–64	*–0.9*	*0.1*	*0.9*	*–0.1*	*0.0*
1965–69	*–0.9*	*0.4*	*0.8*	*–0.2*	*0.0*
1970–74	*–2.1*	*1.2*	*0.9*	*–0.3*	*–0.3*
1975–79	*–2.0*	*2.2*	*–0.1*	*–0.6*	*–0.5*
1980–84	*0.1*	*1.8*	*–0.6*	*–0.5*	*0.7*
1985–89	*–3.1*	*1.8*	*–0.4*	*–0.7*	*–2.4*
1990–94	*–2.1*	*1.1*	*–0.4*	*–0.7*	*–2.1*
1995–99	*–2.1*	*1.7*	*0.2*	*–0.8*	*–1.0*
2000–04	*–4.2*	*1.9*	*1.2*	*–0.8*	*–2.0*
2005	*–5.5*	*2.1*	*1.7*	*–0.9*	*–2.6*
2006	*–5.8*	*2.6*	*0.7*	*–0.9*	*–3.3*
2007	*–6.4*	*3.2*	*1.5*	*–1.0*	*–2.7*
2008	*–6.4*	*3.8*	*1.9*	*–0.9*	*–1.7*

Source: ONS Balance of Payments

The main factor behind the UK's persistent Current Account deficit has been the deficit on the balance of trade in goods. In fact, since 1946 this has been in deficit every year bar five. An average surplus was recorded between 1980-84 when UK goods trade was aided by North Sea oil production and high oil prices, but since then the deficit has consistently grown as a proportion of GDP to 6.4 per cent in both 2007 and 2008.

As manufacturing goods make up the largest proportion of goods trade then the relative decline in UK manufacturing output might suggest why this deficit has grown over the last two decades. The emergence of low cost producers in emerging markets have meant that the bulk of UK manufacturing including automobiles, clothing and footwear, consumer electronics and materials processing have seen its global market share fall. However, the UK has managed to increase its export share in smaller higher technology manufactures such as medical and pharmaceuticals, communications equipment, office machinery and computers.

On the other hand exports of services have exceeded imports every year since 1951 except two, and surpluses as a proportion of GDP have grown continuously since EU membership in 1973. This is consistent with the changing composition of UK output, with the largest surpluses in financial and business services – and is evidence that structural change in the UK economy has followed its comparative advantage in international trade[2].

Net income has been more erratic over the years reflecting the inherent volatility in financial markets. It was last negative as recently as 1999 due to the impact of the Asian financial crisis, but during the last decade has generally made a positive contribution to the Current Account.

In comparison current transfers have made a negative contribution to the Current Account but the deficit has been fairly stable as a proportion of GDP over the last 30 years. The typical deficit reflects net contributions to the EU and the cost of foreign aid.

Capital and Financial Accounts

So what does it mean if the UK ran a Current Account deficit of £37.7 billion in 2007? Basically it states that foreigners are adding to their stock of UK assets by a sum of £37.7 billion more than UK residents are adding to their stock of foreign assets – or that the UK is essentially increasing its net liabilities to the rest of the world by this amount.

The Capital and Financial Accounts records the counterparts to the Current Account, which are the offsetting changes in the ownership of financial assets as implied by the Current Account surplus or deficit. In fact, **Table 3** shows that in 2007 both UK residents have added to their stock of foreign assets and foreign residents have added to their stock of UK assets by over £1,000 billion (£1 trillion) – but the key is that foreigners have added to their stock of assets by somewhat (£37.7 billion) more.

In Table 3 the credit column refers to money spent by foreign residents on UK assets and the debit column to money spent by UK residents on foreign assets.

The Capital Account consists of several miscellaneous items such as

Table 3
UK Capital and Financial Accounts in 2007

£ billions

	Credit	Debit	Balance
Capital Account	4.6	2.0	2.6
Financial Account			
Direct investment	98.2	136.1	–38.0
Portfolio investment	203.3	92.0	111.3
Other investment	725.9	767.5	–41.6
Total	1027.4	995.7	31.7
Balancing item			3.4
Grand total			37.7

Source: ONS Balance of Payments

Table 4
Major direct investment acquisitions by/of UK companies in the last decade by value

Outwards acquisitions of foreign companies

£113.0 billion: Mannesmann AG by Vodafone (2000 Q1)
£37.5 billion: Airtouch by Vodafone (1999 Q2)
£32.6 billion: Amoco Corp by British Petroleum (BP) (1998 Q4)
£21.0 billion: Zeneca PLC by Astra AB (1999 Q2)
£18.5 billion: Alcan Inc by Rio Tinto (2007 Q4)
£18.0 billion: Atlantic Richfield by BP Amoco (2000 Q2)
£9.3 billion: Altadis SA by Imperial Tobacco Group (2008 Q1)
£9.1 billion: Household International by HSBC (2003 Q1)
£7.7 billion: MedImmune Inc by AstraZeneca (2007 Q3)
£6.6 billion: Credit Commerciale de France by HSBC (2000 Q3)
£5.8 billion: Charter 1 by Royal Bank of Scotland (RBS) (2004 Q3)
£5.5 billion: Hutchison Essar by Vodafone Group (2007 Q2)
£5.0 billion: Innovene Inc by Ineos Group (2005 Q4)

Inward acquisitions of UK companies

£23.5 billion: Orange PLC by France Telecom (2000 Q3)
£19.5 billion: Orange PLC by Mannesmann AG (1999 Q4)
£17.7 billion: O2 by Telefonica (2006 Q1)
£12.5 billion: British Energy by Electricite de France (EDF) (2009 Q1)
£11.0 billion: Alliance Boots PLC by AB Acquisitions Ltd
£10.1 billion: British Airports Association (BAA) by Ferrovial (2006 Q2)
£9.0 billion: Abbey National by Banco Santander (2004 Q4)
£8.5 billion: Reuters Group by Thomson Corporation (2008 Q2)
£8.3 billion: Hanson PLC by Heidellberg Cement AG (2007 Q3)
£8.2 billion: BOC Group PLC by Linde AC (2006 Q3)
£8.1 billion: Imperial Chemical Industries by AKZO Nobel (2008 Q1)
£7.5 billion: Scottish & Newcastle by Sunrise Acquisitions Ltd (2008 Q2)
£6.7 billion: ASDA by Wal-Mart (1999 Q3)
£5.3 billion: Amersham PLC by General Electric Group (2004 Q2)
£5.2 billion: Powergen by E.on (2002 Q3)

Source: ONS Balance of Payments

land purchases and sales associated with embassies, the transfers of migrants, EU regional development fund payments and so on. It is small relative to the Financial Account, and in 2007 credits exceeded debits by £2.6 billion.

The Financial Account has been broken down according to the main types of assets.

Direct investments refer to the purchase by the residents of one country of a significant part of an enterprise in another country. This not only consists of factories or production units but larger shareholdings (in excess of 10 per cent of total equity) which is considered to give the owner influence over the management of the enterprise and the set level of dividends.

The purchase of British Airports Association (BAA) by the Spanish company Ferrovial and British Energy Group by Electricite de France (EDF) are examples of direct investment credits in the Financial Account. Likewise, the purchase of the German telecoms firm Mannesmann by Vodafone and Atlantic Richfield by BP Amoco would be examples of significant direct investment debits. Major (in excess of £5 billion) direct investment acquisitions of foreign companies by UK companies and vice-versa during the last ten years are recorded in **Table 4**.

Portfolio investments relate to the smaller purchases of equity (less than 10 per cent of the total) and also debt securities.

Other investments in the main refer to financial intermediation services. For example, a deposit made by a UK local authority in an Icelandic bank would have been scored as a debit. Alternatively a loan from a foreign bank to a UK household would be classified as a credit.

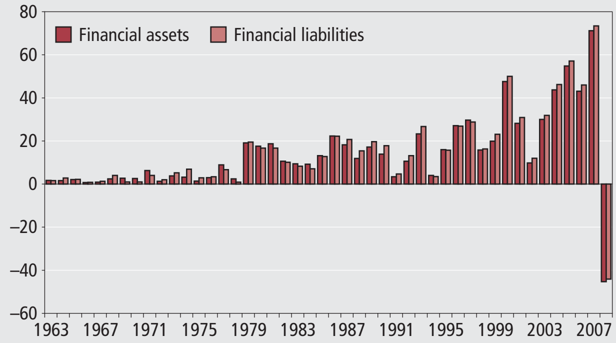
The sums recorded in both the debit and credit columns in the other investment category are huge, representing around 70 per cent of UK Gross Domestic Product. This is because the UK financial system is highly integrated with the rest of the world's financial markets and plays a large intermediary role between them.

For example, a UK bank may receive £1 billion in deposits from a German pension fund that it then lends to US firms. In this case both the credit and debit columns of the other investment category will increase by £1 billion. Alternatively the UK bank may decide to lend the £1 billion to a UK firm that purchases a majority shareholding in a foreign company. In this case the debit column in the other investment category and the credit column in the direct investment category will both increase by £1 billion. Because these types of intermediary transactions are so commonplace it is easy to understand how the size of credits and debits in the Financial Account may be a large proportion of GDP but the difference between them is relatively small. This is demonstrated in **Figure 1**, where both foreign assets and liabilities (holdings of UK assets by foreigners) have grown significantly as a proportion of GDP yet in each year differ by a relatively small amount.

The final element, which does not officially form part of the Capital or Financial Accounts is the balancing item. Although in theory the Capital and Financial Accounts should offset the Current Account,

Figure 1
Net acquisitions of financial assets and liabilities

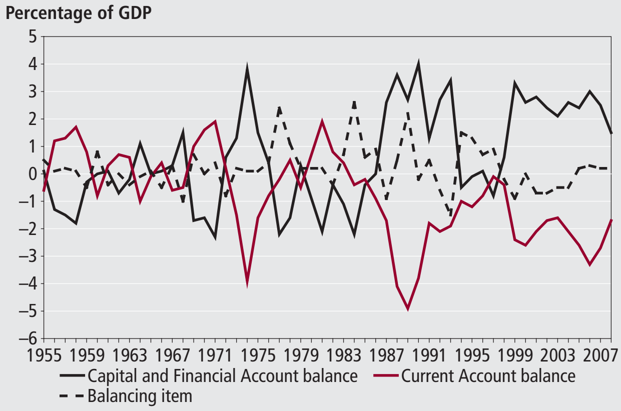
Percentage of GDP



Source: ONS Balance of Payments

Figure 2

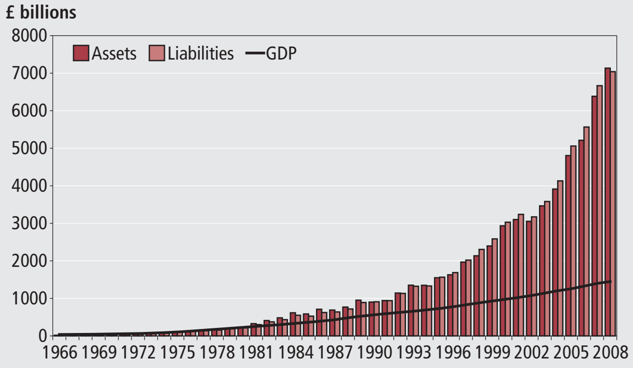
Balancing the Balance of Payments



Source: ONS Balance of Payments

Figure 3

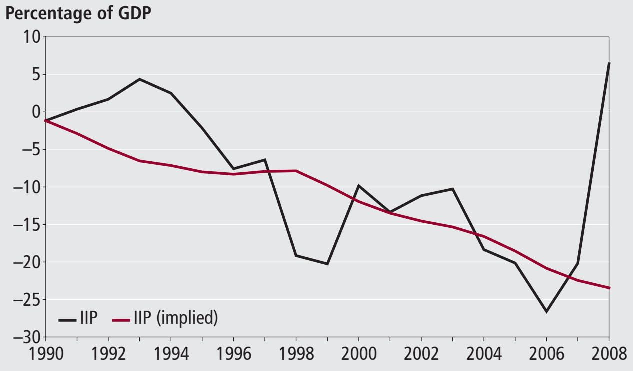
International Investment Position



Source: ONS Balance of Payments

Figure 4

International Investment Position and the Current Account



Source: ONS Balance of Payments

in practise it rarely does due to errors and omissions. The purpose of the balancing item is therefore reconcile the two sides of the Balance of Payments.

Figure 2 shows the long-term history of the UK Current Account balance, the Capital and Financial Accounts balances, and the balancing item as a percentage of GDP. Clearly there is an offsetting relationship between the two main parts of the Balance of Payments, so the data behaves as expected. The balancing item exhibits some volatility but in recent years has been relatively minor.

International Investment Position

While the Financial Account records international flows in the acquisition and disposals of financial assets the stock positions are presented in the International Investment Position (IIP). This is the difference in the value of foreign assets held by UK residents (UK's foreign assets) and UK assets held by foreign residents (UK's foreign liabilities). Therefore it is also referred to as the net-asset position.

Like Financial Account flows in Figure 1, the UK's stocks of foreign assets and liabilities have grown rapidly and now far outstrip GDP. As **Figure 3** shows, stocks of foreign assets and liabilities are near £7,000 billion (£7 trillion) or about 4 and half times GDP. This ratio is much higher than in most developed countries (for the US stocks of foreign assets and liabilities were around 100 per cent of GDP in 2005) and is a strong indication of the relative openness of the UK economy, and in particular its financial sector, to the rest of the world.

And like the balance on the Financial Account, in any one year the IIP or net asset position is relatively small given the size of the asset stocks, further indication of the intermediary role played by UK financial institutions in the global economy.

As the IIP and Financial Account are linked by a stock-flow relationship, in theory, there should also be a relationship between the IIP and the Current Account. The UK's persistent Current Account deficit over the last thirty years implies that the nation has been living beyond its means for a considerable period of time requiring offsetting surpluses on the Financial Account. Therefore, as this feeds through into asset stocks it would be expected that a long run decline in the IIP would result.

Figure 4 plots the actual UK IIP since 1990, and the IIP implied by the accumulation of Current Account deficits. Up until 2007 the IIP has generally behaved as expected, deteriorating in line with Current Account deficits. However, in 2008 the IIP jumped sharply into positive territory for the first time since 1994.

This can be explained by looking at what determines the actual dynamics of the IIP between time period (t) and (t-1):

IIP(t) = IIP(t-1) + Current Account(t) + asset revaluations(t)

where asset revaluations = price changes + exchange rate changes + other adjustments

That is changes in the net asset position do not just reflect Financial (Current) Account flows but also revaluations of those assets. Furthermore, revaluations of assets do not just reflect the volatility in equity and bond markets but also in exchange rates. Almost the entire jump in the UK IIP during 2008 can be accounted for by the depreciation of sterling.

As foreign assets are expressed in foreign currency, depreciation of sterling against that foreign currency means that the valuation of that asset in sterling terms increases. If UK liabilities (UK assets held by foreigners) are valued in sterling then there is no change following depreciation. But were they also valued in foreign currency then the sterling value of liabilities would also rise following depreciation. However this is generally not the case. The majority of UK foreign assets will be valued in foreign currency and the majority of UK assets held by foreigners will be valued in sterling so sterling depreciation improves the IIP and sterling appreciation deteriorates the IIP.

Given that the trade-weighted effective sterling exchange rate fell by about 25 per cent during 2008 and the stock of foreign assets held by UK residents amounts to 4 and a half times GDP then it is quite plausible to explain how such a large jump in the IIP was possible. The jump in the value of foreign assets can be seen in Figure 3 as well as in the IIP in Figure 4.

International Investment Position and net investment income

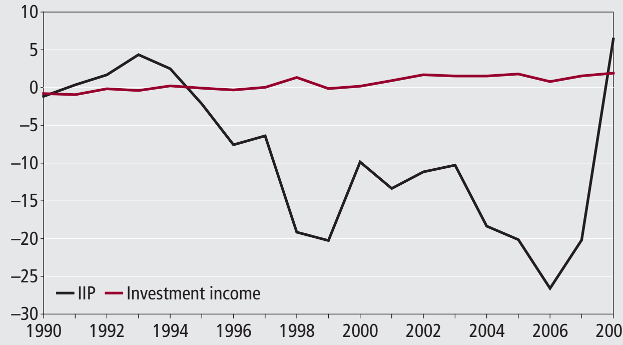
Until last year (2008) the declining UK IIP was a curiosity in that net international investment income continued to be positive (see **Figure 5**) – suggesting that an increasingly negative net asset position was managing to create robust positive net investment income[3]. An explanation for the divergence in IIP and net investment income requires the data in Figure 5 to be broken down into the contributions by each type of asset.

Starting with net investment income, **Figure 6** presents a breakdown by three main asset classes: direct investments, equity investments and other investments which are predominately interest bearing financial assets including debt securities. Surpluses on the investment income balance have clearly been driven from direct investment, while the other two asset classes make negative contributions.

Figure 5

International Investment Position and net investment income

Percentage of GDP

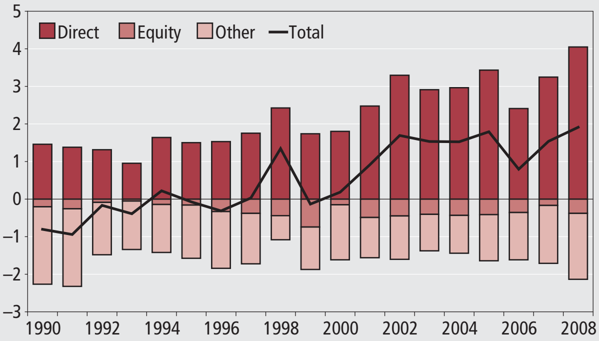


Source: ONS Balance of Payments

Figure 6

Breakdown of investment income by asset type

Percentage of GDP



Source: ONS Balance of Payments

Figure 7 presents the composition of the UK IIP according to the same asset categories. Although the aggregate IIP is generally in deficit, primarily due to the contribution of other investments, the UK has managed to sustain a robust surplus in direct investment assets.

For a negative IIP to generate a surplus in net investment income it must be the case that the UK's stock of foreign assets are generating higher returns than the stock of UK assets held by foreigners. This is confirmed in **Figure 8**. Rates of return[4] on the UK's foreign assets and liabilities have generally fallen since the early 1990s in line with global interest rates, but since the mid 1990s the UK has enjoyed a distinct rate of return advantage. It is this that accounts for the positive investment income despite the overall negative position on the IIP.

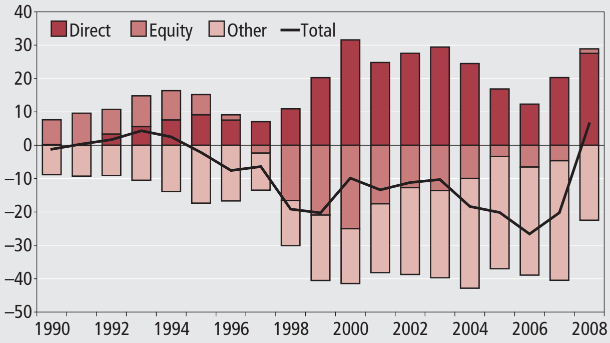
Figure 9, by presenting rates of return for each asset class, ties together the trends in Figures 6, 7 and 8. There are a number of observations that can be made:

- Rates of return in direct investment can be volatile, reflecting the global economic cycle, but on the whole exceed those of other asset classes. This differential has grown in the last

Figure 7

IIP breakdown by asset type

Percentage of GDP

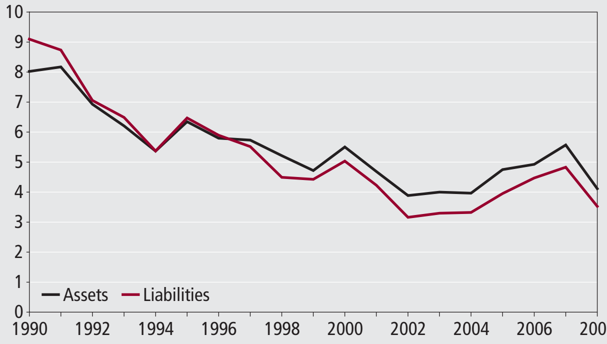


Source: ONS Balance of Payments

Figure 8

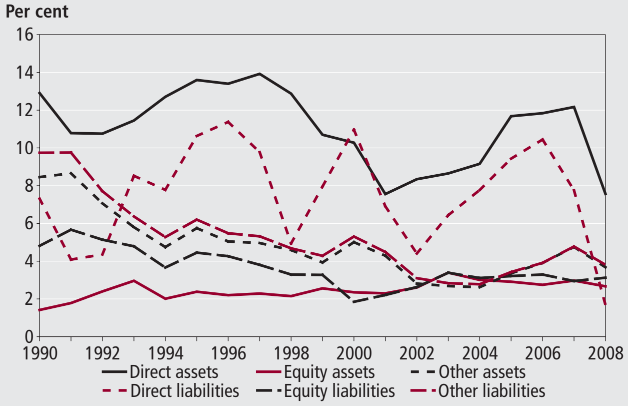
Rates of return on UK assets and liabilities

Per cent



Source: ONS Balance of Payments

Figure 9
Rates of return by types of asset and liability



Source: ONS Balance of Payments

decade as the fall in global interest rates pushes down on income from other investments including debt securities which are predominately interest bearing.

- Direct investments, which include equity holdings of over 10 per cent of an enterprise, offer far higher rates of return than smaller equity investments (minority shareholdings). This implies that exercising some degree of control over the enterprise including the power to influence dividend payments yields a superior return.
- Returns on UK held foreign direct investments have generally exceeded those of foreign direct investments into the UK, while there is little rate of return difference in equity and other assets.

Therefore the UK’s rate of return advantage is down to two factors.

First, it has a strong net-asset position in higher yielding direct investments. In this respect Nickell (2006) describes the UK IIP as similar to a successful venture capitalist by borrowing cheap interest bearing funds through its negative IIP in other investment assets and maintaining a surplus in its IIP of more lucrative direct investment assets.

Second, even within the direct investment category the UK has a rate of return advantage. In addition to the successful venture capitalist argument that the UK is just relatively good at picking profitable FDI opportunities three other explanations for this advantage have been suggested.

The US also enjoys a rate of return advantage in FDI, which Hausmann and Sturzenegger (2006) put down to exports of ‘dark matter[5]’. These are the unseen intangibles (or knowledge capital) such as managerial expertise, organisational structure, brand names, IT systems, design and technical (R&D) capabilities that usually accompany direct investments and make it more successful. The same reasoning may also apply to the UK – that its direct investments abroad are supported by significant transfers of quality intangibles. This reasoning may also account for the rate of return advantage of direct investments over smaller equity investments.

Another explanation is that, for one reason or another, foreigners may be prepared to accept a relatively lower rate of return on their direct investments in the UK. It might be considered as a price for accessing the large EU market allowing firms to benefit from economies of scale in production. The UK is also considered to be a less risky environment in which to do business than other economies, mainly due to the superior development of its legal and financial institutions. As a result the risk premium and yields on inward FDI to the UK would be correspondingly lower.

It might also be the case that firms deliberately report lower profits on their UK operations to reduce tax liabilities of the UK. As the production process becomes more vertically integrated across borders it gives firms scope to move profits through transfer pricing (also known as toll processing). For example, if the UK was considered a relatively high tax country then companies would face an incentive to reduce their reported earnings in the UK. This could be achieved by raising the internal prices of the output produced downstream, or reducing the prices charged upstream, as either would squeeze the margins on UK operations relative to the parts of the production process undertaken in other countries.

Finally, the rate of return on UK direct investments abroad may be exaggerated by underestimating the value of these direct investments and hence the overall IIP. Most financial assets such as equity and debt securities are frequently traded so can be valued using established market prices. Direct investments though are large, unique and illiquid assets for which market prices do not exist and the actual value can differ significantly from book or historic values – making life difficult for statisticians. As a result an undervaluation of the value of direct investment abroad would lead to an overstatement of the rate of return. But it should also be acknowledged that the same argument could be applied to inward foreign direct investment, so this reasoning would require an explanation why direct investment abroad is more likely to be undervalued than inward direct investment.

This analysis also gives insight into the sustainability of the UK’s positive investment income balance. As it is primarily generated through direct investment it is important that the UK maintains its net asset position in this asset type. And given that the UK’s net asset position has been built up over many years (see **Figure 10**) it is unlikely to be reversed in the short term. However, direct investment earnings are cyclical and the current global recession appears to be putting downward pressure on income. Furthermore, much of the rate of return advantage enjoyed by the UK has resulted from falling global interest rates making it easier to fund its large negative IIP in other (predominately interest bearing) assets. So should global interest rates start to push upwards it would put downward pressure on UK net investment income.

Recent trends in the UK Balance of Payments

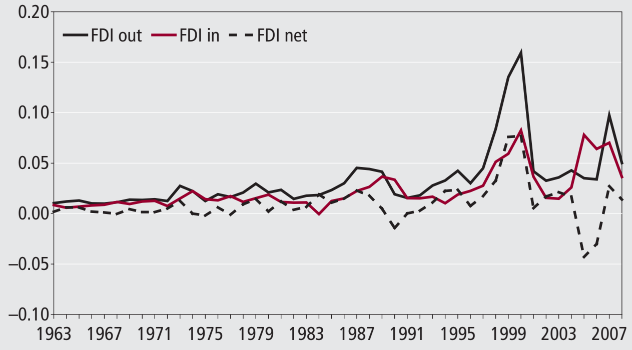
In this final section more recent trends in the UK Balance of Payments are analysed. These are of special interest given the global nature of the current recession and financial crisis.

Figure 11 shows, as a percentage of GDP and on a quarterly basis, the main component parts of the UK Current Account. Most striking is that since the beginning of 2008 the UK Current Account deficit has grown, despite the balance of trade (goods and services) improving. Transfers have been very stable, so the deterioration over the last year has been primarily driven by falling net investment income.

Figure 10

UK Foreign Direct Investment

Percentage of GDP

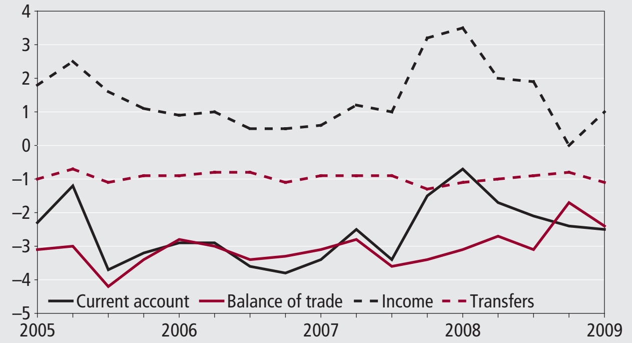


Source: ONS Balance of Payments

Figure 11

Current Account

Percentage of GDP

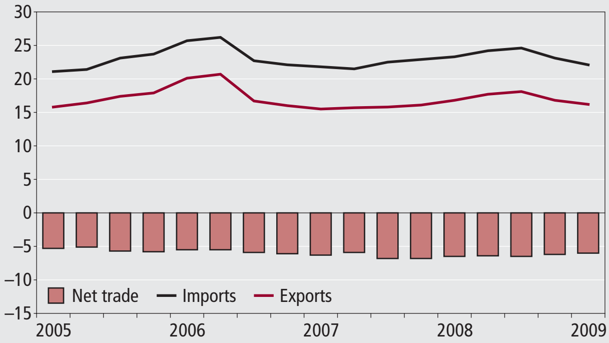


Source: ONS Balance of Payments

Figure 12

Trade in goods

Percentage of GDP

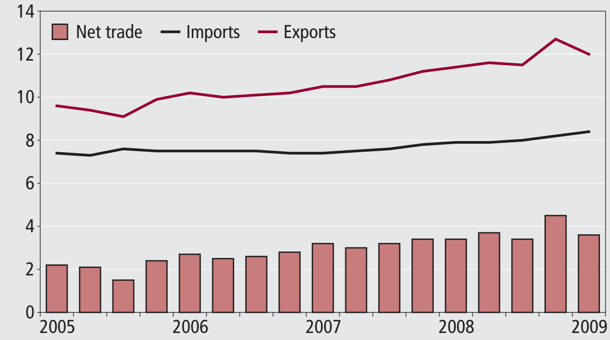


Source: ONS Balance of Payments

Figure 13

Trade in services

Percentage of GDP



Source: ONS Balance of Payments

In **Figure 12** the exports and imports of goods are presented. As most of the balance on goods trade is determined by manufactures (semi and finished goods) then both exports and imports have fallen quickly as a result of the global economic downturn being concentrated in the manufacturing sector. However, because UK imports have fallen faster than exports the overall goods deficit has narrowed in recent quarters.

Services trade though has been relatively robust through the recession. In fact, as **Figure 13** shows, there has been no notable downturn as a proportion of GDP and the overall UK balance has improved. One area that appears to have been doing well is the financial sector, ironically as a result of the global financial crisis.

Financial sector output consists of two main parts. First there are activities for which fee and commission income is earned, and as expected, this has fallen in line with business activity in the global recession. These are direct outputs, known as Financial Intermediation Services Directly Measured (FISDM). However, much of the output of the financial services sector is not charged for directly, such as current account services. Here incomes are usually made by a spread between deposit (savings) and credit (lending) rates – this output is known as Financial Intermediation Services Indirectly Measured (FISIM). One of the consequences of the financial crisis is that these spreads have widened. Central banks around the world have been aggressive in cutting interest rates which have been passed on quickly into deposit rates. But lending rates have come down less quickly, and for many consumer loans they have actually not come down at all or gone up – a reflection of the banking sectors updated view on risk and their desire to cut back on some lending. Given that the deposit base hasn't changed that much this has led to a large jump in calculated FISIM output in the last year. And because the UK financial services sector is large and operates on a global scale it is likely that FISIM exports will have increased as well.

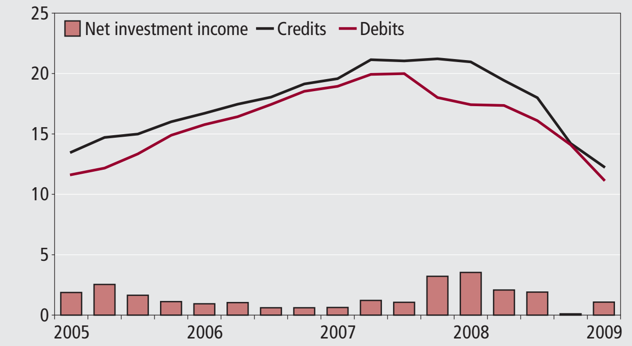
Net investment income though, despite continuing to make a positive contribution to the Current Account, has fallen sharply in recent quarters. Although it must also be acknowledged that net income had been particularly strong in 2007, so much of the reversal may just be trend correcting. Strong investment income was the main factor closing the Current Account in early 2008, and has been the main factor in the widening deficit thereafter.

Given the UK's strong net asset position in direct investment, most of the deterioration can be traced to this asset class. Earnings on direct investment abroad, and on foreign earnings on direct investments in the UK have fallen, mostly likely as a consequence of the global recession and credit crunch on company profits. Particularly affected are the earnings of financial corporations. As direct investment in the UK from overseas are highly concentrated in the banking sector it explains why income flows out of the UK have fallen faster than flows to the UK in recent years.

As explained already, Capital and Financial Account transactions are the mirror of Current Account transactions. Hence the deterioration

Figure 14
Net investment income

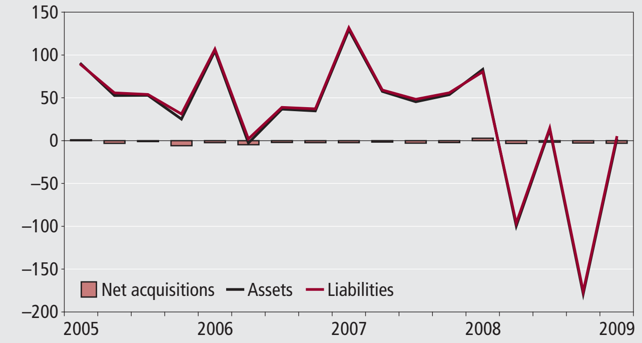
Percentage of GDP



Source: ONS Balance of Payments

Figure 15
Financial Account transactions

Percentage of GDP



Source: ONS Balance of Payments

in the Current Account would be associated with a growing surplus on the Capital and Financial Accounts as the UK reduces its net-asset position vis-à-vis the rest of the world.

However, it is still worth looking at because while the balance may actually be quite small, there have been very large recent movements in the flows of financial assets. This is shown quite clearly in Figure 1, where the UK's cross-border accumulation of financial assets and liabilities was massively negative in 2008.

The quarterly figures underline the recent volatility in financial markets (see **Figure 15**). The striking feature which is also picked up in Figure 1 are the periods of large disinvestment – where UK residents cut back on their stocks of foreign assets and foreign residents on their stocks of UK assets. This could be to reduce more 'risky' holdings of foreign assets or simply to repatriate assets to cover domestic losses and shore up balance sheets. For example, securities have been one of the financial asset classes most affected by the fallout from the US sub-prime mortgage market and the credit crunch and much of the volatility in the UK Financial Account has resulted from disinvestments in these assets. In the past net disinvestment in equities has frequently coincided with financial shocks – for example the UK's exit from the Exchange Rate Mechanism in 1992, the Asian financial crisis in 1997 and the collapse in equity markets in 2002. The most recent crisis though is more unique in that disinvestment has happened across a broad range of asset classes, not just the more volatile ones.

Notes

1. Much of this article follows and updates the analysis in Nickell (2006).
2. Chamberlin (2008) provides further evidence on the shifting composition of UK output and trade including its implications for the terms of trade.
3. Similar analysis and background on the UK International Investment Position can be found in Nickell (2006) and Whitaker (2006).
4. The rate of return on an asset in time (t) is calculated as the income generated by the asset in time (t) divided by the stock of asset in time (t-1).
5. More on the US Balance of Payments and the subject of 'dark matter' can be found in Chamberlin (2009).

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ARTICLE

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Regional economic indicators

A focus on rural and urban productivity in the English regions

SUMMARY

This quarter, the regional economic indicators article focuses on rural and urban productivity in the English regions. The regular part of the article then gives an overview of the economic activity of UK regions in terms of their gross value added (GVA), GVA per head and labour productivity. This is followed by a presentation of headline indicators of regional welfare, other drivers of regional productivity and regional labour market statistics. The indicators cover the nine Government Office Regions of England and the devolved administrations of Northern Ireland, Scotland and Wales. These 12 areas comprise level 1 of the European Nomenclature of Units for Territorial Statistics (NUTS level 1) for the UK. The term 'region' is used to describe this level of geography for convenience in the rest of this article.

Focus on rural and urban productivity in the English regions

Understanding the economic performance of rural areas is an important part of government policy. This article focuses on latest estimates of productivity at the rural and urban level within English regions. The methodology for productivity estimates at the rural and urban level for England was developed as a result of collaboration between the Office for National Statistics and the Department of Environment, Food and Rural Affairs (Defra) and presented in the November 2008 edition of this publication (Dey-Chowdhury and Gibson, 2008).

The local authority (LA) rural-urban classification (Defra, 2005) is based on the rural and urban definition for England and Wales in 2004 and categorises each local and unitary authority in England on a six-point scale of urban to rural (**Box 1**). This allows data published only at district level to be analysed by rurality, and allows for the production of sub-regional productivity estimates using GVA and workforce jobs estimates. Due to concerns about the robustness of hours worked data at the district level, the productivity estimates are only available on an output per filled job basis.

Rural and urban productivity in England

Previous work (Dey-Chowdhury and Gibson, 2008) has shown that while at first glance there seemed to be a productivity gap between the most rural and the most urban authorities in England in 2005, this gap was removed when London was presented separately to the other major urban areas. The updated figures for 2006 and including 2001 show that this is still the case (**Figure 1**). London productivity, having peaked between 2002 and 2005, shows a slight decline relative to England in 2006. Rural-80 and significant rural authorities on the other hand are showing a slight relative increase, with average productivity in rural-80 areas largely similar to that in non-London major and large urban authorities.

There is considerable interest in these estimates at a sub-national level as they can give useful information about how productivity differs within regions and where there might be opportunity to unlock potential. However due to the erratic nature of the GVA data, it is not statistically viable to produce individual estimates for each category of the LA classification for every region for individual years, because the individual categories in some regions have too few data points on which to base robust estimates. There are several options to avoid this, however: first, by combining the data into three large regional groups rather than nine regions; second, by merging the LA classification into three more general categories (described in **Box 1**); and finally to use an average of three years' data to produce estimates of productivity for each category of the LA classification for all regions.

Box 1
Defining 'rural' at district level

The Rural/Urban Definition, an official National Statistic introduced in 2004, defines the rurality of small census geographies such as census output areas and wards. Areas forming settlements with populations of over 10,000 are urban, while the remainder are defined as rural town and fringe, village or hamlet and dispersed.

This definition forms the basis of the Local Authority Rural Urban classification system for England, constructed by the Rural Evidence Research Centre at Birkbeck. The categories of the classification (shown in **Map 1**) and criteria for identifying them are as follows:

- Major Urban (MU) - districts with either 100,000 people *or* 50 percent of their population living in urban areas with a population of more than 750,000. Since local Government reorganisation in 2009, there are 71 districts in this group with an aggregate population at Census 2001 of 16.5 million.
- Large Urban (LU) - districts with either 50,000 people *or* 50 percent of their population living in one of 17 urban areas with a population between 250,000 and 750,000. There are 39 districts in this group with an aggregate population of 6.6 million.
- Other Urban (OU) - districts with less than 26 percent of their population living in rural settlements and larger market towns[1]. There are 58 districts in this group with an aggregate population of 7.4 million.
- Significant Rural (SR) - districts with more than 26 percent but less than 50 percent of their population living in rural settlements and larger market towns. There are 55 districts in this group with an aggregate population of 6.7 million.
- Rural-50 (R50) - districts with at least 50 percent but less than 80 percent of their population living in rural settlements and larger market towns. There are 48 districts in this group with an aggregate population of 6.9 million.
- Rural-80 (R80) - districts with at least 80 percent of their population living in rural settlements and larger market towns. There are 55 districts in this group with an aggregate population of 5 million.

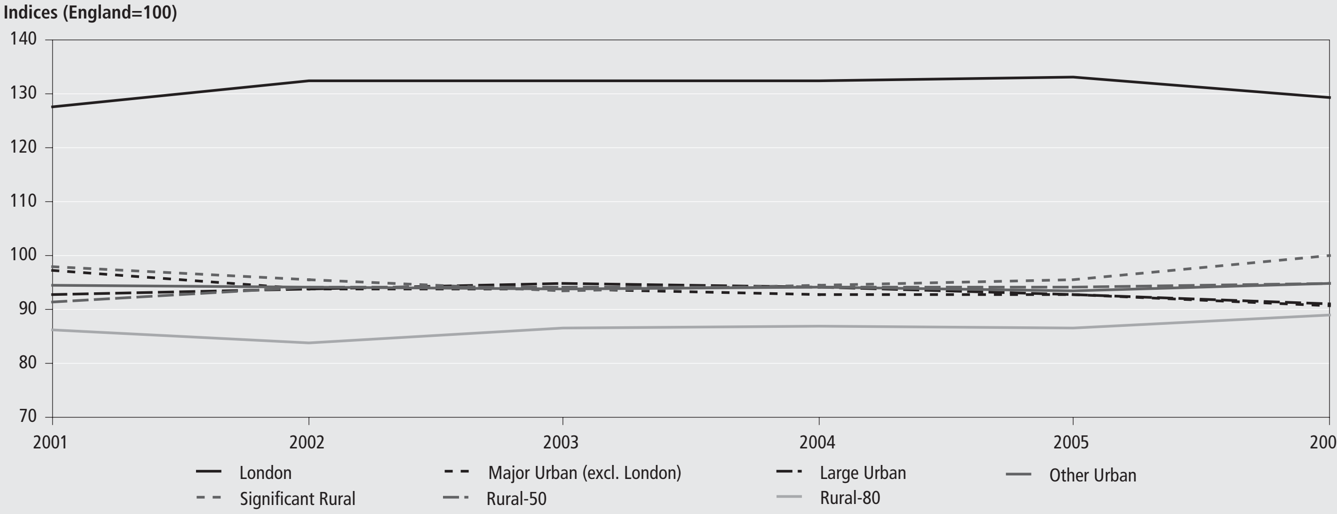
Higher tier classification

Where categories of the LA classification need to be combined either to avoid disclosure or to improve the robustness of data, they are aggregated into three groups as follows:

- Predominantly Urban: combines Major, Large and Other Urban authorities.
- Significant Rural: as with the six-way classification, this category includes just those authorities with more than 26 and less than 50 percent of their population in rural settlements and large market towns.
- Predominantly Rural: combines Rural-50 and Rural-80 authorities.

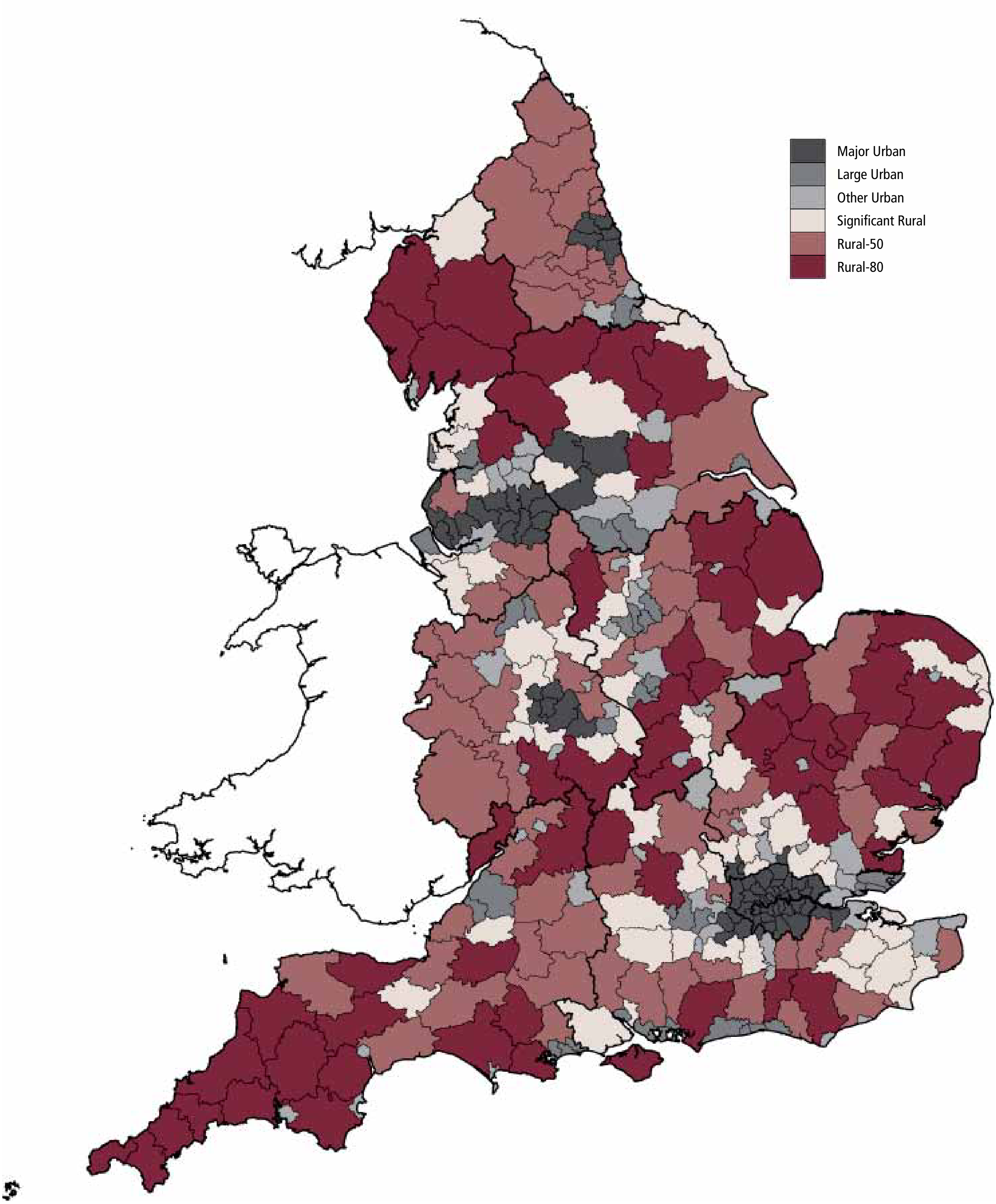
These classifications form the basis of the estimates of rural-urban productivity presented here. More detailed methodological information can be found at www.defra.gov.uk/rural/ruralstats/rural-definition.htm and notes on how to combine the categories of the classification are at www.defra.gov.uk/rural/ruralstats/rural-defn/rural-stats-guidance.pdf.

Figure 1
GVA per job by LA classification, 2001–2006



Source: Office for National Statistics

Map 1
Local Authority Rural/Urban Classification for England


Major Urban
Large Urban
Other Urban
Significant Rural
Rural-50
Rural-80

Source: Office for National Statistics

Rural and urban productivity: groups of regions

The nine Government Office Regions can be merged into three larger groups of regions: the Northern Way (the North West, North East and Yorkshire and the Humber), the Greater South East (London, South East and East of England) and Midlands and South West (East Midlands, West Midlands and the South West). Productivity can be indexed such that England=100, which gives an indication of how rural and urban economic performance compares inter-regionally (**Figure 2**). Estimates can also be indexed so that each regional grouping=100, which shows how rural and urban areas perform in the context of each regional group (**Figure 3**).

The latest estimates show that relative to the England average, the Greater South East has performed generally well with major urban districts, and unsurprisingly London in particular, having the highest relative productivity. Productivity in large urban areas is similar in the Greater South East and the Midlands and South West, but all the rural categories in the Greater South East outperform rural areas elsewhere. While across the Northern Way productivity is generally lower than elsewhere, interestingly its predominantly rural areas have higher productivity than those in the Midlands and South West.

When comparing productivity within each regional grouping (**Figure 3**), only rural-50 districts in the Northern Way, large urban in Midlands and Southwest and major urban districts and London in the Greater South East have productivity levels more than 5 per cent above their respective region's average productivity.

In the Northern Way, the rural-80, significant rural and major urban areas have slightly above regional average productivity levels. There is also no gap between productivity levels in these areas. In the Midlands and South West, the most extreme categories of the classification – major urban and rural-80 – have below-average productivity, with little variation in the other categories. In the Greater South East there is a significant productivity gap between major urban, London and other areas. While these two areas have above-average productivity, with the exception of significant rural areas all other categories in the Greater South East have productivity between ten and twenty percentage points below the regional average.

Three-way rural-urban classification

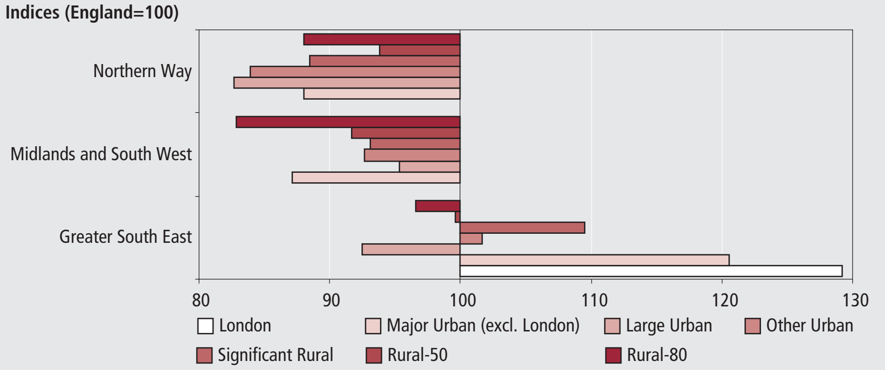
To look at each region individually, the categories of the LA classification can be collapsed to form three, rather than six, groups (**Figure 4**). Relative to the England average, again London has the highest productivity in England. With the exception of the northern regions, significant rural areas tend to have relatively high productivity within each region. In South East, East of England and East Midlands regions there is little difference between the predominantly rural and urban areas. However, urban and rural productivity differences vary within other regions; in the South West and West Midlands, predominantly urban areas have higher productivity than predominantly rural areas, but in the North West and Yorkshire and the Humber the opposite is true, with productivity increasing with rurality.

Three-year averages

To avoid the issue of erratic estimates for the full six-way LA classification for each

Figure 2

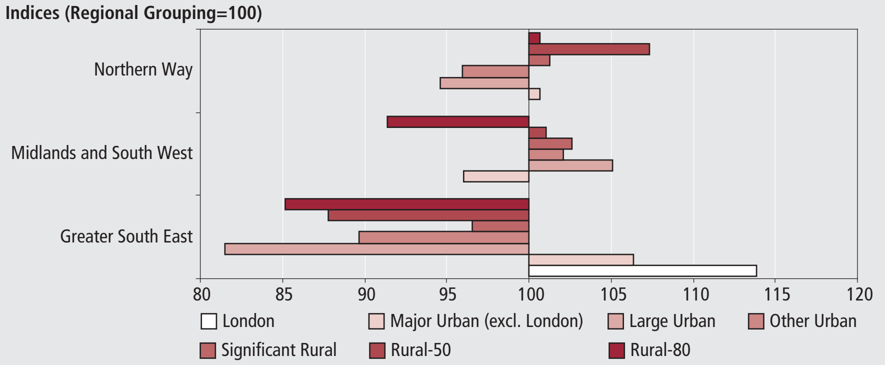
GVA per job by LA classification for regional grouping, 2006



Source: Office for National Statistics

Figure 3

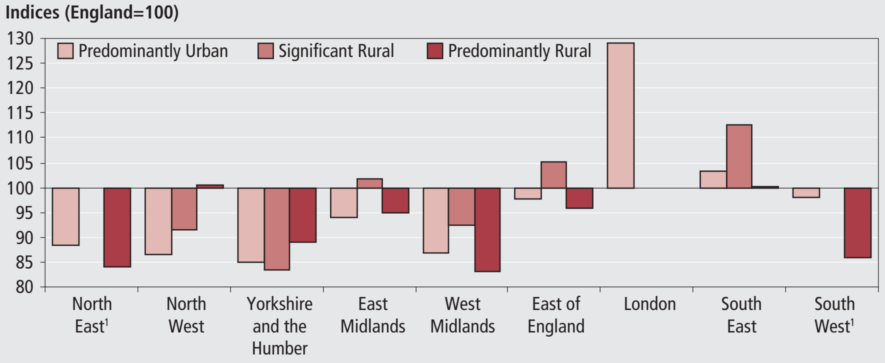
GVA per job by LA classification for regional grouping, 2006



Source: Office for National Statistics

Figure 4

GVA per job by three tier LA classification, 2006



Note:

Source: Office for National Statistics

1 There are too few data points to produce estimates for significant rural areas for the North East and South West.

region, an average of three years' GVA and workforce jobs data have been used to produce a full breakdown by region for each of the six categories of the LA classification. This produces more stable figures for estimates based on few data points and adds more detail to the 2006 estimates in Figure 4. This increased detail provides an interesting insight into intra-regional productivity and shows the change over time between 2001-3 and 2004-6.

Figure 5 shows differences in productivity from the England average by the six-point urban-rural classification for each region in 2004-6. It is evident that relative to England, major urban districts in the South East, East of England, and London have productivity between 15 and 30 percentage points above average. There is possibly a relationship between proximity and accessibility to London and high urban productivity. The major urban areas in the South East and the East of England are all adjoining London (see Map1). The other urban categories of the LA classification in these regions do not show such high levels of productivity. Elsewhere there is little differential for major urban areas with productivity around 10 percentage points less than the England average.

Large urban and other urban areas display below average productivity across most regions with the exception of other urban in the South East and large urban in the South West, which are around 5 percentage points above national average.

The relatively high productivity in predominantly rural areas in the North West (Figure 4) is driven by high productivity in rural-50 areas (Figure 5) which is 20 percentage points higher than any other category in the region and 10 percentage points above national average productivity. Elsewhere, the productivity levels of rural-50 and significant rural areas vary considerably across the regions. Rural-80 areas tend to have lower productivity than other types of areas in most regions (South West, South East, East Midlands, West Midlands and North West) although rural-80 areas in the East of England have higher relative productivity than all types of area in Yorkshire and the Humber and the West Midlands.

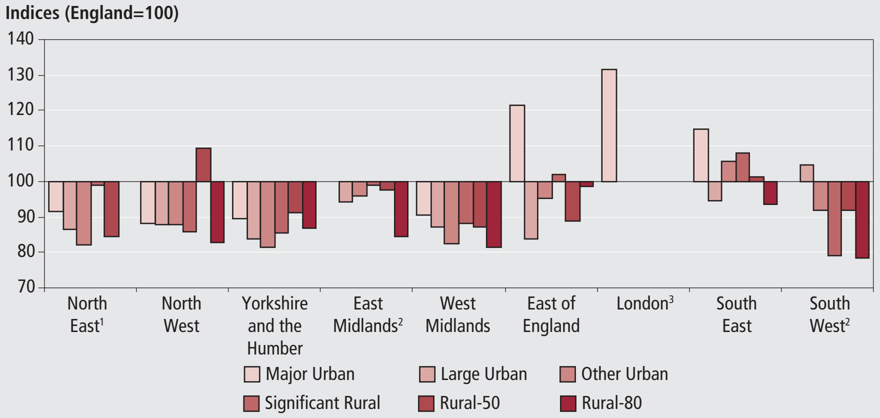
Change over time

For the purposes of this analysis changes greater than five percentage points are assumed to be significant. This follows a similar recommendation that the ONS uses when making international comparisons of productivity (see ONS Productivity Handbook). It should be noted that while these estimates are based on less erratic averages, they are still in some cases based on very few data points and should therefore be treated with caution.

Table 1 and **Figure 6** illustrate how productivity differed and changed relative to the England average in the urban and rural parts of the regions in 2001-3 and 2004-6. The largest change between 2001-3 and 2004-6 by far is in significant rural areas (up by 15 percentage points) in the North East. It should be noted, however, this refers to just one local authority and as mentioned above the estimates may not be robust. The data shows that all the other areas in this region were below the national average in 2001-3 and deteriorated further relative to the average in 2004-06. In the North West rural-50 areas have seen a large increase in productivity relative to England between 2001-3 and 2004-6, with an increase of around ten percentage points. In contrast, significant rural districts have shown a decrease of seven percentage points, while other areas have remained reasonably stable. With the exception of rural-80 areas, all other types of area in Yorkshire and the Humber – and most notably major urban areas – showed a decrease in productivity and diverged further from the national average between 2001-3 and 2004-6.

In the Midlands and South West there was little significant change between the two time periods, except a 5 percentage

Figure 5
GVA per job by LA classification, 2004–2006



Notes:

Source: Office for National Statistics

1 There are no rural-80 areas in the North East.
2 There are no major urban areas in East Midlands and the South West.
3 London is made up entirely of major urban authorities.

Table 1
GVA per job by region and LA classification¹, 2001–2003 and 2004–2006 averages

Indices (England=100)

	North East		North West		Yorkshire and the Humber		East Midlands		West Midlands		East of England		London		South East		South West	
	2001–3	2004–6	2001–3	2004–6	2001–3	2004–6	2001–3	2004–6	2001–3	2004–6	2001–3	2004–6	2001–3	2004–6	2001–3	2004–6	2001–3	2004–6
Major Urban	94.4	91.6	89.4	88.1	94.9	89.5	–	–	95.8	90.4	127.5	121.3	130.8	131.4	108.1	114.7	–	–
Large Urban	88.0	86.4	89.4	87.9	86.7	83.7	91.4	94.1	89.3	87.0	88.4	83.8	–	–	95.9	94.5	106.6	104.5
Other Urban	87.4	82.2	88.5	87.9	84.4	81.4	97.9	95.8	83.7	82.4	90.5	95.4	–	–	104.7	105.8	94.4	91.9
Significant Rural	83.1	98.8	93.0	85.9	86.8	85.4	96.2	98.8	88.8	88.1	95.1	102.0	–	–	105.2	107.9	81.1	79.0
Rural–50	87.9	84.4	98.9	109.5	92.3	91.1	97.3	97.5	85.6	87.1	97.0	89.0	–	–	97.7	101.2	89.4	91.8
Rural–80	–	–	82.4	82.7	84.0	87.0	86.9	84.6	80.8	81.4	94.7	98.8	–	–	93.9	93.4	74.1	78.3

Note:

Source: Office for National Statistics

1 There are no major urban authorities in the South West and and East Midlands and no rural-80 areas in the North East. London is made up entirely of major urban authorities.

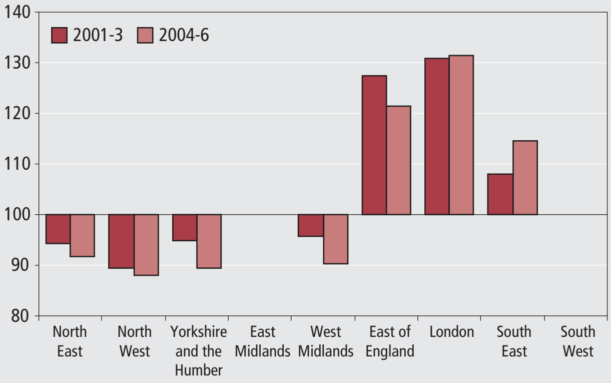
Figure 6

GVA per job by region and type of area, 2001–2003 and 2004–2006

Indices (England=100)

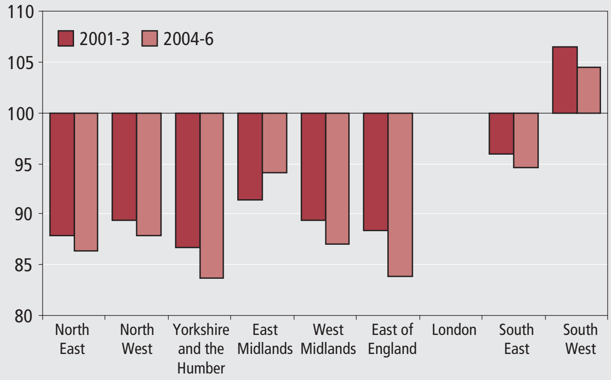
a)

Major urban[1]



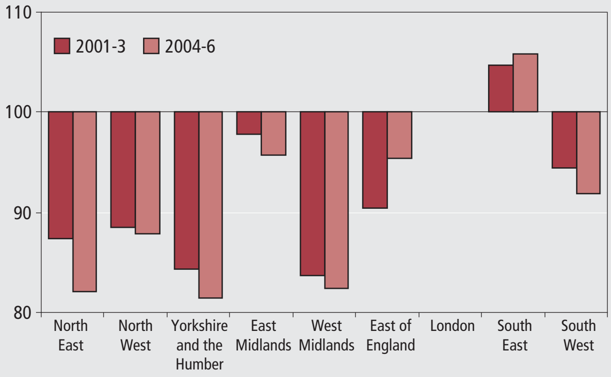
b)

Large urban



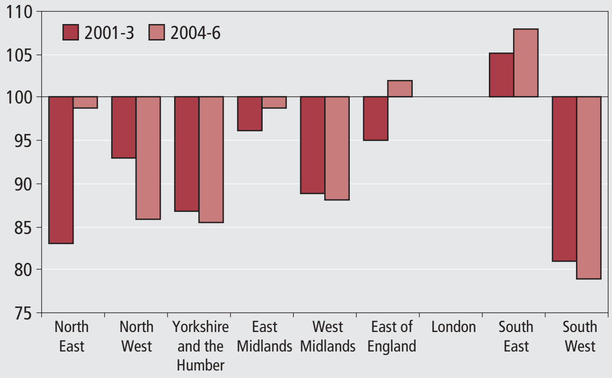
c)

Other urban



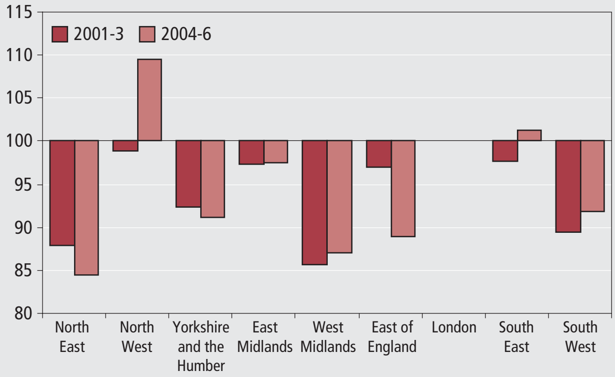
d)

Significant rural



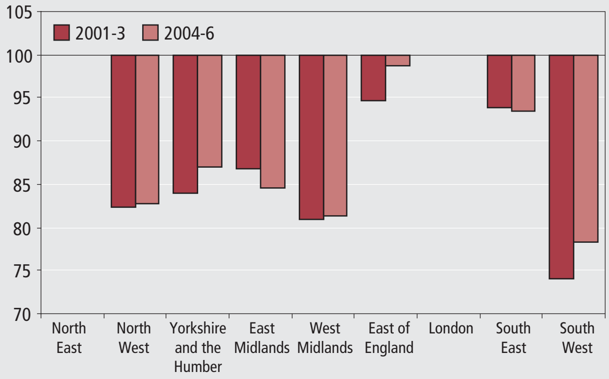
e)

Rural-50



f)

Rural-80[2]



Notes:

Source: Office for National Statistics

1 There are no major urban authorities in East Midlands and the South West. London is made up entirely of major urban authorities.
2 There are no rural-80 areas in the North East.

point drop in West Midland's major urban areas between 2001-3 and 2004-6.

The largest positive change in productivity in the Greater South East region between 2001-3 and 2004-6 was in major urban areas in the South East and in significant rural areas in the East of England, which both increased by almost seven percentage points and were above national average. The second most significant improvement in productivity occurred in the other urban areas in the East of England where productivity improved over this period such that it is converging with the national average. Significant drops in productivity also occurred in the East of England with large and major urban and rural-50 regions declining further relative to the national average; they experienced five, six and eight percentage point decreases respectively.

Overall, across England the productivity in urban areas generally decreased between 2001-3 and 2004-6 except in major urban areas in the South East and London, and other urban areas in the Greater South East region. Productivity in major urban areas in the Greater South East region remains substantially higher than the national average productivity in 2004-6, however, while they continued to improve further in London and the South East, the productivity in these areas fell in the East of England. Similarly, the higher than average productivity in large urban areas in the South West in 2001-3 declined slightly in 2004-6 while the above average productivity of other urban areas in the South East improved slightly over the same period.

Predominantly and significant rural areas, on the other hand showed mixed results. The productivity of rural-80 regions increased in every region except in East Midlands and South East, although it remained below national average productivity in every region in both periods. It should be noted that the productivity of rural-80 areas in the East of England appears to be catching up with the average productivity in England. In rural-50 areas, the North West and South East regions had the strongest performance; both increased during this time and were above the national average in 2004-6. The East of England had the biggest drop in rural-50 productivity during this period. The change in productivity in significant rural areas varied between a large increase in the North East[1] and a significant drop in the North West. Productivity in significant rural areas improved further during this time and was above the national average in the Greater South East in 2004-6.

Regional overview

Key figures on a regional basis indicate that:

- in 2007 London was the region with the highest productivity, in terms of GVA per hour worked, at 30 percentage points above the UK average. Northern Ireland had the lowest productivity in 2007, at 16 percentage points below the UK average.
- between 2007 and 2008, the statistical value of goods exports grew by approximately 13 per cent in the UK as a whole. The highest growth occurred in the South East and Wales, at 19 per cent, while Scotland had the lowest growth at 4 per cent.
- the South East had the highest employment rate in the first quarter of 2009, at 78 per cent; Northern Ireland had the lowest rate, at 67 per cent, compared with the UK employment rate of 74 per cent.
- In the first quarter of 2009, the unemployment rate was highest in the West Midlands (9.3 per cent) and lowest in the South East (5.3 per cent). The unemployment rate increased in all regions over the year to the first quarter of 2009.

Headline indicators

In order to gain an overview of the economic performance of UK regions, this article discusses a selection of economic indicators. Currently, the most widely used indicator of regional economic performance is Gross Value Added (GVA) per head. Policymakers frequently use GVA per head as a headline indicator of regional productivity and of regional incomes when comparing and benchmarking regions that differ in geographical size, economic output and population. However, as Dunnell (2009) has explained, productivity and income are very different concepts.

GVA per head is calculated as the simple ratio of the economic activity in a region divided by the number of people living in a region, while productivity is defined as the ratio of GVA divided by the labour input (jobs or hours worked) used to create it. GVA per head does not take account of:

- people commuting in and out of regions to work
- regional differences in the percentages of residents who are not directly contributing to GVA, such as young people or pensioners, and
- different labour market structures across regions, such as full- and part-time working arrangements

Therefore, GVA per hour worked or GVA per filled job are more appropriate productivity indicators. It needs to be noted that these indicators also depend on pricing thus productivity can fall/rise with decreasing/increasing prices. As regional price deflators do not yet exist, GVA estimates used in productivity figures are in nominal, not real terms, therefore it is not possible to isolate volume changes from price changes.

Similarly, Gross Disposable Household Income (GDHI) per head is a better measure of regional incomes than GVA per head. For example, due to commuting, residents might derive their incomes from economic activity in another region, which is not captured by GVA per head of their region. They may also have sources of income which are unrelated to current work, such as pensions and investment incomes.

Regional performance

GVA is a good measure of the economic output of a region. In December 2008, ONS published GVA estimates for 2007 and revised estimates for previous years. **Table 2** shows the regional economic performance in terms of workplace-based GVA and GVA per head and their respective average annual growth over the period 2000 to 2007. Although GVA per head is not a good indicator of regional productivity or income, it does take account of variations in geographical size among UK regions and therefore allows better comparisons than using GVA in total.

The estimates show that London had the highest GVA (£250 billion) and GVA per head (£33,100) in 2007, followed by the South East (£175 billion and £21,100, respectively). The North West generated the third highest GVA (£121 billion), but was seventh in terms of its GVA per head (£17,600). Northern Ireland and the North East had the lowest GVA in 2007, while Wales and the North East had the lowest GVA per head.

In terms of average annual percentage growth of GVA between 2000 and 2007, the East Midlands, London, Northern Ireland and the East of England had the highest GVA growth, while the West Midlands and Wales had the lowest. Average annual percentage growth of GVA per head was highest in Scotland, London, Northern Ireland and the North East, while the West Midlands, Yorkshire and The Humber and Wales grew slowest.

Labour productivity

To compare regions in terms of productivity, GVA per hour worked is the preferred indicator. At lower levels of geography, 'hours worked' estimates are not yet available and GVA per filled job should be used. These two measures of productivity divide GVA by the labour input, namely hours worked in all jobs or the number of jobs used to create it.

GVA per hour worked and GVA per filled job take account of commuting effects and different age profiles, and the former also accounts for variations in labour market structures, such as full- and part-time working arrangements and job share availability.

On 11 February 2009, productivity estimates for 2007 and revised estimates for previous years were published. These estimates make use of the GVA figures presented in Table 2, and updated 'filled jobs' and 'hours worked' estimates.

It should be noted that the productivity

Table 2
Workplace-based gross value added and gross value added per head at current basic prices: by NUTS1 region

	UK[1]	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East of England	London	South East	South West	Wales	Scotland	Northern Ireland
GVA (£ million)													
2000	842,500	28,300	84,700	61,400	52,600	68,400	72,300	169,000	123,300	64,200	31,700	67,200	19,500
2007[2]	1,216,900	40,300	120,500	87,200	78,100	92,200	107,000	250,100	175,300	94,200	44,300	98,900	28,800
Average annual percentage growth 2000–2007[2]	*5.4*	*5.2*	*5.2*	*5.1*	*5.8*	*4.4*	*5.8*	*5.8*	*5.2*	*5.6*	*4.9*	*5.7*	*5.7*
GVA per head (£)													
2000	14,300	11,100	12,500	12,400	12,600	13,000	13,500	23,400	15,400	13,100	10,900	13,300	11,600
2007[2]	20,000	15,700	17,600	16,900	17,700	17,100	18,900	33,100	21,100	18,200	14,900	19,200	16,400
Average annual percentage growth 2000–2007[2]	*4.9*	*5.1*	*5.0*	*4.5*	*5.0*	*4.0*	*4.9*	*5.1*	*4.6*	*4.8*	*4.6*	*5.4*	*5.1*

Notes:

Source: Regional Accounts, Office for National Statistics

1 UK less Extra-regio and statistical discrepancy.
2 Provisional.

figures presented here use unsmoothed GVA as their output measure as opposed to headline GVA, which is calculated as a five-year moving average. The unsmoothed measure is used to ensure consistency with the labour input data (Dey-Chowdhury et al 2008), but raises some concerns about increased volatility of productivity estimates compared to those based on headline GVA. The question of whether to smooth productivity figures after dividing unsmoothed GVA by labour data, and presenting these as headline estimates, is one which will be addressed by ONS in the coming months.

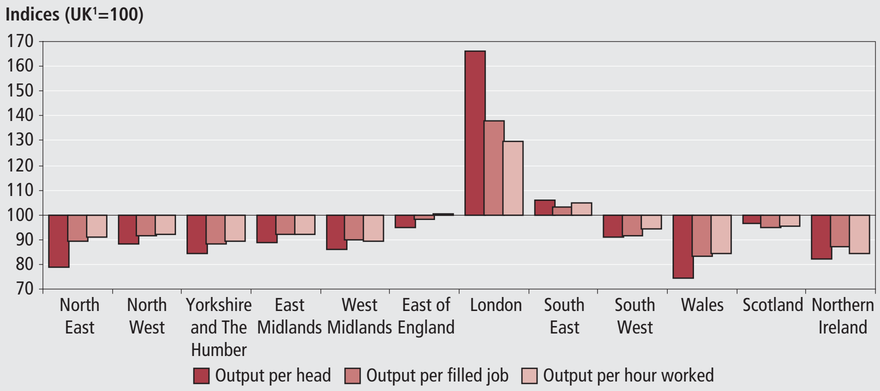
Figure 7 shows that in 2007 GVA per filled job and GVA per hour worked exhibited smaller differences from the UK average than the catch-all indicator GVA per head. This is mainly due to commuting patterns. London, for example, has a very high GVA per head, mainly due to incoming workers generating a high GVA, which is then divided by a much lower resident population. Productivity indicators, on the other hand, divide regional GVA by the jobs or hours worked used to create it.

Figure 8 shows the regional GVA per hour worked productivity index on a time series basis from 2001 to 2007. In 2007, London, the South East and the East of England were the only three regions with a productivity performance above the UK average. The East of England saw the strongest improvement in its relative performance from 2001 to 2007 from below the UK average to above average in 2007. London also improved its relative performance, therefore diverging further from the UK average. Relative productivity in the South East remained roughly constant. Northern Ireland and Wales had the lowest relative productivity in 2007. The strongest divergence from the UK average productivity between 2001 and 2007 was experienced in the North East, Wales and Yorkshire and The Humber. This implies that these regions' productivity grew by less than the UK average, therefore widening the productivity gap between regions.

The previous section discussed the economic activity and productivity in the regions. This section discusses regional incomes, which gives an indication of the welfare of residents living in a region.

Gross disposable household income

Figure 7
Comparison of regional economic indicators: by NUTS1 region, 2007

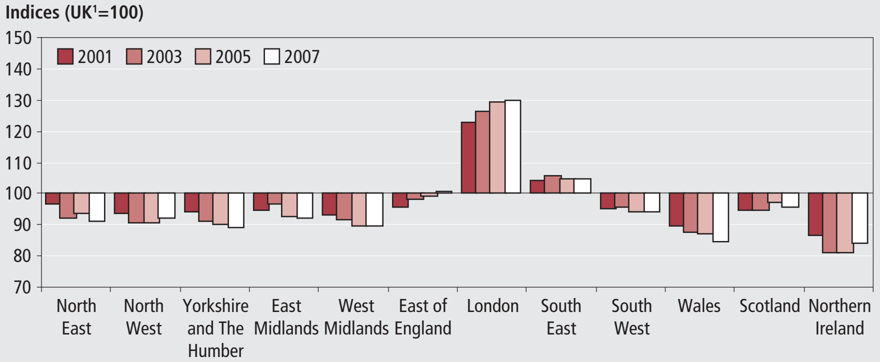


Note:

Source: Office for National Statistics

1 UK less Extra-regio statistical discrepancy.

Figure 8
GVA per hour worked: by NUTS1 region



Note:

Source: Office for National Statistics

1 UK less Extra-regio statistical discrepancy.

(GDHI) represents the amount of money available to households after taxes, National Insurance and pension contributions, property costs and other interest payments have been deducted. The estimates of GDHI, however, are at current basic prices and so do not take inflation effects or regional price differences into account.

In order to make reliable comparisons of regional income levels, the analysis needs to take account of relative sizes of regions. Therefore, GDHI per head, which is a residence-based measure, is used as an indicator of the welfare of people living in the region.

The May 2009 edition of this article discussed the latest data on GDHI in detail, therefore this section presents a brief overview of those analysis. **Figure 9** presents indices of GDHI per head for 2001, 2003, 2005 and 2007, showing movements in regional household income relative to the UK average over time. It is evident that the GDHI per head is above the UK average only in the regions of the 'Greater South East'. Of these regions, London has consistently had the highest GDHI per head since 2001 and is diverging from the national average. The South East and East of England, on the other hand, are getting closer to the national average as they experienced the lowest growth in household income compared to other regions between 2001 and 2007. Similarly, improvements against the national average are evident in most regions with lower household income, particularly the North East and the devolved administrations. This implies greater parity across regions in terms of household income.

Comparing these outcomes with the regional productivity performance shown in Figure 8 shows that, unlike income per head, productivity has been diverging from the UK average in most regions. Moreover, some regions have been performing close to the average in terms of productivity, while their income per head shows stronger divergences from average. The North East, for example, has had a close to average but declining productivity performance since 2001 and at the same time the lowest, but improving, income per head. One reason for this might be the region's low employment and high unemployment rates (see labour market section).

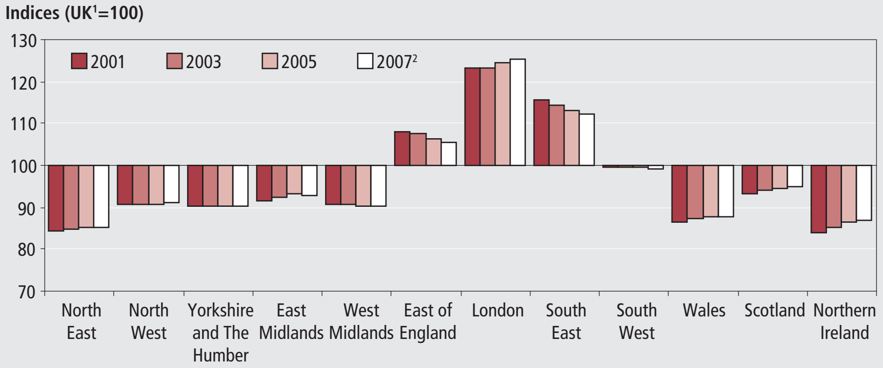
Gross median weekly earnings represent another indicator of regional welfare. **Figure 10** shows the gross median weekly pay for all full-time employees, split into female and male full-time employees, in each region in April 2008.

As in previous years, London was the region with the highest gross median weekly pay, at £612.70, followed by the South East, at £499.80. These were the only regions above the UK average of £478.60. Northern Ireland (£417.60), the North East (£420.60) and Wales (£421.00) recorded the lowest earnings in April 2008.

Females across the UK regions received lower pay than males. In Northern Ireland, the discrepancy was smallest, while it was largest in London and the South East. The weekly pay for male full-time employees was above the UK average for all full-time employees in nine of the 12 NUTS1 regions, while the weekly pay of female full-time employees was only above the UK average in London. However, in terms of annual average percentage growth between 2004 and 2008, pay for females outperformed that for males. The only regions where pay for females did not grow more than male pay over this period were Yorkshire and the Humber, South East and Scotland. The difference in growth rates, however, was marginal. The first two regions had only a 0.1 percentage point difference in growth rates between male and female pay and Scotland had a 0.2 percentage point difference. It is interesting to note that Scotland had the highest annual average growth rate, both for males and females, among the regions over the period considered above.

Figure 9

Headline gross disposable household income per head: by NUTS1 region



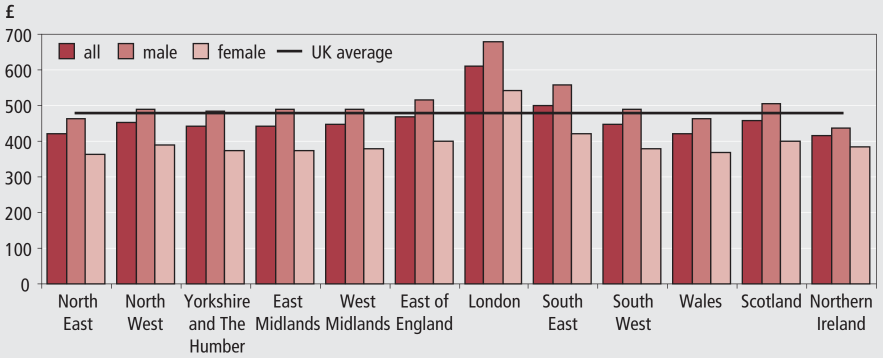
Notes:

1 UK less Extra-regio.
2 Provisional.

Source: Office for National Statistics

Figure 10

Gross median weekly pay of full-time employees: by NUTS1 region, April 2008



Source: Annual Survey of Hours and Earnings, Office for National Statistics

Drivers of productivity

HM Treasury and BERR have identified five key drivers of productivity – investment, innovation, enterprise, competition and skills – that can help explain differences in productivity across regions.

Alongside these five key drivers, other factors, such as connectivity, industrial structure and region-specific assets can have a strong influence on regional productivity performance.

This article uses expenditure on Research and Development (R&D) by businesses as a measure of innovation; the numbers of business births and deaths and survival rates as an indicator for enterprise; UK regional trade in goods serves as a measure of competition; and the qualifications of the current working-age population and those of young people, who represent the future workforce, to provide an indicator for the skills driver.

Investment

Investment in physical capital, such as machinery, equipment and buildings, enables workers to produce more and higher quality output. Therefore, investment can have a significant positive impact on productivity. Due to quality concerns regarding the regional allocations of investment, which is recorded at the level of the enterprise and not at the local level, this article does not currently include data on investment.

Nevertheless, as Dunnell (2009) has pointed out, inflows of foreign direct investment (FDI) projects and estimated numbers of associated jobs by region can serve as a narrow indicator of investment. However, FDI does not cover all investment in a region and there is no requirement to notify UK Trade & Investment when undertaking FDI.

Innovation

Innovation is a necessary, although not sufficient, condition for economic success and is therefore recognised as an important driver of productivity. Innovation comprises, among others, the development of new technologies that increase efficiency and the introduction of new, more valuable goods and services. It also includes intangibles such as new methods of working and improvements to services.

R&D represents one of the determinants to the innovation process and is defined by the Organisation for Economic Co-operation and Development (OECD) in its Frascati Manual, which proposes a standard practice for surveys on R&D, as 'creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to create new applications'. The OECD definition of R&D covers the following:

- basic research: experimental and theoretical work to obtain new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view
- applied research: work undertaken to acquire new knowledge, which is directed primarily towards a specific practical aim, and
- experimental development: systematic work, drawing on existing knowledge, which is directed at producing new materials, products or devices, installing new processes, systems and services, or at improving substantially those already produced or installed

The OECD definition excludes education, training and any other related scientific, technological, industrial, administrative or supporting activities. However, innovation depends on a wider set of inputs than R&D, including skills training, design, software and organisational investment by firms. HM Treasury Economics Working Paper No. 1 quantifies these broader knowledge economy inputs at UK level; more work is needed before these factors can be measured effectively at regional level.

Figure 11 presents statistics on Business Expenditure on Research and Development (BERD), which are consistent with internationally agreed standards. Figures for 2007 published on 30 January 2009 show business expenditure on R&D as a percentage of workplace-based GVA in 2001, 2003, 2005 and 2007. This is a measure commonly used in regional comparisons as it takes account of the size of regional economies. The figure shows that, since 2001, the East of England has been the region with by far the highest percentage of R&D expenditure in terms of GVA, with 4.1 per cent in 2007. The South East had the second highest percentage (2.0 per cent), which has, however, been declining since 2001.

R&D expenditure as a share of regional GVA was 1.8 per cent in the North West and 1.3 per cent in the East Midlands and the South West. London, Yorkshire and The Humber and the three Devolved Administrations of Wales, Scotland and Northern Ireland had the lowest shares in 2007, at around 0.5 per cent each. London's very low share of expenditure on R&D does not necessarily suggest low levels of innovation but may due to it having a large concentration of service industries, which may be less R&D intensive (within the OECD definition) if, for example, they rely heavily on human capital. It may also reflect the choice business make over locating their R&D.

Approximately three quarters of the R&D expenditure in the UK was made in the manufacturing sector in 2007. **Figure 12** shows that in most regions except in the Greater South East and West Midlands the share of the R&D expenditure on manufacturing was over 80 per cent of their respective expenditure. East of England accounted for 27 per cent of the total R&D expenditure in the UK in 2007 and had the highest level of R&D expenditure on both the manufacturing and services. This may suggest that some London R&D occurring in the surrounding regions.

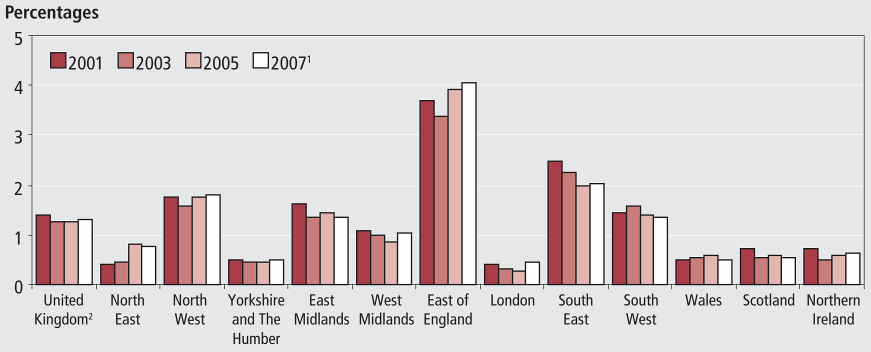
Enterprise

Enterprise is another driver of productivity. It is defined as the seizing of new business opportunities by both start-ups and existing firms. New enterprises can bring innovative processes and technologies to the market, forcing existing ones to improve their productivity in order to remain competitive.

The February 2009 edition of this article focused on business demography in UK regions, using the newly published ONS series of enterprise births and deaths, which includes enterprises registered for

Figure 11

Business expenditure on R&D as a percentage of workplace-based GVA: by NUTS1 region



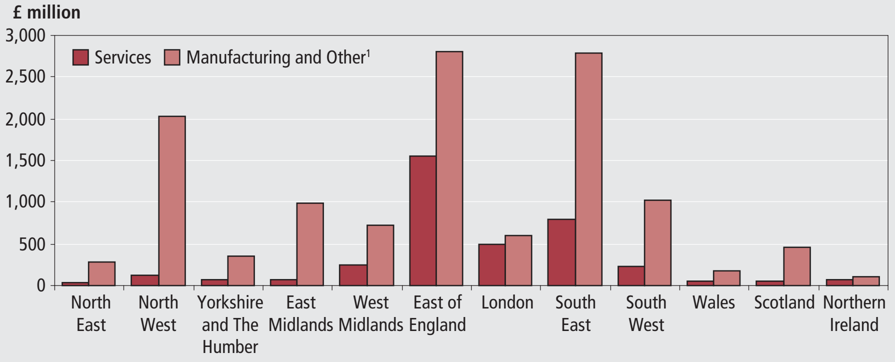
Notes:

1 Provisional.
2 UK less Extra-regio and statistical discrepancy.

Source: Regional Accounts and Business Expenditure on Research & Development, Office for National Statistics

Figure 12

Business expenditure on R&D by NUTS1 region, 2007: broad industry groups



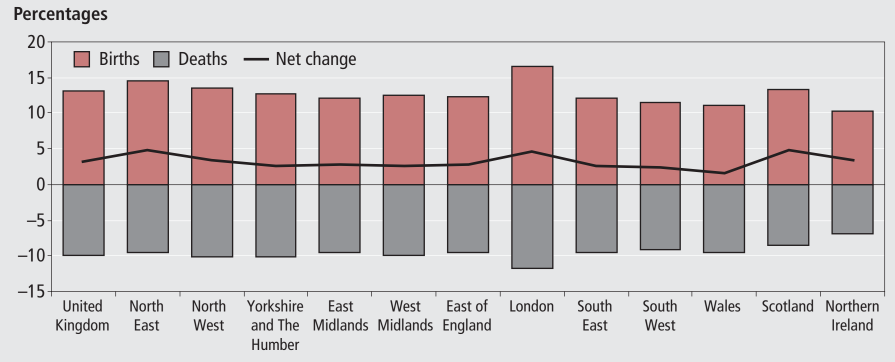
Note:

Source: Office for National Statistics

1 Other includes agriculture, hunting and forestry, fishing, extractive industries, electricity, gas and water supply and construction. The total expenditure on other industries across the UK was less than 2 per cent.

Figure 13

Enterprise births, deaths[1] and net change as percentages of enterprise stock: by NUTS1 region, 2007



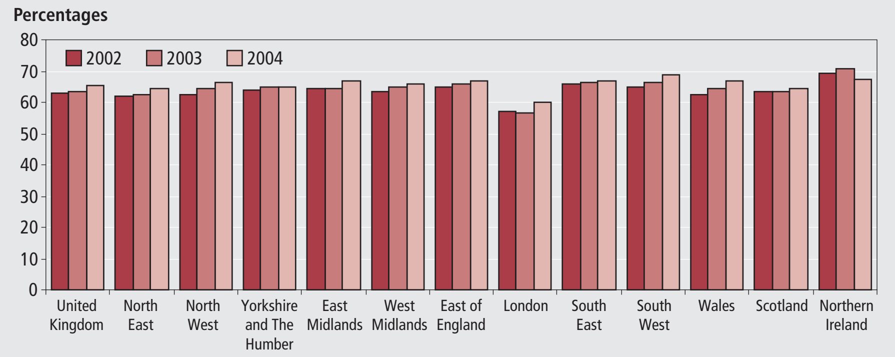
Note:

Source: Business Demography, Office for National Statistics

1 Provisional.

Figure 14

Percentage of enterprises surviving three years: by year of birth and NUTS1 region



Source: Business Demography, Office for National Statistics

VAT *and* also those registered for pay-as-you-earn (PAYE). It needs to be noted that enterprise statistics relate to the place of registration of the enterprise, even though the enterprise may consist of more than one local unit, possibly in different regions.

Figure 13 shows the number of births and deaths of enterprises as a proportion of the active enterprise stock in 2007. The difference between the two represents the net change, which is calculated as a proportion of total stock. The figure shows that the North East and Scotland had the highest rate of net change, at 4.8 per cent, closely followed by London, at 4.7 per cent. Wales and the South West had the lowest rates, at 1.6 and 2.3 per cent, respectively. These rates were mainly driven by small enterprises with less than 5 employees which is approximately 80 percent of the total enterprise stock. Among the 5 per cent of the enterprises that have more than 20 employees, however, the net change was negative in every region. In the category of enterprises with employment size 10-19 which comprises 6 percent of the total stock, the net change was also negative in every region with the exception of Scotland.

In 2007, across regions, the relatively modest net changes were the result of much larger proportions of enterprises joining and leaving the stock. These proportions were largest in London, followed by the North East. A relatively large proportion of enterprises joining and leaving the stock can be seen as desirable, as new enterprises entering the market are considered to bring innovative processes and technologies that drive up productivity and force unproductive enterprises to leave the market.

As well as analysing births and deaths of enterprises, it is useful to look at how long these enterprises survive. The Business Demography series contains data showing the number of years survived by enterprises born in the years 2002 to 2006.

Figure 14 shows the proportion of enterprises born in 2002, 2003 and 2004 that survived for at least three years each. It shows that, overall in the UK, survival rates increased over the period, rising from 63 per cent of enterprises born in 2002 to 65 per cent of those born in 2004.

Patterns were similar across regions, with all but Northern Ireland having higher survival rates for enterprises born in 2004 than in 2002. Northern Ireland saw a fall from 69 to 67 per cent; however, this was still higher than the UK average of 65 per cent. Among enterprises born in 2004, those in the South West had the highest three year survival rate, at 69 per cent.

London stands out as the region with the lowest rate, at 60 per cent. Figure 13 has shown that London had the highest percentage of births and deaths of enterprises; therefore, it is not surprising that survival rates were relatively low. They could be an indication of London's ability to exploit short-term business opportunities. At the same time, it may suggest that many of the new enterprises born will not provide long-term growth and employment.

Competition

Vigorous competition enhances productivity by creating incentives to innovate and ensure that resources are allocated to the most efficient firms. It also forces existing firms to organise work more effectively through imitations of organisational structures and technology. One indicator of competition is the volume of exports. Even though exports do not represent competition within a region, they still provide an indication of how international regions are in their outlook, and how able they are to face global competition.

HM Revenue & Customs (HMRC) publishes statistics on regional trade in goods to the EU and non-EU destinations by statistical value. Trade in goods by definition excludes trade in intangibles and services. The statistical value of export trade is calculated as the value of the goods plus the cost of movement to the country's border.

Table 3 presents the latest quarterly estimates up to 2009 Q1 and includes full-year figures for 2007 and 2008. The total value of UK goods exports to all destinations increased by approximately 13 per cent between 2007 and 2008. South East and Wales delivered the highest growth rate in this period, rising by 19 per cent. The North East, at 18 per cent recorded the second highest growth rate in goods exports. At the other end of the scale, Scotland, at 4 per cent had the lowest growth rate. East Midlands had the second lowest growth rate (5 per cent).

As the European Union (EU) is the main export destination for UK goods, the table separates exports to EU and non-EU destinations. In the UK as a whole, the value of exports to the EU grew by 11 per cent in 2008. With the exception of East Midlands (down by 2 per cent) and Scotland (down by 1 per cent), all the regions recorded increases in the value of goods exports to the EU. London and the North East reported the highest growth, at 15 per cent.

The value of the UK exports to the rest of the world grew by 16 per cent in 2008, with South East leading the way, up 31 per cent in value. With 21 percent increase in the value of exports to non-EU countries, North East had the second highest growth rate in England.

In terms of the latest estimates (2009 Q1), the value of goods exports to all destinations fell in every region except North West (up by 2 per cent) compared to the same quarter last year. West Midlands (down by 29 per cent) recorded the highest fall in total exports, followed by North East (down by 18 per cent) and Yorkshire and the Humber (down by 17 per cent). While all the regions except London had a decrease in the value of exports to the EU, the fall in the value of non-EU exports masks wide regional variation. Half of the regions experienced a decline compared with the same quarter last year, while export values grew in the other half, with individual performances ranging from a contraction of 34 per cent in West Midlands to an increase of 21 per cent in Wales.

The figures also show a continuing downward trend in the value of total goods exports beginning in the third quarter of 2008. This may partly reflect the inherent volatility of quarterly trade data, although such declines appear to be consistent with intensifying global financial and economic crises in the second half of 2008. This downward trend is also evident for the EU exports for all the regions. Again, falling export values are most likely to be the product of the ongoing recession. The number of exporters in the UK for 2009 Q1 compared with the same quarter last year, decreased by 0.4 per cent, with London having the largest decrease of 2.5 per cent[2]

Figure 15 shows the value of exports of goods as a percentage of workplace-based regional GVA in 2000 and 2007, which takes account of the differing sizes of regional economies. In 2007, exports from the North East accounted for the highest percentage of GVA (24 per cent), 6 percentage points above the UK average. The region where exports accounted for the smallest percentage of GVA in 2007 was London, at 9 per cent. It needs to be noted that these figures show exports of goods as a percentage of headline GVA which also includes services and therefore is likely to underestimate the performance of some regions with a large share of services industries such as London.

In terms of this indicator's change over time, in all regions, except Yorkshire and The Humber, exports accounted for a smaller percentage of GVA in 2007 than in 2000. Scotland experienced the most significant drop from 2000 to 2007, with exports in 2007 accounting for 16 percentage points less in terms of GVA than in 2000. Most other regions also experienced a decline from 2000 to 2004, with some recovery in 2005 and 2006. In 2007, most regions saw their exports as a percentage of GVA fall.

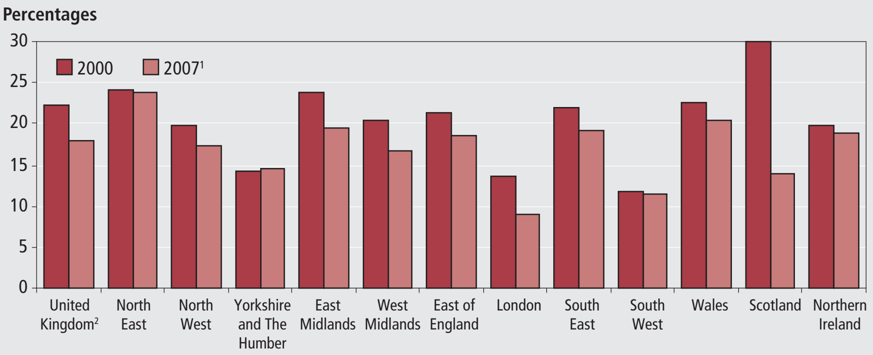
Skills

The skills of workers influence productivity as they define the capabilities that the labour force can contribute to the production process. The concept of skills includes attributes of the workforce, such as 'softer' or interpersonal skills, which are difficult to measure or to compare in different situations or over time. Therefore, qualifications are often used as proxy indicators. By examining the qualifications, such as degree or equivalent, of the current workforce as well as those of young people, who represent the future capabilities of the labour market, a view of how skills are changing over time and their potential impact on productivity can be analysed. However, as characteristics of local economies dictate which labour skills are required, comparability between regions might be difficult. An alternative approach is to compare the percentage of the working-age population that has no recognised qualifications.

Figure 16 shows the proportion of the working-age population that has no

Figure 15

Value of total export goods as a percentage of workplace-based GVA: by NUTS1 region



Notes:

1 Provisional.
2 UK less Extra-regio and statistical discrepancy.

Source: HM Revenue & Customs, Regional Trade Statistics and Office for National Statistics

Table 3
UK regional trade in goods – statistical value of exports:[1] by NUTS1 region

£ million

Exports	United Kingdom	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East of England	London	South East	South West	Wales	Scotland	Northern Ireland
EU Exports													
2007 Q1	31,748	1,303	2,794	1,765	2,296	2,267	3,164	2,244	4,598	1,725	1,440	1,569	847
2007 Q2	31,265	1,287	2,952	1,696	2,036	2,325	2,998	2,066	4,609	1,581	1,415	1,636	850
2007 Q3	30,663	1,331	2,773	1,649	2,038	2,033	2,914	2,183	4,490	1,633	1,313	1,378	830
2007 Q4	32,952	1,557	2,854	1,725	2,058	2,314	3,196	2,152	4,891	1,725	1,331	1,527	855
Total 2007	126,628	5,479	11,373	6,836	8,428	8,938	12,272	8,645	18,587	6,664	5,498	6,110	3,382
2008 Q1[2]	34,996	1,634	3,181	1,745	2,204	2,406	3,313	2,303	4,930	1,815	1,503	1,493	880
2008 Q2[2]	37,174	1,629	3,315	1,884	2,123	2,509	3,585	2,424	5,336	1,931	1,656	1,493	970
2008 Q3[2]	35,612	1,617	3,173	1,911	2,011	2,136	3,214	2,847	5,085	1,699	1,680	1,537	874
2008 Q4[2]	32,595	1,442	2,837	1,821	1,900	1,994	2,903	2,369	5,120	1,557	1,341	1,521	835
Total 2008	140,377	6,323	12,506	7,362	8,238	9,045	13,015	9,944	20,471	7,002	6,179	6,044	3,559
2009 Q1[2]	30,495	1,330	3,057	1,588	1,812	1,787	2,777	2,353	4,813	1,624	1,192	1,322	780
Non-EU exports													
2007 Q1	21,184	807	2,261	1,247	1,622	1,479	1,775	3,478	3,112	917	839	1,683	469
2007 Q2	23,968	1,009	2,484	1,564	1,655	1,607	2,004	3,448	4,003	992	957	1,991	521
2007 Q3	23,008	1,021	2,417	1,402	1,685	1,595	1,843	3,402	3,667	1,100	851	2,012	520
2007 Q4	25,138	1,261	2,462	1,762	1,784	1,801	2,001	3,595	4,125	1,155	912	1,894	578
Total 2007	93,297	4,098	9,624	5,975	6,746	6,482	7,623	13,922	14,906	4,164	3,559	7,580	2,088
2008 Q1[2]	23,867	1,164	2,452	1,641	1,743	1,767	2,167	3,195	3,892	1,053	869	1,833	555
2008 Q2[2]	27,803	1,335	2,862	1,712	1,941	1,989	2,509	3,661	4,993	1,178	1,074	2,066	639
2008 Q3[2]	28,265	1,357	2,936	1,707	1,914	2,142	2,267	3,577	5,173	1,373	1,312	2,103	623
2008 Q4[2]	28,176	1,112	2,806	1,522	2,089	1,900	2,252	3,749	5,434	1,306	1,298	2,224	806
Total 2008	108,111	4,969	11,056	6,582	7,686	7,798	9,195	14,181	19,492	4,910	4,553	8,226	2,622
2009 Q1[2]	22,045	963	2,665	1,219	1,891	1,161	1,834	2,540	3,942	1,087	1,049	1,917	475
Total Exports													
2007 Q1	52,932	2,110	5,055	3,012	3,917	3,746	4,939	5,722	7,710	2,642	2,279	3,252	1,316
2007 Q2	55,233	2,297	5,436	3,260	3,691	3,932	5,003	5,514	8,612	2,572	2,371	3,627	1,371
2007 Q3	53,671	2,351	5,190	3,051	3,723	3,628	4,757	5,585	8,157	2,734	2,164	3,391	1,350
2007 Q4	58,090	2,819	5,316	3,488	3,842	4,114	5,197	5,747	9,015	2,879	2,242	3,421	1,433
2007	**219,926**	**9,577**	**20,997**	**12,811**	**15,174**	**15,421**	**19,895**	**22,567**	**33,494**	**10,827**	**9,056**	**13,691**	**5,470**
2008 Q1[2]	58,863	2,798	5,633	3,386	3,947	4,173	5,480	5,498	8,823	2,868	2,372	3,326	1,435
2008 Q2[2]	64,977	2,964	6,177	3,596	4,063	4,498	6,094	6,085	10,329	3,108	2,730	3,559	1,609
2008 Q3[2]	63,878	2,974	6,109	3,619	3,925	4,278	5,481	6,424	10,257	3,073	2,992	3,640	1,497
2008 Q4[2]	60,771	2,555	5,644	3,343	3,989	3,894	5,155	6,118	10,554	2,863	2,639	3,744	1,641
2008[2]	**248,489**	**11,291**	**23,562**	**13,944**	**15,924**	**16,843**	**22,210**	**24,124**	**39,963**	**11,911**	**10,732**	**14,270**	**6,182**
2009 Q1[2]	52,540	2,293	5,722	2,807	3,702	2,947	4,611	4,894	8,754	2,710	2,241	3,239	1,255

Notes:

Source: UK Regional Trade in Goods Statistics, HM Revenue & Customs

1 Components may not sum to totals as a result of rounding
2 Provisional

qualifications in each region, alongside the UK average, for 2008 Q4. Northern Ireland had the highest proportion of the population with no qualifications (10.4 percentage points above the UK average), whereas the South East and the South West had the lowest proportions, 3.4 and 3.2 percentage points below the UK average, respectively.

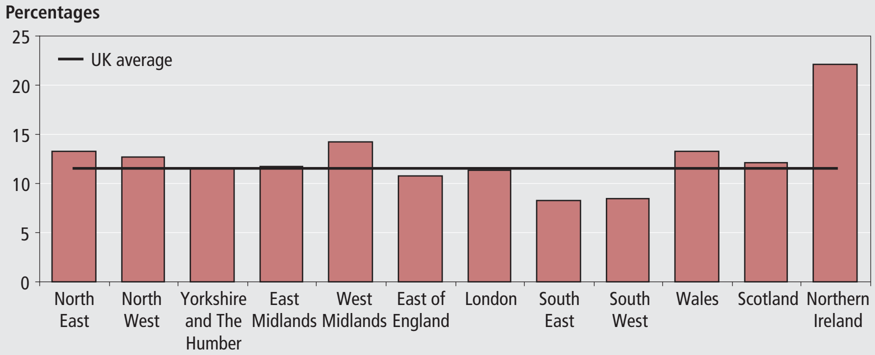
Above average proportions of working-age people without a qualification do not necessarily mean that regions have the most unqualified workforce. Due to differing regional skill requirements, people with recognised qualifications might migrate into other regions, where demand for their qualifications is high, while those without any recognised qualifications might migrate out of these other regions. Also, if employers have a strong demand for lower skills and a good supply of appropriate workers, a low skill equilibrium is created in a region.

Regional Skills Partnerships (RSPs) are groups brought together by Regional Development Agencies in each region of England in response to the National Skills Strategy. RSPs aim to strengthen regional structures to make skills provision more relevant to the needs of employers and individuals, covering private, public and voluntary sectors of the economy. They also aim to give regions the flexibility to tackle their own individual challenges and priorities.

Table 4 presents the RSP core indicators, which help to monitor the health of regional and local labour markets and progress towards national skills targets such as those documented in the Leitch Report. These core indicators will be supported by local, more specific, indicators identified by individual RSPs. The choice of '19 to state pension age' for some of the indicators in Table 5 has been influenced by: the

Figure 16

Working-age population with no qualifications:[1] by NUTS1 region, 2008 Q4

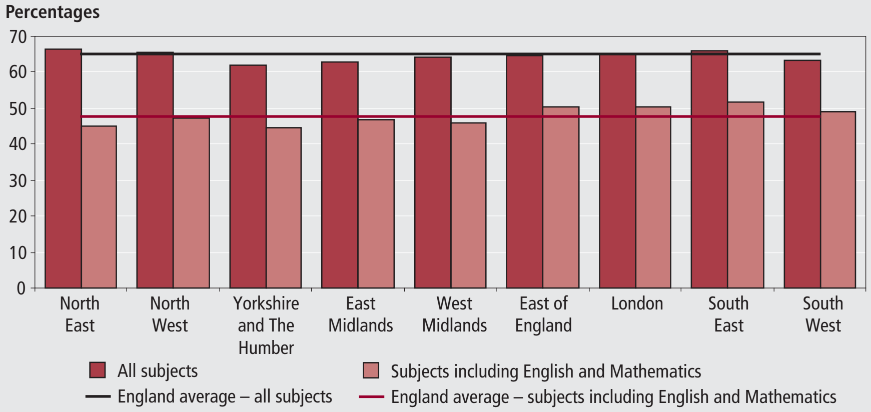


Note: *Source: Labour Force Survey, Office for National Statistics*

1 For summary of qualifications and equivalents see www.statistics.gov.uk/statbase/Product.asp?vlnk=836.

Figure 17

Pupils achieving five or more grades A* to C at GCSE level or equivalent in (i) all subjects and (ii) subjects including English and Mathematics: by NUTS1 region, 2007/08[1]



Note: *Source: Department for Children, Schools and Families*

1 Revised data, includes attempts and achievements by these pupils in previous academic years.
2 The England average includes all schools, not only local authority maintained schools.

increased emphasis on education and training after the age of 16; the plan to raise the standard school leaving age to 18; and alignment with indicators specified in the Local Area Agreements.

In order to assess the future capabilities of the labour force, the percentage of pupils achieving five or more grades A* to C at GCSE level or equivalent in each English region can be used as an indicator[3]. Recent focus on literacy and numeracy has led to a new measure being published, of five or more GCSEs grade A* to C in subjects including English and Mathematics.

Figure 17 shows the percentage of pupils achieving at least five grades A* to C at GCSE level or equivalent in any subjects, and in subjects including English and Mathematics.

In 2007/2008, the England average for pupils in all schools achieving five or more grades A* to C in any subjects was 65 per cent, while it was down to 48 per cent if the subjects included English and Mathematics. Across all English regions, the percentage of pupils achieving at least five grades A* to C in subjects including English and Mathematics was substantially lower compared with achieving the same in any subjects. Also, regional differences were more pronounced when subjects included English and Mathematics. In the North East the percentage of pupils achieving five or more grades A* to C in any subjects was slightly above the England average, but the percentage dropped 2.7 points below the average when the subjects included English and Mathematics. The opposite held for the South West, London and the East of England, where the proportion of pupils achieving at least five grades A* to C increased above the England average if the subjects included English and Mathematics while it dropped slightly below national average for achieving five or more grades A* to C in any subject. South East was the only region which performed above national average on both measures.

The labour market

Table 5 shows the seasonally adjusted employment rate, the number of people of working age in employment, expressed as a proportion of the population, from the Labour Force Survey (LFS).

In quarter one (January to March) of 2009, the UK employment rate was 73.6 per cent, down 1.3 percentage points from a year ago and down 0.5 percentage points from quarter four (October to December) of 2008. Regional rates varied from 78.2 per cent in the South East to 66.9 per cent in Northern Ireland.

Eleven of the twelve UK regions experienced annual falls in the employment rate. The West Midlands had an annual fall of 2.9 percentage points while Northern Ireland had an annual fall of 2.8 percentage points. The employment rate in the remaining region, the East of England, was unchanged.

Table 6 shows the unemployment rate (according to the internationally-consistent International Labour Organisation definition) for persons aged 16 and over from the LFS. The UK rate in the first quarter of 2009 was 7.1 per cent, up 1.9 percentage points from a year ago and up 0.8 percentage points on the last quarter. Regionally, the rates ranged from 9.3 per cent in the West Midlands to 5.3 per cent in the South East.

Over the year the unemployment rate rose in all regions. The West Midlands had the largest increase (up by 3.1 percentage points), followed by Yorkshire and The Humber (up by 3.0 percentage points). The smallest increase was in Scotland and London both at 1.3 percentage points.

Table 7 shows economic inactivity rates for persons of working age from the LFS. The UK rate in the first quarter of 2009 was 20.7 per cent, down 0.1 percentage points from the previous quarter and down 0.2 percentage points on a year earlier. Across the regions, rates varied from 17.2 per cent in both the South East and South West to 28.6 per cent in Northern Ireland.

Compared with a year earlier, eight regions had a decrease in the inactivity rate, and thus a corresponding increase in the working-age activity rate. The East had the largest annual fall of 1.2 percentage

Table 4
Regional Skills Partnerships core indicators: by NUTS1 region

Percentages

	Time period	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East of England	London	South East	South West	England
Skills outcome indicators											
Percentage of employers with business or training plan, or budget for training	2007	*70.6*	*69.2*	*69.6*	*67.9*	*67.5*	*67.3*	*70.0*	*70.6*	*68.4*	*69.1*
Percentage of staff with skill gaps	2007	*6.3*	*5.3*	*4.8*	*6.8*	*5.4*	*7.8*	*6.7*	*5.8*	*6.2*	*6.1*
Skill shortage vacancies (SSVI) as percentage of all vacancies	2007	*18.8*	*17.6*	*20.1*	*20.2*	*15.5*	*19.6*	*26.1*	*22.5*	*20.9*	*20.9*
Percentage of KS4 pupils achieving 5+ A* to C GCSE (inc Maths and English)	2007/08	*44.9*	*47.4*	*44.4*	*47.0*	*46.1*	*50.3*	*50.6*	*51.7*	*49.2*	*47.6*
Percentage of 19 year olds qualified to Level 2 or above[1]	2008	*75.9*	*74.3*	*73.2*	*73.1*	*74.9*	*77.0*	*77.0*	*79.6*	*77.0*	*76.7*
Percentage of 19 year olds qualified to Level 3 or above[1]	2008	*43.7*	*46.1*	*44.4*	*46.0*	*46.9*	*52.4*	*51.9*	*56.9*	*51.0*	*49.8*
Percentage of 19 to state pension age with Level 2+	2008	*69.3*	*68.1*	*67.6*	*67.0*	*65.8*	*67.6*	*71.0*	*73.1*	*72.2*	*69.4*
Percentage of 19 to state pension age with Level 3+	2008	*46.9*	*47.1*	*47.1*	*46.3*	*45.2*	*46.5*	*55.0*	*53.7*	*51.7*	*49.5*
Percentage of 19 to state pension age with Level 4+	2008	*25.4*	*27.4*	*26.6*	*27.0*	*26.2*	*27.8*	*40.6*	*33.6*	*30.2*	*25.4*
Percentage of 19 to state pension age with no qualifications	2008	*13.2*	*14.4*	*12.9*	*12.8*	*15.6*	*11.5*	*11.6*	*8.5*	*8.4*	*11.9*
Percentage of working-age population who undertook job-related training in last 13 weeks	2008	*20.9*	*18.9*	*19.4*	*20.2*	*19.4*	*18.7*	*18.2*	*22.2*	*23.1*	*20.0*
Percentage of 17 year olds in education or work-based learning	end-2007	*78.0*	*77.0*	*74.0*	*74.0*	*78.0*	*77.0*	*86.0*	*77.0*	*77.0*	*78.0*

Note:

1 Provisional data from DCSF matched datasets.

Source: Office for National Statistics; Labour Force Survey; Department of Business Enterprise and Regulatory Reform; Department for Children, Schools and Families; Department for Innovation Universities and Skills; National Employers Skills Survey 2007.

Table 5
Employment[1] rates for people of working age: by NUTS1 region

Percentages, seasonally adjusted

		United Kingdom	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East of England	London	South East	South West	England	Wales	Scotland	Northern Ireland
2006	Jan-Mar	*74.7*	*71.3*	*73.5*	*74.4*	*77.0*	*73.9*	*77.3*	*69.9*	*78.9*	*78.3*	*75.0*	*71.6*	*75.1*	*69.4*
	Apr-Jun	*74.6*	*71.6*	*73.2*	*74.2*	*77.0*	*73.9*	*77.0*	*69.7*	*78.9*	*78.6*	*74.9*	*71.3*	*74.7*	*69.9*
	Jul-Sep	*74.6*	*71.0*	*73.6*	*73.5*	*77.0*	*73.9*	*77.2*	*69.8*	*78.8*	*77.9*	*74.8*	*72.0*	*75.5*	*69.3*
	Oct-Dec	*74.5*	*70.9*	*72.8*	*73.7*	*76.5*	*73.0*	*77.0*	*70.0*	*78.7*	*78.2*	*74.6*	*71.8*	*76.2*	*69.9*
2007	Jan-Mar	*74.3*	*71.0*	*72.5*	*72.8*	*75.9*	*72.5*	*77.3*	*70.1*	*78.2*	*78.0*	*74.4*	*71.7*	*76.6*	*70.6*
	Apr-Jun	*74.5*	*71.4*	*72.6*	*73.3*	*76.0*	*72.7*	*77.4*	*69.7*	*78.5*	*78.1*	*74.5*	*72.1*	*77.0*	*70.6*
	Jul-Sep	*74.6*	*72.1*	*72.4*	*73.4*	*75.7*	*73.0*	*77.2*	*70.7*	*78.8*	*78.6*	*74.7*	*71.3*	*76.6*	*70.1*
	Oct-Dec	*74.8*	*71.6*	*72.8*	*73.7*	*75.8*	*73.3*	*78.1*	*70.4*	*78.9*	*79.3*	*75.0*	*71.6*	*76.6*	*69.9*
2008	Jan-Mar	*74.8*	*70.2*	*72.4*	*74.0*	*76.2*	*73.2*	*77.7*	*71.1*	*79.5*	*79.0*	*75.0*	*72.0*	*76.5*	*69.7*
	Apr-Jun	*74.7*	*70.2*	*72.2*	*73.4*	*75.7*	*72.5*	*77.7*	*71.5*	*79.4*	*78.8*	*74.8*	*72.6*	*76.5*	*70.1*
	Jul-Sep	*74.4*	*70.4*	*71.6*	*73.2*	*76.1*	*71.8*	*77.4*	*71.0*	*79.0*	*78.7*	*74.5*	*70.6*	*76.3*	*70.1*
	Oct-Dec	*74.1*	*70.1*	*71.0*	*72.3*	*76.2*	*71.8*	*77.5*	*71.6*	*78.7*	*78.1*	*74.3*	*70.7*	*75.4*	*68.8*
2009	Jan-Mar	*73.6*	*69.8*	*71.5*	*71.7*	*75.5*	*70.3*	*77.7*	*70.4*	*78.2*	*78.0*	*73.8*	*70.4*	*74.9*	*66.9*

Note:

Source: Labour Force Survey, Office for National Statistics

1 Includes employees, self-employed, participants on government-supported training schemes and unpaid family workers.

points. Four regions had an increase in the economic inactivity rate over the year. The largest annual rise was in Northern Ireland with 1.7 percentage points.

Table 8 shows the number of employee jobs, not seasonally adjusted, from the Employers Surveys. The number of UK employee jobs was 26,568,000, a decrease of 550,000 over the year since March 2008. In percentage terms, this was a 2.0 per cent decrease.

There were annual decreases in all twelve regions. The largest percentage decrease was in the West Midlands (-3.5 per cent).

Table 9 shows the claimant count rate (referring to people claiming Jobseeker's Allowance benefits as a proportion of the workforce). The UK rate was 4.8 per cent in June 2009, up 0.1 percentage points from May 2009, and up 2.2 percentage points on a year earlier. This national rate masks large variations between regions and component countries of the UK. For June 2009, the North East had the highest claimant count rate in the UK at 7.1 per cent. The North East was followed by the West Midlands (6.4 per cent), and

Table 6
Unemployment rates for people aged 16 and over: by NUTS1 region

Percentages, seasonally adjusted

		United Kingdom	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East of England	London	South East	South West	England	Wales	Scotland	Northern Ireland
2006	Jan-Mar	*5.2*	*6.5*	*4.9*	*5.4*	*5.0*	*5.3*	*4.9*	*7.6*	*4.5*	*3.6*	*5.3*	*4.8*	*5.3*	*4.3*
	Apr-Jun	*5.5*	*6.1*	*5.3*	*5.8*	*5.5*	*5.6*	*5.0*	*7.8*	*4.7*	*3.8*	*5.5*	*5.6*	*5.5*	*4.3*
	Jul-Sep	*5.5*	*6.7*	*5.5*	*6.0*	*5.3*	*6.1*	*4.8*	*7.8*	*4.5*	*3.8*	*5.6*	*5.4*	*5.0*	*4.7*
	Oct-Dec	*5.5*	*6.7*	*5.4*	*6.0*	*5.7*	*6.7*	*4.5*	*7.7*	*4.3*	*3.9*	*5.6*	*5.3*	*5.2*	*4.2*
2007	Jan-Mar	*5.5*	*6.8*	*5.8*	*6.3*	*5.5*	*6.5*	*4.8*	*7.1*	*4.7*	*4.0*	*5.6*	*5.6*	*4.9*	*4.1*
	Apr-Jun	*5.4*	*6.3*	*5.8*	*5.5*	*5.0*	*6.7*	*4.6*	*7.4*	*4.3*	*4.0*	*5.5*	*5.5*	*4.7*	*3.8*
	Jul-Sep	*5.3*	*6.1*	*6.0*	*5.4*	*5.7*	*6.4*	*5.1*	*6.1*	*4.5*	*4.0*	*5.4*	*5.3*	*4.8*	*3.8*
	Oct-Dec	*5.2*	*5.8*	*5.9*	*5.3*	*5.2*	*5.8*	*4.4*	*6.6*	*4.5*	*3.7*	*5.2*	*5.1*	*4.9*	*4.2*
2008	Jan-Mar	*5.2*	*6.5*	*6.0*	*5.0*	*5.5*	*6.2*	*4.5*	*6.9*	*3.9*	*3.7*	*5.3*	*5.4*	*4.6*	*4.6*
	Apr-Jun	*5.4*	*7.5*	*6.3*	*6.1*	*5.7*	*6.3*	*4.6*	*6.9*	*4.2*	*3.8*	*5.6*	*4.9*	*4.2*	*4.2*
	Jul-Sep	*5.8*	*8.0*	*6.8*	*6.8*	*5.9*	*6.5*	*4.8*	*7.4*	*4.6*	*4.2*	*6.0*	*6.7*	*4.7*	*4.1*
	Oct-Dec	*6.3*	*8.4*	*7.8*	*6.6*	*6.1*	*7.7*	*5.5*	*7.2*	*4.9*	*4.7*	*6.4*	*7.0*	*5.1*	*5.1*
2009	Jan-Mar	*7.1*	*8.3*	*7.9*	*8.0*	*7.1*	*9.3*	*5.9*	*8.2*	*5.3*	*5.7*	*7.2*	*7.7*	*5.9*	*6.1*

Source: Labour Force Survey, Office for National Statistics

Table 7
Economic inactivity rates for people of working age: by NUTS1 region

Percentages, seasonally adjusted

		United Kingdom	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East of England	London	South East	South West	England	Wales	Scotland	Northern Ireland
2006	Jan-Mar	*21.1*	*23.7*	*22.7*	*21.3*	*18.8*	*21.9*	*18.6*	*24.2*	*17.4*	*18.7*	*20.7*	*24.7*	*20.6*	*27.5*
	Apr-Jun	*21.0*	*23.6*	*22.6*	*21.2*	*18.4*	*21.5*	*18.8*	*24.3*	*17.1*	*18.3*	*20.6*	*24.3*	*20.9*	*26.9*
	Jul-Sep	*21.0*	*23.9*	*22.0*	*21.7*	*18.6*	*21.2*	*18.8*	*24.1*	*17.5*	*18.9*	*20.7*	*23.8*	*20.5*	*27.2*
	Oct-Dec	*21.1*	*23.9*	*22.9*	*21.5*	*18.7*	*21.6*	*19.1*	*24.0*	*17.7*	*18.5*	*20.8*	*24.0*	*19.6*	*27.0*
2007	Jan-Mar	*21.2*	*23.7*	*22.9*	*22.2*	*19.6*	*22.3*	*18.6*	*24.4*	*17.9*	*18.6*	*21.1*	*23.9*	*19.4*	*26.3*
	Apr-Jun	*21.2*	*23.8*	*22.7*	*22.3*	*20.0*	*21.8*	*18.8*	*24.6*	*17.8*	*18.5*	*21.1*	*23.5*	*19.1*	*26.6*
	Jul-Sep	*21.1*	*23.1*	*22.9*	*22.4*	*19.6*	*21.8*	*18.5*	*24.6*	*17.4*	*18.0*	*20.9*	*24.5*	*19.4*	*27.0*
	Oct-Dec	*21.0*	*23.9*	*22.5*	*22.0*	*19.9*	*22.1*	*18.2*	*24.4*	*17.2*	*17.6*	*20.8*	*24.5*	*19.4*	*27.0*
2008	Jan-Mar	*20.9*	*24.8*	*22.8*	*22.0*	*19.2*	*21.7*	*18.5*	*23.5*	*17.1*	*17.9*	*20.7*	*23.8*	*19.6*	*26.9*
	Apr-Jun	*20.9*	*24.0*	*22.7*	*21.7*	*19.5*	*22.4*	*18.5*	*23.1*	*17.1*	*18.0*	*20.6*	*23.5*	*20.0*	*26.8*
	Jul-Sep	*20.9*	*23.3*	*23.0*	*21.2*	*19.0*	*23.0*	*18.6*	*23.2*	*17.2*	*17.7*	*20.6*	*24.2*	*19.8*	*26.9*
	Oct-Dec	*20.8*	*23.3*	*22.8*	*22.5*	*18.7*	*22.1*	*17.8*	*22.7*	*17.1*	*17.9*	*20.4*	*23.8*	*20.3*	*27.4*
2009	Jan-Mar	*20.7*	*23.7*	*22.2*	*21.9*	*18.5*	*22.3*	*17.3*	*23.2*	*17.2*	*17.2*	*20.3*	*23.5*	*20.2*	*28.6*

Source: Labour Force Survey, Office for National Statistics

Table 8
Employee jobs:[1] by NUTS1 region

Thousands, not seasonally adjusted

	United Kingdom	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East of England	London	South East	South West	England	Wales	Scotland	Northern Ireland
Mar 05	26,642	1,028	3,005	2,220	1,815	2,325	2,299	3,963	3,641	2,158	22,455	1,149	2,342	696
Mar 06	26,792	1,039	2,953	2,211	1,832	2,328	2,319	3,984	3,680	2,207	22,554	1,164	2,368	706
Mar 07	26,879	1,036	3,001	2,219	1,865	2,322	2,341	4,013	3,646	2,174	22,617	1,176	2,371	715
Mar 08	27,118	1,031	2,994	2,216	1,891	2,339	2,366	4,081	3,720	2,208	22,848	1,154	2,382	734
Jun 08	27,221	1,029	2,999	2,220	1,894	2,346	2,381	4,095	3,743	2,227	22,935	1,156	2,396	734
Sep 08	27,140	1,030	2,996	2,208	1,883	2,326	2,387	4,074	3,732	2,237	22,873	1,152	2,387	728
Dec 08	27,018	1,036	2,987	2,187	1,876	2,319	2,378	4,063	3,712	2,209	22,767	1,145	2,385	721
Mar 09	26,568	1,018	2,948	2,153	1,829	2,258	2,332	4,011	3,647	2,188	22,385	1,116	2,352	715

Note:

Source: Employer Surveys

1 Employee jobs figures are a measure of jobs rather than people. For example, if a person holds two jobs, each job will be counted in the employee jobs total. Employee jobs figures come from quarterly surveys of employers carried out by ONS and administrative sources.

Table 9
Claimant count rates:[1] by NUTS1 region

Percentages, seasonally adjusted

		United Kingdom	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East of England	London	South East	South West	England	Wales	Scotland	Northern Ireland
2004		2.7	4.0	2.8	2.8	2.5	3.3	2.0	3.5	1.6	1.6	2.6	3.0	3.4	3.6
2005		2.7	3.9	2.9	2.9	2.5	3.4	2.1	3.4	1.6	1.6	2.6	3.0	3.2	3.3
2006		2.9	4.1	3.3	3.3	2.8	3.9	2.3	3.5	1.8	1.8	2.9	3.1	3.2	3.2
2007		2.7	4.0	3.1	3.0	2.6	3.7	2.1	3.0	1.6	1.6	2.7	2.8	2.8	2.8
2008		2.8	4.5	3.4	3.3	2.8	3.8	2.2	2.8	1.7	1.7	2.8	3.2	2.8	3.2
2008	Jun	2.6	4.2	3.2	3.1	2.5	3.6	2.0	2.7	1.6	1.5	2.6	3.0	2.6	3.0
	Jul	2.7	4.3	3.3	3.2	2.6	3.7	2.1	2.7	1.6	1.6	2.7	3.1	2.7	3.1
	Aug	2.8	4.5	3.4	3.4	2.8	3.8	2.3	2.8	1.7	1.8	2.8	3.3	2.8	3.2
	Sep	2.9	4.7	3.6	3.6	2.9	4.0	2.4	2.9	1.8	1.9	2.9	3.4	3.0	3.4
	Oct	3.1	5.0	3.8	3.8	3.1	4.2	2.5	3.0	1.9	2.0	3.1	3.6	3.1	3.6
	Nov	3.4	5.3	4.1	4.1	3.4	4.5	2.7	3.2	2.2	2.3	3.3	4.0	3.3	4.0
	Dec	3.6	5.7	4.3	4.4	3.7	4.9	3.0	3.3	2.4	2.5	3.6	4.3	3.6	4.2
	Jan	3.9	6.0	4.6	4.7	4.0	5.2	3.2	3.5	2.6	2.7	3.8	4.7	3.7	4.5
	Feb	4.3	6.5	5.0	5.2	4.5	5.8	3.7	3.8	3.0	3.1	4.2	5.1	4.1	4.8
	Mar	4.5	6.7	5.2	5.4	4.7	6.0	3.9	4.1	3.1	3.3	4.5	5.3	4.2	5.1
2009	Apr	4.6	6.9	5.4	5.6	4.8	6.2	4.0	4.2	3.3	3.4	4.6	5.5	4.4	5.3
	May	4.7	7.0	5.5	5.7	4.9	6.3	4.1	4.3	3.3	3.4	4.7	5.5	4.5	5.5
	Jun	4.8	7.1	5.6	5.8	5.0	6.4	4.1	4.4	3.4	3.5	4.8	5.6	4.6	5.7

Note:

Source: Jobcentre Plus administrative system

1 Count of claimants of Jobseeker's Allowance expressed as a percentage of the total workforce – that is, workforce jobs plus claimants.

Yorkshire and The Humber (5.8 per cent). The lowest claimant count was measured in the South East (3.4 per cent). The claimant count rate was 4.6 per cent in Scotland, 5.7 per cent in Northern Ireland and 5.6 per cent in Wales.

All regions had an increase in the claimant count rate compared with a year ago. The largest increases were in the North East (2.9 percentage points) and the West Midlands (2.8 percentage points).

Notes

1. Certain urban areas with between 10,000 and 30,000 population are identified as 'larger market towns' and are taken into account in assessing the rurality of a district. Such towns are identified by the presence of a prescribed set of services and commercial attributes. Here, the populations of 207 'larger market towns' contribute to the rural population of the districts in which they are located, although within the Rural/Urban definition they are identified as urban and their populations are not included in the rural domain.
2. UK Regional Trade in Goods Statistics, Quarter 1 2009, HM Revenue and Customs at www.uktradeinfo.com/index.cfm?task=td_regstats_press
3. For a summary of all different levels of qualifications, see 'Notes and definitions' at www.statistics.gov.uk/statbase/product.asp?vlnk=836

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Key time series

1 National accounts aggregates

Last updated: 28/08/09

Seasonally adjusted

	£ million		Indices (2005 = 100)						
	At current prices		Value indices at current prices		Chained volume indices			Implied deflators[3]	
	Gross domestic product (GDP) at market prices	Gross value added (GVA) at basic prices	GDP at market prices[1]	GVA at basic prices	Gross national disposable income at market prices[2]	GDP at market prices	GVA at basic prices	GDP at market prices	GVA at basic prices
	YBHA	ABML	YBEU	YBEX	YBFP	YBEZ	CGCE	YBGB	CGBV
2004	1,202,956	1,070,951	95.9	95.9	98.4	97.9	97.7	98.0	98.2
2005	1,254,058	1,116,648	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2006	1,325,795	1,181,141	105.7	105.8	101.7	102.9	103.0	102.8	102.7
2007	1,398,882	1,245,735	111.5	111.6	105.4	105.5	105.7	105.7	105.6
2008	1,446,113	1,296,332	115.3	116.1	107.0	106.3	106.5	108.5	109.0
2004 Q1	294,112	261,280	93.8	93.6	97.9	97.2	96.9	96.5	96.5
2004 Q2	299,142	265,977	95.4	95.3	98.0	97.8	97.6	97.6	97.6
2004 Q3	302,115	269,503	96.4	96.5	97.8	97.9	97.7	98.5	98.8
2004 Q4	307,587	274,191	98.1	98.2	100.0	98.7	98.5	99.5	99.7
2005 Q1	308,723	274,756	98.5	98.4	99.6	99.0	99.0	99.5	99.4
2005 Q2	313,479	279,258	100.0	100.0	101.1	99.7	99.7	100.3	100.3
2005 Q3	313,378	278,669	100.0	99.8	99.2	100.3	100.3	99.6	99.6
2005 Q4	318,478	283,965	101.6	101.7	100.0	101.0	101.0	100.6	100.7
2006 Q1	326,085	291,002	104.0	104.2	101.2	102.1	102.2	101.9	102.0
2006 Q2	327,836	291,886	104.6	104.6	101.5	102.5	102.6	102.0	101.9
2006 Q3	333,542	297,046	106.4	106.4	101.8	103.0	103.1	103.3	103.2
2006 Q4	338,332	301,207	107.9	107.9	102.3	103.8	104.0	103.9	103.8
2007 Q1	344,238	306,154	109.8	109.7	103.6	104.6	104.7	105.0	104.7
2007 Q2	348,010	309,585	111.0	110.9	104.7	105.2	105.4	105.5	105.2
2007 Q3	351,635	313,159	112.2	112.2	105.1	105.8	106.0	106.0	105.8
2007 Q4	354,999	316,837	113.2	113.5	108.0	106.3	106.6	106.5	106.5
2008 Q1	362,184	323,218	115.5	115.8	109.3	107.2	107.6	107.8	107.6
2008 Q2	363,353	323,922	115.9	116.0	108.0	107.1	107.5	108.2	108.0
2008 Q3	362,179	325,676	115.5	116.7	106.7	106.3	106.5	108.6	109.5
2008 Q4	358,397	323,516	114.3	115.9	103.8	104.4	104.6	109.5	110.8
2009 Q1	347,718	315,097	110.9	112.9	101.4	101.9	102.0	108.8	110.7
2009 Q2	347,886	315,134	111.0	112.9		101.2	101.3	109.6	111.5

Percentage change, quarter on corresponding quarter of previous year

			IHYO	ABML[4]	YBGO[4]	IHYR	ABMM[4]	IHYU	ABML/ABMM[4]
2004 Q1	5.7	5.4	5.7	5.4	3.0	3.6	3.4	2.0	1.9
2004 Q2	5.6	5.3	5.6	5.3	3.4	3.2	3.2	2.3	2.1
2004 Q3	5.2	5.4	5.2	5.4	2.5	2.6	2.6	2.6	2.8
2004 Q4	5.7	5.9	5.7	5.9	3.0	2.4	2.4	3.1	3.4
2005 Q1	5.0	5.2	5.0	5.2	1.8	1.8	2.1	3.1	3.0
2005 Q2	4.8	5.0	4.8	5.0	3.2	2.0	2.2	2.8	2.7
2005 Q3	3.7	3.4	3.7	3.4	1.4	2.5	2.6	1.2	0.7
2005 Q4	3.5	3.6	3.5	3.6	0.0	2.4	2.6	1.1	1.0
2006 Q1	5.6	5.9	5.6	5.9	1.6	3.2	3.2	2.4	2.6
2006 Q2	4.6	4.5	4.6	4.5	0.4	2.8	2.9	1.7	1.5
2006 Q3	6.4	6.6	6.4	6.6	2.6	2.7	2.9	3.7	3.6
2006 Q4	6.2	6.1	6.2	6.1	2.3	2.8	2.9	3.3	3.1
2007 Q1	5.6	5.2	5.6	5.2	2.3	2.4	2.5	3.1	2.7
2007 Q2	6.2	6.1	6.2	6.1	3.1	2.7	2.7	3.4	3.3
2007 Q3	5.4	5.4	5.4	5.4	3.3	2.7	2.8	2.6	2.5
2007 Q4	4.9	5.2	4.9	5.2	5.6	2.4	2.6	2.5	2.6
2008 Q1	5.2	5.6	5.2	5.6	5.5	2.5	2.8	2.7	2.7
2008 Q2	4.4	4.6	4.4	4.6	3.1	1.8	1.9	2.6	2.6
2008 Q3	3.0	4.0	3.0	4.0	1.5	0.5	0.5	2.5	3.5
2008 Q4	1.0	2.1	1.0	2.1	–3.9	–1.8	–1.9	2.8	4.1
2009 Q1	–4.0	–2.5	–4.0	–2.5	–7.2	–4.9	–5.2	1.0	2.8
2009 Q2	–4.3	–2.7	–4.3	–2.7		–5.5	–5.8	1.3	3.2

Notes:

Source: Office for National Statistics

1 "Money GDP".
2 This series is only updated once a quarter, in line with the full quarterly national accounts data set.
3 Based on chained volume measures and current price estimates of expenditure components of GDP.
4 Derived from these identification (CDID) codes.

2 Gross domestic product: by category of expenditure

Last updated: 28/08/09

£ million, chained volume measures, reference year 2005, seasonally adjusted

	Domestic expenditure on goods and services at market prices											
	Final consumption expenditure			Gross capital formation								
	Households	Non-profit institutions[1]	General government	Gross fixed capital formation	Changes in inventories[2]	Acquisitions less disposals of valuables	Total	Exports of goods and services	Gross final expenditure	*less* imports of goods and services	Statistical discrepancy (expenditure)	Gross domestic product at market prices
	ABJR	HAYO	NMRY	NPQT	CAFU	NPJR	YBIM	IKBK	ABMG	IKBL	GIXS	ABMI
2004	766,856	30,827	262,917	204,756	4,371	−39	1,270,173	306,582	1,576,497	348,894	0	1,227,387
2005	784,140	30,824	268,088	209,758	4,814	−377	1,296,905	330,794	1,627,699	373,641	0	1,254,058
2006	795,595	31,868	272,271	223,305	4,575	304	1,328,132	368,076	1,696,207	406,374	0	1,289,833
2007	815,157	30,040	275,488	240,613	6,561	562	1,368,506	357,677	1,726,183	403,341	0	1,322,842
2008	822,689	32,984	283,262	233,846	1,812	1,296	1,375,189	360,517	1,735,706	400,898	−2,156	1,332,652
2004 Q1	189,235	7,875	65,615	50,706	−684	−113	314,855	74,389	389,121	84,284	0	304,784
2004 Q2	191,672	7,737	65,323	51,680	603	65	316,727	76,058	392,705	86,139	0	306,510
2004 Q3	192,642	7,664	65,746	51,351	936	8	317,863	76,895	394,700	87,840	0	306,806
2004 Q4	193,307	7,551	66,233	51,019	3,516	1	320,728	79,240	399,971	90,631	0	309,287
2005 Q1	194,294	7,745	66,418	51,092	3,151	−45	322,029	77,762	399,757	89,398	0	310,313
2005 Q2	195,610	7,676	66,986	51,273	1,895	90	323,588	80,830	404,405	91,846	0	312,550
2005 Q3	196,450	7,687	67,265	53,964	187	−292	325,046	84,250	409,304	94,834	0	314,490
2005 Q4	197,786	7,716	67,419	53,429	−419	−130	326,242	87,952	414,233	97,563	0	316,705
2006 Q1	197,278	7,941	67,862	53,372	1,593	106	328,906	95,835	424,741	104,616	0	320,125
2006 Q2	199,392	8,025	67,692	54,499	−153	241	329,912	97,932	427,844	106,555	0	321,289
2006 Q3	198,692	8,012	68,232	56,780	1,844	−30	333,365	86,854	420,220	97,364	0	322,855
2006 Q4	200,233	7,890	68,485	58,654	1,291	−13	335,949	87,455	423,402	97,839	0	325,564
2007 Q1	202,299	7,447	68,394	59,659	1,595	76	338,804	88,279	427,083	99,211	0	327,872
2007 Q2	203,492	7,413	68,650	59,620	655	348	339,510	88,650	428,160	98,193	0	329,967
2007 Q3	204,321	7,471	69,165	59,777	2,086	45	343,909	90,348	434,256	102,647	0	331,609
2007 Q4	205,045	7,709	69,279	61,557	2,225	93	346,283	90,400	436,684	103,290	0	333,394
2008 Q1	207,200	8,007	69,944	60,495	1,136	211	347,891	91,581	439,472	103,004	−425	336,042
2008 Q2	206,416	8,322	70,631	59,115	1,835	438	346,848	91,158	438,005	101,611	−527	335,868
2008 Q3	205,655	8,376	70,970	57,459	1,440	367	344,103	90,769	434,872	100,904	−591	333,377
2008 Q4	203,418	8,279	71,717	56,777	−2,599	280	336,347	87,009	423,357	95,379	−613	327,365
2009 Q1	200,830	8,017	71,875	52,497		278	328,072	80,971	409,043	89,014	−517	319,512
2009 Q2	199,341	7,692	72,430	50,113		280	325,275	78,822	404,097	86,167	−514	317,416

Percentage change, quarter on corresponding quarter of previous year

	Households	Non-profit institutions[1]	General government	Gross fixed capital formation	Changes in inventories[2]	Acquisitions less disposals of valuables	Total	Exports of goods and services	Gross final expenditure	*less* imports of goods and services	Statistical discrepancy (expenditure)	Gross domestic product at market prices
												IHYR
2004 Q1	*3.4*	*1.6*	*4.7*	*4.4*			*4.4*	*0.2*	*3.5*	*3.3*		*3.6*
2004 Q2	*3.3*	*0.7*	*3.2*	*8.0*			*3.9*	*5.3*	*4.2*	*7.6*		*3.2*
2004 Q3	*3.2*	*−0.6*	*2.6*	*7.7*			*3.1*	*6.8*	*3.8*	*8.5*		*2.6*
2004 Q4	*3.0*	*−2.1*	*1.7*	*2.9*			*2.7*	*7.9*	*3.7*	*8.4*		*2.4*
2005 Q1	*2.7*	*−1.7*	*1.2*	*0.8*			*2.3*	*4.5*	*2.7*	*6.1*		*1.8*
2005 Q2	*2.1*	*−0.8*	*2.5*	*−0.8*			*2.2*	*6.3*	*3.0*	*6.6*		*2*
2005 Q3	*2.0*	*0.3*	*2.3*	*5.1*			*2.3*	*9.6*	*3.7*	*8.0*		*2.5*
2005 Q4	*2.3*	*2.2*	*1.8*	*4.7*			*1.7*	*11.0*	*3.6*	*7.6*		*2.4*
2006 Q1	*1.5*	*2.5*	*2.2*	*4.5*			*2.1*	*23.2*	*6.2*	*17.0*		*3.2*
2006 Q2	*1.9*	*4.5*	*1.1*	*6.3*			*2.0*	*21.2*	*5.8*	*16.0*		*2.8*
2006 Q3	*1.1*	*4.2*	*1.4*	*5.2*			*2.6*	*3.1*	*2.7*	*2.7*		*2.7*
2006 Q4	*1.2*	*2.3*	*1.6*	*9.8*			*3.0*	*−0.6*	*2.2*	*0.3*		*2.8*
2007 Q1	*2.5*	*−6.2*	*0.8*	*11.8*			*3.0*	*−7.9*	*0.6*	*−5.2*		*2.4*
2007 Q2	*2.1*	*−7.6*	*1.4*	*9.4*			*2.9*	*−9.5*	*0.1*	*−7.8*		*2.7*
2007 Q3	*2.8*	*−6.8*	*1.4*	*5.3*			*3.2*	*4.0*	*3.3*	*5.4*		*2.7*
2007 Q4	*2.4*	*−2.3*	*1.2*	*4.9*			*3.1*	*3.4*	*3.1*	*5.6*		*2.4*
2008 Q1	*2.4*	*7.5*	*2.3*	*1.4*			*2.7*	*3.7*	*2.9*	*3.8*		*2.5*
2008 Q2	*1.4*	*12.3*	*2.9*	*−0.8*			*2.2*	*2.8*	*2.3*	*3.5*		*1.8*
2008 Q3	*0.7*	*12.1*	*2.6*	*−3.9*			*0.1*	*0.5*	*0.1*	*−1.7*		*0.5*
2008 Q4	*−0.8*	*7.4*	*3.5*	*−7.8*			*−2.9*	*−3.8*	*−3.1*	*−7.7*		*−1.8*
2009 Q1	*−3.1*	*0.1*	*2.8*	*−13.2*			*−5.7*	*−11.6*	*−6.9*	*−13.6*		*−4.9*
2009 Q2	*−3.4*	*−7.6*	*2.5*	*−15.2*			*−6.2*	*−13.5*	*−7.7*	*−15.2*		*−5.5*

Notes:

Source: Office for National Statistics

1 Non-profit institutions serving households (NPISH).
2 This series includes a quarterly alignment adjustment.

3 Labour market summary

Last updated: 12/08/09

United Kingdom (thousands), seasonally adjusted

	All aged 16 and over								
	All	**Total economically active**	**Total in employment**	**Unemployed**	**Economically inactive**	**Economic activity rate (%)**	**Employment rate (%)**	**Unemployment rate (%)**	**Economic inactivity rate (%)**
	1	2	3	4	5	6	7	8	9
All persons	MGSL	MGSF	MGRZ	MGSC	MGSI	MGWG	MGSR	MGSX	YBTC
Apr–Jun 2007	48,621	30,821	29,159	1,662	17,800	*63.4*	*60.0*	*5.4*	*36.6*
Apr–Jun 2008	49,007	31,190	29,505	1,685	17,816	*63.6*	*60.2*	*5.4*	*36.4*
Jul–Sep 2008	49,107	31,232	29,407	1,825	17,876	*63.6*	*59.9*	*5.8*	*36.4*
Oct–Dec 2008	49,210	31,333	29,361	1,971	17,877	*63.7*	*59.7*	*6.3*	*36.3*
Jan–Mar 2009	49,312	31,419	29,204	2,215	17,893	*63.7*	*59.2*	*7.1*	*36.3*
Apr–Jun 2009	49,415	31,368	28,933	2,435	18,047	*63.5*	*58.6*	*7.8*	*36.5*
Male	MGSM	MGSG	MGSA	MGSD	MGSJ	MGWH	MGSS	MGSY	YBTD
Apr–Jun 2007	23,640	16,742	15,792	950	6,899	*70.8*	*66.8*	*5.7*	*29.2*
Apr–Jun 2008	23,862	16,928	15,938	990	6,934	*70.9*	*66.8*	*5.8*	*29.1*
Jul–Sep 2008	23,919	16,937	15,862	1,075	6,982	*70.8*	*66.3*	*6.3*	*29.2*
Oct–Dec 2008	23,976	17,010	15,829	1,181	6,966	*70.9*	*66.0*	*6.9*	*29.1*
Jan–Mar 2009	24,033	17,041	15,706	1,336	6,992	*70.9*	*65.3*	*7.8*	*29.1*
Apr–Jun 2009	24,090	16,981	15,489	1,492	7,109	*70.5*	*64.3*	*8.8*	*29.5*
Female	MGSN	MGSH	MGSB	MGSE	MGSK	MGWI	MGST	MGSZ	YBTE
Apr–Jun 2007	24,980	14,079	13,367	712	10,901	*56.4*	*53.5*	*5.1*	*43.6*
Apr–Jun 2008	25,144	14,262	13,568	695	10,882	*56.7*	*54.0*	*4.9*	*43.3*
Jul–Sep 2008	25,188	14,295	13,545	750	10,894	*56.8*	*53.8*	*5.2*	*43.2*
Oct–Dec 2008	25,234	14,322	13,532	790	10,911	*56.8*	*53.6*	*5.5*	*43.2*
Jan–Mar 2009	25,279	14,378	13,499	880	10,901	*56.9*	*53.4*	*6.1*	*43.1*
Apr–Jun 2009	25,325	14,387	13,444	942	10,938	*56.8*	*53.1*	*6.6*	*43.2*

	All aged 16 to 59/64								
	All	**Total economically active**	**Total in employment**	**Unemployed**	**Economically inactive**	**Economic activity rate (%)**	**Employment rate (%)**	**Unemployment rate (%)**	**Economic inactivity rate (%)**
	10	11	12	13	14	15	16	17	18
All persons	YBTF	YBSK	YBSE	YBSH	YBSN	MGSO	MGSU	YBTI	YBTL
Apr–Jun 2007	37,544	29,586	27,953	1,633	7,957	*78.8*	*74.5*	*5.5*	*21.2*
Apr–Jun 2008	37,716	29,844	28,182	1,662	7,872	*79.1*	*74.7*	*5.6*	*20.9*
Jul–Sep 2008	37,765	29,878	28,082	1,796	7,887	*79.1*	*74.4*	*6.0*	*20.9*
Oct–Dec 2008	37,816	29,958	28,018	1,940	7,858	*79.2*	*74.1*	*6.5*	*20.8*
Jan–Mar 2009	37,867	30,039	27,857	2,182	7,828	*79.3*	*73.6*	*7.3*	*20.7*
Apr–Jun 2009	37,918	29,963	27,563	2,401	7,955	*79.0*	*72.7*	*8.0*	*21.0*
Male	YBTG	YBSL	YBSF	YBSI	YBSO	MGSP	MGSV	YBTJ	YBTM
Apr–Jun 2007	19,532	16,329	15,393	937	3,203	*83.6*	*78.8*	*5.7*	*16.4*
Apr–Jun 2008	19,672	16,472	15,492	980	3,200	*83.7*	*78.8*	*5.9*	*16.3*
Jul–Sep 2008	19,705	16,484	15,424	1,060	3,221	*83.7*	*78.3*	*6.4*	*16.3*
Oct–Dec 2008	19,737	16,550	15,382	1,168	3,187	*83.9*	*77.9*	*7.1*	*16.1*
Jan–Mar 2009	19,770	16,591	15,270	1,321	3,178	*83.9*	*77.2*	*8.0*	*16.1*
Apr–Jun 2009	19,802	16,532	15,054	1,478	3,270	*83.5*	*76.0*	*8.9*	*16.5*
Female	YBTH	YBSM	YBSG	YBSJ	YBSP	MGSQ	MGSW	YBTK	YBTN
Apr–Jun 2007	18,011	13,257	12,560	697	4,754	*73.6*	*69.7*	*5.3*	*26.4*
Apr–Jun 2008	18,044	13,372	12,690	683	4,672	*74.1*	*70.3*	*5.1*	*25.9*
Jul–Sep 2008	18,060	13,394	12,658	736	4,665	*74.2*	*70.1*	*5.5*	*25.8*
Oct–Dec 2008	18,079	13,408	12,636	772	4,671	*74.2*	*69.9*	*5.8*	*25.8*
Jan–Mar 2009	18,098	13,447	12,587	861	4,650	*74.3*	*69.6*	*6.4*	*25.7*
Apr–Jun 2009	18,116	13,431	12,508	923	4,685	*74.1*	*69.0*	*6.9*	*25.9*

Notes:

Relationship between columns: 1 = 2 + 5; 2 = 3 + 4; 6 = 2/1; 7 = 3/1; 8 = 4/2; 9 = 5/1; 10 = 11 + 14; 11 = 12 + 13; 15 = 11/10; 16 = 12/10; 17 = 13/11; 18 = 14/10

The Labour Force Survey is a survey of the population of private households, student halls of residence and NHS accommodation.

Source: Labour Force Survey, Office for National Statistics
Labour Market Statistics Helpline: 01633 456901

4 Prices

Last updated: 18/08/09

Percentage change over 12 months

Not seasonally adjusted

	Consumer prices						Producer prices			
	Consumer prices index (CPI)			Retail prices index (RPI)			Output prices		Input prices	
	All items	CPI excluding indirect taxes (CPIY)[1]	CPI at constant tax rates (CPI-CT)	All items	All items excluding mortgage interest payments (RPIX)	All items excluding mortgage interest payments and indirect taxes (RPIY)[2]	All manufactured products	Excluding food, beverages, tobacco and petroleum products	Materials and fuels purchased by manufacturing industry	Excluding food, beverages, tobacco and petroleum products
	D7G7	EL2S	EAD6	CZBH	CDKQ	CBZX	PLLU[3]	PLLV[3,4]	RNNK[3,4]	RNNQ[3,4]
2006 Jan	1.9	2.1	1.9	2.4	2.3	2.3	2.5	1.4	15.8	10.1
2006 Feb	2.0	2.1	2.0	2.4	2.3	2.3	2.3	1.4	15.2	10.1
2006 Mar	1.8	1.9	1.7	2.4	2.1	2.2	2.2	1.5	13.1	9.2
2006 Apr	2.0	2.1	2.0	2.6	2.4	2.3	2.3	1.9	15.6	9.8
2006 May	2.2	2.3	2.2	3.0	2.9	2.8	2.9	2.0	13.7	8.4
2006 Jun	2.5	2.6	2.4	3.3	3.1	3.2	3.1	2.5	11.3	8.1
2006 Jul	2.4	2.4	2.3	3.3	3.1	3.2	2.6	2.1	10.6	7.7
2006 Aug	2.5	2.6	2.4	3.4	3.3	3.4	2.3	1.7	8.4	6.7
2006 Sep	2.4	2.6	2.3	3.6	3.2	3.3	1.6	1.7	5.4	5.5
2006 Oct	2.4	2.7	2.3	3.7	3.2	3.3	1.3	2.0	3.9	4.5
2006 Nov	2.7	3.0	2.6	3.9	3.4	3.6	1.4	1.9	2.3	2.8
2006 Dec	3.0	3.2	2.9	4.4	3.8	3.9	1.7	1.6	1.7	1.5
2007 Jan	2.7	2.9	2.6	4.2	3.5	3.7	1.5	1.6	–3.4	–0.5
2007 Feb	2.8	2.9	2.6	4.6	3.7	3.9	1.9	2.0	–2.1	–0.2
2007 Mar	3.1	3.1	2.9	4.8	3.9	4.0	2.2	2.2	–0.3	1.0
2007 Apr	2.8	2.9	2.6	4.5	3.6	3.7	1.8	1.8	–1.5	0.0
2007 May	2.5	2.6	2.3	4.3	3.3	3.4	1.9	1.9	0.6	1.9
2007 Jun	2.4	2.5	2.2	4.4	3.3	3.3	1.9	1.7	1.7	2.2
2007 Jul	1.9	2.0	1.7	3.8	2.7	2.6	2.0	1.8	0.3	0.6
2007 Aug	1.8	1.9	1.6	4.1	2.7	2.6	2.1	2.0	–0.2	1.0
2007 Sep	1.8	1.7	1.6	3.9	2.8	2.8	2.6	1.9	6.0	3.6
2007 Oct	2.1	1.9	1.8	4.2	3.1	3.0	3.6	1.8	9.4	4.6
2007 Nov	2.1	1.9	1.8	4.3	3.2	3.0	4.5	1.9	12.1	5.6
2007 Dec	2.1	2.0	1.9	4.0	3.1	3.1	4.7	2.2	13.2	6.9
2008 Jan	2.2	2.1	2.0	4.1	3.4	3.3	5.7	3.0	20.4	11.0
2008 Feb	2.5	2.5	2.3	4.1	3.7	3.6	5.7	2.8	20.9	11.9
2008 Mar	2.5	2.6	2.3	3.8	3.5	3.6	6.2	2.9	20.8	12.7
2008 Apr	3.0	3.0	2.7	4.2	4.0	3.9	7.4	4.1	25.3	16.6
2008 May	3.3	3.3	3.1	4.3	4.4	4.4	9.1	5.6	30.2	18.9
2008 Jun	3.8	3.9	3.6	4.6	4.8	4.9	9.8	5.9	34.1	21.1
2008 Jul	4.4	4.5	4.2	5.0	5.3	5.4	10.0	6.3	31.3	21.3
2008 Aug	4.7	4.9	4.5	4.8	5.2	5.4	9.1	5.7	29.0	20.8
2008 Sep	5.2	5.4	5.0	5.0	5.5	5.6	8.5	5.6	24.1	19.5
2008 Oct	4.5	4.7	4.3	4.2	4.7	4.9	6.7	5.0	16.0	16.9
2008 Nov	4.1	4.3	3.9	3.0	3.9	3.9	5.0	5.0	8.1	14.1
2008 Dec	3.1	4.6	4.1	0.9	2.8	3.9	4.6	5.0	3.2	12.6
2009 Jan	3.0	4.5	4.1	0.1	2.4	3.4	3.5	4.0	1.7	10.8
2009 Feb	3.2	4.6	4.2	0.0	2.5	3.5	3.0	3.7	0.8	8.9
2009 Mar	2.9	4.3	3.9	–0.4	2.2	3.2	2.0	3.2	–0.4	7.5
2009 Apr	2.3	3.8	3.4	–1.2	1.7	2.7	1.3	2.5	–5.7	2.6
2009 May	2.2	3.6	3.3	–1.1	1.6	2.6	–0.3	1.2	–8.5	0.1
2009 Jun	1.8	3.1	2.9	–1.6	1.0	1.9	–1.0	0.3	–11.8	–2.9
2009 Jul	1.8	3.1	2.8	–1.4	1.2	2.1	–1.3	0.2	–12.2	–3.7

Notes:

Source: Office for National Statistics

1 The taxes excluded are VAT, duties, insurance premium tax, air passenger duty and stamp duty on share transactions.
2 The taxes excluded are council tax, VAT, duties, vehicle excise duty, insurance premium tax and air passenger duty.
3 Derived from these identification (CDID) codes.
4 These derived series replace those previously shown.

NOTES TO TABLES

Identification (CDID) codes

The four-character identification code at the top of each alpha column of data is the ONS reference for that series of data on our time series database. Please quote the relevant code if you contact us about the data.

Conventions

Where figures have been rounded to the final digit, there may be an apparent slight discrepancy between the sum of the constituent items and the total shown. Although figures may be given in unrounded form to facilitate readers' calculation of percentage changes, rates of change, etc, this does not imply that the figures can be estimated to this degree of precision as they may be affected by sampling variability or imprecision in estimation methods.

The following standard symbols are used:

..	not available
-	nil or negligible
P	provisional
–	break in series
R	revised
r	series revised from indicated entry onwards

CONCEPTS AND DEFINITIONS

Labour Force Survey 'monthly' estimates

Labour Force Survey (LFS) results are three-monthly averages, so consecutive months' results overlap. Comparing estimates for overlapping three-month periods can produce more volatile results, which can be difficult to interpret.

Labour market summary

Economically active

People aged 16 and over who are either in employment or unemployed.

Economically inactive

People who are neither in employment nor unemployed. This includes those who want a job but have not been seeking work in the last four weeks, those who want a job and are seeking work but not available to start work, and those who do not want a job.

Employment and jobs

There are two ways of looking at employment: the number of people with jobs, or the number of jobs. The two concepts are not the same as one person can have more than one job. The number of people with jobs is measured by the Labour Force Survey (LFS) and includes people aged 16 or over who do paid work (as an employee or self-employed), those who have a job that they are temporarily away from, those on government-supported training and employment programmes, and those doing unpaid family work. The number of jobs is measured by workforce jobs and is the sum of employee jobs (as measured by surveys of employers), self-employment jobs from the LFS, people in HM Forces, and government-supported trainees. Vacant jobs are not included.

Unemployment

The number of unemployed people in the UK is measured through the Labour Force Survey following the internationally agreed definition recommended by the ILO (International Labour Organisation) – an agency of the United Nations.

Unemployed people:

- are without a job, want a job, have actively sought work in the last four weeks and are available to start work in the next two weeks, or
- are out of work, have found a job and are waiting to start it in the next two weeks

Other key indicators

Claimant count

The number of people claiming Jobseeker's Allowance benefits.

Earnings

A measure of the money people receive in return for work done, gross of tax. It includes salaries and, unless otherwise stated, bonuses but not unearned income, benefits in kind or arrears of pay.

Productivity

Whole economy output per worker is the ratio of Gross Value Added (GVA) at basic prices and Labour Force Survey (LFS) total employment. Manufacturing output per filled job is the ratio of manufacturing output (from the Index of Production) and productivity jobs for manufacturing (constrained to LFS jobs at the whole economy level).

Redundancies

The number of people, whether working or not working, who reported that they had been made redundant or taken voluntary redundancy in the month of the reference week or in the two calendar months prior to this.

Unit wage costs

A measure of the cost of wages and salaries per unit of output.

Vacancies

The statistics are based on ONS's Vacancy Survey of businesses. The survey is designed to provide comprehensive estimates of the stock of vacancies across the economy, excluding those in agriculture, forestry and fishing. Vacancies are defined as positions for which employers are actively seeking recruits from outside their business or organisation. More information on labour market concepts, sources and methods is available in the *Guide to Labour Market Statistics* at www.statistics.gov.uk/about/data/guides/LabourMarket/default.asp

Directory of online tables

The tables listed below are available as Excel spreadsheets via weblinks accessible from the main *Economic & Labour Market Review* (ELMR) page of the National Statistics website. Tables in sections 1, 3, 4 and 5 replace equivalent ones formerly published in *Economic Trends*, although there are one or two new tables here; others have been expanded to include, as appropriate, both unadjusted/seasonally adjusted, and current price/chained volume measure variants. Tables in sections 2 and 6 were formerly in *Labour Market Trends*. The opportunity has also been taken to extend the range of dates shown in many cases, as the online tables are not constrained by page size.

In the online tables, the four-character identification codes at the top of each data column correspond to the ONS reference for that series on our time series database. The latest data sets for the Labour Market Statistics First Release tables are still available on this database via the 'Time Series Data' link on the National Statistics main web page. These data sets can also be accessed from links at the bottom of each section's table listings via the 'Data tables' link in the individual ELMR edition pages on the website. The old *Economic Trends* tables are no longer being updated with effect from January 2009.

Weblink: www.statistics.gov.uk/elmr/09_09/data_page.asp

Title **Frequency of update**

UK economic accounts

	Title	Frequency of update
1.01	National accounts aggregates	M
1.02	Gross domestic product and gross national income	M
1.03	Gross domestic product, by category of expenditure	M
1.04	Gross domestic product, by category of income	M
1.05	Gross domestic product and shares of income and expenditure	M
1.06	Income, product and spending per head	Q
1.07	Households' disposable income and consumption	M
1.08	Household final consumption expenditure	M
1.09	Gross fixed capital formation	M
1.10	Gross value added, by category of output	M
1.11	Gross value added, by category of output: service industries	M
1.12	Summary capital accounts and net lending/net borrowing	Q
1.13	Private non-financial corporations: allocation of primary income account[1]	Q
1.14	Private non-financial corporations: secondary distribution of income account and capital account[1]	Q
1.15	Balance of payments: current account	M
1.16	Trade in goods (on a balance of payments basis)	M
1.17	Measures of variability of selected economic series	Q
1.18	Index of services	M

Selected labour market statistics

	Title	Frequency of update
2.01	Summary of Labour Force Survey data	M
2.02	Employment by age	M
2.03	Full-time, part-time and temporary workers	M
2.04	Public and private sector employment	Q
2.05	Workforce jobs	Q
2.06	Workforce jobs by industry	Q
2.07	Actual weekly hours of work	M
2.08	Usual weekly hours of work	M
2.09	Unemployment by age and duration	M
2.10	Claimant count levels and rates	M
2.11	Claimant count by age and duration	M
2.12	Economic activity by age	M
2.13	Economic inactivity by age	M
2.14	Economic inactivity: reasons	M
2.15	Educational status, economic activity and inactivity of young people	M
2.16	Average earnings – including bonuses	M
2.17	Average earnings – excluding bonuses	M
2.18	Productivity and unit wage costs	M
2.19	Regional labour market summary	M

Weblink: www.statistics.gov.uk/elmr/09_09/data_page.asp

2.20	International comparisons	M
2.21	Labour disputes	M
2.22	Vacancies	M
2.23	Vacancies by industry	M
2.24	Redundancies: levels and rates	M
2.25	Redundancies: by industry	Q
2.26	Sampling variability for headline labour market statistics	M

Prices

3.01	Producer and consumer prices	M
3.02	Harmonised Indices of Consumer Prices: EU comparisons	M

Selected output and demand indicators

4.01	Output of the production industries	M
4.02	Engineering and construction: output and orders	M
4.03	Motor vehicle and steel production[1]	M
4.04	Indicators of fixed investment in dwellings	M
4.05	Number of property transactions	M
4.06	Change in inventories[1]	Q
4.07	Inventory ratios[1]	Q
4.08	Retail sales, new registrations of cars and credit business	M
4.09	Inland energy consumption: primary fuel input basis[1]	M

Selected financial statistics

5.01	Sterling exchange rates and UK reserves	M
5.02	Monetary aggregates	M
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5.04	Public sector receipts and expenditure	Q
5.05	Public sector key fiscal indicators	M
5.06	Consumer credit and other household sector borrowing	M
5.07	Analysis of bank lending to UK residents	M
5.08	Interest rates and yields	M
5.09	A selection of asset prices	M

Further labour market statistics

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6.03	Employment by occupation	Q
6.04	Employee jobs by industry	M
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Weblink: www.statistics.gov.uk/elmr/09_09/data_page.asp

6.13	Average Earnings Index: effect of bonus payments by main industrial sector	M
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6.30	Labour disputes: stoppages in progress	M

Notes:

1 These tables, though still accessible, are no longer being updated.
A Annually
Q Quarterly
M Monthly

More information

Time series are available from www.statistics.gov.uk/statbase/tsdintro.asp
Subnational labour market data are available from www.statistics.gov.uk/statbase/product.asp?vlnk=14160 and www.nomisweb.co.uk
Labour Force Survey tables are available from www.statistics.gov.uk/statbase/product.asp?vlnk=14365
Annual Survey of Hours and Earnings data are available from www.statistics.gov.uk/statbase/product.asp?vlnk=13101

Contact points

Recorded announcement of latest RPI
☎ 01633 456961
✉ rpi@ons.gsi.gov.uk

Labour Market Statistics Helpline
☎ 01633 456901
✉ labour.market@ons.gsi.gov.uk

Earnings Customer Helpline
☎ 01633 819024
✉ earnings@ons.gsi.gov.uk

National Statistics Customer Contact Centre
☎ 0845 601 3034
✉ info@statistics.gsi.gov.uk

Skills and Education Network
☎ 024 7682 3439
✉ senet@lsc.gov.uk

Department for Children, Schools and Families Public Enquiry Unit
☎ 0870 000 2288

For statistical information on

Average Earnings Index (monthly)
☎ 01633 819024

Claimant count
☎ 01633 456901

Consumer Prices Index
☎ 01633 456900
✉ cpi@ons.gsi.gov.uk

Earnings
Annual Survey of Hours and Earnings
☎ 01633 456120

Basic wage rates and hours for manual workers with a collective agreement
☎ 01633 819008

Low-paid workers
☎ 01633 819024
✉ lowpay@ons.gsi.gov.uk

Labour Force Survey
☎ 01633 456901
✉ labour.market@ons.gsi.gov.uk

Economic activity and inactivity
☎ 01633 456901

Employment
Labour Force Survey
☎ 01633 456901
✉ labour.market@ons.gsi.gov.uk

Employee jobs by industry
☎ 01633 456776

Total workforce hours worked per week
☎ 01633 456720
✉ productivity@ons.gsi.gov.uk

Workforce jobs series –
short-term estimates
☎ 01633 456776
✉ workforce.jobs@ons.gsi.gov.uk

Labour costs
☎ 01633 819024

Labour disputes
☎ 01633 456721

Labour Force Survey
☎ 01633 456901
✉ labour.market@ons.gsi.gov.uk

Labour Force Survey Data Service
☎ 01633 455732
✉ lfs.dataservice@ons.gsi.gov.uk

New Deal
☎ 0114 209 8228

Productivity and unit wage costs
☎ 01633 456720

Public sector employment
General enquiries
☎ 01633 455889

Source and methodology enquiries
☎ 01633 812865

Qualifications (Department for Children, Schools and Families)
☎ 0870 000 2288

Redundancy statistics
☎ 01633 456901

Retail Prices Index
☎ 01633 456900
✉ rpi@ons.gsi.gov.uk

Skills (Department for Innovation, Universities & Skills)
☎ 0870 001 0336

Skill needs surveys and research into skill shortages
☎ 0870 001 0336

Small firms (BERR)
Enterprise Directorate
☎ 0114 279 4439

Subregional estimates
☎ 01633 812038

Annual employment statistics
✉ annual.employment.figures@ons.gsi.gov.uk

Annual Population Survey,
local area statistics
☎ 01633 455070

Trade unions (BERR)
Employment relations
☎ 020 7215 5934

Training
Adult learning – work-based training (DWP)
☎ 0114 209 8236

Employer-provided training (Department for Innovation, Universities & Skills)
☎ 0870 001 0336

Travel-to-Work Areas
Composition and review
☎ 01329 813054

Unemployment
☎ 01633 456901

Vacancies
Vacancy Survey:
total stocks of vacancies
☎ 01633 455070

ONS economic and labour market publications

ANNUAL

Financial Statistics Explanatory Handbook

2009 edition. Palgrave Macmillan, ISBN 978-0-230-52583-2. Price £47.50.

www.statistics.gov.uk/StatBase/Product.asp?vlnk=4861

Foreign Direct Investment (MA4)

2007 edition

www.statistics.gov.uk/StatBase/Product.asp?vlnk=9614

Input-Output analyses for the United Kingdom

2006 edition

www.statistics.gov.uk/StatBase/Product.asp?vlnk=7640

Research and development in UK businesses (MA14)

2006 edition

www.statistics.gov.uk/StatBase/Product.asp?vlnk=165

Share Ownership

2006 edition

www.statistics.gov.uk/StatBase/Product.asp?vlnk=930

United Kingdom Balance of Payments (Pink Book)

2009 edition. Palgrave Macmillan, ISBN 978-0-230-54565-6. Price £49.50.

www.statistics.gov.uk/StatBase/Product.asp?vlnk=1140

United Kingdom National Accounts (Blue Book)

2009 edition. Palgrave Macmillan, ISBN 978-0-230-54566-3. Price £49.50.

www.statistics.gov.uk/StatBase/Product.asp?vlnk=1143

First releases

- Annual survey of hours and earnings
- Foreign direct investment
- Gross domestic expenditure on research and development
- Low pay estimates
- Regional gross value added
- Share ownership
- UK Business enterprise research and development
- Work and worklessness among households

QUARTERLY

Consumer Trends

2009 quarter 1

www.statistics.gov.uk/StatBase/Product.asp?vlnk=242

United Kingdom Economic Accounts

2009 quarter 1. Palgrave Macmillan, ISBN 978-0-230-57713-8. Price £37.50.

www.statistics.gov.uk/StatBase/Product.asp?vlnk=1904

UK trade in goods analysed in terms of industry (MQ10)

2009 quarter 1

www.statistics.gov.uk/StatBase/Product.asp?vlnk=731

First releases

- Balance of payments
- Business investment
- GDP preliminary estimate
- Government deficit and debt under the Maastricht Treaty (six-monthly)
- International comparisons of productivity (six-monthly)
- Internet connectivity
- Investment by insurance companies, pension funds and trusts
- Productivity
- Profitability of UK companies
- Public sector employment
- Quarterly National Accounts
- UK output, income and expenditure

MONTHLY

Financial Statistics

August 2009. Palgrave Macmillan, ISBN 978-0-230-57711-4. Price £50.00.

www.statistics.gov.uk/StatBase/Product.asp?vlnk=376

Focus on Consumer Price Indices

July 2009

www.statistics.gov.uk/StatBase/Product.asp?vlnk=867

Monthly review of external trade statistics (MM24)

June 2009

www.statistics.gov.uk/StatBase/Product.asp?vlnk=613

Producer Price Indices (MM22)

July 2009

www.statistics.gov.uk/StatBase/Product.asp?vlnk=2208

First releases

- Consumer price Indices
- Index of production
- Index of services
- Labour market statistics
- Labour market statistics: regional
- Producer prices
- Public sector finances
- Retail sales
- UK trade

OTHER

The ONS Productivity Handbook: a statistical overview and guide

Palgrave Macmillan, ISBN 978-0-230-57301-7. Price £55.

www.statistics.gov.uk/about/data/guides/productivity/default.asp

Labour Market Review

2006 edition. Palgrave Macmillan, ISBN 1-4039-9735-7. Price £40.

www.statistics.gov.uk/StatBase/Product.asp?vlnk=14315

National Accounts Concepts, Sources and Methods

www.statistics.gov.uk/StatBase/Product.asp?vlnk=1144

Sector classification guide (MA23)

www.statistics.gov.uk/StatBase/Product.asp?vlnk=7163

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Effects of taxes and benefits on household income, 2007/08
Andrew Barnard

Implementation of SIC 2007 across the Government Statistical Service
John Hughes and Keith Brook

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List is provisional and subject to change.

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National Accounts Blue Book revisions
International measures of adult educational attainment
SPPI quarterly update
ICT impact assessment