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The Director of ONS is also the National Statistician and the Registrar General for England and Wales.

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You can also find National Statistics on the Internet at: www.statistics.gov.uk

A fuller list of contact points can be found on page 70.

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In brief

Developments to the Monthly Production Inquiry

In March 2008 (when January estimates are published), as part of a wider reprioritisation of the Office for National Statistics' (ONS) business, the sample size for the Monthly Production Inquiry (MPI) will be reduced by around 20 per cent. The MPI collects turnover and employment information used for National Accounts and Labour Market Statistics. This sample reduction is motivated in part by the need for ONS's business surveys to better reflect the current structure of the economy, which has seen the production sector decrease from 37 per cent in 1970 to around 18 per cent today in terms of turnover. The change will also reduce the burden of form-filling imposed by ONS on contributing businesses.

At the same time, ONS will introduce a new classification coding tool, which assigns a Standard Industrial Classification (SIC) code from the description of economic activity supplied by a business. This may give some changes in the classification of businesses. For MPI specifically, a number of methodological changes will also be made, including a reoptimisation of the sample and an improvement in the turnover imputation and estimation methods. These changes will maintain, and in some cases improve, the quality of the aggregate level estimates in the Engineering Turnover and Orders Digest (ETO) and, in turn, the quality of estimates of the change in production output as published in the Index of Production (IoP) First Release. There may be some reduction in quality of lower level estimates. The level of detail published in the ETO and for the IoP will be reduced, providing greater focus on the aggregate series. Series at four-digit level of SIC will no longer be published.

The current ETO and IoP series will no longer be available from March 2008 when January estimates are published. The new aggregate series based on the new turnover estimation methodology will be available for a ten year back series of data to allow continued analysis of trends.

Similarly, the sample reduction and reoptimisation will affect the quality of the employee job estimates for production industries, part of the Workforce Jobs series published in the Labour Market First Release.

More detail on the reasons for the methodological changes and the impact these will have on the levels of detail which ONS publish can be seen in previous *Economic & Labour Market Review* articles, as indicated below.

More information

www.statistics.gov.uk/cci/article.asp?id=1842
www.statistics.gov.uk/cci/article.asp?id=1916

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UN Review of Employment Statistics

At the beginning of 2007, the Office for National Statistics (ONS), on behalf of the UK, was asked to carry out a Review of Employment Statistics by United Nations Statistics Division for presentation to the Statistical Commission. This work was carried out during 2007 and the final report will be presented at the Statistical Commission's 40th session in New York on 26 February 2008.

The original aims of the Review were wide-ranging but were condensed into the three main areas highlighted below:

- to assess current issues with employment statistics globally, identify similarities and highlight differences
- to investigate the role of international agencies involved in labour statistics and identify successes and gaps, and
- to look at existing conceptual frameworks of labour market statistics and their use in the context of different levels of statistical development internationally, in order to make a broad assessment of the key areas of development for the future

The work was carried out within the Labour Market Division of ONS and involved four main areas of work:

- desk-based research, looking at the stages of producing employment statistics from data collection, collation, analysis and output
- consultation with key players internationally, including the International Labour Organisation and incorporating these views with the evidence collected in stage 1
- carrying out an international questionnaire looking at the process of providing data to, and using information from, international agencies involved in labour statistics, and
- bringing together the various strands of work in order to formulate tangible conclusions, both on a conceptual and practical basis

The full report and background documents are available on the UN website at the address given below. A full article detailing the recommendations and proposed future work of relevance to UK labour statistics will be published in *Economic & Labour Market Review* later in 2008.

More information

http://unstats.un.org/unsd/statcom/sc2008.htm

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Updating the International Standard Classification of Occupations

Work on updating the International Standard Classification of Occupations (ISCO) is nearing completion. This work began in 2003, when the International Labour Office (ILO) was requested to update ISCO, by late 2007, and to convene a meeting of experts to adopt the classification and make appropriate recommendations to the Governing Body of the ILO. The work was scheduled for completion to allow sufficient time for

the updated classification, or national adaptations of it, to be available for use in the 2010 round of national population censuses.

A meeting of experts on labour statistics on updating ISCO was convened by the ILO from 3 to 6 December 2007 to adopt, discuss and agree the new classification. The meeting, chaired by the UK delegate (from the Office for National Statistics), evaluated and revised an updated classification structure, then adopted a draft resolution endorsing it.

The updated classification is known as the International Standard Classification of Occupations 2008 (ISCO-08) and will be made available to the UN Statistics Commission at its 39th session in February 2008.

In updating ISCO, ILO consulted as widely as possible with stakeholders and interested parties. An important element in the success of the work was the establishment of a Technical Expert Group for updating ISCO to provide ILO with advice on, and assistance in, the updating work. The group is made up of national experts in occupational classification from all regions of the world, as well as experts from relevant international agencies.

Although the conceptual model underpinning ISCO-08 remains essentially the same as that used in ISCO-88, there have been some changes in the way the model is used to design the classification. The most notable change is that, since the nature of the work performed has been given more emphasis than the formal education and training required in determining the skill level of an occupation, there is no need for parallel groups in different major groups to allow for cases where the educational and training requirements for a particular occupational group differ from one country to the next.

Explanatory material describing the conceptual framework of the classification, definitions of categories, an updated index and an ISCO-88/ISCO-08 correspondence table have been developed in draft form as part of the development work. They will be finalised as soon as possible, in close consultation with the Technical Expert Group for updating ISCO, and will be included in the publication as well as on the ILO website. Further information is available from the ILO website at the address given below.

More information

www.ilo.org/public/english/bureau/stat/isco/index.htm

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Wealth and Assets Survey

The Wealth and Assets Survey is a new and ongoing study of wealth and indebtedness that aims to provide a comprehensive overview of the economic wellbeing of individuals and households in Great Britain.

The survey is carried out by the Office for National Statistics (ONS). It is funded by a consortium of government departments including the Department for Work and Pensions; HM Revenue and Customs; the Department for Business, Enterprise and Regulatory Reform; Communities and Local Government; the Cabinet Office; and ONS.

Covering all forms of personal income, asset and debt, the survey is also designed to review access to, and take-up of, pensions, promising greater understanding of individuals' ability to provide for themselves into retirement.

The first wave of the survey began in July 2006 and runs until June 2008. Preliminary figures drawn from the first year of interviews, between July 2006 and June 2007, were released on 24 January 2008. These statistics are designated 'experimental' and were published to indicate the range of data gathered by the survey.

Experimental statistics are statistics that are in the testing phase and are not yet fully developed as National Statistics. There is greater emphasis within ONS on consulting users during methodological reviews and the development stage of methodological changes. In particular there is a strong desire to make experimental statistics available during a development period, to assist in the quality assurance process, and to help familiarise potential users with any changes.

The setting up of a Wealth and Assets User Group, comprising potential users of the survey data and statistics, is part of this process. The group will cover users from both within government and from outside bodies. The aim of this group is to assist the funders in the development of the statistics generated by the Wealth and Assets Survey and to enhance understanding and use of these statistics.

More information

www.statistics.gov.uk/statbase/product.asp?vlnk=15074

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Move from monthly to quarterly Labour Market Regional First Releases

There was an error in the published text for this piece in the January edition. The first paragraph should read:

'Following a review of the publication of the Labour Market Regional First Releases, it was decided to move the production of these First Releases from monthly to quarterly. The change is due to take place from February 2008, with this month seeing the publication of the last Regional First Releases on a monthly basis, with the next Regional First Releases published a quarter later, in May 2008. Subsequent Regional First Releases will then follow in August and November with the yearly cycle again beginning in February of the following year.'

Office for National Statistics on the move

From February 2008, Office for National Statistics' (ONS) economic statistics work in London, including National and Regional Accounts and the *Economic & Labour Market Review* (ELMR) editor, has relocated from Pimlico to the Finsbury district of the Borough of Islington. The new address is:

Office for National Statistics
1 Myddelton Street
Finsbury
London
EC1R IUW

The ELMR contact remains David Harper, who can be reached on 020 7014 2036.

Labour market and prices statistics work is now centred on ONS's Newport Office at:

Office for National Statistics
Government Buildings
Cardiff Road
Newport
Gwent
NP10 8XG

UPDATES

Updates to statistics on www.statistics.gov.uk

10 January

UK trade

Deficit widened to £4.4 billion in November 2007
www.statistics.gov.uk/cci/nugget.asp?id=199

11 January

Index of production

Manufacturing: 0.2% three-monthly fall to November
www.statistics.gov.uk/cci/nugget.asp?id=198

14 January

Producer prices

Factory gate inflation rises to 5.0% in December
www.statistics.gov.uk/cci/nugget.asp?id=248

15 January

Inflation

December: CPI at 2.1%; RPI down to 4.0%
www.statistics.gov.uk/cci/nugget.asp?id=19

16 January

Average earnings

Pay growth steady in the year to November 2007
www.statistics.gov.uk/cci/nugget.asp?id=10

Employment

Rate increases to 74.7% in three months to November
www.statistics.gov.uk/cci/nugget.asp?id=12

18 January

Retail sales

Slowdown in retail sales growth in three months to December
www.statistics.gov.uk/cci/nugget.asp?id=256

21 January

Public sector

December: £5.1 billion current budget deficit
www.statistics.gov.uk/cci/nugget.asp?id=206

23 January

GDP growth

UK economy grew by 0.6.% in Q4 2007
www.statistics.gov.uk/cci/nugget.asp?id=192

Index of services

0.6% three-monthly rise into November
www.statistics.gov.uk/cci/nugget.asp?id=558

FORTHCOMING RELEASES

Future statistical releases on www.statistics.gov.uk

4 February

MA4: Business monitor, foreign direct investment – 2006

7 February

Index of production – December 2007

11 February

Producer prices – January 2008

UK trade – December 2007

12 February

Consumer price indices – January 2008

Local area labour market statistical indicators

13 February

Labour market statistics – February 2008

MM19: Aerospace and electronic cost indices – November 2007

14 February

MM24: Monthly review of external trade statistics – December 2007

15 February

Digest of engineering turnover and orders – December 2007

18 February

Focus on consumer price indices – January 2008

19 February

MM22: Producer prices – January 2008

21 February

Internet connectivity – Q4 2007

Public sector finances – January 2008

Retail sales – January 2008

SDM28: Retail sales – January 2008

25 February

Price Index Numbers for Current Cost Accounting (PINCCA) (MM17) – January 2008

26 February

Business investment provisional results – Q4 2007

Public sector finances: supplementary (quarterly) data

27 February

Distributive and service trades – December 2007

Index of services – December 2007

Services producer price index (experimental) – Q4 2007

UK output, income and expenditure – Q4 2007

Economic review

February 2008

Anis Chowdhury
Office for National Statistics

SUMMARY

GDP growth continued to rise fairly robustly in 2007 quarter four, although at a slightly slower pace than in quarter three. Growth continued to be driven by the service sector offset by flat manufacturing output. On the expenditure side, household spending and business investment strengthened in quarter three in comparison with quarter two. The current account deficit and the trade deficit widened in quarter three. The labour market continues to be buoyant in quarter four but average earnings remain relatively subdued. The public sector finance position deteriorated in December 2007. Consumer price inflation was unchanged in December and was above the government's target. Producer output and input price inflation accelerated in December.

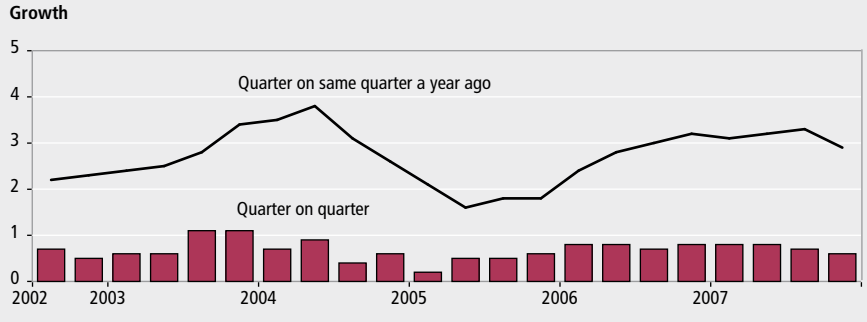
GROSS DOMESTIC PRODUCT

Fourth quarter growth of 0.6 per cent

The preliminary estimate of GDP growth for the fourth quarter of 2007 is now available. GDP growth for the fourth quarter of 2007 is estimated to have grown fairly strongly, by 0.6 per cent, slightly lower from growth of 0.7 per cent in the previous quarter. The initial estimate for the annual rate of growth was 2.9 per cent, down from 3.3 per cent growth in the previous quarter. It should be noted that these estimates are based on the output approach to measuring GDP. The headline figure will be firmed up later as more data becomes available (**Figure 1**).

The growth rate in the UK economy in quarter four continued to be driven by strong although slightly lower service sector output compared with the previous quarter. This was offset by a modest pick up in total production growth, mainly driven by an upturn in mining and quarrying output; manufacturing output in contrast was flat. The construction sector continued to grow strongly.

Figure 1
Gross Domestic Product



OTHER MAJOR ECONOMIES

Global growth rebounds in quarter three

Data for 2007 quarter four for the major OECD countries were not available at the time of writing this article. Data for 2007 quarter three reported an upturn in growth for the major OECD countries.

US GDP data for the third quarter of 2007 showed a continued upturn following stronger growth in quarter two. Growth was 1.2 per cent in quarter three compared with 1.0 per cent in quarter two. The contribution to higher growth in quarter three was mainly driven by a strong net export picture as well as higher inventories. Private consumption and business investment were also resilient. This was offset by continued weakness in residential investment growth.

Japan's GDP growth also showed an upturn in the third quarter. Growth increased by 0.6 per cent compared to a fall of 0.4 per cent in quarter two. The improvement was primarily driven by exports, combined with a fall in the rate of import growth. Positive growth was also recorded in private non-residential investment, private consumption and government consumption. Residential investment continued to record negative growth for the third consecutive quarter.

Growth in the three biggest mainland EU economies – Germany, France and Italy – recorded rebounds in GDP growth after a disappointing quarter two. According to Eurostat's estimate, euro area GDP grew by 0.7 per cent in 2007 quarter three. This is an acceleration compared to growth of 0.3 per cent in the previous quarter.

German GDP growth recorded an increase in growth in quarter three. Growth was 0.7 per cent compared to modest growth of 0.3 per cent in the second quarter. The main driver of growth was domestic demand, partly fuelled by inventories and partly by private consumption. This was offset by a weaker net export picture. Investment grew modestly.

French GDP growth increased in 2007 quarter three; growth was 0.7 per cent compared to 0.3 per cent in quarter two. Exports increased sharply, combined with a decline in the rate of import growth. Household consumption expenditure

and Gross Fixed Capital Formation also recorded strong growth.

Italian GDP growth rebounded in quarter three after a poor second quarter. Growth in quarter three was 0.4 per cent compared to 0.1 per cent in quarter two. Growth was mainly driven by investment, particularly capital and construction investment. Private consumption grew modestly. Net trade in contrast subtracted from growth with imports exceeding exports.

FINANCIAL MARKETS

Share prices flat; pound weakens

Equity performance recorded muted growth in 2007 quarter four, rising by just 0.5 per cent. This follows a fall of 3.1 per cent in quarter three. The weakness in equity growth can mainly be attributed to concerns regarding US economic growth prospects, brought on by continued problems in the housing and the sub-prime mortgage market. Increasing interest rates in the UK further contributed to this lack lustre performance.

In the currency markets, 2007 quarter four saw sterling's average value broadly depreciate compared with the previous quarter. The pound appreciated against the dollar by around 1.0 per cent in 2007 quarter four, a lower rate of appreciation compared to 1.7 per cent in the previous quarter. Against the euro, sterling's value depreciated by around 3 per cent after depreciating by 0.2 per cent in the previous quarter. Overall, the quarterly effective exchange rate depreciated by approximately 3 per cent in quarter four after flat growth in the previous quarter (**Figure 2**).

The recent movements in the exchange rate might be linked to a number of factors. First, exchange rate movements can be related to the perceptions of the relative strengths of the US, the Euro and UK economy. The lower rate of appreciation in quarter four may have come in response to fears about lower growth in the UK economy and therefore prospects of lower interest rates to stimulate the economy. Indeed, the Bank of England reduced interest rates by 25 basis points in December to 5.5 per cent, mainly in response to the effects of the sub-prime crisis in terms of downward risks to growth and inflation.

In the US, however, there have been particular concerns in recent months regarding the relative weakness of GDP growth, compounded by housing market weakness and the sub-prime crisis. In fact, US interest rates were loweredby a further 0.50 basis points in January 2008 following the 0.75 basis cut earlier to 3 per cent in response to concerns anout a possible recession. These interest rate decreases will have made the dollar less appealing to investors compared to other currencies.

Another factor could be the lack of international appetite for US dollar denominated assets, particularly from central banks, who are choosing to spread their currency assets on their balance sheets (for portfolio and risk management purposes), thereby further undermining the value of the dollar.

In contrast, in the euro area the depreciation of the pound against the euro in the fourth quarter of 2007 may have come in response to prospects of monetary tightening in the euro-zone. Interest rates in the euro-zone were maintained at 4.0 per cent in December after increasing by 0.25 per cent in June, partly in response to concerns about inflationary pressures.

Figure 2
Exchange rates

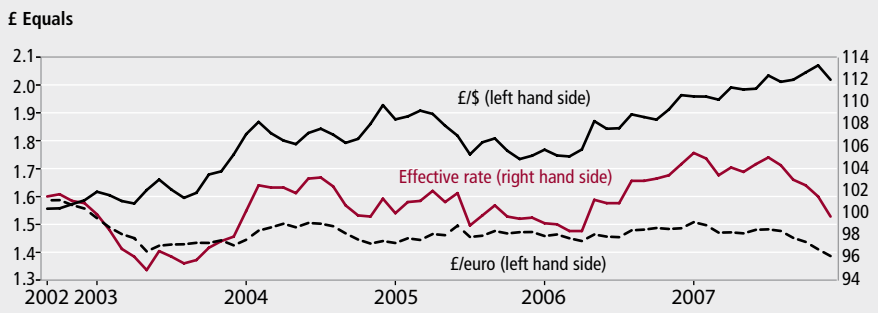
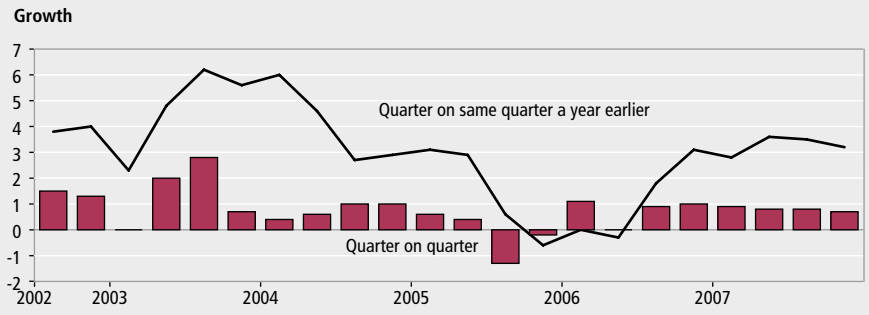


Figure 3
Construction output



OUTPUT

Services sector drives economic growth

GDP growth in 2007 quarter four was estimated at 0.6 per cent, down from 0.7 per cent in the previous quarter. On an annual basis it was 2.9 per cent, down from 3.3 per cent in the previous quarter.

Construction activity continued to grow strongly in the fourth quarter of 2007. Construction output is estimated to have grown by 0.7 per cent, down from 0.8 per cent growth in the previous quarter. Comparing the quarter on the same quarter a year ago, construction output rose by 3.2 per cent following growth of 3.5 per cent in the previous quarter (**Figure 3**).

In terms of external surveys of the construction sector, the CIPS survey signalled weakening activity in 2007 quarter four with the average headline index at 55.9, down from 62.3 in the previous quarter, but still indicative of strong growth. The RICS construction survey for 2007 quarter four reported an easing in the growth of construction workloads with the balance at plus 16, down from plus 17 in the previous quarter.

Total output from the production industries recorded relatively subdued growth of 0.3 per cent in 2007 quarter four following flat growth in the previous quarter. On an annual basis it rose by 0.8 per cent, up from 0.3 per cent in the previous quarter. The pick up in production was driven by an upturn in mining and

quarrying output (including oil and gas) together with an acceleration in the output of the electricity, gas and water supply industries. The output of the mining and quarrying industries rose by 1.1 per cent in 2007 quarter four, reversing a contraction of 1.1 per cent of the previous quarter. On an annual basis, mining and quarrying output rose by 2.9 per cent following virtually flat growth in the previous quarter. The output of electricity, gas and water supply industries also strengthened. Growth accelerated to 1.7 per cent from 0.8 per cent in the previous quarter. On an annual basis utilities output was up 0.8 per cent from 0.3 per cent in the previous quarter.

Manufacturing output in contrast continued to exhibit weakness. Growth was flat in quarter four, similar to quarter three. On an annual basis, manufacturing output growth slowed to 0.3 per cent from 0.4 per cent in the previous quarter (**Figure 4**).

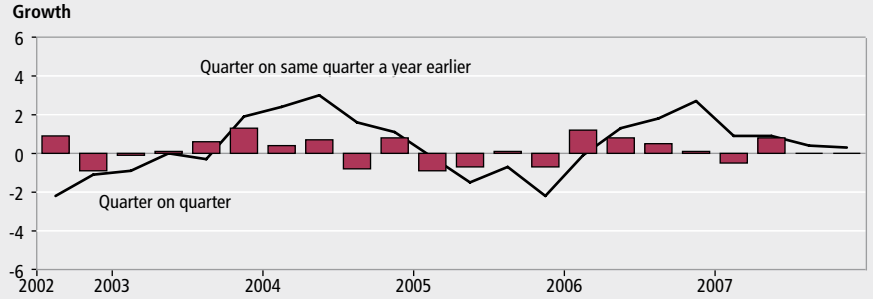
Production growth has generally been slow since the second quarter of 2006 due to weakness in mining and quarrying and utilities output, offset through most of this period by relatively strong manufacturing output. There was a pick up in production in 2007 quarter two, but this appears not to have been sustained in quarter three with only a modest pick up in quarter four due to a flat rate of manufacturing output growth in the latest two quarters. However, manufacturing output has been volatile in recent quarters.

The output of the agriculture, forestry and fishing industries strengthened in the latest quarter with output increasing by 1.3 per cent after falling by 0.6 per cent in the previous quarter.

External surveys of manufacturing for 2007 quarter four showed a fairly positive picture (**Figure 5**). In the past, it has not been unusual for the path of business indicators and official data to diverge over the short term. These differences happen partly because the series are not measuring exactly the same thing. External surveys measure the direction rather than the magnitude of a change in output and often inquire into expectations rather than actual activity.

The CIPS average headline index for manufacturing indicated a stable but robust picture in the latest quarter. The headline index was 53.4, although down from 55.4 in the previous quarter. The CBI in its 2007 quarter four Industrial Trends survey reported a strengthening in its total order books with the balance at plus two, up from minus six in the previous quarter. The BCC in its 2007 quarter four survey reported a mixed, but overall fairly buoyant, picture of manufacturing activity. The home sales balance was plus 32 from plus 37 in the previous quarter.

Figure 4
Manufacturing output



Overall the service sector, the largest part of the UK economy, continues to be the main driver of UK economic growth. Growth was 0.7 per cent in 2007 quarter four, slightly lower than 0.8 per cent growth in the previous quarter (**Figure 6**). Growth on an annual basis was 3.4 per cent, down from 3.9 per cent in the previous quarter. Growth was recorded across all four broad sectors. The main contribution to the growth rate came from a marked acceleration in the output of the transport, storage and communication industries which grew by 1.9 per cent in quarter four, up from 0.5 per cent in quarter three. There was modest acceleration in the output of the distribution, hotels and catering industries which grew by 1.0 per cent, up from 0.8 per cent in quarter three. There was also modest acceleration in government and other services output with growth of 0.5 per cent in quarter four, up from 0.3 per cent in the previous quarter. This was offset by a marked weakening in the growth of the output of the business services and finance industries. Growth decelerated to 0.4 per cent from 1.3 per cent in quarter three.

The external surveys on services showed a weakening, but still fairly robust, picture

Figure 5
External manufacturing

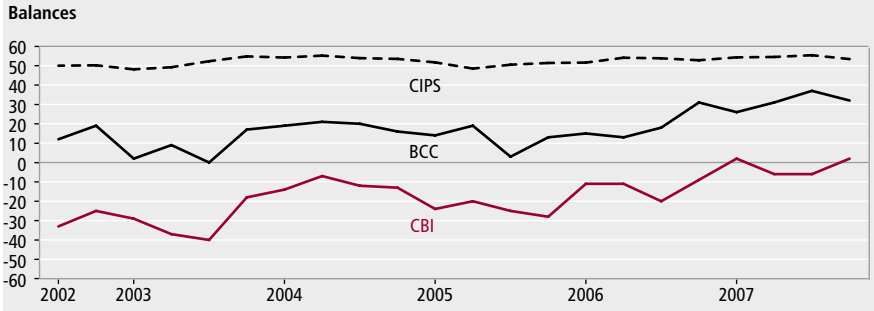
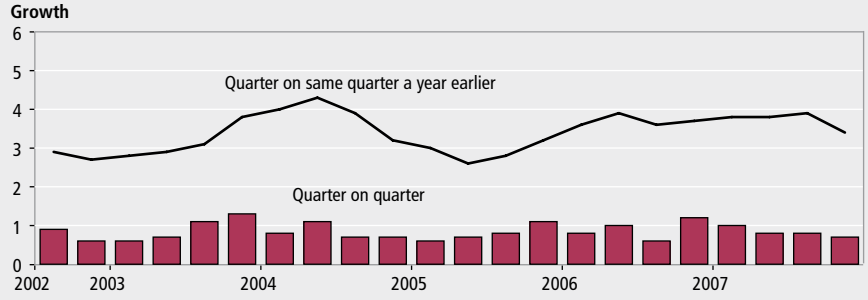


Figure 6
Services output



in line with official data. The CIPS average headline index in 2007 quarter four was 52.5, which although markedly down from 57.1 in the previous quarter is still above the long-run average. It should be noted that the CIPS survey has a narrow coverage of the distribution and government sectors.

The CBI and BCC reported a generally weakening picture of service sector activity (**Figure 7**). The CBI service sector survey for November reported modest growth in business volumes for the business and professional services sector and the consumer service sector. The consumer services volume balance was at plus 15, unchanged from the previous quarter. For business and professional services, the balance was at plus 19, down from plus 31 in the previous quarter. The BCC survey for 2007 quarter four survey reported a weakening picture of service sector activity, but overall balances for home orders and sales remained positive at plus 18 and plus 28, from plus 26 and plus 29 respectively.

Figure 7
External services

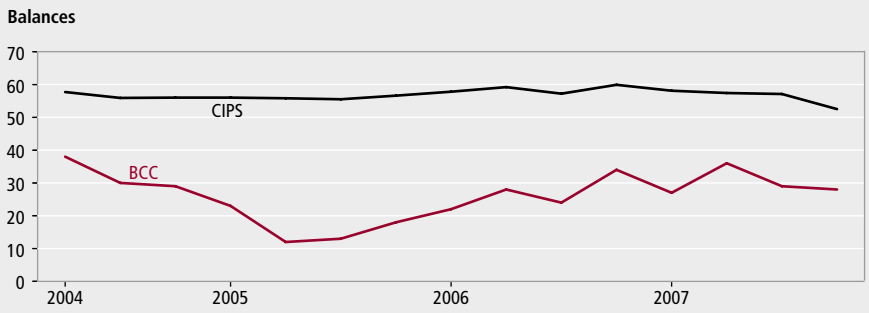
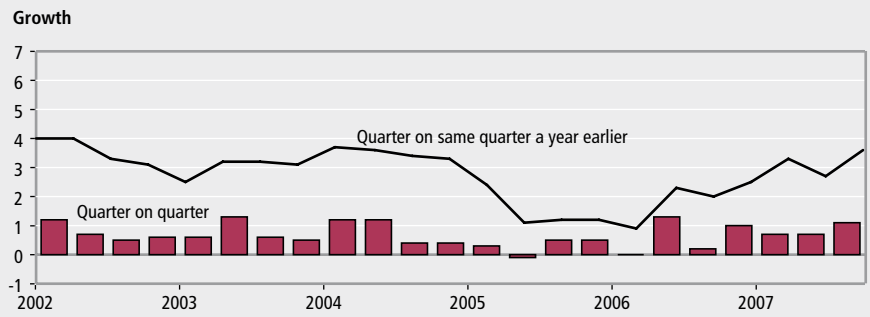


Figure 8
Household demand



EXPENDITURE

Consumers' spending buoyant in quarter three; but possible slowdown in quarter four

Household consumption expenditure growth accelerated in 2007 quarter three at a strong rate of 1.1 per cent. This follows growth of 0.7 per cent in the previous quarter. Growth compared with the same quarter a year ago was 3.6 per cent, up from 2.7 in quarter two (**Figure 8**). Growth was recorded across most sectors with the acceleration in household expenditure driven mainly by expenditure on durable and non-durable goods.

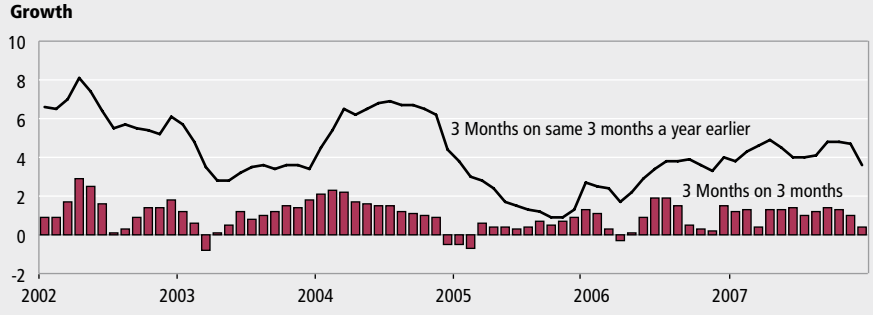
Indications of consumer demand for 2007 quarter four appear mixed. What is yet still uncertain is the impact on the UK economy from the US sub-prime housing crisis and the subsequent credit crunch. In 2007 quarter four, there may be tentative indications of some slowdown on various expenditure indicators that could be attributable to the credit crunch.

One key indicator of household expenditure is retail sales which slowed in 2007 quarter four compared with quarter three. Retail sales grew by 0.4 per cent in quarter four, a deceleration from growth of 1.4 per cent in the previous quarter.

Retail sales figures are published on a monthly basis and the latest available figures for December signalled a slowdown compared with November (**Figure 9**). In the three months to December the volume of retail sales increased by 0.4 per cent compared with a 1.0 per cent increase in the three months to November. On an annual basis in December, the latest three months growth compared with the same three months a year ago recorded growth of 3.6 per cent, down from 4.7 per cent growth in November. The slowdown in retail sales has occurred despite widespread discounting and early sales which are reflected in the price deflator (i.e. shop prices), which fell on average by around 1.1 per cent in the latest quarter. This could suggest the impact of previous interest rate rises and the effects of the credit crunch may have been a constraining factor in retail sales growth, together with diminished confidence on the part of consumers.

Retail sales can be disaggregated into 'predominantly food' and 'predominantly non-food' sectors. In three months to December the 'predominantly non-food' sector recorded growth of 0.8 per cent, while this is still showing growth it is at a lower rate than in recent months – in the three months to August this sector grew by 2.0 per cent. Growth in this sector was driven by the 'non-store retailing and repair' sector which grew by 4.4 per cent, followed by the 'other' stores and the 'household goods sector' sector which grew by 0.6 per cent and 0.4 per cent respectively. The 'Non-specialised goods' store sector

Figure 9
Retail sales



in contrast contracted by 1.6 per cent. The 'predominantly food' sector grew by a modest 0.3 per cent in the three months to December, down from 0.9 per cent in the three months to November.

External surveys for retail sales presented a slowing picture of growth. The CBI monthly Distributive Trades survey for December reported the slowest high street growth for over a year in early December with the balance at plus eight. The BRC reported an increase of 0.3 per cent in retail sales on a like-for-like basis in December, down from 1.2 per cent in the previous month (**Figure 10**).

Another indicator of household consumption expenditure is borrowing. Household consumption has risen faster than disposable income in recent years as the household sector has become a considerable net borrower and therefore accumulated high debt levels. Bank of England data on stocks of household debt outstanding to banks and building societies shows household debt at unprecedented levels relative to disposable income.

There are two channels of borrowing available to households: i) secured lending, usually on homes; and ii) unsecured lending, for example, on credit cards. On a general level, an increase in the interest rates increases debt servicing costs may discourage borrowing and in the process displace consumer expenditure on certain goods.

According to the latest figures from the Bank of England, there are signs that past interest rate rises may have begun to impact on lending and borrowing in 2007 quarter four, possibly due to the credit crunch. With regards to total net lending, figures showed a slowdown with total net lending at £9.1 billion in December, down from £10.9 billion at the end of September 2007. This was driven by lower growth on lending for secured dwellings which grew by £8.6 billion in December, down from £9.5 billion at the end of September 2007, and also from a weakening in unsecured lending from £1.3 billion at the end of quarter three to £0.6 billion at the end of December 2007.

An alternative measure of expenditure also showed a weakening picture. M4 (a broad money aggregate of UK money supply) rose by around £35.0 billion in 2007 quarter four compared with around £50.0 billion in quarter three. M4 lending (including cash and bank deposits) also fell sharply from around £77.0 billion in quarter three to around £51.0 billion in 2007 quarter four.

The slow-down in lending could possibly be as a result of tighter lending criteria adopted by some banks and building societies, particularly towards first time buyers and those considered higher risk. There may also be an impact in the form of higher interest rates charged by banks for customers who have borrowed on variable interest rate mortgages in the short term, and in the longer term, there may be an impact on those who took out fixed rate mortgages. However, the recent decrease in UK interest rates may reverse some of this trend. Some lenders have already passed on the cut to borrowers with variable rate mortgages.

Household expenditure can be linked to Household Equity Withdrawal (HEW). The situation regarding house prices in terms of contribution to consumer expenditure remains uncertain. Both Nationwide and Halifax report an easing in growth in house prices in quarter four compared with quarter three. However, despite this slowdown, house price growth is still holding up fairly well and may support consumption expenditure. According to the Nationwide, annual house price growth in quarter four was 6.9 per cent compared with 9.3 per cent in the previous quarter. Halifax reported annual house price growth of 5.2 per cent in quarter four, down from 9.8 per cent in quarter three and below the long-run average of 8 per cent.

The savings ratio is also a determinant of household expenditure. In quarter three, household spending was given a boost by the fall in the savings ratio which fell to 3.4 per cent, down from 4 per cent in quarter two. This well may be a factor in the latest quarter.

Finally, underlying fundamentals such as the prevalence of a relatively healthy labour market, together with levels of disposable income could be factors in affecting consumption growth in 2007 quarter four.

Figure 10
External retailing

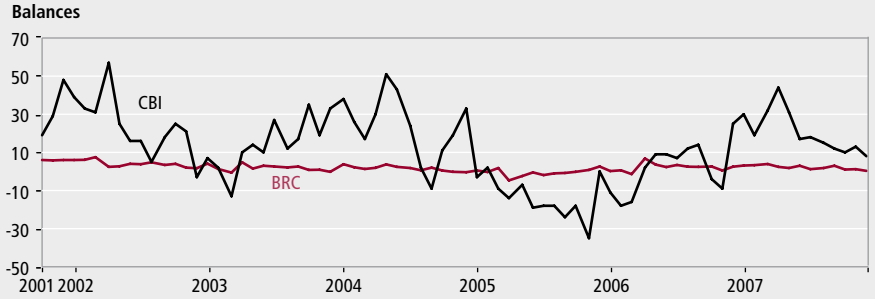
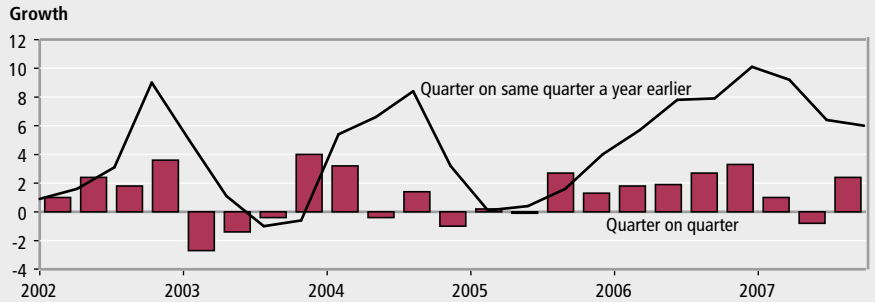


Figure 11
Total fixed investment



BUSINESS DEMAND

Business investment accelerated

Total investment rose by 2.4 per cent in quarter three compared to a fall of 0.8 per cent in the previous quarter. On an annual basis, total investment grew by 6 per cent, a slow-down from 6.4 per cent in the previous quarter. The strengthening in total investment was primarily driven by government and dwellings investment (**Figure 11**).

Business investment grew relatively strongly throughout 2006. In 2007 quarter

one business investment weakened but then recovered into quarter two recording fairly modest growth. In quarter three, growth accelerated to 2 per cent from 0.5 per cent in quarter two. On an annual basis, business investment grew by 6.6 per cent in quarter three, a slowdown from 7.8 per cent growth recorded in the previous quarter.

Evidence on investment intentions from the latest BCC and CBI surveys painted a weak picture. According to the latest quarterly BCC survey, the balance of manufacturing firms planning to increase investment in plant and machinery fell from plus 33 to plus 21. The CBI's Quarterly Industrial Survey for January 2008 reported a subdued investment picture, with the investment balance of plant and machinery weakening at minus 12 from minus 14 in the previous quarter.

GOVERNMENT DEMAND

Government expenditure moderates

Government final consumption expenditure continued to grow at a fairly modest pace in quarter three. Growth reached 0.3 per cent, a deceleration from quarter two's 0.5 per cent. Growth quarter on the same quarter a year earlier was 1.9 per cent, down slightly from the 2.0 per cent recorded for quarter two (**Figure 12**).

Public sector finances deteriorate

The latest figures on the public sector finances reported a deterioration in the current financial year to December 2007, compared with the last financial year. It showed a higher current budget deficit and a higher level of net borrowing. Overall, the government continued to operate a financial deficit, with government expenditure continuing to exceed revenues, partly to fund capital spending. In the financial year April to December 2007/08, the current budget deficit was £ 28.1 billion; this compares with a deficit of £ 18.4 billion in the financial year to April to December 2006/07. In the financial year to April to December 2007/08 net borrowing was £ 43.6 billion; this compares with net borrowing of £ 32.3 billion in the financial year April to December 2006/07. The higher current budget deficit together with the higher net borrowing was due to a combination of lower corporation tax and VAT receipts, with modest gains in income tax and National Insurance contributions continuing to be exceeded by total current expenditure, particularly on capital projects.

Figure 12
Government spending

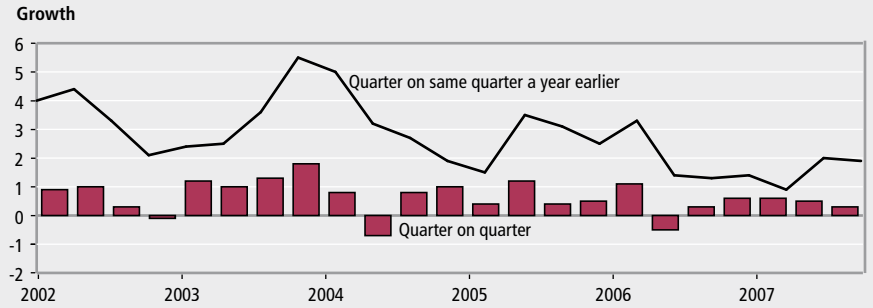
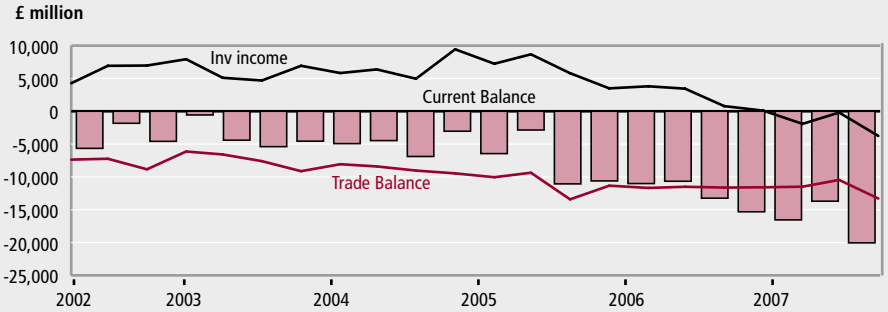


Figure 13
Balance of payments



Since net borrowing became positive in 2002, following the current budget moving from surplus into deficit, net debt as a proportion of annual GDP has risen steadily. Public sector net debt in December 2007 was 37.7 per cent of GDP, up from 37.3 in December 2006. In the financial year 2006/07, net debt as a percentage of GDP was 36.6 per cent.

TRADE AND THE BALANCE OF PAYMENTS

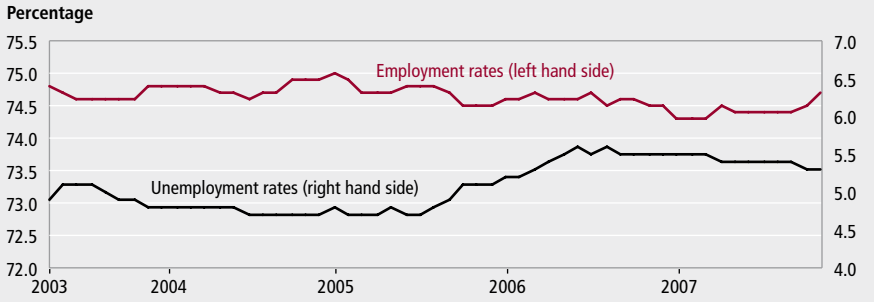
Current account deficit widens; goods deficit widens

The publication of the latest quarterly Balance of Payments shows that the current account deficit widened in 2007 quarter three to £ 20 billion, from a revised deficit of £ 13.7 billion in the previous quarter (**Figure 13**). As a proportion of GDP, the deficit rose to 5.7 per cent of GDP from 4 per cent in 2007 quarter two. The widening in the current account deficit in 2007 quarter three was due to a higher deficit on income and on trade in goods, partially offset by a higher surplus on trade in services. The deficit on income increased to £3.8 billion and the deficit on trade in goods widened to £22.6 billion. The surplus in trade in services increased to £9.3 billion. The deficit in current transfers was little changed at £3.0 billion. The increase in the income deficit was driven by a rise in earnings on other investment abroad, which outweighed a fall in earnings on direct investment abroad.

The run of current account deficits since 1998 reflects the sustained deterioration in the trade balance. The UK has traditionally run a surplus on the trade in services, complemented by a surplus in investment income, but this has been more than offset by the growing deficit in trade in goods partly due to the UK's appetite for cheaper imports.

Data for 2007 quarter three recorded a continuation of the large trade deficit in goods. Total exports of goods rose but imports of goods increased by a higher margin resulting in a widening of the deficit. The goods trade deficit was £22.6 billion in quarter three, up from £19.6 billion in quarter two. In terms of growth, exports of goods rose by 2.8 per cent whilst imports of goods rose by 6.0 per cent over the quarter. Services exports rose by 0.6 per cent and services imports also rose by

Figure 14
Employment and unemployment



0.6 per cent. Over the quarter, total exports increased by 2.0 per cent whilst total imports increased by 4.7 per cent.

According to the latest trade figures for November, the UK's deficit on trade in goods and services is estimated to have widened marginally. The total trade balance was in deficit by £4.4 billion, up from a deficit of £4.3 billion in October. The deficit in the trade in goods was £ 7.4 billion, unchanged from October. In growth terms, total exports rose by 0.8 per cent whilst total imports increased by 1.0 per cent. In the three months ended November, the deficit on trade in goods and services widened to £13.4 billion, from a £12.1 billion deficit in the previous three months. In terms of growth, total exports grew by 1.4 per cent, whilst total imports rose by 2.5 per cent.

However, these figures are distorted by volatility in VAT Missing Trader Intra–Community (MTIC) Fraud and therefore need to be treated with caution. According to the latest figures, the level of trade in goods excluding trade associated with MTIC fraud is estimated to be to £0.1 billion in November, unchanged from the previous month, and by £0.2 billion in the third quarter of 2007.

External surveys on exports reported a mixed picture for exports in the latest quarter. The BCC reported that the export sales net balance fell by 9 points to plus 22 and the export orders balance fell 10 points to plus 19. The latest CBI quarterly survey in contrast reported an improving picture. The export orders balance was plus 10 from plus 6 in the previous quarter. The export deliveries balance also improved to plus 11 from plus 7 from quarter three.

LABOUR MARKET

Labour market activity buoyant

The labour market in the latest reference period illustrated a continued strong picture - with high levels of employment and low levels of unemployment as seen throughout 2006 and in 2007. The robust labour market continues to be a reflection of strong demand conditions in the UK economy.

The latest figure from the Labour Force Survey (LFS) pertains to the three-month period up to November 2007. The number of people in employment and the employment rate rose. The number of unemployed people and the unemployment rate fell. The claimant count fell. The inactivity rate and the number of inactive people of working age have both fallen. The number of vacancies rose. Average earnings, including and excluding bonuses, remained unchanged from the previous month. Overall average earnings remain subdued with weak real wage growth.

Looking at a detailed level, the increase in the employment level was mainly driven by employees and full-time employment. The current working age employment rate was 74.7 per cent in the three months to November, up 0.3 percentage points from the three months to August 2007 and up 0.1 percentage point from a year earlier. The number of people in employment rose by 175,000 in the three months to November 2007 compared to the three months to August, to an employment level of 29.36 million in the three months to November. The unemployment rate was 5.3 per cent in the three months to November, down 0.1 percentage point from the three months to August 2007 and from a year earlier. The number of unemployed people decreased by 13,000 in the three months to November and was down 29,000 from a year earlier, leaving the current level of unemployment at 1.65 million

According to the LFS, in the period September to November 2007, the number of people in employment rose by 175,000. The increase was led by a rise in employees of 178,000 and a 5,000 rise in self-employment. In terms of full- and part-time workers, the numbers of people in full-time employment rose by 117,000 while the number of people in part-time employment increased by 57,000.

Workforce jobs increases

According to employer surveys, there was an increase of 63, 000 jobs in the three months to September 2007. The largest quarterly contribution to the increase came from finance and business services (up 57,000), followed by manufacturing (up 5,000) and other services (up 4,000). This was offset by small decreases across a number of sectors with the largest decrease in transport and communication (down 3,000) followed by construction and distribution, hotels & restaurants (down 1,000 respectively). Over the year, total workforce jobs increased by 287,000. Of the total, the largest contribution to the increase over the year came from finance and business services (up 201,000), followed by distribution, hotels and restaurants (up 75,000) and construction (up 40,000). The manufacturing sector, in contrast, lost the largest number of jobs on the year (down 37,000), followed by transport and communication (down 19,000).

Claimant count level continues to fall

The claimant count measures the number of people claiming the Jobseeker's Allowance. The latest figures for December showed the claimant count level at 807, 700, down 6,400 on the previous month and down 131,400 on a year earlier. The claimant count rate in December 2007 was 2.5 per cent, unchanged from the previous month but down 0.4 percentage points from a year earlier.

Vacancies rise

The number of vacancies created in the UK continued to show a healthy demand position for the economy.

There were 681,100 job vacancies in the three months to December 2007, up 12,200 from the previous three months and up 79,000 from the same period a year earlier.

Inactivity level falls

The working age inactivity rate was 21.0 per cent in the three months to November, down 0.2 percentage point on the three months to August 2007 but unchanged from a year earlier. In level terms, the number of economically inactive people of working age was down 81,000 over the quarter reaching a level of 7.91 million in the three months to November 2007. Inactivity falls in level terms were recorded across most groups. The largest level falls in inactivity were recorded for those categorised as 'looking after family/ home' (down 29,000), followed by the 'retired' category (down 24,000).

Average earnings subdued

Growth in whole economy average earnings was unchanged in the three months to November compared to the three months to October and remains relatively subdued. Average earnings including bonuses increased by 4.0 per cent in the three months to November, unchanged from the previous month. Average earnings excluding bonuses rose by 3.6 per cent, also unchanged from the previous month. In terms of the public and private sector split, the gap in average earning (excluding bonuses) narrowed in November. Public sector wage growth was 3.5 per cent, unchanged from October. Private sector wages, in contrast, fell by 0.1 percentage point to 3.6 per cent in November.

Overall, the numbers still point to a fairly buoyant labour market, with employment at high levels and unemployment at a stable level. This is consistent with higher workforce participation rates, underpinned by robust GDP growth. Average earnings show stable but fairly modest growth, consistent with increased supply in the labour force.

PRICES

Producer output and input prices accelerate

Industrial input and output prices are an indication of inflationary pressures in the economy. During quarter four, output prices exhibited further signs of an acceleration of growth from quarter three 2007 and therefore provided signs of continued inflationary pressures. Input prices also accelerated in the fourth quarter compared with quarter three. This suggests that firms were attempting to maintain their profit margins by passing on the higher costs of inputs to customers after facing a profit squeeze earlier in 2007.

Input prices on average rose by 10.3 per cent in 2007 quarter four. This compares with 2.8 per cent in 2007 quarter three. The core input price index, excluding food, beverages, tobacco and petroleum, rose by an average of 3.0 per cent in 2007 quarter four (12 month non-seasonally adjusted growth), an acceleration from growth of 2.3 per cent in the previous quarter. The sharp rise in input prices came mainly on the back of rising crude oil and home food materials prices.

Output prices grew on average by 4.5 per cent in 2007 quarter four, an acceleration from growth of 2.6 per cent in the previous quarter. The underlying picture also suggests inflationary pressures. On the core measure which excludes food, beverages, tobacco and petroleum, producer output prices rose on average by 2.3 per cent in 2007 quarter four, up from 2.2 per cent in the previous quarter. The main contributions to the increase in output prices were provided by rises in petroleum products and food prices.

Consumer prices unchanged but still above target

Growth in the consumer prices index (CPI) – the Government's target measure of inflation – was 2.1 per cent in December, unchanged from November. This is lower than the peak in March when inflation reached 3.1 per cent but above Government's 2.0 per cent inflation target (**Figure 15**).

Large downward contributions to the change in the CPI annual rate came from: housing and household services due to gas and electricity bills which increased by less than last year when tariff increases were being phased in; and furniture and furnishings where the price of kitchen units fell, reflecting discounting on some lines, and prices increased by less than last December across a range of other furniture

The largest upward contribution to the change in the CPI annual rate was from food and non-alcoholic beverages, particularly cauliflowers, tomatoes, onions and cabbages. Bread and cereals, and sugar, jam, confectionery and chocolate also contributed.

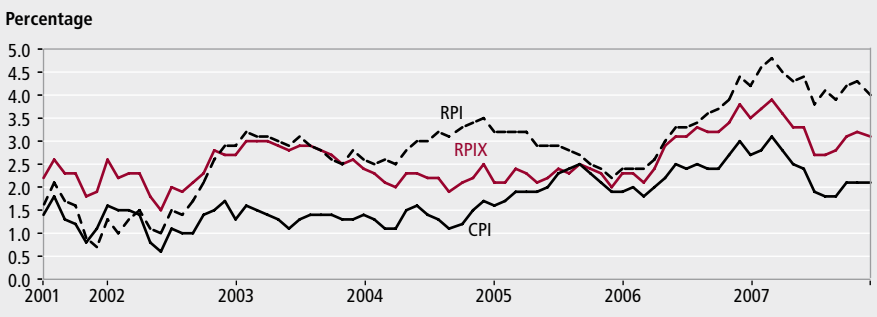
A further upward contribution came from clothing and footwear, mainly due to greater discounting of clothing the previous December across a range of men's and women's clothing. The largest effect came from women's dresses.

There was a small upward contribution from miscellaneous goods and services, chiefly due to an increase in mortgage arrangement fees within financial services.

RPI inflation fell to 4.0 per cent in December, down from 4.3 per cent in November. This was largely due to average mortgage interest payments, where there was a smaller increase than last December. Fares and other travel increased, which was due to air fares rising more than they did last year. Otherwise the main factors influencing the RPI were similar to those affecting the CPI.

RPIX inflation – the all items RPI excluding mortgage interest payments – was 3.1 per cent in December, down from 3.2 per cent in November.

Figure 15
Inflation



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	2006	2007	2007 Q2	2007 Q3	2007 Q4	2007 Oct	2007 Nov	2007 Dec
GDP growth - chained volume measures (CVM)									
Gross domestic product at market prices	ABMI	2.9	3.1	0.8	0.7	0.6	..	..	..
Output growth - chained volume measures (CVM)									
Gross value added (GVA) at basic prices	ABMM	3.0	3.1	0.8	0.7	0.6	..	..	..
Industrial production	CKYW	0.1	0.4	0.7	0.0	0.2	0.5	–0.1	..
Manufacturing	CKYY	1.5	0.6	0.8	0.0	0.0	0.3	–0.1	..
Construction	GDQB	1.0	3.3	0.7	0.8	0.7	..	..	..
Services	GDQS	3.6	3.7	0.8	0.8	0.7	..	..	..
Oil and gas extraction	CKZO	–9.3	..	0.8	–1.9	..	3.5	–1.0	..
Electricity, gas and water supply	CKYZ	–2.5	–0.1	–0.1	0.8	1.7	0.0	1.4	..
Business services and finance	GDQN	5.4	4.6	1.3	1.3	0.4	..	..	..
Household demand									
Retail sales volume growth	EAPS	3.1	4.3	1.4	1.4	0.4	–0.1	0.4	–0.4
Household final consumption expenditure growth (CVM)	ABJR	1.9	..	0.7	1.1	..	..	..	..
GB new registrations of cars (thousands)[1]	BCGT	2,340	..	573	671	..	168	161	..
Labour market[2,3]									
Employment: 16 and over (thousands)	MGRZ	28,947	29,152	29,153	29,223	..	29,355	..	..
Employment rate: working age (%)	MGSU	74.6	74.5	74.4	74.4	..	74.7	..	..
Workforce jobs (thousands)	DYDC	31,294	31,536	31,536	31,599	..	..	..	..
Total actual weekly hours of work: all workers (millions)	YBUS	925.4	932.8	937.6	937.9	..	939.5	..	..
Unemployment: 16 and over (thousands)	MGSC	1,660	1,666	1,661	1,667	..	1,649	..	..
Unemployment rate: 16 and over (%)	MGSX	5.4	5.4	5.4	5.4	..	5.3	..	..
Claimant count (thousands)	BCJD	944.7	863.9	877.1	846.8	815.3	824.1	814.1	807.7
Economically active: 16 and over (thousands)	MGSF	30,607	30,818	30,814	30,890	..	31,004	..	..
Economic activity rate: working age (%)	MGSO	78.9	78.8	78.8	78.8	..	79.0	..	..
Economically inactive: working age (thousands)	YBSN	7,851	7,946	7,965	7,973	..	7,909	..	..
Economic inactivity rate: working age (%)	YBTL	21.1	21.2	21.2	21.2	..	21.0	..	..
Vacancies (thousands)	AP2Y	594.7	658.6	647.5	668.9	681.1	671.4	679.1	681.1
Redundancies (thousands)	BEAO	145	2,882	120	134	..	124	..	..
Productivity and earnings annual growth									
GB average earnings (including bonuses)[3]	LNNC	..	..	3.4	4.1	..	4.0	4.0	..
GB average earnings (excluding bonuses)[3]	JQDY	..	..	3.4	3.7	..	3.6	3.6	..
Whole economy productivity (output per worker)	A4YN	..	..	2.5	2.6	..	..	..	..
Manufacturing productivity (output per job)	LOUV	..	..	..	..	..	2.5	2.1	..
Unit wage costs: whole economy	LOJE	..	..	1.4	1.5	..	..	..	..
Unit wage costs: manufacturing	LOJF	..	..	..	..	..	0.0	0.5	..
Business demand									
Business investment growth (CVM)	NPEL	–4.7	..	0.5	2.0	..	..	..	..
Government demand									
Government final consumption expenditure growth	NMRY	1.9	..	0.5	0.3	..	..	..	..
Prices (12-monthly percentage change – except oil prices)									
Consumer prices index[1]	D7G7	2.3	2.3	2.6	1.8	2.1	2.1	2.1	2.1
Retail prices index[1]	CZBH	3.2	4.3	4.4	3.9	4.2	4.2	4.3	4.0
Retail prices index (excluding mortgage interest payments)	CDKQ	2.9	3.2	3.4	2.7	3.1	3.1	3.2	3.1
Producer output prices (excluding FBTP)[4]	EUAA	2.3	2.4	2.2	2.3	2.4	2.3	2.3	2.6
Producer input prices	EUAB	9.7	3.4	0.9	3.0	10.5	9.3	10.8	11.2
Oil price: sterling (£ per barrel)	ETXR	35.93	36.11	34.05	36.93	43.51	40.38	44.58	45.59
Oil price: dollars ($ per barrel)	ETXQ	66.11	72.44	67.64	74.67	88.91	82.60	92.30	91.83

Seasonally adjusted unless otherwise stated

	Source CDID	2006	2007	2007 Q2	2007 Q3	2007 Q4	2007 Oct	2007 Nov	2007 Dec
Financial markets									
Sterling ERI (January 2005=100)	BK67	101.2	103.5	104.1	104.1	101.2	102.5	101.5	99.7
Average exchange rate /US$	AUSS	1.8430	2.0022	1.9870	2.0211	2.0444	2.0446	2.0701	2.0185
Average exchange rate /Euro	THAP	1.4670	1.4619	1.4732	1.4705	..	1.4370	1.4106	1.3863
3-month inter-bank rate	HSAJ	5.26	5.95	5.93	6.18	5.95	6.17	6.53	5.95
Selected retail banks: base rate	ZCMG						5.75	5.75	5.50
3-month interest rate on US Treasury bills	LUST	4.89	3.10	4.68	3.62	3.10	3.84	2.92	3.10
Trade and the balance of payments									
UK balance on trade in goods (£m)	BOKI	–77,399	..	–19,573	–22,637	..	–7,352	–7,377	..
Exports of services (£m)	IKBB	127,139	..	34,153	34,436	..	11,515	11,292	..
Non-EU balance on trade in goods (£m)	LGDT	–45,468	..	–9,933	–12,994	..	–4,480	–4,439	..
Non-EU exports of goods (excl oil & erratics)[5]	SHDJ	118.0	..	115.2	117.4	..	114.4	118.8	..
Non-EU imports of goods (excl oil & erratics)[5]	SHED	124.4	..	128.5	134.5	..	136.1	136.0	..
Non-EU import and price index (excl oil)[5]	LKWQ	103.9	..	104.4	103.4	..	103.8	103.9	..
Non-EU export and price index (excl oil)[5]	LKVX	101.5	..	101.9	102.2	..	103.5	103.5	..
Monetary conditions/government finances									
Narrow money: notes and coin (year on year percentage growth)[6]	VQUU	5.0	..	4.8	5.4	..	5.4	5.3	..
M4 (year on year percentage growth)	VQJW	12.9	..	12.8	12.7	..	11.8	11.7	..
Public sector net borrowing (£m)	–ANNX	29,031	41,413	17,197	8,346	18,090	–1,091	11,380	7,801
Net lending to consumers (£m)	RLMH	13,061	11,965	2,491	3,493	3,408	1,630	1,221	557

External indicators – non-ONS statistics

		2007 Jun	2007 Jul	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec	2008 Jan
Activity and expectations									
CBI output expectations balance	ETCU	25	10	13	17	10	9	3	9
CBI optimism balance	ETBV		–2			–13			–18
CBI price expectations balance	ETDQ	18	16	17	19	15	22	17	14

Notes:

1 Not seasonally adjusted.
2 Annual data are for April except for workforce jobs (June), claimant count (average of the 12 months) and vacancies (average of the four quarters).
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 Volumes, 2003 = 100.
6 Replacement for series M0 which has ceased publication.

For further explanatory notes, see Notes to tables on page xx.

Independent forecasts

January 2008

UK forecasts

The tables below supplement the Economic Review by providing a forward-looking view of the UK economy. The tables show the average and range of independent forecasts for 2007 and 2008 and are extracted from HM Treasury's Forecasts for the UK Economy.

2007

	Average	Lowest	Highest
GDP growth (per cent)	*3.1*	*2.5*	*3.3*
Inflation rate (Q4, per cent)			
CPI	*2.1*	*1.2*	*2.3*
RPI	*4.0*	*2.4*	*4.3*
Claimant count (Q4, million)	0.83	0.80	1.10
Current account (£ billion)	–58.0	–73.5	–36.9
Public Sector Net Borrowing (2007–08, £ billion)	38.5	30.4	45.0

2008

	Average	Lowest	Highest
GDP growth (per cent)	*1.8*	*-0.1*	*3.0*
Inflation rate (Q4, per cent)			
CPI	*2.2*	*1.7*	*3.2*
RPI	*2.6*	*1.5*	*3.8*
Claimant count (Q4, million)	0.90	0.8	1.23
Current account (£ billion)	–54.4	–80.1	–33.0
Public Sector Net Borrowing (2008–09, £ billion)	40.3	30.0	50.4`

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/economic_data_and_tools/data_index.cfm

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 (preliminary edition), published by OECD (Organisation for Economic Co-operation and Development).

2007

	US	Japan	Euro area	Total OECD
Real GDP growth (per cent)	*2.2*	*1.9*	*2.6*	*2.7*
Consumer price (percentage change from previous year)	*2.8*	*0.0*	*2.1*	*4.5*
Unemployment rate (per cent of the labour force)	*4.6*	*3.8*	*6.8*	*5.4*
Current account (as a percentage of GDP)	*–5.6*	*4.7*	*0.2*	*–1.4*
Fiscal balance (as a percentage of GDP)	*–2.8*	*–3.4*	*–0.7*	*–1.6*

2008

	US	Japan	Euro area	Total OECD
Real GDP growth (per cent)	*2.0*	*1.6*	*1.9*	*2.3*
Consumer price (percentage change from previous year)	*2.7*	*0.3*	*2.5*	*4.2*
Unemployment rate (per cent of the labour force)	*5.0*	*3.7*	*6.4*	*5.4*
Current account (as a percentage of GDP)	*–5.4*	*4.8*	*–0.1*	*–1.4*
Fiscal balance (as a percentage of GDP)	*–3.4*	*–3.8*	*–0.7*	*–2.0*

Notes

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

FEATURE

Improvements to the measurement of government output in the National Accounts

Mark Pont
Office for National Statistics

SUMMARY

Measuring the output and productivity of our public services, such as healthcare and education, is important for public accountability. Taxpayers, users and providers of public services have an interest in how government spends its money on these services and in whether services are good value for money.

This article describes recent improvements made by the Office for National Statistics to measures of government output, and reports the impact of doing so on estimates of GDP. It also describes further developments proposed for future inclusion in the National Accounts.

Measuring the output and productivity of our public services, such as healthcare and education, is important for public accountability. Public services account for around a fifth of total gross domestic product (GDP). Taxpayers, users and providers of public services have an interest in how government spends its money on these services and in whether services are good value for money.

Public services are included in the National Accounts, which measure economic activity overall, alongside the market sector.[1] Up to 1998, the Office for National Statistics (ONS), like other national statistics offices, measured the output of public services for the National Accounts by assuming the outputs were equal to the inputs used to produce them.

The economic rationale behind early National Accounts treatment of public sector output was that government was considered as a procurer of services on behalf of the citizen. Valuing government output at the cost of its input was therefore an appropriate measure, and adequate to represent economic activity for macroeconomic policy purposes. However, it does not represent government's role as a producer of services, or the value of outcomes those services may deliver.

The 'input equals output' convention meant that measured output could only ever grow at the same rate as input and measured productivity growth would always be zero (since productivity is calculated as the ratio of output to input).

From the introduction of ESA 95 (the European System of Accounts) in 1998, ONS started to measure public service output by direct methods and made good progress. However, the data and methods available to measure output directly were far from ideal and progress was rather piecemeal. Recognising the importance of moving this work to a higher standard, the then National Statistician, Len Cook, asked Sir Tony Atkinson to carry out a review. The Atkinson Review – *Measurement of Government Output and Productivity for the National Accounts* (Atkinson 2005) – was published in January 2005, and set out principles and recommendations for moving this work forward.

Following the review, in July 2005, the UK Centre for Measurement of Government Activity (UKCeMGA) was set up within ONS to take forward implementation of the Atkinson principles and recommendations. Since its launch, UKCeMGA has made substantial progress on improving public services data that are fed into the National Accounts, and has published a series of public service productivity articles on healthcare, education, adult social care and social security administration.

This article sets out to describe the impact that changes to methods in measuring public service output have had on the National Accounts since work started on the Atkinson Review. It also lists the main changes that have been made to methods and data series for public service measurement in the National Accounts during the last three years. Previous changes

Box 1

Atkinson principles

Principle A: the measurement of government non-market output should, as far as possible, follow a procedure parallel to that adopted in the National Accounts for market output.

Principle B: the output of the government sector should in principle be measured in a way that is adjusted for quality, taking account of the attributable incremental contribution of the service to the outcome.

Principle C: account should be taken of the complementarity between public and private output, allowing for the increased real value of public services in an economy with rising real GDP.[2]

Principle D: formal criteria should be set in place for the extension of direct output measurement to new functions of government. Specifically, the conditions for introducing a new directly measured output indicator should be that: (i) it covers adequately the full range of services for that functional area; (ii) it makes appropriate allowance for quality change; (iii) the effects of its introduction have been tested service by service; (iv) the context in which it will be published has been fully assessed, in particular the implied productivity estimate; and (v) there should be provision for regular statistical review.

Principle E: measures should cover the whole of the UK; where systems for public service delivery and/or data collection differ across the different countries of the UK, it is necessary to reflect this variation in the choice of indicators.

Principle F: the measurement of inputs should be as comprehensive as possible; capital inputs to production should be measured using capital services; labour inputs should be compiled using both direct and indirect methods, compared and reconciled; consideration should be given to the split between current and capital spending.

Principle G: criteria should be established for the quality of price deflators to be applied to the input spending series; they should be sufficiently disaggregated to take account of changes in the mix of inputs and should reflect full and actual costs.

Principle H: independent corroborative evidence should be sought on government productivity, as part of a process of 'triangulation', recognising the limitations in reducing productivity to a single number.

Principle I: explicit reference should be made to the margins of error surrounding National Accounts estimates.

were documented in Pritchard (2004) and ONS (2005), and are not repeated in this article.

This article contains sections covering the following:

- a summary of the extent to which the recommendations from the Atkinson Review have been implemented
- an overview of the extent to which output methods are used to measure public service activity
- the procedures involved in revising the National Accounts and the overall extent of revisions from UKCeMGA
- detail on the particular improvements made in the measurement of each service area
- some further developments that are proposed for inclusion in the National Accounts

The Atkinson Review

The Atkinson Review made 54 recommendations, covering some general principles and some specific issues relating to the measurement of government output and productivity. The principles are listed in **Box 1**.

The recommendations have several pervasive themes, particularly those relating to analysis of outputs:

- to improve output methods
- the introduction and improvement of quality adjustment methods
- developing better links and methods with the devolved administrations
- production of a series of articles describing the output and productivity of government-funded services

A range of specific recommendations relate to the measurement and use of government expenditure data (input in the productivity equation).

Good progress has been made on many recommendations. The recommendations were wide-ranging in themselves – some contained many parts, some will take a long time to fully implement, and others, for example, reinforced a particular general direction for ONS. Overall, half of the recommendations have been fully or mostly implemented, with work underway or planned for the remainder.

Some of the main developments are as follows:

- UKCeMGA now produces a range of productivity articles – so far, articles have been written on health, education, social security administration and adult social care. These are available from UKCeMGA's website at www.statistics.gov.uk/ukcemga Productivity articles extend analysis of public service output and productivity beyond the National Accounts. Data and methods used for productivity articles may differ from those used in the National Accounts where this can be justified, in particular by using more 'developmental' methods, or use methods that are not appropriate for the National Accounts. The series will be further developed in due course
- developing relationships with, and better utilising data from, the devolved administrations. The benefits of this have been seen in some service areas and from some of the devolved administrations; further (joint) work is ongoing to improve the coverage of the four countries of the UK
- some progress has been made on recommendations relating to government expenditure (input) data, particularly through HM Treasury's Combined Online Information System

Output methods used in the measurement of public service activity

The Atkinson Review was clear that output methods should be used wherever possible to measure government output. Output methods are preferred because they can better capture the value added resulting from government spending.

Government output contributes to the expenditure method of calculating gross domestic product (GDP(E)). GDP(E) measures final consumption expenditure, so the measure of government output relevant here is general government final consumption expenditure (GGFCE). This will be referred to for convenience in this article as government output, but needs to be interpreted with its specific meaning. It specifically excludes transfer payments such

Table 1
Proportion of current price GGFCE[1] estimated using output methods: by public service, 2003

Service	Proportion of GGFCE (%)
Healthcare	*30.0*
Education	*17.4*
Adult social care	*6.1*
Social security administration	*2.8*
Children's social care	*2.2*
Prisons	*1.1*
Fire and rescue	*1.0*
Legal aid	*1.0*
Probation	*0.3*
Crown Prosecution Service	*0.2*
Criminal courts	*0.2*
County courts	*0.1*

Note:
1 General government final consumption expenditure.

as social security payments, but includes the costs involved in administering those payments. General government includes both central and local government.

Overall, 60 per cent of government output is currently measured using output methods. **Table 1** shows the breakdown of government services measured by ONS using output measures. Proportions are of current price GGFCE in the latest base year for the National Accounts, 2003.

Military defence and the Criminal Justice System (CJS) cover half of the remaining 40 per cent of government output. Work is underway to improve output measures for the various aspects of the CJS while developing a new method for the system as a whole. UKCeMGA is also evaluating the extent to which output of military defence may be measured more effectively.

The remaining output of government is also measured using the 'input equals output' convention. These components are individually relatively small proportions of total government output, but are in total quite significant, representing one-fifth of total government output.

Revisions to National Accounts data

Revisions to National Accounts data are taken into *Blue Book* each year as improved data and methods become available. This follows the principle of always ensuring the best available approved methods are used, along with the best available data, with the effect that over several years, revisions can sometimes cancel each other out. More information about the National Accounts revisions policy is available at www.statistics.gov.uk/about/methodology_by_theme/revisions_policies/downloads/na_revisions_policy.pdf

The quality assurance process for new National Accounts methods is described in Robinson and Obuwa (2006).

Revisions since the Atkinson Review

Some immediate changes to data and methods were made in the light of the work of the Atkinson Review team for healthcare in *Blue Book* 2004 and for other public services in *Blue Book* 2005. A further range of improvements was made following the Review.

This section describes the impact on estimates of government output over the period from 1995 to 2005. The latest estimates as published in *Blue Book* 2007 are compared with those published in *Blue Book* 2003, which was the last *Blue Book* before improvements that can be attributed to the work of the Atkinson Review were introduced.

It is not possible to take full account of the implementation of all new methods arising from the Atkinson Review because healthcare estimates for 2003 onwards and estimates for all services (including healthcare) for 2004 onwards are unavailable based on 'pre-Atkinson' methods. Figures here are therefore only indicative of the total revision. Revisions can be in either direction, so the total revision may be more or less than that shown later in this article.

In order to illustrate the magnitude of revision that may have occurred were a true pre-Atkinson series able to be produced, a new 'baseline' series has been constructed. The series originally published in *Blue Book* 2003 for 1995 to 2002 has been appended with imputed data for the years 2003 to 2005. Data for 2003 were imputed by applying the growth rate between 2002 and 2003 as published in *Blue Book* 2004 to the value for 2002 as published in *Blue Book* 2003. The series was extended to 2004 and 2005 similarly.

The series of estimates for 1995 to 2005 as published in *Blue Book* 2007 was then compared against that constructed series. The total revision to the cumulative growth in government output from 1995 to 2005 on that basis is 3.8 percentage points. This is equivalent to an increase in the cumulative growth in GDP from 1995 to 2005 of 0.7 percentage points.

The size of the revision to GDP could be higher than that shown above. Changes to methods made to the healthcare series at the time of the Atkinson Review caused upward revisions to GDP of around 0.1 percentage points each year from 1999 to 2003. It is clearly difficult to know for how long the original and new methods would continue to diverge at the same rate. Assuming they did continue to diverge at the same rate for 2004 and 2005, then the revision to cumulative growth in GDP from 1995 to 2005 would be 0.9 percentage points.

Analysis of improvements for individual service areas

This section provides more details about improvements to the individual service areas currently being measured using output methods.

Healthcare

Healthcare represents just under one-third of government output measured as GGFCE at current prices. The growth in government output in healthcare from 1995 to 2005 has been revised upwards from 27.9 per cent to 36.7 per cent, a revision to the cumulative growth of 8.7 percentage points, equivalent to 0.8 percentage points per year. This equates to a revision of about 2.3 percentage points to the cumulative growth in total government output (**Figure 1**).

As described in the previous section, changes to methods – the use of more disaggregated series for measuring healthcare output – caused upward revisions to the healthcare output series of between 1.0 and 2.3 percentage points each year from 1999 to 2003. The estimate of a total cumulative revision of 8.7 percentage points described in the previous paragraph would be too low under the assumption that the new method would have had a similar effect for 2004 and 2005. However, in the absence of data about how the previous method would have applied in those

Figure 1
Healthcare output

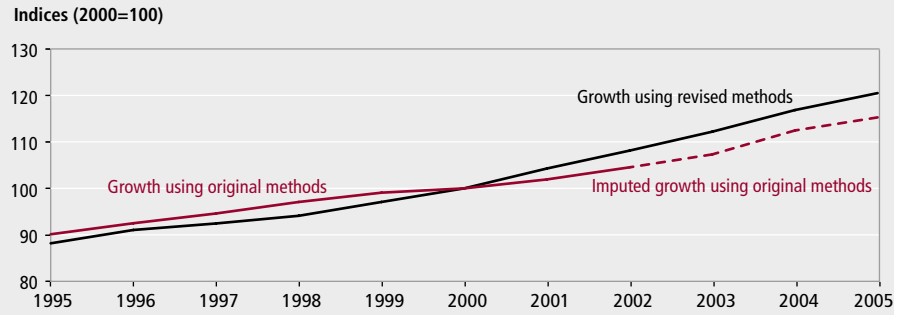


Figure 2
Education output

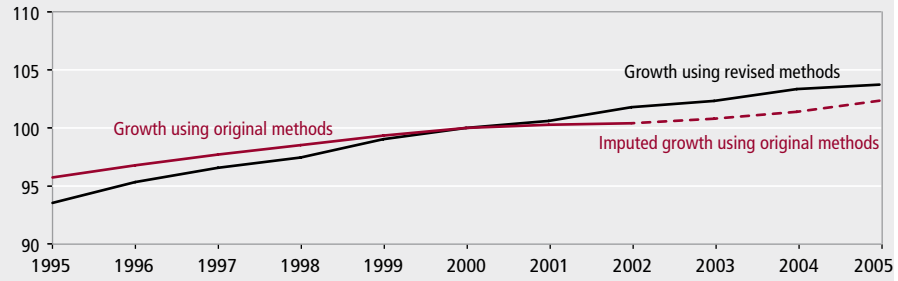
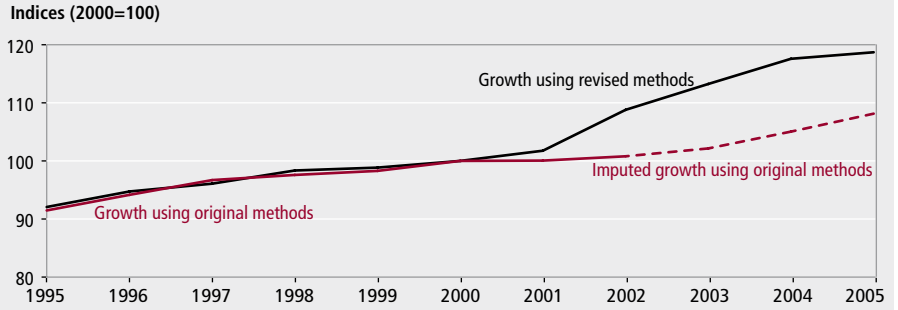


Figure 3
Personal social services output



years, it is impossible to roll forward that assumption with any degree of certainty.

In *Blue Book* 2005, the number of treatment categories covered by the output measure for England increased from 1,929 to 2,515. Treatment categories now include hospital inpatient, day case and outpatient episodes, distinguished by healthcare resource group, GP and practice nurse consultations and prescriptions, dental treatment, sight tests and ambulance journeys. The number of categories used also increased in Northern Ireland.

An improved source of information for GP activity was used from 2005 data in *Blue Book* 2007.

Education

Education represents about one-sixth of government output measured as GGFCE at current prices. The growth in government output in education from 1995 to 2005 has been revised upwards from 6.9 per cent to 10.9 per cent, a revision to the cumulative growth of 4.0 percentage points, equivalent to 0.4 percentage points per year. This equates to a revision of about 0.8 percentage points to the cumulative growth in total government output (**Figure 2**).

Two improvements have been made to the measure of educational output.

First, from *Blue Book* 2005, government-funded places in private, voluntary and independent nurseries in England and Northern Ireland were included in the publicly-funded education measure, including back data to 1996/97. Data for Scotland are now available, but not yet used in the National Accounts, and data for Wales are expected in the near future.

Second, improved weights and weighting methods have been included in *Blue Book* 2007. The weights developed are additive and so provide flexibility to construct country weights, and therefore it is now possible to produce separate chain-linked output indices for England, Scotland, Wales and Northern Ireland. In addition, chain-linking is applied throughout the index calculation at the lowest level.

Personal social services

Personal social services represent about 8.3 per cent of government output measured as GGFCE at current prices. The growth in government output in personal social services (adult social care and children's social care) from 1995 to 2005 has been revised upwards from 18.2 per cent to 28.9 per cent, a revision to the cumulative growth of 10.7 percentage points, equivalent to 1.0 percentage points per year. This equates to a revision of about 0.8 percentage points to the cumulative growth in total government output (**Figure 3**).

Adult social care

Two improvements have been made to the measure for adult social care for *Blue Book* 2007.

First, coverage has been increased by incorporating Scottish data in addition to the previous England only measure. Work is continuing to extend this measure to full UK coverage. A separate output index for Scotland was calculated for the first time, including in the measure 17 activities that cover a variety of services: assessment of need, day care, home care and the provision of home places.

Second, technical improvements were introduced to create better calendar year data from financial year data, and to replace forecasts with actual data.

Children's social care

Technical improvements have been made to create better calendar year data from financial year data, and to improve forecasting, which is required to estimate current data because of lags in supply of actual data.

Social security administration

Social security administration represents about 2.8 per cent of government output measured as GGFCE at current prices. The growth in government output in social security administration from 1995 to 2005 has been revised upwards from –12.6 per cent to –10.0 per cent, a revision to the

Figure 4
Social security administration output

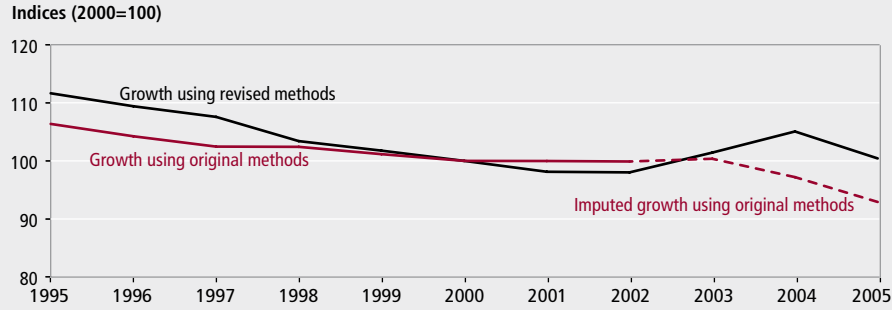


Figure 5
Fire services output

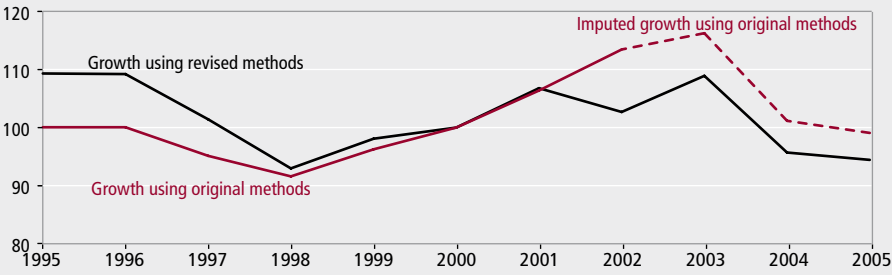
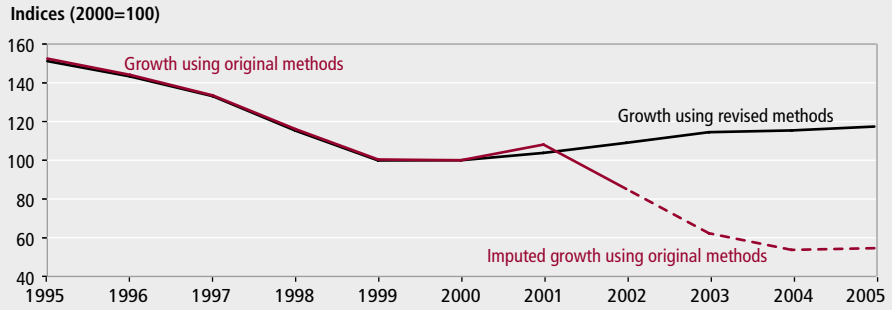


Figure 6
County courts output



cumulative growth of 2.6 percentage points, equivalent to 0.3 percentage points per year. This equates to a revision of about 0.1 percentage points to the cumulative growth in total government output (**Figure 4**).

Improved chain-linking of data for social security administration from *Blue Book* 2006 onwards has caused small revisions.

Additionally, unit costs were reassessed for the period 1998 to 2004, which has caused further revisions to growth.

Fire and rescue services

Fire and rescue services represent about 1.0 per cent of government output measured as GGFCE at current prices. The growth in government output in fire services from 1995 to 2005 has been revised downwards from –1.0 per cent to –13.6 per cent, a revision to the cumulative growth of –12.6 percentage points, equivalent to –1.3 percentage points per year. This equates to a revision of about –0.2 percentage points to the cumulative growth in total government output (**Figure 5**).

Two improvements have been made to the fire and rescue services component of *Blue Book* data.

First, chain-linking was introduced from *Blue Book* 2007. This improved upon previous methods where most series had a fixed base.

Second, forecasting, which is required to estimate current data because of lags in supply of actual data, now takes place at a more disaggregated level, which permits better overall estimates.

County courts

County courts represent 0.1 per cent of government output measured as GGFCE at current prices. The growth in government output in county courts from 1995 to 2005 has been revised upwards from –64.2 per cent to –22.4 per cent, a revision to the cumulative growth of 41.8 percentage points, equivalent to 3.6 percentage points per year. This equates to a revision of about 0.1 percentage points to the cumulative growth in total government output (**Figure 6**).

The reasons for these large revisions are given below.

First, coverage has been expanded from the existing six components to 106 key activities within case types (case types are, for example, land repossession, insolvency, divorce), using a cost-weighted approach. Weights are available annually, but data are still for England and Wales only.

Second, family and insolvency work are both now included (insolvency is only available annually).

Other technical improvements made were forecasting data at a more disaggregate level, better chain-linking and updating of weights annually.

Summary

Table 2 summarises the various important measures described in this article.

Future developments for the National Accounts

This section describes some of the more immediate improvements that UKCeMGA proposes to put forward for consideration for the National Accounts. Because of the modernisation of National Accounts systems, *Blue Book* 2007 was a transition *Blue Book*, paving the way for modernised National Accounts in 2008 (Beadle 2007). One of the ways in which the scope of *Blue Book* 2007 was reduced was that some previously planned methodological improvements have been postponed to 2008. In addition, data were only revised back to 2004 in *Blue Book* 2007, so there will be further revisions to data before that in future *Blue Books*.

Improvements across a range of service areas have been proposed for inclusion in the National Accounts, relating to improvements in output data series from data suppliers and better estimates of cost weights. Better methods of weighting and chain-linking will also be applied across service areas as they are improved in each area.

A range of improvements will be

Table 2
Summary of revisions to government output series

Service	Proportion of GGFCE (%)	1995–2005 growth in service area: Cumulative revision	1995–2005 growth in service area: Annual revision	Cumulative contribution of service area to revision to: 1995–2005 GGFCE growth	Cumulative contribution of service area to revision to: 1995–2005 GDP growth
Healthcare[1]	*30.0*	8.7*	0.8*	2.3*	0.4*
Education	*17.4*	4.0	0.4	0.8	0.1
Personal social services	*8.3*	10.7	1.0	0.8	0.1
Social security administration	*2.8*	2.6	0.3	0.1	0.0
Fire and rescue	*1.0*	–12.6	–1.3	–0.2	0.0
County courts	*0.1*	41.8	3.6	0.1	0.0
Total				3.8*	0.7*

Note:
1 As described earlier in this article, alternative assumptions applied to this series could have increased the revision to GDP over the period 1995 to 2005 to 0.9 percentage points. The other starred figures will also be higher under those same assumptions.

included in the National Accounts as a result of expanding the range of data that are available from Scotland, Wales and Northern Ireland.

Specific improvements relating to individual service areas are as follows:

- an improved measure of the volume of drugs prescribed in general practice was introduced for the February 2006 Public Service Productivity: Health article (ONS 2006). When branded drugs fall out of patent and cheaper generic drugs come onto the market, this fall in cost for similar drugs is counted as part of the price change. Previously, this was counted as volume change. This improvement will be proposed as a change to the National Accounts in due course
- a change to be implemented follows recommendations in the Willmer report (Willmer and Little 2007). The change involves moving from hospital episodes to treatment spells (a closer match with the patient treatment pathway) as the unit of activity to be measured, and moving to a better source of data for measurement of output in the healthcare sector. It is therefore proposed that the hospital care component of the healthcare output index will be based on the new approach, and this proposal will be submitted for consideration in the National Accounts
- for children's social care, future developments include plans to broaden output coverage by including measures of additional children's social care outputs such as core assessments completed, the number of children adopted, the number of hours support provided for children supported within their families, and the number of those leaving care
- for social security administration, improved data will be available from *Blue Book* 2008. For most benefits, separate data series are available for the number of new claims, and the size of the ongoing load; the unit costs for each type of activity are quite different. Data for housing benefit and child benefit payments are now available for claims and load separately; prior to that, data were available only for the load

Concluding remarks

ONS has made a range of improvements to methods and data used for the National Accounts since the Atkinson Review began in 2004. Many of these were made around the time of the publication of the Atkinson Review, based on the work that was ongoing at that time. Further improvements have since been made to data and methods that have fed through to revisions in the National Accounts. More improvements to the National Accounts are in the pipeline, and UKCeMGA has a programme to continue the development of methods for its outputs. Work has extended into two new areas of government activity – the Criminal Justice System and military defence.

Notes

1 Market output is defined in National Accounts Concepts, Sources and Methods as output that is sold at prices that are economically significant or otherwise disposed of on the market or intended for sale or disposal on the market.

2 Subsequent to the Atkinson Review, an independent economic advisory panel was set up, to consider in detail whether measures of public service output should be adjusted to take account of complementarity. The overall recommendation of the panel was that adjustments based on public/private sector complementarity should only be made where there is a compelling argument in their favour (ONS 2007, section 4).

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FEATURE

Patterns of pay: results of the Annual Survey of Hours and Earnings, 1997 to 2007

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SUMMARY

The main source for information on the distribution of earnings in the Office for National Statistics is the Annual Survey of Hours and Earnings (ASHE). It is the most detailed and comprehensive source of national information on levels of earnings, make-up of total earnings and distribution of the earnings of individual employees.

The first few sections of this article present summary analyses (overall medians, make-up and distribution of earnings) from the results of the 2007 ASHE, comparing them with the 2006 results (and where relevant the 1997 to 2006 back series). While these figures are of interest, they can hide wide variations between different industries, occupations, regions and age groups. The concluding sections of the article give summary analyses of each of these factors.

The main source for information on the distribution of earnings in the Office for National Statistics (ONS) is the Annual Survey of Hours and Earnings (ASHE). It is the most detailed and comprehensive source of UK information on:

- levels of earnings (separately for type of worker and for gender)
- make-up of total earnings (split between basic pay and other components), and
- distribution of the earnings of individual employees (the extent to which they are dispersed around the median)

It focuses on medians rather than means and on the distributions of paid hours worked (in total and on overtime).

More details on the methodology for the survey were published in November 2004 on the National Statistics website at www.statistics.gov.uk/cci/article.asp?id=985

The first few sections of this article present summary analysis (overall medians, make-up and distribution of earnings) from the results of the 2007 ASHE, comparing them with the 2006 results (and where relevant with the 1997 to 2006 back series). While these estimates are of interest, they can hide wide variations between different industries, occupations, regions and age groups. The concluding sections of the article give summary analyses of each of these breakdowns.

The results presented in this article mainly relate to the median. This is preferred to the mean for earnings as it is less affected by extreme values and the skewed distribution of earnings data. The median is the value below which 50 per cent of employees fall. However, the means are still available in the annual published results.

Since the 2004 survey, supplementary information has been collected to improve coverage and make the survey more representative. This includes employees who have either changed or started new jobs between sample selection from HM Revenue & Customs records and the survey reference period in April. In 2005, a new questionnaire was introduced bringing significant improvement to the quality of the results for the 2005 survey. From 2006, the Labour Force Survey (LFS) has moved from using seasonal quarters to calendar quarters. As ASHE uses LFS data in the calculation of aggregation weights, it was necessary to move from using data taken from the LFS spring quarter to LFS quarter two. In addition, in 2006, ASHE moved to the ONS standard for geographic areas using Output Areas as the building block to higher level geographic breakdowns.

In March 2007, ONS released information on its statistical work priorities over the period 2007–08. ONS announced that the sample size of ASHE was to be reduced by 20 per cent. ASHE results for

2007 are based on approximately 142,000 returns, down from 175,000 in 2006. The impact of this change has been minimised by reducing the sample in an optimal way, with the largest sample reductions occurring in industries where earnings are least variable. The sample cut does not affect Northern Ireland; neither does it affect a number of organisations with an agreement to provide information electronically.

For 2004, results are available that exclude supplementary information, to be comparable with the back series generated by imputation and weighting of the 1997 to 2003 New Earnings Survey (NES) data. From 2004 to 2006, results are available on the same basis (they all have the 2004, 2005 and 2006 changes incorporated into them). The methodological changes made in 2007 have been taken back to 2006 so that 2006 and 2007 results are comparable. This means that, by producing two versions of 2004 results and two versions of 2006 results, ONS is able to produce a continuous series of growth rates over this period.

Both sets of 2004 and 2006 results are included in tables supporting this article that can be found on the National Statistics website at www.statistics.gov.uk/statbase/product.asp?vlnk=14123

Summary results for full-time employees

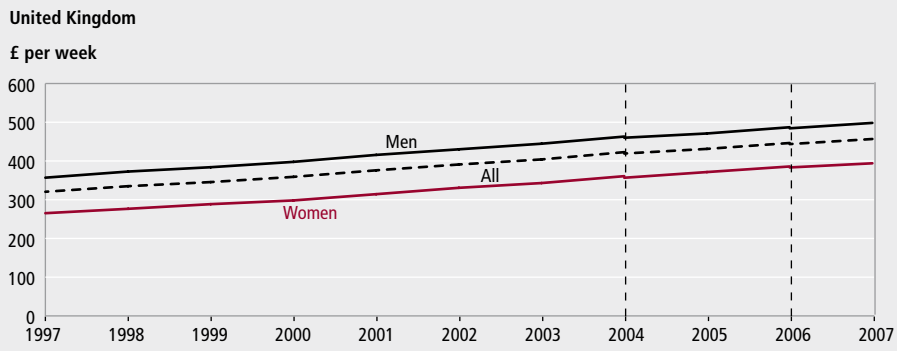
Median gross weekly earnings for full-time employees on adult rates working a full week in April 2007 were £457 (see **Figure 1**). At £394, the median gross weekly earnings of full-time women on adult rates, whose pay for the pay period was not affected by absence, increased by 2.8 per cent compared with a 2.9 per cent rise for men (to £498). Over the last ten years, however, median gross weekly earnings for full-time women have increased significantly more than for full-time men (48.6 per cent compared with 39.6 per cent, respectively).

Median gross annual earnings of all full-time employees on adult rates who have been in the same job for at least a year were £24,000 for the 2006/07 tax year. Median gross annual pay for full-time women was £20,500 compared with £26,300 for men.

Median hourly earnings excluding overtime of all full-time employees were £11.34 in April 2007, representing an increase of 2.9 per cent since April 2006. Full-time female employees saw an increase in median hourly earnings of 0.3 percentage points more than that for men (3.1 per cent compared with 2.8 per cent).

There has been a slight fall since 1997 in the median total paid hours worked per week by employees in full-time employment and for whom weekly paid hours were reported (37.5 in 2007 compared with 37.9 in 1997). In April 2007, men worked 39.0 paid hours per week and women worked 37.0 paid hours per week, unchanged on the equivalent figures for 1997.

Figure 1
Median gross weekly earnings of full-time employees: by gender,[1] April 1997 to April 2007

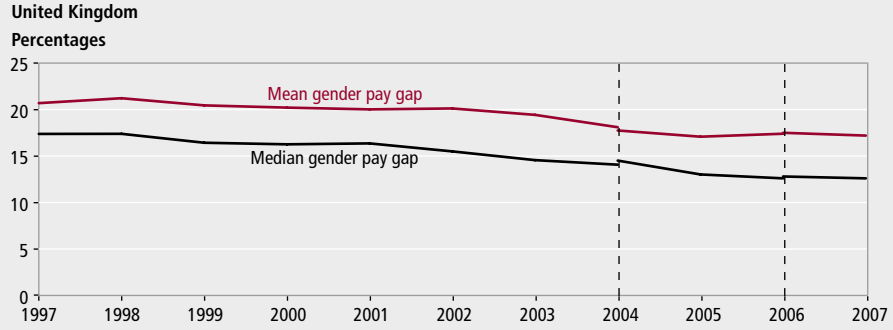


Notes:

1 Full-time employees on adult rates whose pay for the survey period was unaffected by absence. Vertical lines represent discontinuities in 2004 and 2006 ASHE results.

Source: Annual Survey of Hours and Earnings

Figure 2
Pay gap between women's and men's hourly earnings,[1] April 1997 to April 2007



Notes:

1 Hourly earnings excluding overtime for full-time employees on adult rates, whose pay for the survey period was unaffected by absence.
Vertical lines represent discontinuities in 2004 and 2006 ASHE results.

Source: Annual Survey of Hours and Earnings

Pay differences between men and women

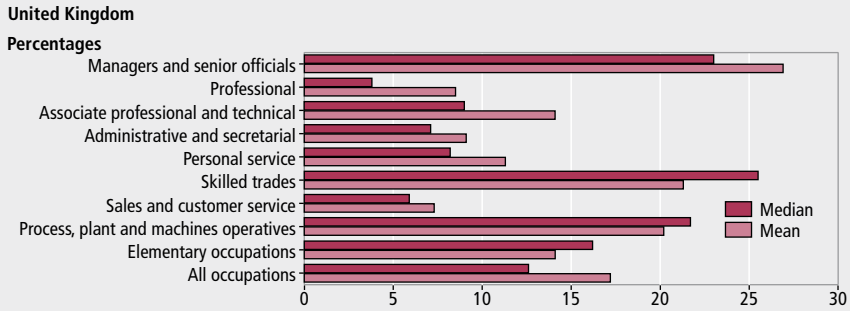
Various methods can be used to measure the earnings of women relative to men. ONS prefers to use hourly earnings excluding overtime for full-time employees. Including overtime can skew the results because men work relatively more overtime than women. Including part-time employees could have a similar effect because women make up a much bigger proportion of part-time employees than men.

The hourly earnings excluding overtime were £10.46 for full-time women on adult rates whose pay for the pay period was unaffected by absence and £11.96 for men. The gender pay gap was 17.4 per cent in 1997 and has narrowed steadily since then, to reach its lowest point of 12.6 per cent in 2007 (see **Figure 2**). The gender pay gap for mean hourly earnings excluding overtime is wider than for medians and has fallen from 20.7 per cent to 17.2 per cent over the same time period.

When measured using median hourly earnings excluding overtime, the gender pay gap has narrowed by more than a quarter in the ten years since 1997.

Although mean hourly pay excluding overtime provides a useful comparison of men's and women's earnings, it does not reveal differences in rates of pay for comparable jobs. This is because such measures do not highlight the different employment characteristics of men and

Figure 3
Pay gap between women's and men's hourly earnings: by occupation,[1] April 2007

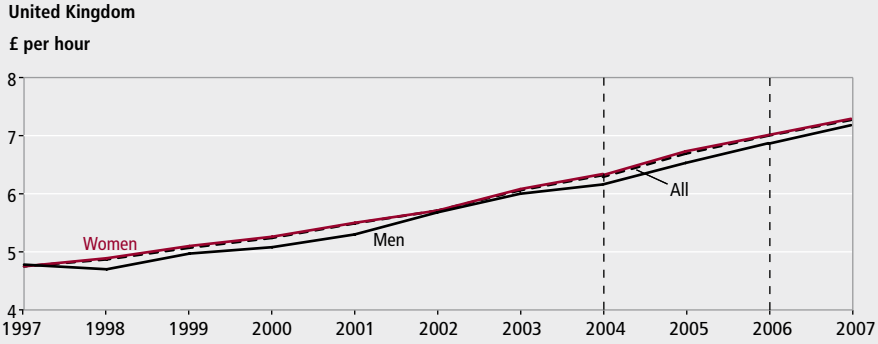


Notes:

1 Hourly earnings excluding overtime for full-time employees on adult rates, whose pay for the survey period was unaffected by absence by Standard Occupational Classification (SOC) 2000.

Source: Annual Survey of Hours and Earnings

Figure 4
Median hourly earnings of part-time employees: by gender,[1] April 1997 to April 2007

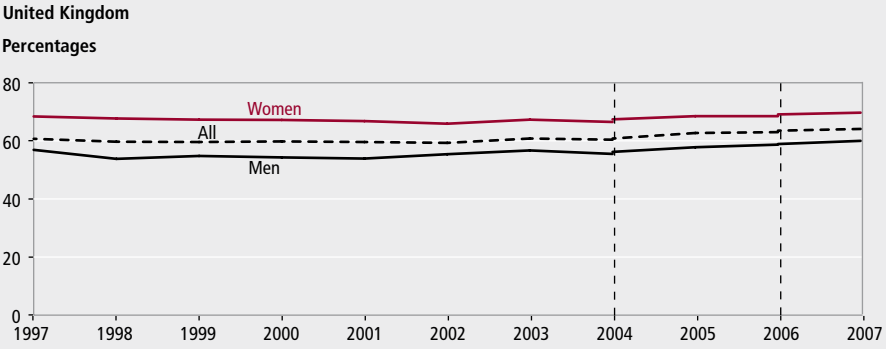


Notes:

1 Hourly earnings excluding overtime for part-time employees on adult rates whose pay for the survey period was unaffected by absence.
Vertical lines represent discontinuities in 2004 and 2006 ASHE results.

Source: Annual Survey of Hours and Earnings

Figure 5
Ratio of part-time to full-time median hourly earnings,[1] April 1997 to April 2007



Notes:

1 Hourly earnings excluding overtime for employees on adult rates whose pay for the survey period was unaffected by absence.
Vertical lines represent discontinuities in 2004 and 2006 ASHE results.

Source: Annual Survey of Hours and Earnings

women, such as the proportion of each gender in different occupations and their length of time in jobs.

Figure 3 shows the median and mean gender pay gaps for 2007 broken down by the Standard Occupation Classification (SOC) 2000 major occupation groups. The median gender pay gap is narrowest for 'Professional occupations' (3.8 per cent) and widest for 'Skilled trades occupations' (25.4 per cent). The narrowest mean gender pay gap is for 'Sales and customer service occupations' (7.3 per cent) and the widest is for 'Managers and senior officials' (26.8 per cent).

The differences between median and mean gender pay gaps reflect the extent to which high earners skew the earnings distribution for men or women. For example, the higher mean pay gap relative to median for professional occupations reflects a small number of very high earning males in the distribution, whereas the lower mean pay gap relative to median in skilled trades occupations is due to the female mean being skewed by a relatively larger proportion of high earners in an occupation group with a small number of women.

Regional and age group analyses of the pay difference between the sexes are included later in the article.

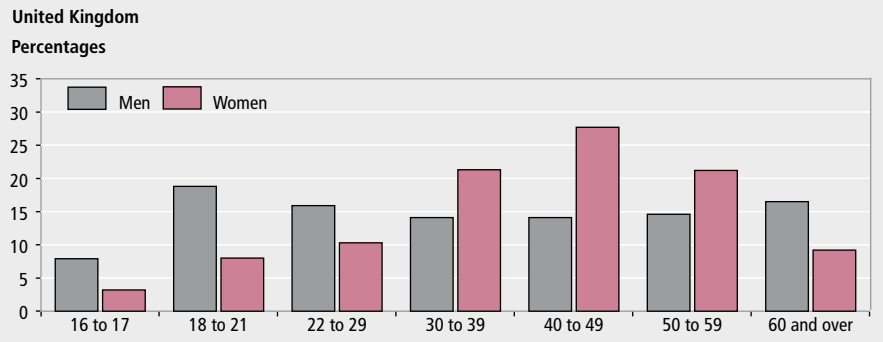
Summary results for part-time employees

Part-time employees earned a median hourly rate excluding overtime of £7.27 in April 2007, an increase of 3.8 per cent over the year. For part-time men, the increase was 4.6 per cent over the year to £7.18, while for part-time women it was 4.0 per cent to £7.29. Since 1997, female employee hourly rates have remained above the levels for male employees (see **Figure 4**) with little change to the pay gap during this period.

There has been a slight increase in the ratio of part-time to full-time median hourly earnings excluding overtime since 1997. Median hourly earnings in 2007 excluding overtime of part-time workers were 64.1 per cent of those for full-time workers (compared with 60.7 per cent in 1997). For part-time men they were 60.0 per cent of full-time male earnings (compared with 56.9 per cent in 1997) and 69.7 per cent for part-time women (compared with 68.4 per cent in 1997) (see **Figure 5**).

The proportion of part-time male employees in the total workforce rose from 3.7 per cent to 5.8 per cent between 1997 and 2007, but is still well below the proportion of part-time female employees, which rose from 19.5 per cent to 20.8 per cent over the same period.

Figure 6
Distribution of part-time employees: by gender and age group,[1] April 2007



Notes:

1 Part-time employees on adult rates whose pay for the survey period was unaffected by absence. Results for 16 to 17 year olds include employees not on adult rates of pay.

Source: Annual Survey of Hours and Earnings

Part-time female median hourly pay is higher than part-time male hourly pay partly due to a higher proportion of females working part-time throughout their careers. **Figure 6** shows the distribution of part-time employees by gender and by age. It illustrates a higher proportion of females working part-time in the higher income age groups (aged 30 to 39 and aged 40 to 49). Male part-time working is higher in the younger age groups as well as in the 60 and over age group.

The make-up of earnings

ASHE splits gross weekly earnings into four components: overtime, payments by results/incentive payments, premium payments for shift work, and the residual – which includes basic pay and allowances. The first three elements vary quite considerably by type of worker.

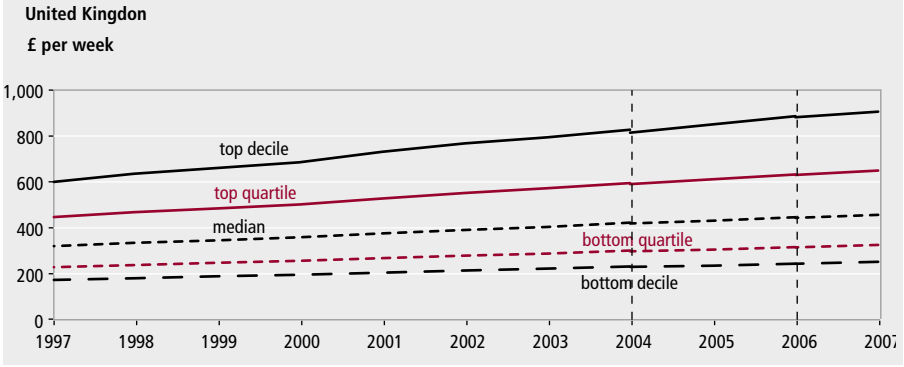
The 2005 ASHE questionnaire introduced a discontinuity in the make-up of gross weekly earnings regarding payments by results/incentive payments and this change was taken back to 2004 results. ASHE results for 2004 to 2007 include incentive pay paid and earned in the pay period, but exclude payments made less often than every pay period. As a result of this change in definition, there is a lower proportion of payments by results for these years than for earlier years. Because of this, the amount of incentive pay earned in the pay period is understated. However, the estimates are improved because the new definition results in greater consistency, as the data reported will not depend on the return date of the questionnaire or when bonuses are paid, as in previous years.

The proportion of additional payments for full-time male employees was higher than that of their female counterparts over the period 1997 to 2007.

The distribution of earnings

Figure 7 displays the distribution of gross weekly earnings among full-time employees for the years 1997 to 2007. The median level of gross full-time weekly earnings in 2007 was £457 per week. This is lower than the mean, £550, since the latter is boosted by the number of people at the top end of the distribution with extremely high earnings. For 2007, at the bottom of the distribution, a tenth of full-time employees earned less than £252 per week, whereas at the other end of the scale a tenth earned more than £906 per week. The ratio of the highest to the lowest decile for gross weekly earnings (3.6 in April 2007) gives a measure of the distribution of weekly pay. This measure has

Figure 7
Distribution of gross weekly earnings for full-time employees,[1] April 1997 to April 2007

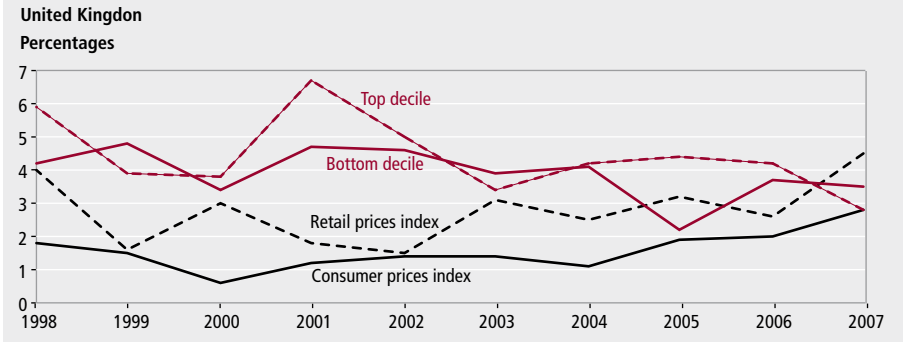


Notes:

1 Full-time employees on adult rates whose pay for the survey period was unaffected by absence. Vertical lines represent discontinuities in 2004 and 2006 ASHE results.

Source: Annual Survey of Hours and Earnings

Figure 8
Earnings growth in top and bottom deciles for full-time employees[1] and changes in RPI and CPI, April 1998 to April 2007



Notes:

1 Full-time employees on adult rates whose pay for the survey period was unaffected by absence.

Source: Annual Survey of Hours and Earnings

been almost unchanged since 1997, when it was 3.5.

In the year to April 2007, gross weekly earnings of full-time employees in the bottom decile of the distribution grew faster than those in the top decile (3.5 per cent against 2.8 per cent, respectively). Between 1998, when the National Minimum Wage was introduced, and 2007, the top decile increased by 42.5 per cent against a bottom decile increase of 39.7 per cent. **Figure 8** shows the pattern of growth in the top and bottom deciles of gross weekly earnings for full-time employees and for the retail prices index (RPI) and consumer prices index (CPI) since 1997. For most years since 1997, median gross weekly earnings of full-time employees at both the top and bottom end of the distribution increased above both the RPI and CPI.

Results by industry

Median gross weekly earnings for full-time employees in April 2007 were highest in the 'Mining and quarrying' sector at £589. This was £15 per week more than the second highest, the 'Electricity, gas and water supply' sector. Over the period 1997 to 2007, 'Electricity, gas and water supply' and 'Financial intermediation' have also featured as the highest median gross weekly earning sector. The weekly earnings for the 'Mining and quarrying' and the 'Electricity, gas and water supply' sectors are boosted by longer paid hours worked by employees in these sectors relative to other sectors.

In 2007, the median gross annual earnings of £31,900 for the 'Electricity, gas and water supply' sector was more than double that of the 'Hotels and restaurants' sector which, for all the years 1997 to 2007, was the lowest paid sector.

The 'Financial intermediation' sector had the highest median hourly earnings excluding overtime for full-time employees (£15.38), followed by the 'Education' sector (£14.10). The mean gross annual earnings for the 'Financial intermediation' sector are significantly higher than that of any other sector because of the skewed effect of extremely high earners on the earnings distribution.

The 'Hotels and restaurants' sector had the lowest median gross weekly earnings. At £288, full-time employees' earnings were some £64 per week lower than the median for 'Agriculture, hunting and forestry' (the second lowest paid). Median hourly earnings excluding overtime for the 'Hotels and restaurants' sector were £6.77, once again lower than the 'Agricultural, hunting and forestry' sector (£7.59).

Median gross weekly earnings in manufacturing were 2 per cent higher than in services (gross weekly earnings of £461 and £452, respectively).

The broad industrial groupings described above can hide substantial variation within the sectors. ASHE, however, allows more detailed industrial analyses. For example, it is possible to identify the highest and lowest paid industry divisions (two-digit Standard Industrial Classification 2003). Such analyses reveal that, in addition to those employees noted earlier within the 'Mining and quarrying', 'Financial intermediation' and 'Electricity, gas and water supply' sectors, full-time employees involved in the 'Manufacture of coal and lignite; extraction of peat', and 'Manufacture of coke, refined petroleum products and nuclear fuel' sectors were among the highest paid per week in April 2007.

Various branches of the manufacturing and the retail sectors make up much of the ten lowest paid industries. 'Hotels and restaurants' was the lowest paid sector of all.

Public and private sector earnings

The adjustments made to the 2004 data in order to produce estimates comparable with the 2005 data also impact on the gap between public and private sector earnings. The exclusion of incentive payments paid outside the pay period pulls down the private sector estimates because private sector employees receive a higher proportion of incentive pay than public sector employees. Also, public sector employees receive greater proportions of pay for other reasons. Consequently, because of the adjustments to the 2004 data, private sector estimates have decreased and public sector increased.

The gap between private and public sector median earnings for full-time employees showed little change in April 2007. Private sector median gross weekly earnings were £439, up 2.9 per cent on 2006. For the public sector, the comparable figure was £498, up 3.0 per cent. Public sector mean gross weekly earnings (at £556) were higher than in the private sector (at £549). As with gender pay, the difference in gross weekly earnings does not reveal differences in rates of pay for comparable jobs. This is due to the types of occupations in the public and private sector being quite different.

Results by occupation

ASHE 2007 data for occupation is coded to SOC 2000 which was introduced in 2002. Before this, SOC 1990 was used.

With median gross weekly earnings of £672, the occupational major group (as defined within SOC 2000) with the highest median gross weekly earnings for full-time employees was 'Managers and senior officials'. This group had the highest median gross annual salary (£35,400) which was more than £1,000 higher than that for 'Professional occupations'. Those in 'Professional occupations' had the highest median hourly earnings excluding overtime (£18.55). This was £1.04 higher than the median for 'Managers and senior officials' (£17.51), the second most highly paid major group on an hourly basis.

'Professional occupations' have had the highest median hourly earnings excluding overtime since SOC 2000 was introduced in 2002. Apart from 2005, 'Managers and senior officials' had the highest median annual earnings and median gross weekly earnings over the same period. This can be explained because the 'Managers and senior officials' group receive higher annual incentives and also work longer paid hours per week than full-time employees in the 'Professional occupations' group.

'Sales and customer service occupations' were, as for the years since the introduction of SOC 2000, the lowest paid median gross weekly major group, at £277 per week for full-time employees. This major group includes occupations that are generally acknowledged to be low-paid, such as 'Retail cashiers and check-out operators' and 'Market and street traders and assistants'.

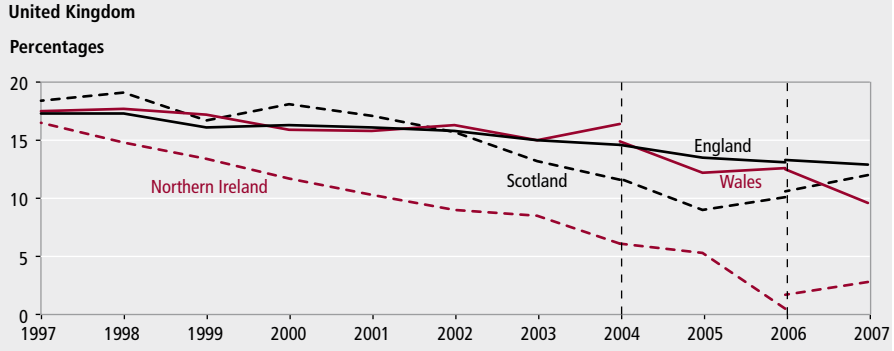
In April 2007, the increase in median gross weekly earnings was highest for 'Personal service occupations' (3.5 per cent) and lowest for 'Sales and customer service occupations' (2.4 per cent).

In the 2007 survey, looking at individual occupations, 'Directors and chief executives of major organisations' were the highest paid full-time employees with median gross weekly earnings of £1,917. The next highest paid occupation was 'Senior officials in national government' with median gross weekly earnings of £1,239 per week. With median gross weekly earnings of £202, 'Market and street traders and assistants' were the lowest paid of all full-time adult employees.

Results by region

London tops the regional list in terms of median full-time gross weekly earnings, with £581 in April 2007. This was £100 above the next highest, the South East. London's high levels of pay are largely due to the fact that a high proportion of

Figure 9
Pay gap between women's and men's earnings: by country,[1] April 1997 to April 2007



Notes:

1 Median hourly earnings excluding overtime for full-time employees on adult rates whose pay for the survey period was unaffected by absence.
Vertical lines represent discontinuities in 2004 and 2006 ASHE results.

Source: Annual Survey of Hours and Earnings

its labour force is employed in higher-paying industries and occupations, and also because many employees are entitled to allowances for working in the capital. Northern Ireland (with median full-time gross weekly earnings of £402) was at the bottom of the regional list, with the North East (at £403) only £1 higher. Median gross weekly earnings for UK full-time employees were £457.

Employees in the North West and West Midlands received the largest increases in median gross weekly earnings (4.2 per cent to £434 and £430, respectively).

Since 1997, similar patterns were observed for median gross annual pay and median hourly pay excluding overtime, with London topping the list followed by the South East. The North East and Northern Ireland have the lowest pay levels across the regions.

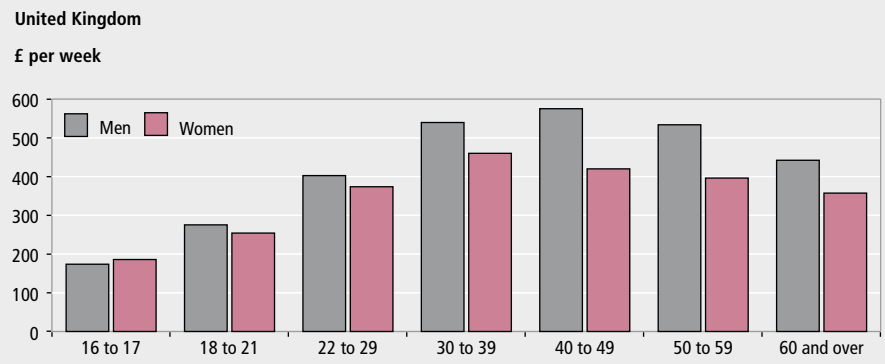
It should be noted that earnings comparisons take no account of different price levels between regions and therefore do not indicate differences in the standard of living. Neither do they take account of the different mix of occupations and therefore cannot be used to claim that pay for like work is different. A region could have a lower level of median earnings than another if it has a higher proportion of employees in industries or occupations with relatively lower earnings.

In the UK, the gender pay gap (when measured using the median full-time hourly earnings excluding overtime) was 12.6 per cent. The largest gender pay gap was 15.9 per cent in the South East region; the smallest was in Northern Ireland (at 2.8 per cent). Over the period 1997 to 2007, the largest reduction in the gender pay gap was in Northern Ireland (16.5 per cent to 2.8 per cent); the smallest was in London (15.1 per cent to 13.7 per cent). **Figure 9** illustrates the gender pay gap for median hourly earnings excluding overtime for the four home countries.

Results by age group

In 2007, median gross weekly earnings for full-time employees climbed steadily with age to reach a maximum for those aged 40 to 49, declining thereafter. However, if the median earnings of men and women are considered separately, then women's earnings peaked earlier than those of men. This pattern is repeated over the period 1997 to 2007. Median gross weekly earnings of full-time women climbed with age to reach a maximum of £460 for those aged 30 to 39. Full-time men's median gross weekly earnings reached their maximum of £575 for those aged 40 to 49 (see **Figure 10**).

Figure 10
Median gross weekly earnings: by gender and age group,[1] April 2007

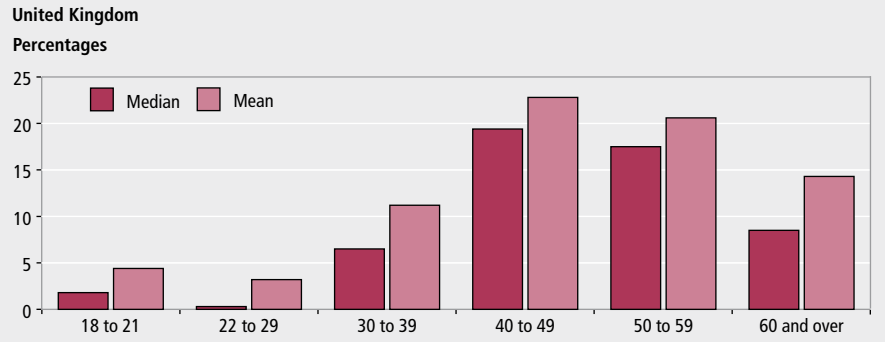


Notes:

1 Full-time employees on adult rates whose pay for the survey period was unaffected by absence. Results for 16 to 17 year olds include employees not on adult rates of pay.

Source: Annual Survey of Hours and Earnings

Figure 11
Pay gap between women's and men's hourly earnings: by age,[1] April 2007



Notes:

1 Hourly earnings excluding overtime for full-time employees on adult rates, whose pay for the survey period was unaffected by absence.

Source: Annual Survey of Hours and Earnings

The largest increase in the median gross weekly wage between April 2006 and April 2007 was recorded among full-time employees aged 18 to 21, whose weekly earnings increased by 5.8 per cent to £265.

Figure 11 shows the mean and median gender pay gaps by age group. The gender pay gap increases and peaks in those aged 40 to 49 but remains at a high level in the 50 to 59 age group.

Comparisons with the Average Earnings Index and Average Weekly Earnings surveys

Each month ONS also collects information on earnings from the Monthly Wages and Salaries Survey, used to construct the Average Earnings Index (AEI) and Average Weekly Earnings (AWE). This survey asks 8,900 employers to provide information about total pay and numbers of employees, but does not ask more detailed questions about, for example, the gender and occupations of their staff. At present, AWE is only published as an experimental statistic and is still undergoing development, which may lead to changes and refinements to its methodology before it becomes a National Statistic in 2008.

The AEI is used to provide an estimate of the growth in earnings per head, while the AWE is used to process estimates of levels of pay. It is therefore not possible to make detailed comparisons of the level in earnings between the AEI and ASHE. The closest measure that can be derived from these surveys is for gross pay. In the year to April 2007, the ASHE estimate of the growth in median gross weekly pay was 2.9 per cent. The comparable estimate from the AEI was 3.1 per cent and for the experimental AWE it was 4.3 per cent. For the public sector, comparable growth rates were 3.0 per cent (ASHE), 3.3 per cent (AEI) and 3.7 per cent (AWE). For the private sector these were 2.9 per cent (ASHE), 3.1 per cent (AEI) and 4.4 per cent (AWE).

Low pay jobs

The number of UK jobs paid below the National Minimum Wage in spring 2007 was 292,000, amounting to 1.2 per cent of all jobs in the labour market. The estimate was produced using a methodology based solely on ASHE, which replaced NES.

In spring 2007 there were three rates for the National Minimum Wage: one for those aged between 16 and 17 (£3.30 per hour), one for those aged between 18 and 21 (£4.45 per hour) and one for those aged 22 and over (£5.35 per hour).

The number of jobs paid below the national minimum wage were:

- 16,000 jobs (4.1 per cent) held by those aged 16 to 17
- 45,000 jobs (2.5 per cent) held by those aged 18 to 21
- 231,000 jobs (1.0 per cent) held by those aged 22 and over

People in part-time work were almost three times as likely as people in full-time work to be paid less than the minimum wage, with 2.1 per cent of part-time jobs and 0.8 per cent of full-time jobs falling below the minimum wage. Jobs held by women were more likely to pay less than the minimum wage than jobs held by men (1.4 per cent compared with 0.9 per cent), but this was due to the greater number of women in part-time jobs.

It is important to note that these estimates do not measure non-compliance with the National Minimum Wage legislation. ASHE does not indicate whether individuals fall into a category that is exempt from the legislation, such as apprentices or new trainees.

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TECHNICAL NOTE

Survey details

The Annual Survey of Hours and Earnings (ASHE) is based on a sample of employee jobs taken from HM Revenue & Customs PAYE records. Information on earnings and paid hours is obtained in confidence from employers. It does not cover the self-employed, nor does it cover employees not paid during the reference period. In 2007, the information related to the pay period which included 18 April. The 2007 ASHE is based on approximately 142,000 returns.

ASHE replaced the New Earnings Survey (NES) as ONS's main source of information on the distribution of earnings. Articles describing the ASHE methodology and the impact of its introduction on 1997 to 2004 are available on the National Statistics website at www.statistics.gov.uk/statbase/product.asp?vlnk=13101

The main differences between ASHE and NES are:

- ASHE results are weighted to the number of jobs given by the Labour Force Survey (LFS)
- ASHE imputes for item non-response
- the coverage of employees for ASHE is greater than that of NES
- the median replaces the mean as the headline statistic. The median is the value below which 50 per cent of employees fall. It is preferred over the mean for earnings data as it is less influenced by extreme values and because of the skewed distribution of earnings

Changes since 2004

Since the 2004 survey, supplementary information has been collected to improve coverage and make the survey more representative. This includes employees who have either changed or started new jobs between sample selection from HM Revenue & Customs records and the survey reference period in April.

Changes in 2005

A new questionnaire was introduced for the 2005 survey. This questionnaire brings significant improvement to the quality of the results. More details on the impact of introducing the new questionnaire can be found at www.statistics.gov.uk/cci/article.asp?id=1294

Changes to the wording and definitions mean that some of the information requested from respondents will differ from that supplied in past surveys. The introduction of the pay 'for other reasons' question has resulted in the inclusion of earnings information which may not have been collected in the past. Results for 2004 including supplementary information have been reworked to allow for this missing pay. For more details on the methodology involved in estimating pay for other reasons, see the National Statistics website at www.statistics.gov.uk/cci/article.asp?id=1299

Also, the definition of incentive/bonus pay changed for 2005 to only include payments that were paid and earned in April. This brings the definition more in line with that used in the Average Earnings Index (AEI) and will result in greater consistency of ASHE results. Results for 2004 including supplementary information have been reworked to exclude irregular bonus/incentive payments to make them consistent with results from 2005 onwards.

Changes in 2006

In 2006, ASHE moved to the ONS standard for geographic areas using Output Areas as the building block to higher level geographic breakdowns. Previously, ASHE geographies were created by matching returned postcode information against the Inter-Departmental Business Register to give various levels of geographic information. The key points are:

- ASHE results for geographic areas are produced in line with the ONS standard and this allows further geographic analysis variables to be produced
- the quality of geographic results has improved

In addition, from 2006 the LFS has moved from using seasonal quarters to calendar quarters. As ASHE uses LFS data in the calculation of aggregation weights, it was necessary to move from using data taken from the LFS spring quarter to LFS quarter two.

The inclusion of supplementary information since 2004, the introduction of a new questionnaire in 2005, and the move to using new ONS geographies and LFS calendar quarters in 2006 has meant that the ASHE results are discontinuous in 2004. Therefore, a consistent series which takes into account all of these identified changes has been produced going back to 2004. For 2004, results are also available that exclude supplementary information, to be comparable with the back series generated by imputation and weighting of the 1997 to 2003 NES data.

Changes in 2007

In March 2007, ONS released information on its statistical work priorities over the period 2007–08. ONS announced that the sample size of ASHE was to be reduced by 20 per cent. ASHE results for 2007 are based on approximately 142,000 returns, down from 175,000 in 2006. The impact of this change has been minimised by reducing the sample in an optimal way, with the largest sample reductions occurring in industries where earnings are least variable. The sample cut does not affect Northern Ireland; neither does it affect a number of organisations with an agreement to provide information electronically.

For 2006 and 2007 ASHE results, ONS has also introduced a small number of methodological changes which will improve the quality of the results. These include changes to the sample design itself, as well as the introduction of an automatic occupation coding tool, ACTR.

The key benefits of moving to ACTR coding are:

- an improvement in the quality and consistency of ASHE results
- out-of-date codes will be updated annually
- ACTR provides ASHE and ONS with a standard tool for coding occupation

Further information can be found on the National Statistics website at www.statistics.gov.uk/downloads/theme_labour/ashe/changeinashe07.pdf

Definitions

The earnings information collected relates to gross pay before tax, National Insurance or other deductions, and generally excludes payments in kind. With the exception of annual earnings, the results are restricted to earnings relating to the survey pay period and so exclude payments of arrears from another period made during the survey period. Any payments due as a result of a pay settlement but not yet paid at the time of the survey will also be excluded.

For particular groups of employees, changes in median earnings between successive surveys may be affected by changes in the timing of pay settlements, in some cases reflecting more than one settlement and in other cases no settlement at all.

Most of the published ASHE analyses relate to full-time employees on adult rates whose earnings for the survey pay period were not affected by absence. They do not include the earnings of those who did not work a full week, and those whose earnings were reduced because of sickness, short-time working, and so on. Also, they do not include the earnings of employees not on adult rates of pay, most of whom will be young people. Some more information on the earnings of young people and part-time employees is available in the detailed annual published ASHE results. Full-time employees are defined as those who work more than 30 paid hours per week, or those in teaching professions who work more than 25 paid hours per week.

Factors contributing to earnings growth

The increase in average earnings from one year to the next reflects several factors: pay settlements implemented between the April survey dates; changes in the amount of paid overtime and other payments relative to basic pay; and the structural effects of changes in the composition of the ASHE sample and the employed labour force.

Revisions

In line with normal practice, this article contains revised estimates from the 2006 survey results published on 26 October 2006. These take account of some corrections to the original 2006 data which were identified during the validation of the results for 2007, as well as late returns, and reflect the methodological changes to 2007 mentioned above.

Other earnings information

The monthly AEI, based on the Monthly Wages and Salaries Survey of 8,900 employers, provides information on changes in mean earnings for broad industrial sectors. No information is available on occupation, paid hours worked, and other characteristics of the workforce.

The LFS collects information on the earnings and hours of about 15,000 households over each quarter. In addition, it collects data on a wide range of personal characteristics, including education level and origin. This enables the preparation of statistics on levels and distribution of earnings similar to ASHE but with lower precision due to the much smaller sample size.

Publication arrangements

National averages of earnings hide wide variations between different collective agreements, industries, occupations, regions and age groups. The published tables containing the detailed ASHE results for UK include analyses of each of these and are now available on the National Statistics website at
www.statistics.gov.uk/statbase/product.asp?vlnk=13101

Low pay estimates show the number of jobs paid below the National Minimum Wage in the UK. The estimates were produced using a methodology based solely on ASHE. Further information on the low pay methodology and detailed results are now available at
www.statistics.gov.uk/statbase/product.asp?vlnk=5837

FEATURE

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The International Comparison Programme: 2005 results and supporting the programme

SUMMARY

The results of the International Comparison Programme (ICP) were released by the World Bank in December 2007. The ICP is a global initiative to collect comparative price data and estimate relative price levels between countries. These figures allow international comparisons of real economic wealth to be made, and hence provide an essential tool for governments designing aid, trade and development policies.

This article explores the improvements made in the latest round of this initiative, and how the UK Government, through funding the Office for National Statistics via the Department for International Development supported the ICP in Africa – building a legacy of improvements both to the ICP as a whole and to price statistics and national accounts in many African nations.

In this increasingly globalised world, it is becoming more and more important for governments, international organisations, businesses, researchers and individuals to make sound inter-country economic comparisons, be it to compare levels of expenditure in particular sectors (such as health or education), make reliable investment decisions or to assess progress towards improving living standards in developing countries.

Often the starting point for such analysis is to convert economic data in national currencies to a single currency for multi-country comparisons.

Exchange rates provide perhaps the simplest and most readily available method for converting currencies for the purposes of international comparisons, but they may in fact be misleading. By their very nature, exchange rates do not adjust for differences in price levels between countries. For example, developing countries tend to have relatively low prices for locally produced goods and services but higher prices for imported goods and services; hence, a unit of local currency has greater purchasing power within the country than in the global market. If only exchange rates were used to convert the gross domestic product (GDP) of various countries into a common currency for the purpose of making international comparisons, the GDP for developing countries would be likely to be underestimated.

What is required is a method for converting national currency data to a common basis, taking into account the differences in price levels between countries; the aim of the International Comparison Programme (ICP) is to provide such data.

The ICP is a worldwide statistical initiative which makes it possible to compare GDP in real terms – unaffected by differences in price levels between countries. This allows the user to assess relative economic welfare across countries and the relative size of a country's economy in real terms. The ICP achieves this by using Purchasing Power Parities (PPPs), calculated by comparing average prices between countries for a well-defined 'basket' of goods and services, as currency converters instead of monetary exchange rates. **Box 1** explains the calculation of PPPs in more detail.

The data released through the ICP enable economic analysts to compare the levels of GDP and its major components between countries. International comparisons of this type are useful as the starting point in analysing productivity, living standards and poverty. One of the most high-profile uses of ICP PPP data is in the estimation of one-dollar-a-day poverty headcount figures. This information is an essential component for assessing the United Nations Millennium Development Goal of 'reducing by half the proportion of people living on less than a dollar a day between 1990 and 2015'; a target which was adopted in 2000

Box 1

What are PPPs?

PPPs are price relatives that represent the rate at which the currency of one country needs to be converted into that of a second country to purchase the same volume and mix of goods and services. In essence, a PPP is simply the ratio of the price of a good or service in one country to the price of the same quantity and quality of the same good or service in another country.

For example, in country A, one kilogram of rice costs three euros while in country B, one kilogram of rice costs four dollars. The PPP between these items would be 0.75 (three divided by four). This means that for every dollar spent on rice in country B, it would be necessary to spend 0.75 euros in country A to obtain the same quantity of rice.

The ICP expands this method to calculate PPPs which compare average prices between countries for a well-defined 'basket' of goods and services covering the whole economy, from basic food to electronics, housing, education, healthcare and even the construction of buildings and the cost of machinery and equipment. The result is normally expressed in index form with the USA or the World equal to one.

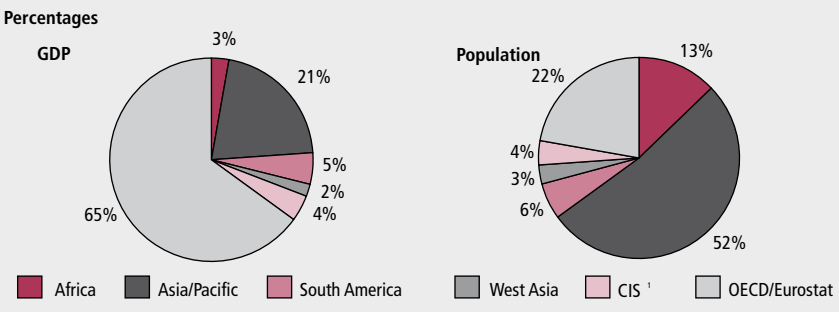
by all UN member states.

The ICP was established in 1968 in response to the UN Statistical Commission recommendation that a worldwide system to measure the purchasing power of currencies be developed. The first round of the ICP was carried out for 1970, based on data for ten countries. Further rounds in 1973, 1975, 1980, 1985 and 1993 saw the coverage of the programme increase to 118 countries. The current ICP round, which produced results for 2005, involved 146 countries from six regions around the world.

The 2005 round of the ICP also introduced changes in methodology that represented a significant step forward when compared with the 1993 programme, particularly in respect of the methods used to link the regional programmes together to produce global results. This new methodology, called the ring comparison, was developed specifically to link the regional PPPs without changing the relative results within a region. In simple terms, it involved a selection of representative countries from each region collecting prices data for a common list of core global products, in addition to their regional surveys. The results of this additional survey were then used to calculate 'linking factors' used to link regional PPPs into a global data set.

The 2005 round of the ICP marks a significant milestone in the development of African price statistics. The increased involvement of Africa is significant; the 1993 round saw only 22 African countries included in the results, but the 2005 round produced results for 48 countries. The new ICP data have various policy implications: for example, in the UK, the Department for International Development (DFID) uses PPP-adjusted gross national income per capita figures for aid allocation. The increased coverage of this round will mean that such decisions can be made on a sound basis. This round of the ICP also marked the first time that an African institution – the African Development Bank – took the role of regional coordinator for the Africa region, leading on all aspects of the programme.

Figure 1
Regional shares of global GDP



Note:

1 Commonwealth of Independent States.

ICP global results

The ICP Global Office at the World Bank released global results in December 2007; these are available at www.worldbank.org/data/icp This followed the release of regional results by each of the ICP regional coordinators.

UK position

Since the results from the ongoing Organisation for Economic Co-operation and Development (OECD)/Eurostat PPP programme have been integrated into the overall ICP, the UK's position within the results is much as expected. The UK ranks sixth in the world for total GDP, a 3.5 per cent share of global GDP, and is 20th in the ranking for GDP per capita.

The UK is amongst the 12 economies which together account for more than two-thirds of the world's output, seven of which are high-income economies (the USA, Japan, Germany, the UK, France, Italy and Spain), and five are developing or transitional economies (China, India, Russia, Brazil and Mexico).

The UK is also one of the five richest economies for per capita measures of consumption (actual individual consumption plus individual government consumption), which provides a way to compare average living standards. By this measure, the five richest economies are Luxembourg, the USA, Iceland, the UK and Norway.

Other points of interest

The relative wealth of China is one issue that has appeared in the press following the release of ICP results. The ICP results show that China's economy is smaller (and poorer) than previous estimates, which were extrapolated from a bilateral comparison of 1986 prices between China and the USA, suggested. Indeed, these previous estimates overestimate the size of China's economy by 40 per cent when compared with ICP results. The ICP global results show that China accounts for 9 per cent of global GDP and, although this is perhaps lower than anticipated, it is still the second highest share for a single country – the highest being the USA at 23 per cent.

Figure 1 displays how real GDP is split between regions and the estimated share of global population in those regions. As may be expected, the OECD/Eurostat

region accounts for a high percentage of global GDP – 65 per cent – and is home to approximately 22 per cent of the global population. Africa accounts for only 3 per cent of global GDP and is home to approximately 13 per cent of the global population. The population of the OECD/Eurostat region is therefore just under twice that of Africa, but it accounts for 22 times the GDP. In the case of Africa, the fact that 13 per cent of the world's population accounts for only 3 per cent of its GDP is an indication of the relatively low level of economic welfare in the region. The other regions which also account for relatively low proportions of global GDP – Commonwealth of Independent States, South America and West Asia – all have significantly smaller populations than Africa.

The USA, China, Japan, Germany and India account for nearly half of the world's GDP. Asia/Pacific accounts for 21 per cent of global GDP, about two-thirds of which is accounted for by China and India. Asia/Pacific, however, is the region with by far the highest population, and therefore GDP per capita is the second lowest (see **Figure 2**). China itself ranks second in the world for GDP but 86th for GDP per capita. The Asia/Pacific share of global GDP (21 per cent) is similar to that of the USA (23 per cent) and the EU (24 per cent).

GDP per capita results show that the bottom 20 countries, and 28 out of the bottom 30 countries, are in Africa. The African country with the highest level of GDP per capita is Gabon, 47th in the world ranking, and the lowest is the Democratic Republic of Congo, 146th, and the lowest ranking globally. Figure 2 shows the real GDP per capita for each of the ICP regions, and an average for the EU countries. The chart clearly shows the relatively low position of countries in Africa. The average GDP per capita for the world is US $8,900 (per annum); 17 countries have GDP per capita of less than US $1,000, all of which are in Africa, and three (Democratic Republic of Congo, Liberia and Burundi) have per capita GDP levels of less than US $500.

This quick high-level analysis of the global results highlights the main stories and shows the importance of the data produced by the ICP for making international comparisons.

Supporting the ICP: organisational partnerships

The success of this round of the ICP has been a credit to the effective collaborations between different international, regional and national organisations. The ICP is a highly complex international programme that by its nature calls on wide-ranging input from many different parties. The work involved for countries and regional coordinators especially can be challenging, particularly where statistical capacity and the accompanying available resources at a national level are limited.

In order to ensure delivery of the global and regional ICP results, and to relieve the burden on regions/countries where resources are stretched, this round has seen a number of 'partnerships' between regional programmes and National Statistical Institutes (NSIs) from outside that region. One such arrangement is the Office for National Statistics (ONS) ICP Africa Support Project, funded by DFID. ONS supported the ICP in Africa through the provision of direct technical assistance as necessary, with the aim of helping to ensure the successful participation of Africa in the global ICP and the facilitation of longer-term statistical capacity building.

Although this article focuses on the support given by ONS to ICP Africa, there were three other partnership arrangements in place during the 2005 ICP which were similar in motivation but different in the detailed delivery. These partnerships arose for different reasons, in different sets of circumstances and followed different constitutions, but were alike in their goal of supporting the regions in producing high-quality results. These arrangements were:

- The Institut National de la Statistique et des Études Économiques – France (INSEE) provided support to francophone nations in Africa
- The Australian Bureau of Statistics (ABS) provided technical and strategic advice to the Asian Development Bank (ADB) and essentially took responsibility for building a specific component of the ICP – in this case the item list for the Asia/Pacific region
- Statistics Canada took on the role of joint regional coordinator for the South America regional programme in addition to providing most of the finance for the programme

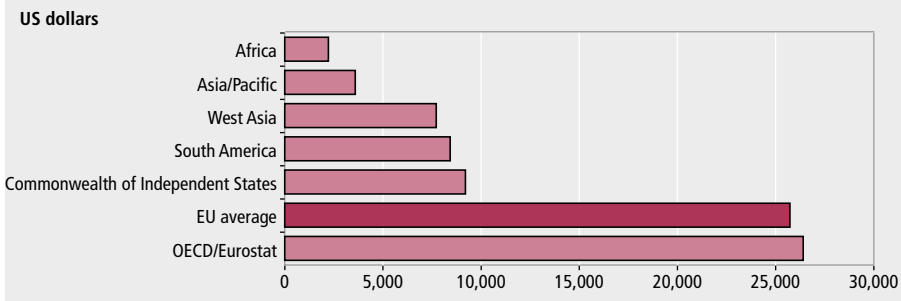
The ICP Africa support project

From March 2005, ONS has been managing a three-year DFID-funded project – the ICP Africa Support Project. The overall goal of the project is to facilitate a positive outcome to the ICP in Africa and to effectively exploit ICP Africa as a catalyst for sustainable statistical capacity building in the longer term.

From the start of the global programme, the UK government was already a major donor to ICP Africa and more generally to statistical capacity building. However, DFID also agreed to fund this additional project under the philosophy of providing a flexible resource. The project was set up to have as few strings attached as possible, in the anticipation that its resources could be used more effectively to ensure successful country participation in the ICP and to increase local statistical capability. It was thought that, for a relatively low expenditure, a project of this type would be cost-effective and would add significant value to the ICP and capacity building work. The project would also aim to ensure that there is a lasting legacy from this round of the ICP in Africa.

The project has worked in close partnership with the African Development Bank (AfDB). Through the provision of technical assistance directly to the AfDB, to African countries, and at regional and subregional workshops, the project has contributed to Africa's successful inclusion in the ICP global comparison. ONS has provided support directly to 18 African countries, focusing on the two main requirements for the successful computation of purchasing power parities for the ICP: the collection of good-quality price data and the effective exploitation of all available national accounts and

Figure 2
Regional GDP per capita per annum



household budget survey information for use as weights.

Specific ICP support provided by the project has encompassed:

- technical assistance directly to countries. In 2005, technical assistance was provided through missions to Ghana, Nigeria, Angola, Swaziland, Tanzania, Kenya and Zambia which assessed overall ICP understanding and readiness as well as the basic quality of price survey frameworks, price collections and price data. In 2006, ONS consultants worked with Botswana, Swaziland, Angola, Kenya, Lesotho, Malawi, Zambia, Uganda, Zimbabwe, South Africa, Namibia, Rwanda and Tanzania to assist with the construction of expenditure weights, quality assurance of estimation techniques used and with the compilation of a GDP estimate for the reference year 2005. In 2007, support on ICP national accounts has also been provided to Sao Tome and Principe, Cape Verde and Equatorial Guinea
- regional/subregional support. This included employing expert consultants to attend and contribute to regional and subregional seminars on prices and national accounts, providing direct support to subregional organisations in order to assist them in completing their ICP objectives, assisting with the validation of ICP data and supporting the AfDB on the compilation of results and production of the preliminary and final publications
- strategic guidance. Through 'partnership meetings' with AfDB, ONS and the World Bank, the project provided input into discussions on progress, strategic direction, methodology and future support

Work on the project's second objective (to exploit the investment in ICP Africa as a catalyst for sustainable statistical capacity building in the longer term and to contribute to the goal of an improved and sustainable evidence base for country-level decision making) has focused on four main areas:

- facilitating improvement in national consumer price indices (CPIs) through the integration of ICP methods
- supporting the harmonisation of CPIs across African subregions
- producing a supplementary handbook to the ILO manual on Consumer Price Indices, focusing on the practical measurement issues confronted by the developing world, and
- exploring the use of data collection technology to improve African CPIs

How the project helped

The ONS ICP Africa Support Project has contributed significantly to the ICP Africa programme and represents an effective method of providing support to such initiatives. Some key advantages of the project in relation to the ICP support it has given during this round were:

- the project provided an additional and distinct resource for ICP Africa, allowing AfDB and/or the ICP Global Office to focus on other priorities
- the nature of the project meant that its resources were often more flexible, enabling direct support to countries at short notice and with minimal administrative burden
- the project's location within ONS meant that it could draw on the experience of UK statisticians in various areas, including prices and national accounts as well as from those working on the OECD/Eurostat PPP programme and on the ICP through the UK's involvement as a 'ring' country
- the project provided the capacity for experienced internationally acclaimed experts to attend regional and subregional ICP seminars/workshops. In their independent role, these consultants were able to add significant value to the discussions and provide helpful insights based on their experiences
- the project led to the sharing of expertise and knowledge between organisations and also informal training when experienced consultants worked directly with countries
- part of the governance of the project consisted of regular meetings with AfDB, the ICP Global Office and INSEE. These meetings proved an effective method for sharing information, assessing progress and discussing the future work programme
- the project operated on a number of levels, providing specific technical support to countries and also facilitating the sharing of ideas and planning at a more strategic level through a four-way meeting with the World Bank, INSEE and AfDB
- the UK, through ONS, was involved in the ICP on many levels, as a ring country, as ring coordinator (for the OECD/Eurostat region), as a member of the ICP Executive Board, and through the management of the ICP Africa Support Project. This wide-ranging involvement greatly facilitated the sharing of information across the programme. The presence of ONS on the ICP Executive Board, in particular, provided a stronger voice for ICP Africa which was helpful when addressing Africa's concerns and providing the Board with feedback on the practical problems being confronted by ICP participants in Africa

The project committed the majority of its resources towards supporting the ICP, but alongside this it was also able to carry out some projects specifically aimed at statistical capacity building. The objective of this work was to add to the sustainability of the investment in the ICP (both in terms of money and expertise) in order to make advances in statistical capacity that would leave a lasting legacy. Work in this area focused on:

- a study of the feasibility of integrating ICP components into national CPIs and the subregional harmonisation of CPIs, in order to inform future direction
- a supplementary handbook (currently under development) to the UN Manual on CPIs, focusing on providing practical advice to developing countries
- two pilot studies into the use of handheld computers for the collection of prices data, carried out in Nigeria and Uganda

Aside from these specific projects, the general transfer of knowledge from ONS staff and consultants to colleagues at African NSIs also took place.

Conclusions

The 2005 round of the ICP represents a significant step forward in terms of the measurement of economic welfare. The methodology, coverage and governance of this round of the ICP were all developed following the 1993 round and consequently the results are more comprehensive and should be far more reliable as a basis for cross-country comparisons. The data will no doubt be widely used as a starting point for economic research and policy analysis and most particularly in the measurement of global poverty.

The partnership arrangements in place during the 2005 ICP round have, in general, been of great benefit to all parties involved and have been a significant contributing factor to the delivery of regional and global results.

The type of partnership arrangement that is the most effective may vary from region to region. In Africa, the regional coordination by AfDB was strong, and needed to be, given the geographical size and diversity of the African continent. The ONS support project was particularly effective in Africa as, although it was not merely reactive, it was able to provide a flexible resource which could be called upon to solve pressing and unforeseen issues and provide specific technical assistance. Alternatively, in South America, the relatively small number of countries involved (ten countries compared with over 40 in Africa) and limited resources at the Economic Commission for Latin America and the Caribbean (ECLAC) meant that Statistics Canada took on more overall responsibility for the coordination of the regional programme.

Some of the arrangements have been managed more formally than others; for example, the ONS model involved a formal arrangement and memorandum of understanding between the supporting organisation and the regional coordinator. ABS and INSEE methods were managed more through existing relationships, where operational arrangements were already in place on the ground, and more informally. In the case of South America, there were no formal arrangements in place between ECLAC, Statistics Canada, NSIs and the World Bank.

In all cases, the success of such arrangements is highly dependent upon effective working relationships between staff across organisations, particularly those providing the support and the regional coordinator. In the case of the ABS support, the relationships with ADB were to a large extent already well established prior to the ICP, whereas the relationship between ONS and AfDB had to be developed during the early stages of the programme.

As well as benefiting regional coordinators and countries through providing additional support, there are also benefits to the organisation supplying the assistance. Such arrangements can be a good opportunity for NSI staff to gain experience working on the ICP and with other NSIs, regional and international organisations. These arrangements can therefore be seen as capacity building both to the organisation receiving the support and the organisation providing the support.

On the whole, the partnership arrangements have contributed significantly to the aim of the ICP to bring about advances in the capacity and capability of both the individuals and the organisations involved in the programme within regions. In the case of South America, however, it remains to be seen whether the project has contributed as much to lasting statistical capacity, as the nature of this level of support would suggest less grass-roots capacity building. During the course of the programme in Africa, there was a clear capacity building objective; this was not the case for South America.

The ONS support project also focused on the building of longer-term statistical capacity and on the sustainability of the significant investment in this round of the ICP. There is still some work to do to ensure that the knowledge, expertise and statistical capacity that have been enhanced through the ICP is not diminished after the end of this round; perhaps this should also include the continuation of the strong partnerships which have been developed.

A feasibility study commissioned by ONS and AfDB in 2007 looked into the possible benefits to national CPIs (in terms of quality, timeliness, relevance and so on) of greater synergies between CPI and ICP exercises (see Astin 2007). This study concluded that national CPIs can draw benefits from the ICP in terms of:

- geographic coverage
- outlet-type coverage
- methods of outlet selection
- the use of more detailed structured product descriptions
- improved methods for data validation and editing
- improved computer systems
- improved documentation, and
- better standards of staff training and increases in CPI staff resources

The integration of CPI and ICP product lists – increasing the number of items included in both the CPI and ICP lists – would also lead to significant benefits in terms of efficiency of any future ICP rounds with more use of data collected for the CPI. Also, increasing synergies between the two exercises may encourage the statistics office to update the CPI list to make it more relevant to present-day purchasing habits. Initial feedback from countries where the ICP Africa Support Project provided assistance, and from impartial observation, suggests that the ICP has led to seemingly sustainable improvements to national CPIs, but only time will tell.

Looking back on the ONS experience raises the question of whether any lessons were learnt during the course of the project which may have implications for future partnerships for the delivery of technical assistance. One important point to make in this context is that the ONS support project was only initiated in March 2005, at which time the planning process was complete and the ICP already into its data collection period. The usefulness of the project may have been further enhanced if it had been in place earlier in the process and could therefore have provided support throughout the full life of the programme. An earlier start would certainly have better facilitated forward planning at the initial stages where ONS involvement in ICP Africa tended to be less proactive and more reactive, before a coordinated longer-term and forward-looking work programme was in place. The overall success of the various partnership arrangements during the 2005 round is a strong driver to see similar arrangements in place next time and to ensure that they are implemented early for any future rounds of the ICP.

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FEATURE

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Linking the Annual Survey of Hours and Earnings to the Census: a feasibility study

SUMMARY

This article describes a project to link the Annual Survey of Hours and Earnings (ASHE – formerly the New Earnings Survey) and the 2001 Census. The investigation looks at the feasibility of linking the two data sets using a sample of the census data. Linking the data would enhance the ASHE data set by adding the personal characteristics of individuals. The results show that there is the potential to link the two data sets although further work would be needed using the whole census data set to ensure the matched data was not biased.

Linking survey data to the census provides opportunities to enhance the value of the original data source by adding supplementary variables for analysis and research. It can provide information that is not possible to obtain through the survey or reduce the burden on respondents by substituting survey questions with information from the census. Other potential benefits are the opportunities to cross-validate common variables between the survey and the census.

This article considers the potential to link the Annual Survey of Hours and Earnings (ASHE), formerly known as the New Earnings Survey (NES), to the census. ASHE is used for most UK micro- and macroeconomic analysis of earnings within the labour market and is a 1 per cent (0.8 per cent in 2007) sample of all employees in the UK. The survey reference period is such that it includes a pay period for a date in April of each year. While ASHE has a wealth of information on the earnings and hours of employees, it contains very little on their personal characteristics.

The purpose of linking the two data sets is to supplement the ASHE data set with variables on the personal characteristics of individuals. This would enhance the knowledge of the distribution of earnings and the numbers of people paid below the National Minimum Wage. It can also be used to generate a pay inequality model for areas such as gender, ethnicity and disability. Matching also allows for a comparison of common variables such as the number of hours worked per week and industry/occupation of work. Any information published would be subject to the same confidentiality rules as the main census. A linked data set would also be anonymised to protect the identity of individuals.

This article explains the data sources used for the data linkage project. The next section explains the method used to link the data sets. The subsequent section will describe the success in linking the data. The final section considers any potential bias in using a linked data set and the path for future work.

Data sources

NES and ASHE

NES was an annual survey, run every April from 1970 to 2003, of the earnings of employees in Great Britain. It was based on a sample of 1 per cent of employees registered for the pay-as-you-earn (PAYE) tax collection system run by HM Revenue & Customs, formerly Inland Revenue. The information collected related to gross earnings before tax, national insurance or other deductions and was completed from employers' pay records.

ASHE was introduced in 2004 to replace NES. ASHE includes improvements to the coverage of employees not originally in the NES sample, imputation for item non-response and the weighting of earnings estimates to overcome unit non-response. The questionnaire for ASHE was improved in 2005 and included improvements to the collection of data relating to allowances and incentive pay. The Department of

Enterprise, Trade and Investment conducts a similar but separate survey in respect of employees in Northern Ireland to allow for UK estimates. This was also the case for NES.

For the rest of this article, the term ASHE will be used to mean NES or ASHE interchangeably.

Census

Since 1801, every ten years, the nation has set aside one day for the census – a count of all people and households. It is the most complete source of information about the population that is available. It is the only source of information which provides a detailed picture of the entire population, and is unique because it covers everyone at the same time and asks the same core questions everywhere. For the 2001 Census, information is available for personal characteristics such as qualifications, ethnicity, religion, marital status, economic activity, employment status, socio-economic class, country of birth and health status.

Linking methodology

It should be possible to link information for all individuals in the ASHE sample in 2001 to their census record, as the census also took place in April of that year, and they have some common variables. In order to assess the feasibility of linking the two sources, a subset of the census data has been made available. This subset is split into:

- Cornwall in the Government Office Region of the South West
- Bexley in London, and
- Bedfordshire in the East

Each individual is uniquely identified in ASHE through their National Insurance number. The census does not collect this information, so direct linkage through this unique identifier is not possible. As there should be close to complete overlap between the data sets, it is possible to use a combination of common variables for matching. Both ASHE and the census contain personal details such as:

- date of birth
- first name
- middle name
- surname
- gender

Data in ASHE are those which are contained on the sample file, while in the census they are provided by the respondent who fills out the form. It is possible to use this information to link the two data sources although there are some issues. One is that matching may not be unique, as there may be instances where two or more individuals have the same personal details. Another is that personal information is recorded incorrectly, differently or insufficiently in either or both data sources.

Information on individual names is stored differently between the two data sources. In ASHE, the first name, middle name and surname are separate although for first name and middle name, information is only available for the first initial, limiting its use. With a large number of individuals not having a middle name and some have more than one, this variable is not used for matching. In the census, the first name, middle name and surname are stored collectively, so manipulation is needed to separate the variables. For some individuals on the census, there are instances where there are some missing letters on the surname; for example a person called 'BARNARD' is stored as 'BARNAR'. There are also some instances where, through scanning error, a surname named 'COLES' is stored as 'COLBS'. To overcome these problems, only the first three letters of the surname are used for matching and possible false matches are considered later.

Exact matching is used to link ASHE to the census using the personal characteristics described. The matching procedure uses five iterations such that the first iteration uses the strictest matching criteria, while relaxing the criteria for subsequent iterations. Once matched, an individual is then excluded from subsequent iterations. The matching criteria can be seen in **Table 1**.

The census represents individuals where they live, while in 2001 the ASHE survey only collected information on where they worked (since 2002 information is also available on where they live). While the majority of people live and work in a large region, such as the UK, when disaggregating to smaller regions, it is more common for an individual to work in one area and live in another. **Table 2** shows the number of people who work and live in each of three regions as a percentage of the number of people who work in the region, using information from the 2007 ASHE survey.

The high percentage of people working and living in Cornwall is a consequence of the landscape of the region, with only a few local authorities bordering with another region. At the other extreme, Bexley is part of Greater London, which is in close proximity to a number of other regions and also benefits from good public transport modes allowing for easier commuting to and from work.

Table 1
Matching criteria for each iteration

	Combination of variables
Iteration 1	Date of birth (DMY) + gender + first name + surname
Iteration 2	Date of birth (MY) + gender + first name + surname
Iteration 3	Date of birth (DY) + gender + first name + surname
Iteration 4	Date of birth (DM) + gender + first name + surname
Iteration 5	Date of birth (DMY) + gender + surname

Table 2
Percentage of individuals who work in a region and live in the same region

Region	% who work and live in same region
Bexley	*48.9*
Cornwall	*95.0*
Bedfordshire	*69.3*

Source: ASHE 2007

Outcome of linking

Before undertaking the record linkage, duplicates in the ASHE sample file (where an individual has more than one job) were removed and each of the three regions were extracted using postcode information provided by the employer on the survey. This resulted in 950 records in Cornwall, 442 records in Bexley and 1,008 records in Bedfordshire. The three regions Cornwall, Bexley and Bedfordshire are matched in turn and the results are now discussed.

Cornwall

There are around 490,000 census records to link to the 950 ASHE records and the linkage results for each of the iterations are shown in **Table 3**. It should be remembered

Table 3
Results of matching exercise for Cornwall

	Number to match	Matched
Iteration 1	950	722
Iteration 2	228	25
Iteration 3	203	12
Iteration 4	191	25
Iteration 5	166	23
Unmatched	143	

Table 4
Results of matching exercise for Bexley

	Number to match	Matched
Iteration 1	442	165
Iteration 2	277	8
Iteration 3	269	5
Iteration 4	264	13
Iteration 5	251	5
Unmatched	246	

Table 5
Results of matching exercise for Bedfordshire

	Number to match	Matched
Iteration 1	1,008	501
Iteration 2	507	28
Iteration 3	479	7
Iteration 4	472	51
Iteration 5	421	7
Unmatched	414	

Table 6
Number of potential false matches for the three regions combined

	Number of matches	Possible false matches	% of false matches
Iteration 1	1,388	4	*0.3*
Iteration 2	61	28	*45.9*
Iteration 3	24	12	*50.0*
Iteration 4	89	57	*64.0*
Iteration 5	35	5	*14.3*

that a linkage will not be made if an individual works in Cornwall but lives outside the region. There may also be 'false' matches where individuals are matched when they are different people. As the matching criteria are relaxed, this is more likely, and false matches are considered later. For the first iteration, where the matching criteria are most strict, 722 of the 950 records were matched, representing a linkage rate of 76 per cent. When relaxing the matching criteria and running through all the iterations, 807 (85 per cent) individuals are matched.

Bexley

There are around 206,000 census records to link to the 442 ASHE records and the linkage results for each of the iterations are shown in **Table 4**. For the strictest criteria, 165 of the 442 records (37 per cent) are matched, increasing to 44 per cent when combining all matches for each of the five iterations.

Bedfordshire

There are around 360,000 census records to link to the 1,008 ASHE records, with the results of the linking shown in **Table 5**. For the strictest criteria, 501 of the 1,008 records (50 per cent) are matched, increasing to 59 per cent when combining all matches for each of the five iterations.

False matches

As there are not a large number of records to consider in the matching process, it is possible to look at the iterations in turn to identify those that could be false. For the first iteration, there will only be a false match if an individual has the first three letters of the surname the same but the remaining letters are different.

Combining the three regions and looking at the first iteration, this appears to have happened in only four of the 1,388 matches (see **Table 6**). There are a small number of further matches where the surnames are not exactly the same but these could be explained by scanning errors. For iteration 2, the day is removed from the date of birth for matching. Of the extra 61 matches, closer inspection suggests that 28 (46 per cent) of these are false matches, with the remaining 33 looking plausible with the day being slightly different, possibly through scanning error. The false matches are identified as both digits in the day of birth are different and the full surname is not similar.

For iterations 3 and 4, around 50 per cent and 65 per cent, respectively, of matches appear to be false. For iteration 5, where the first name is not used in the matching, in some of the extra matches, the letter of the first name on the census corresponds to the letter of the individual's middle name in ASHE. This suggests that names may be transposed in ASHE for some individuals. Some of the other matches can be explained where there is a difference in the first name letter through scanning error, with the remaining 14 per cent of the matches looking false. The results show that when not all of the date of birth is used, the number of false matches increases, suggesting this is an important variable and all of its detail should be used.

Characteristics of those matched versus unmatched

Where individuals are not matched, this may introduce bias and so analysis using the matched data must be treated with caution if those respondents who are matched differ in characteristics from those who are unmatched.

The following section will look at the characteristics of those matched and unmatched for gender, occupation group, employment status (full- or part-time), age group and gross weekly earnings.

Gender

For each of the three regions combined, there were 1,388 of the 2,400 records matched and 1,012 unmatched. Of the total, 49.6 per cent are male and 50.4 per cent are female. However, of those who were matched, 45.5 per cent are male with the remaining 54.5 per cent female. This compares with 55.2 per cent male and 44.8 per cent female for those unmatched. This shows that males are more likely to be part of the unmatched group than their female counterparts. When considering the three regions separately, the pattern is the same but with Bedfordshire having the largest difference and Cornwall the least.

Occupation

Figure 1 shows the percentage in each occupational major group for the unmatched and matched groups. There are some differences between the major groups. There is a significantly higher percentage of records within the managers and administrators, professional occupations and clerical and secretarial occupations for the unmatched group when compared with those that are matched. For personal and protective service occupations and other occupations, there is a significantly higher percentage of records in the matched group than in the unmatched group. Other occupations include occupations such as postal workers and cleaners.

Combining the three regions does hide variations between them. For example, in Bexley there is a significantly higher percentage within the first four occupational major groups for the unmatched group than in the matched group. These occupations would be better paid and people may be more willing to travel further, consistent with them working and living in different regions and being unmatched. It should be noted that the census relies on descriptions about the occupation from each individual; in ASHE, the descriptions come from the employer and so these can vary.

Employment status

When considering employment status, for the matched group, 66.5 per cent are full-time with the remaining 33.5 per cent part-time. This compares with 74.5 per cent full-time and 25.5 per cent part-time for the unmatched group.

Age group

For the broad age groups there is a significantly higher percentage of those in the 25 to 39 age group (see **Figure 2**) for those unmatched when compared with the matched group. The reciprocal occurs for the 40 to 54 age group, where there is a higher percentage in the matched group than in the unmatched group. This may be reflected in the fact that the 25 to 39 age group is more mobile and likely to work and live in a different region from those in the 40 to 54 age group.

Figure 1
Percentage of cases matched and unmatched for Cornwall: by occupational major group

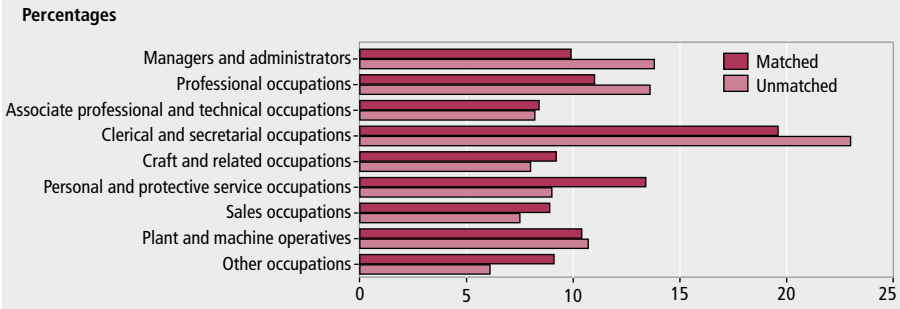

Figure 2
Percentage of cases matched and unmatched: by age group

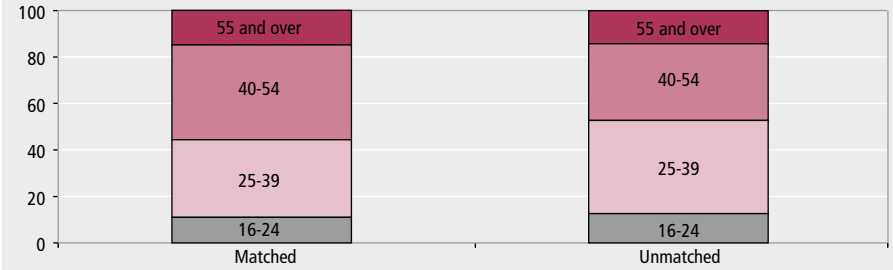

Table 7
Median and mean gross weekly earnings for each region for those records matched and unmatched

£

	Matched		Unmatched	
	Median	Mean	Median	Mean
Cornwall	296.93	333.23	294.38	348.42
Bexley	389.52	432.83	374.28	468.57
Bedfordshire	344.84	386.09	391.56	449.70

Earnings

Earnings vary across the country and London consistently tops the regional list in terms of gross weekly earnings. This is reflected in the fact that high proportions of the labour force are employed in higher-paying industries and also receive allowances for working in the capital. In ASHE, the median is the most common measure used to display average earnings. This is the middle point of the population, with exactly the same number of people earning below this amount as above it. In some instances it can be more suitable to present the median rather than the mean, as the latter can be influenced by the relatively few extreme values in a pay distribution. Looking at the three regions in turn, in Cornwall, the median gross weekly pay of those that were matched was £296.93 (see **Table 7**), close to the £294.38 for those unmatched. For Bexley, the median gross weekly pay for those matched was £389.52 and for those unmatched £374.28. Looking at the mean gross weekly pay for those matched, it was £432.82, lower than the £468.57 for those unmatched. This suggests that there are higher earners in the unmatched group, consistent with the findings that the unmatched group is concentrated in more higher-paid occupations. In Bedfordshire, the median gross weekly pay for the matched group is £344.84, with the matched group being £391.56.

Conclusion

Overall, this article shows that there is the potential to link ASHE to the census. A number of iterations to link the two data sources have been used but, when relaxing the information on the date of birth, the chances of a false match increase significantly. Lacking information on where a person lives in the 2001 ASHE brings limitations to the matching process. The linkage rate was highest for Cornwall and lowest for Bexley, which is expected using the percentages of people who work and live in the same region in the most recent (2007) ASHE survey.

In order to increase the linkage rates, information from the whole census would be needed and larger regions, similar to travel to work areas, used to ensure someone who works in one area will be picked up living in another. A further option is to link to a census extract that classifies individuals to the region they work. However, this was not available for this exercise.

There are some significant differences between the unmatched and matched groups, in particular for Bexley and Bedfordshire, and so there is potential bias in using the current matched data. The resource to carry out full matching using all the census data will have to be assessed against the benefits for improved research by adding variables on individuals' personal characteristics to ASHE. As ASHE contains the same cohort of individuals each year, if they are in employment, it is possible to carry forward their personal characteristics; but how relevant these are in future years, for example highest educational attainment, needs to be determined.

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FEATURE

The revision of the 1993 System of National Accounts – what does it change?

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SUMMARY

Recent changes in the way the economy works require adjustments in how statistics are compiled, both in the classifications and the theoretical frameworks used to run statistical surveys and produce macroeconomic statistics. In 2003, the United Nations Statistical Commission officially called for an update of the 1993 System of National Accounts (SNA) to bring this pre-eminent international statistical standard into line with the new economic environment, advances in methodological research and the needs of users. The more salient changes to the 1993 SNA relate to the recording of pension schemes, the role of research and development as investment and military expenditure as capital formation, and the treatment of trade in goods for processing. This article highlights such changes and provides, where possible, a preliminary evaluation of the possible impact on these key variables.

It is quite clear that over the last 15 years the way in which the economy works has changed quite substantially. The increasing role of information and communication technologies in production processes, the growing role of intangible assets and services activities, the globalisation of national economic systems and reforms in the management of the welfare state have produced radical changes in several respects. These changes require adjustments in the way in which statistics are compiled, both in the classifications and the theoretical frameworks used to run statistical surveys and produce macroeconomic statistics.

After the 2002 conference of the International Association of Official Statistics, which was devoted to 'Official Statistics and the New Economy', the Organisation for Economic Co-operation and Development (OECD) wrote to other international organisations proposing to launch an update of the 1993 *System of National Accounts* (1993 SNA). In 2003, the United Nations Statistical Commission (UNSC) officially called for an update of the 1993 SNA to bring this pre-eminent international statistical standard into line with the new economic environment, advances in methodological research and the needs of users. It was agreed that the update would not bring fundamental or comprehensive changes to the 1993 SNA which would impede its implementation. Generally, changes should be feasible to implement and there should be consistency with related statistical manuals.

The revision process is expected to end in March 2009, when the 1993 SNA Rev. 1 should be adopted by the UNSC. However, in early 2007, the UNSC agreed to a consolidated list of recommendations for changes to the 1993 SNA. Although most OECD member countries are not expected to implement these changes until 2012–14, it is important to understand what the revised system will look like and what impact the changes will produce on key economic variables, such as gross domestic product (GDP) and public deficit and debt. This article highlights some of the main changes to the 1993 SNA and provides, where possible, a preliminary evaluation of the possible impact on these key variables.

Background

The National Accounts provide a systematic statistical framework for summarising and analysing economic events, and wealth of an economy and its components. Principal accounts record production, consumption, capital formation, the distribution of income to the factors of production (labour and capital) and the use of income. While complete balance sheets are compiled by relatively few countries, most OECD member countries have complete data for financial assets, fixed assets[2] and liabilities. Most OECD member countries also produce these statistics for some, or all, major institutional sectors as well as the economy as a whole.

Production, consumption, capital formation, exports, imports and stocks of fixed assets have price and volume

dimensions, and so volume and price indices can be compiled for these statistics. Volume estimates are used to measure growth free of the direct effects of inflation. Volume estimates of GDP[3] and its major components are the most commonly used national accounting statistics. Although GDP is not a measure of wellbeing, the volume measure of GDP per capita is often used as a surrogate.

The history of national accounting can be traced back at least as far as the 17th century, but the first true internationally accepted standard was the 1953 SNA. This was subsequently updated in 1968 and 1993. Inevitably, a national accounting standard must have conventions that are arbitrary to some degree. For example, the boundary of production excludes the production of services by households for own use; likewise, the asset boundary excludes goods used by households to produce these services even though they may be used for many years. The asset boundary also excludes expenditure on some things that are expected to produce benefits well into future, such as innovation, advertising and training.

As time passes, the economy and society evolve, past conventions are seen as inappropriate, methodological and theoretical developments occur and users' needs change, and so the national accounting standards must be updated from time to time or become obsolete. Following the major update in 1993, it was decided by the UNSC that it would be better to have smaller updates more frequently, but this did not work out and so another major update was needed.

Updating the SNA cannot be taken lightly. Any changes must be conceptually sound and consideration must be given to implementation around the world. To maintain international comparability, changes must also have wide international support. From the start, the UNSC emphasised the need for the broadest possible involvement of the global statistical community in the update project. The Intersecretariat Working Group on National Accounts (ISWGNA) – comprising the OECD, the Statistical Office of the European Communities (Eurostat), the International Monetary Fund, the United Nations and the World Bank – was asked to organise and coordinate the update project, assisted in its work by a project manager and an editor. An Advisory Expert Group (AEG) on National Accounts, comprising 20 country experts from all regions of the world, was established to play a key role in the update. The AEG considers proposals for change and expresses its views, both in meetings (six so far) and in web-based written consultations.

There is the project website, maintained by the United Nations Statistics Division (UNSD) at
http://unstats.un.org/unsd/nationalaccount/snarev1.asp
which promotes transparency and the wide involvement of national accounts experts from all over the world. The website provides comprehensive and timely information related to the update, including the five-year work programme, the agreed list of update issues, related papers, recommendations of the AEG, comments by countries on the recommendations and links to related sites.

The timetable calls for two deliverables: the first, comprising the core chapters of the revised SNA, in 2008, and the second, comprising the remainder, in 2009. In the first phase of the update, 44 issues were identified that warranted consideration for substantive change, and 39 matters for clarification. All 44 substantive issues were then subject to research and debate by various task forces, working groups and committees in the second phase of the project. The groups then submitted reports of their findings on each issue to the ISWGNA and AEG for consideration at one of their meetings.

Overview of the recommendations

As can be seen from the descriptions of issues in the full set of consolidated recommendations, the motivations to consider the agreed issues were diverse. The reasons included the need to: deal with economic issues that arose or became more prominent since the 1993 SNA was completed; remove inconsistencies in the 1993 SNA; harmonise the 1993 SNA with other manuals in the field of macroeconomic statistics; and proceed with the research agenda left at the end of the process leading up to the 1993 SNA.

The recommendations cut across almost all parts of the SNA, but they are concentrated in parts that deal with non-financial assets, financial services and financial instruments, the rest of the world (balance of payments) and government and the public sector. In other words, the majority of the recommendations relate to units and transactions that represent characteristics of an increasingly globalised economy, innovation in financial instruments and stronger interest in the sources of wealth and debt of the private and the public sectors.

Some of the recommendations affect major aggregates of the system, such as GDP and saving, as would be expected of an update intended to capture the evolving aspects of production, consumption and accumulation. Many other recommendations do not affect the major aggregates but reflect a range of other elements, including elaborations and clarifications of definitions and classifications.

New recording of pension schemes

As a result of increasing longevity and low birth rates, many countries are experiencing increases in the average age of their population, with the expectation of further increases for many years to come. Among other things, this has major implications for the provision of pensions for retirees in future years. The 1993 SNA only gives a partial picture of the pension obligations of businesses and government, and it has been widely accepted that a fully comprehensive picture is needed.

The 1993 SNA makes a distinction between employer pension schemes and social security even though both are part of social insurance schemes. Employer pension schemes are viewed primarily as being a means of redistributing income over time for a single individual. Depending on the conditions of employment, an employee builds up a claim on his employer during his period of employment for income to be paid after retirement. Social security schemes, in contrast, primarily redistribute income among a set of individuals at a single point in time. It is this notion of redistribution between large sections of the population within the current period that leads to their funding on a pay-as-you-go basis.

Agreement has been reached on how to improve the recording of private employer pension schemes, but difficulty has been encountered in agreeing on the treatment of government employer pension

Box 1

Major changes in the 1993 SNA Rev. 1

The full set of consolidated recommendations can be found on the UNSD website at http://unstats.un.org/unsd/nationalaccount/AEG/recommendations/fscr.pdf

schemes because in some countries it is difficult to distinguish between them and social security schemes. Nevertheless, a compromise has been reached to maximise the international comparability of the resulting data.

Private pension schemes
The 1993 SNA states that the actual social contributions by an employer and employee in a period should be the amount actually paid into a pension fund. For a defined contribution scheme (an arrangement whereby the contribution is pre-defined, but the pension payment is not), this is correct and complete since the eventual payment depends only on the amounts set aside in a pension fund. For a defined benefit plan (an arrangement whereby the contribution by the employee and the pension payment are pre-defined, but the contribution by the employer is not), there is no guarantee that the amount set aside by the employer will exactly match their liability to the employee.

In consequence, a number of changes to the 1993 SNA in the case of defined benefit plans are being made. The level of the employer's contribution should be determined by assessing the increase in the net present value of the pension entitlement the employee has earned in the period in question, adding any costs charged by the pension fund for operating the scheme and deducting the amount of any contribution the employee makes. This amount must be determined actuarially, and while estimates cannot be made accurately for any individual, robust estimates can be, and are, made for cohorts of employees.

Government employer schemes
Considerable discussion focused on how to portray the pension entitlements of schemes for government employees given the diversity of funding arrangements across countries. It was finally agreed that the SNA should recommend that a standard table should be prepared in conjunction with the regular accounts showing the pension entitlements accruing to households for all pension schemes, regardless of the means of funding or the category of the unit bearing the responsibility to meet the obligations of the pension scheme. Countries will have flexibility about whether all of these schemes should be carried forward to the 'core accounts' (that is, whether the full increase in the entitlements will be shown as income and saving of households), but in cases where particular schemes are not carried forward, a reasoned explanation for why this is not done will be required. Internationally agreed criteria for when a scheme might not be carried forward should be developed, but this might not be possible before the proposed adoption of the first part of the updated SNA text in March 2008. In this case, the search for the necessary criteria will form part of the research agenda.

Social security schemes
As part of the work to define precisely the format of the pensions table, consideration will be given to the desirability and feasibility of including information for social security schemes in the same or a similar table.

Quantitative impact
It is not possible at the moment to quantify the impact on the accounts of these changes. The impact is likely to vary considerably between countries, and depend on the composition of the different types of schemes within a country and the current treatment and the extent to which the recommendations are implemented in the core accounts in respect of government employer schemes. Compensation of employees and household saving could change (probably upwards) and gross operating surplus could change (probably downwards).

If government liabilities are recognised for unfunded employer defined benefit schemes for government employees, then the ratio of the SNA public debt to GDP could rise substantially, maybe by between 20 and 80 per cent. The impact on GDP and the SNA measure of public deficit will depend on whether the actual pension payments currently included in compensation of government employees are greater or less than the imputed contributions to the pension fund plus the imputed interest on previously unpaid contributions that will replace them when the change is implemented. Some non-EU countries, such as Australia and Canada, have already made this latter change.

Cost of capital services

Capital services provided by non-financial assets to the production process are not explicitly mentioned in the 1993 SNA. The OECD manual *Measuring Capital*[4] defines capital services as inputs that flow to production from a capital asset. When assets are used by their owner, the value of capital services appears implicitly as part of the gross operating surplus. It can be estimated as the sum of depreciation, expected real holding gains/losses and a return to capital, similar in value to the cost of interest on the remaining value of the asset.

The recommendation begins by noting that capital services for assets used in market production are implicitly included within the 1993 SNA but are not separately identified. Given the importance of identifying them for productivity measurement and other analysis, a new chapter is being added to the updated 1993 SNA explaining the role and appearance of capital services in the system and stressing the desirability of calculating capital services, capital stock and consumption of fixed capital in an integrated and consistent manner. No changes will be made to standard entries in the accounts to show capital services but an explanation will be provided of how supplementary items or tables could be derived and presented. Hence, there is no recommendation to include capital services in the core accounts, but some countries may choose to include them as 'of which' items for gross operating surplus (or value added in volume terms).

Quantitative impact
None.

Research and experimental development

The 1993 SNA does not recognise research and experimental development (R&D) as capital formation, despite the fact that it is thought to be a major contributor to future economic growth. Instead, R&D conducted on own account is not recorded as output, and expenditure on R&D is recorded as consumption, with the result that GDP is understated. Stocks of R&D assets are not recorded in the balance sheet, hence the net worth of a country is also understated. Furthermore, the capital services provided by R&D assets are not recognised as an input in productivity estimation. None of this is an oversight. In fact, it was proposed to include the 'capitalisation' of R&D in the 1993 SNA, and it was only late in the day that the proposal was aborted because agreement could not be reached on how it should be implemented. There is no doubt that this is a difficult issue and history almost repeated itself in this update, but not quite. The following has been agreed:

- R&D should be treated as gross fixed capital formation in the SNA. It should be defined as in the Frascati Manual,[5] namely 'research and experimental development comprises creative work undertaken on a systematic

basis in order to increase the stock of knowledge, including the knowledge of man, culture and society and use of this stock of knowledge to devise new applications'. This definition should not be interpreted as including human capital as capital formation within the SNA

- by convention, since much R&D is carried out on own account, it should be valued at cost. In practice, the information collected in accordance with the Frascati Manual will provide estimates of R&D expenditure; discussion is ongoing to make adjustments to this manual to meet the needs of the SNA more closely. It is recognised that a detailed guide to implementation will be desirable to assist implementation of this recommendation
- all R&D expenditure that is sold or is expected to bring a benefit in the future to its owner (including for the provision of public services in the case of R&D undertaken by government) is included within the asset boundary. Only R&D that brings no economic benefit discernable at the time of its completion is excluded
- with the inclusion of R&D in the asset boundary, patented entities will no longer be separately identified as such in the system, but they will be subsumed into R&D assets

While there is strong support by countries for adopting these recommendations in the SNA, there is also considerable concern that it is premature to do so because of technical difficulties that have yet to be overcome. In conclusion, research and development expenditure should be recognised, in principle, as part of capital formation. However, in recognising the difficulties to be overcome before this objective can be reached, satellite accounts will provide a useful way of working towards solutions that give the appropriate level of confidence in the resulting measures, and practical guidance on implementation will help to ensure international comparability. Therefore, the 1993 SNA Rev. 1 will describe the objective and its conceptual underpinnings, note the difficulties and provide links to work underway to overcome them and recognise that, for many countries, implementation will take some time. The ISWGNA will report periodically to the UNSC on progress and signal when widely accepted implementation guidelines are available.

Several OECD member countries have already compiled R&D satellite accounts, and EU countries as a whole are expected to begin doing so on an annual basis in a few years' time. The OECD is in the process of drafting guidelines on the compilation of R&D satellite accounts, for inclusion in an OECD *Handbook on Deriving Capital Measures of Intellectual Property Products*, to be released in 2008. This work will be carried out in close coordination with Eurostat.

Quantitative impact

The impact on GDP of the capitalisation of R&D depends on the relative size of R&D production to GDP, if and when implemented. An approximate indicator of what this is likely to be is the ratio of gross domestic expenditure on research and development[6] (GERD) to GDP. This ratio varies considerably between OECD countries, from about 0.5 per cent for Greece to a little under 4 per cent for Sweden – with the OECD average being 2.3 per cent in 2006. The ratios do not change very quickly over time, which suggests that the capitalisation of GDP will have little impact on GDP growth rates. A word of caution is needed because the GERD to GDP ratio is only an approximate indicator of the impact of the capitalisation of R&D on GDP for three reasons.

First, there are conceptual differences between GERD and the national accounts measure of R&D production. Second, expenditure on R&D is already included in the output of non-market producers because output is measured by summing costs. However, R&D assets will incur consumption of fixed capital (depreciation) and so the gross value added (GVA), but not the net value added, of non-market producers will be boosted by the consumption of past R&D capital formation. In a growing economy, the consumption of past R&D capital formation will be generally less than current expenditure on R&D. Third, it is likely that some expenditure on R&D by government and non-profit institutions will not be recorded as capital formation.

Hence, the impact on GDP can be expected to be a little less than the GERD to GDP ratio suggests.

Military expenditure

In the 1993 SNA, offensive weapons and their means of delivery are excluded from capital formation regardless of the length of their life. That treatment implies that military assets provide defence services only and entirely in the period of acquisition. Further, weapons whose expense has been expressed as intermediate consumption, according to the present treatment, can be sold or exported in another accounting period, calling for counter-intuitive entries in the accounts for government. The recommendation is that all military expenditure that meets general SNA criteria for capital formation – that is, being used in production over a period in excess of one year – will be treated as capital formation. Weapon systems and military inventories will be distinguished within fixed capital formation and inventories respectively.

For many OECD countries, the new recommendation will probably be easier

Box 2

Spillovers

When the knowledge gained from R&D is traded by its legal owner with other units, such as via a licence or the sale of a patent, the exchange is recorded like that for any other product. But it is in the nature of R&D that the knowledge gained often becomes available to units other than the legal owner (or the economic owner if a licence agreement has the appearance of a sale of the R&D) by means other than a transaction. This can happen because the owner knowingly makes the knowledge available to others by putting it in the public domain, such as by patenting the knowledge or by making the knowledge freely available.

When a patent expires, other units are free to use the patented knowledge and gain benefits – something that commonly occurs with the production of pharmaceutical products. Even though a patent may prevent another unit using the knowledge directly until the patent expires, awareness of what is in the patent may still be beneficial to another unit. The knowledge also can be spread by other means, such as by the legal owner, or a licensee, using the knowledge in their production. The benefits that accrue to units other than the owner are commonly referred to as spillovers. The upshot is that it is common for the owner to obtain only a portion of the economic benefits provided by the knowledge gained from their R&D, but it is only that portion that should be recorded as an asset in the system.

to implement than the old one because the 1993 SNA requires countries to differentiate between expenditure on military 'assets' that could be used for civilian purposes (which are recorded as capital formation) from those that cannot (which are expensed). The new recommendation is also consistent with recent changes in the international public sector financial accounting standards. Possibly the greatest obstacle to implementation is the level of secrecy that surrounds military expenditure in some countries. While all countries operate their military budgets with some degree of secrecy, this issue may be especially problematic for countries with a high level of secrecy.

Quantitative impact

The change to the treatment of weapons systems will boost GDP level by an amount equal to the consumption of fixed capital of weapon systems, and this will vary considerably between countries. The US has already adopted the change, and this adds about 0.5 per cent to US GDP (Mead *et al* 2004).[7]

Goods for processing

Both the 1993 SNA and the *Fifth Edition of the Balance of Payments Manual* (BPM5) treat goods that are sent abroad for processing and then returned to the country from where they were dispatched as undergoing an effective change of ownership. The goods are therefore recorded in exports when they leave the first country and again in imports when they return to it. The country undertaking the processing is shown as producing goods that are recorded at their full value, even though the processor never has to pay for the value of the goods on entry. With the increasing importance of offshore processing, such treatment is increasingly questionable. It is further complicated by a different recommendation for goods being processed in one country for a second, which instead of being returned to the second country are sold (on behalf of the owner in the second country) to a third country.

The recommendation is that imports and exports should be recorded on a strict change of ownership basis in both the SNA and BPM. That is, goods being processed in one country on behalf of another should not be part of imports and exports in the balance of payments and SNA. This is a change from the 1993 SNA and BPM5. The consequences affect the recording of transactions within the national economy as well as international transactions. The decision to record on a pure change of ownership basis implies that no transactions will be recorded for intra-enterprise (inter-establishment) deliveries when goods are passed from one establishment to another for processing and then returned.

This has implications for the input-output tables, which on the proposed basis will reflect what each unit contributes to the production process rather than the physical technology, as previously was the case. This recommendation recognises that many goods move from one country to another without entailing a consequential payment from the recipient country to the sending country other than for the service provided. The recommendations have implications for the way in which the physical movement of goods, captured in merchandise trade statistics, is reconciled with the international flows to be recorded in the balance of payments and the National Accounts.

Quantitative impact

In principle this change will have no impact on GDP. The change will lead to lower estimates of output and intermediate consumption, but the reduction will be the same and so there will be no change to industry GVA. Exports and imports will also be reduced by the same amount, and the reductions could be relatively large for some countries.

Introduction of the 1993 SNA Rev. 1 by OECD countries

A number of significant changes were made with the 1993 update of the SNA and, because some of them were implemented quite differently by countries, international comparability suffered. Such was the case for computer software. The 1993 SNA, unlike its predecessor, recognises software as an asset – if it meets the general definition of an asset. When they adopted the 1993 SNA, countries employed quite different means to estimate the value of capital expenditures on software in both current prices and volume terms, and it was only in 2002 that an OECD task force was set up to develop guidelines.

The lesson has been learned, and work has already begun on developing guidelines for the measurement of capital expenditures on R&D, and these are to be incorporated in a new OECD handbook on measuring intellectual property products, as already noted. Likewise, the revised OECD manual *Measuring Capital* will provide comprehensive guidance on the measurement of capital services and related statistics.

In 2006, the OECD conducted a survey of OECD member countries to determine when they expected to introduce the changes in the 1993 SNA Rev. 1 and adopt the *International Standard Industry Classification (ISIC) Rev. 4*, or their national or regional version of it. The switch to ISIC Rev. 4 is a major undertaking for many countries and its implementation affects when countries will adopt the 1993 SNA Rev. 1. Some prefer to introduce the two together while others prefer to do them separately. Many national statistical offices (NSOs) compile their national accounts using supply and use tables[8] and/or input-output tables, which are an important tool for compiling consistent and accurate national accounts, as well as having many other uses, such as productivity analysis. The changes to the two standards will mean recompiling these tables for at least a few years, if not the entire time series.

Whatever they do, most NSOs will endeavour to provide consistent and continuous time series to the extent they are able. The advantages of adopting the two revised standards together are that there is only one major change for users to deal with and there is no duplication of effort in implementation. The disadvantage is that it is a lot of work for a NSO to do all at once. The EU countries are to make the two changes separately. They have decided to implement NACE[9] Rev. 2 in 2011, and it is proposed to adopt the revised *European System of Accounts* (ESA)[10] in 2011, but not implement it in releases until 2014. Neither of the last two dates is firm. The need for coordination and comparability in EU national accounts is most important because they are used for administrative purposes, such as determining each country's contribution to the EU budget. This is the raison d'être for the ESA, which provides a 'cookbook' for EU countries to follow. But it all takes time to develop, legislate and then implement. It is likely that non-EU European countries will follow the EU timetable.

Non-European OECD member countries have indicated quite different dates:

- Australia has indicated its intention to introduce most of the changes in the updated SNA in late 2009, along with the 'Australian New Zealand Standard Industry Classification (ANZSIC), 2006'

- Canada intends to introduce all the changes in the updated SNA in 2012.
- The US has already implemented some of the changes, namely the extension of the asset boundary to all military expenditure of a capital nature and the new treatment of non-life insurance services. It intends to introduce the remainder progressively. The biggest change in terms of its complexity and impact on GDP is the capitalisation of R&D. This has been provisionally scheduled for inclusion in the core accounts in 2012/13 (a satellite account is well underway now). Several other major changes will probably be introduced in 2012/13, but some of the other changes may be introduced at other times. NAICS 2007 will be introduced in the National Accounts in 2010
- Korea has a tentative plan to adopt the updated SNA in 2014, at the same time it adopts the revised 'Korean Standard Industry Classification'
- Japan has not made firm plans, but the likely timing is the adoption of both the updated SNA and revised 'Japanese Standard Industry Classification' in 2015
- Mexico intends to adopt the updated SNA in a staggered fashion. The proposed changes concerning some issues, such as pension schemes, non-performing loans and guarantees, could be introduced in the medium term, while those relating to the capital formation of non-financial assets are likely to be introduced later. No decision has yet been made on specific dates for making these changes. Mexico plans to introduce NAICS 2002 (which is only a little different from NAICS 2007) in 2007
- New Zealand has not yet developed a schedule for adopting the updated SNA, but it intends to introduce all the changes at the same time. It has tentative plans to introduce ANZSIC 2006 in either 2010 or 2011. An important expected outcome of the adoption of the revised industry classifications is much greater comparability between country industry data. A majority of OECD countries intends to implement the new ISIC (or national/regional forms of it) by 2011. Thus, the OECD intends to implement a new questionnaire, using the new SNA ISIC aggregations (A10 and A38 levels) in 2011, in coordination with Eurostat

Summary and conclusions

This article has summarised the update process of the 1993 SNA and given some details of some of the most important changes. Descriptions of all the substantive changes to be made in 1993 SNA Rev. 1 can be found in the *Full Set of Consolidated Recommendations* on the UNSD website. Only a few of the changes will have an appreciable effect on GDP and other major aggregates. It is unclear whether the change with potentially the biggest impact on GDP, the capitalisation of R&D, will be actually introduced in the core accounts of many countries and, if it is, when. However, most OECD countries will at least compile R&D satellite accounts which could support international comparisons.

It is likely that most OECD countries will implement most of the changes over a five- or six-year period, starting at the end of 2009. It is expected that as countries adopt the new SNA they will make estimates on both the old and new bases for an overlap period, but it is unlikely that countries will continue to compile old and new estimates in parallel for subsequent periods. This means that there will be a reduction in comparability for a number of years, but it is unlikely that any of the changes will have much impact on GDP growth rates.

The OECD will work over the next few years both on the preparation of implementation manuals and on the continuous assessment of data comparability. Users will be informed about the progressive adoption of the 1993 SNA Rev. 1 with appropriate metadata.

Notes

1 Charles Aspden is Senior Administrator in the OECD 'National Accounts and Financial Statistics Division' of the Statistics Directorate. He is a member of the Intersecretariat Working Group on National Accounts (ISWGNA). This article is an edited version of an earlier article of his published in the OECD *Statistics Brief*, available at www.oecd.org/ataoecd/32/39/39267818.pdf
In preparing this brief, he has drawn heavily on two documents prepared by the ISWGNA: its 2007 report to the United Nations Statistical Commission and the Full Set of Consolidated Recommendations, both of which can be found on the website of the United Nations.

2 Fixed assets are man-made products that are expected to be used in production for more than one year. They include equipment (but not household items), buildings, structures and computer software.

3 GDP combines in a single figure, and with no double counting, all the output (or production) carried out by all the firms, non-profit institutions, government bodies and households of a country during a given period, resident within in its economic territory.

4 *Measuring Capital* is undergoing a revision. The new edition is expected to be released in early 2008.

5 *OECD Frascati Manual 2002: Proposed Standard Practice for Surveys on Research and Experimental Development.*

6 One of the principal aggregates obtained from R&D surveys conducted as per the *Frascati Manual.*

7 The US Bureau of Economic Analysis provides the OECD with annual national accounts estimates that are consistent with the 1993 SNA, and for which expenditure on weapons systems are recorded as consumption. These data appear in the OECD's releases of annual national accounts data. However, such data are unavailable quarterly, and so the quarterly US national accounts data available from the OECD include the capital formation of weapons systems.

8 Supply tables show the production of industries by commodity, while use tables show the uses by industries of commodities, both domestically produced and imported.

9 General Industrial Classification of Economic Activities within the European Communities.

10 The revised ESA is intended to be generally consistent with the updated SNA.

FEATURE

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Regional economic indicators

February 2008

with a focus on regional productivity

SUMMARY

This quarter, the regional economic indicators article starts by presenting an overview of the economic activity of UK regions in terms of their gross value added (GVA) and GVA per head and their labour productivity. This is followed by a description of two methodological changes to the calculation of regional productivity. Then headline indictors of regional welfare and of various drivers of regional productivity are presented, followed by labour market data at the end of the article. The indicators cover the nine Government Office regions of England, Northern Ireland, Scotland and Wales. These 12 areas comprise level 1 of the European Nomenclature of Units for Territorial Statistics (NUTS1) for the UK. The term 'region' is used to describe this level of geography for convenience in the rest of this article.

Regional overview

Key figures on a regional basis indicate that:

- in 2006, London and the South East were the highest performing regions in terms of gross value added (GVA) per head, and the only two regions above the UK average. Wales and the North East had the lowest absolute level of GVA per head in 2006, but were among the regions with the highest annual growth rate
- London and the South East had the highest levels of gross disposable household income (GDHI) per head in 2005, at £15,885 and £14,941, respectively, but among the lowest annual percentage growth rates, at 3.2 per cent and 3.6 per cent, respectively. The North East (£11,356), Northern Ireland (£11,564) and Wales (£11,851) had the lowest GDHI per head, and
- the South East had the highest employment rate in the third quarter of 2007, at 78.7 per cent; Northern Ireland had the lowest rate, at 69.9 per cent, compared with the UK employment rate of 74.4 per cent

Focus on regional economic performance and productivity

This section presents a selection of regional economic indicators that provide an overview of the economic activity of UK regions. The productivity indicator has been updated in light of revisions to the regional GVA estimates and methodological changes, which include the switch to a workplace-based measure of GVA. Additionally, as of February 2008, two further changes come into effect. Firstly, the GVA per head series is now presented on a workplace basis, rather than the previous residence-based measure. Secondly, the previously smoothed GVA series is replaced by an unsmoothed GVA series for the output measure used in the calculation of all the regional productivity series. The new estimates are presented below, followed by an explanation of these two changes.

Regional performance

Table 1 and **Table 2** represent economic performance in terms of headline workplace-based GVA and GVA per head at current basic prices, respectively, for all UK regions. Due to large upward revisions to the regional GVA estimates and revisions to the population estimates, Tables 1 and 2 differ slightly from those published in earlier publications. It should also be noted that the nominal figures presented do not take account of inflation or regional differences in prices.

The regional breakdown of GVA changed little in 2006. Table 1 shows that London and the South East remained the regions with the largest share of UK GVA (19.2 per cent and 14.9 per cent, respectively) while Northern Ireland (2.4 per cent) and the North East (3.4 per cent) had the smallest.

In Table 1 it is evident that all regions experienced growth in nominal GVA in 2006. Compared with 2005, the growth in nominal GVA in 2006 is considerably higher for every UK region except London,

Table 1
Headline workplace-based gross value added at current basic prices: by NUTS1 region

£ million and percentages

	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
2000	824,778	28,188	83,781	60,631	52,595	67,872	71,891	157,550	121,938	63,270	31,560	66,074	19,428
2001	868,428	29,450	88,224	64,041	56,037	70,897	75,791	163,853	128,526	67,952	33,370	70,103	20,186
2002	917,416	31,124	93,365	68,273	59,695	74,562	78,762	172,269	136,499	72,001	35,682	74,183	21,002
2003	973,341	32,577	97,239	71,678	64,485	77,750	85,703	185,097	145,074	76,574	37,096	77,696	22,375
2004	1,031,353	35,251	103,511	76,422	67,765	81,781	91,415	196,101	151,777	81,478	39,594	82,443	23,815
2005[2]	1,073,837	36,882	106,556	78,194	70,154	84,612	94,547	207,269	158,563	85,226	40,411	86,292	25,134
2006[2]	1,128,801	38,798	110,437	81,805	74,846	88,663	98,860	216,451	168,475	89,538	42,893	91,355	26,682
Percentage growth[3]													
2004	*6.0*	*8.2*	*6.5*	*6.6*	*5.1*	*5.2*	*6.7*	*5.9*	*4.6*	*6.4*	*6.7*	*6.1*	*6.4*
2005	*4.1*	*4.6*	*2.9*	*2.3*	*3.5*	*3.5*	*3.4*	*5.7*	*4.5*	*4.6*	*2.1*	*4.7*	*5.5*
2006	*5.1*	*5.2*	*3.6*	*4.6*	*6.7*	*4.8*	*4.6*	*4.4*	*6.3*	*5.1*	*6.1*	*5.9*	*6.2*
2006 regional breakdown (percentages)[4]	*100.0*	*3.4*	*9.8*	*7.2*	*6.6*	*7.9*	*8.8*	*19.2*	*14.9*	*7.9*	*3.8*	*8.1*	*2.4*

Notes:

1 UK less extra-regio and statistical discrepancy.
2 Provisional.
3 Year-on-year.
4 Regional breakdown is the proportion of each region as a percentage share of total UK GVA (excluding extra-regio).

Source: Regional Accounts, Office for National Statistics

Table 2
Headline workplace-based gross value added per head of population at current basic prices: by NUTS1 region

£ per head and percentages

	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
2000	14,006	11,083	12,368	12,227	12,619	12,880	13,375	21,771	15,260	12,867	10,857	13,051	11,544
2001	14,691	11,594	13,026	12,868	13,375	13,426	14,034	22,377	16,019	13,746	11,466	13,843	11,949
2002	15,465	12,249	13,775	13,650	14,140	14,081	14,498	23,401	16,963	14,477	12,221	14,676	12,379
2003	16,343	12,818	14,299	14,257	15,158	14,637	15,654	25,135	17,939	15,300	12,656	15,363	13,141
2004	17,233	13,866	15,178	15,091	15,791	15,353	16,588	26,539	18,680	16,161	13,438	16,234	13,924
2005[2]	17,826	14,465	15,579	15,310	16,211	15,813	16,996	27,799	19,373	16,755	13,682	16,937	14,575
2006[2]	18,631	15,181	16,115	15,908	17,150	16,521	17,633	28,813	20,452	17,474	14,462	17,854	15,320
Relative to 2006													
UK average	1.00	0.81	0.86	0.85	0.92	0.89	0.95	1.55	1.10	0.94	0.78	0.96	0.82
2006 percentage growth[3]		*4.9*	*3.4*	*3.9*	*5.8*	*4.5*	*3.7*	*3.6*	*5.6*	*4.3*	*5.7*	*5.4*	*5.1*

Notes:

1 UK less extra-regio.
2 Provisional.
3 Year-on-year.

Source: Regional Accounts, Office for National Statistics

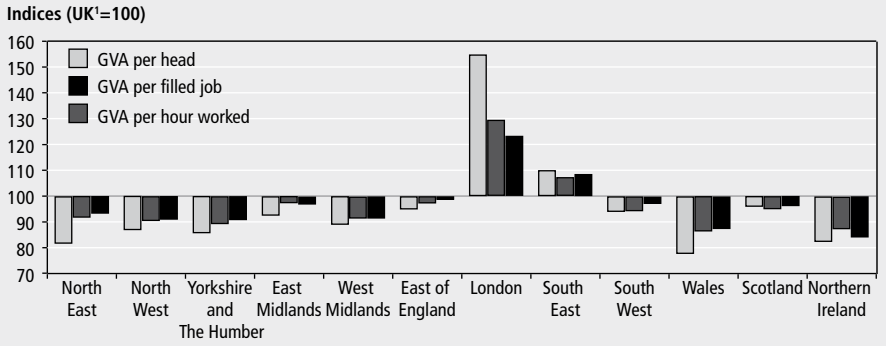
where the growth rate further declined. However, the 2006 growth rates are still below their 2004 levels for ten of the 12 regions. Only the East Midlands and the South East had higher growth rates in 2006 compared with 2004. In 2006, overall UK growth was 5.1 per cent compared with 4.1 per cent in 2005 and 6.0 per cent in 2004. The East Midlands, the South East, Northern Ireland and Wales had the highest annual percentage growth (above 6.0 per cent) in 2006. While Northern Ireland and the North East had the smallest absolute values of GVA, their year-on-year growth in 2006 was higher than the growth of the region that had by far the largest value of GVA (London).

Due to the wide variations in geographical size among the UK regions, comparisons are more usefully expressed in terms of GVA per head of population, rather than absolute values, as shown in Table 2. In 2006, GVA per head for the UK was £18,631. London was the region with the highest GVA per head in 2006 at £28,813, well above (by 55 per cent) the UK average. GVA per head for the South East was also above the UK average (by 10 per cent), at £20,452 per head. Wales, the North East and Northern Ireland had the lowest GVA per head, at £14,462, £15,181 and £15,320, respectively.

Labour productivity

Labour productivity indicators provide the most effective comparisons of regional economic performance. The GVA per head measure is now presented on a workplace basis, whereas previously it was residence based. The only three regions, for which estimates will change due to the switch from residence to workplace basis, are London, the South East and the East of England. This is due to these regions experiencing significant levels of net commuting. **Figure 1** shows that, when using GVA per hour worked, there are fewer and smaller differences in regional economic performance than when making comparisons based on other indicators. GVA per hour worked additionally takes into account any variations in labour market structures across the regions, such as the proportions of full-time and part-time workers or job share availability. It is for these reasons that GVA per hour worked

Figure 1
Comparison of regional economic indicators: by NUTS1 region, 2006



Note:
1 UK less extra-regio and statistical discrepancy.
Source: Office for National Statistics

Figure 2
GVA per hour worked: by NUTS1 region

Note:
1 UK less extra-regio and statistical discrepancy.
Source: Office for National Statistics

is the preferred indicator of productivity.

Figure 2 shows the regional GVA per hour worked productivity indices on a time series basis. The regions that improved their productivity relative to the UK average between 2002 and 2006 were London, the South East, the South West, East of England and Scotland. This chart does suggest that, since 2002, there has been some widening in the regional productivity differences between the highest and lowest performing regions. Productivity in London was the highest in all years and by 2006 was above the UK average by 4.2 percentage points more than it was in 2002. The opposite occurred in Wales, where productivity was among the lowest in 2006.

In terms of the annual change in the GVA per hour worked indicator, six regions experienced declining productivity against the UK average in 2006: the East of England, the North East, Wales, the North West, Scotland and the West Midlands. The largest decline was in the East of England where productivity fell by 2.7 percentage points against the UK average in 2006.

Methodological changes to calculation of regional productivity

There has been increasing interest in analysis of regional productivity in the UK, illustrating the greater emphasis on regional-based policy in recent years. This part of the article summarises the methodologies used to construct the annual estimates of regional productivity published by the Office for National Statistics (ONS), and outlines two methodological changes that come into effect from February 2008, including the impact of these changes on the different measures of regional productivity.

ONS publishes the Productivity First Release on a quarterly basis. Once a year, this includes estimates of annual regional productivity on an output per filled job, per hour worked and per head basis for the UK. These are published at the Nomenclature of Units for Territorial Statistics (NUTS) 1 level (North East, North West, Yorkshire and The Humber, East Midlands, West Midlands, East of England, London, South East and South West, Wales, Scotland and Northern Ireland).

This article summarises the methodologies that have been used to construct the published estimates of regional productivity (up to the estimates for 2005 published in 2007) and explains changes that are being made now. These changes, which are in response to user needs, have been driven by the need for greater consistency and coherence between the regional productivity estimates published by ONS and will come into effect from February 2008. The two changes being made are:

- switching to a workplace-based measure of GVA for the GVA per head series, and
- switching to the unsmoothed GVA series for the output measure for all the regional productivity series

Switching to using the workplace-based measure of GVA for the GVA per head series

Measures of regional performance are available on an output per filled job, per hour worked and per head basis. The first two series are measures of labour productivity, relating a measure of output to labour input. Output per filled job is a proxy for an output per worker measure, which is the headline measure of productivity in the other ONS productivity statistics. The output per hour worked measure is regarded as conceptually superior to headcount productivity measures as it gives a far better indication of the actual volume of labour input. A measure of hours worked takes into account the differences in working patterns (for example, the composition of full-time and part-time workers in a region's labour force).

The output measure used for the two productivity series is the workplace-based GVA series, published annually in the ONS Regional Accounts. Regional GVA is calculated using the income approach, as these estimates are more readily available than those from either the expenditure or production approach. According to the National Accounts Concepts, Sources and Methods, regional GVA 'adds up all the income earned by resident individuals or corporations in the production of goods and services and is therefore the sum of uses in the generation of income account for the total economy'.

GVA estimates at the NUTS1 level are available on both a workplace and residence basis. Workplace-based GVA allocates the incomes of individuals to the region where

Box 1

Decomposition of revisions

All regional productivity estimates are indexed such that the UK is equal to 100, enabling the regional productivity gap to be measured for any given year. Focusing on the measure of GVA per head, as there are more methodological changes to this measure, this calculation can be expressed as:

$$\text{GVA per head}_i = \left[\frac{\text{GVA}_i / \text{Pop}_i}{\text{GVA}_{UK} / \text{Pop}_{UK}} \right]$$

where i denotes the NUTS1 level region.

Introducing the concept of time means that this notation can be used to define revisions:

$$\text{Revisions}_{i,y,t} = \left[\frac{\text{GVA}_i / \text{Pop}_i}{\text{GVA}_{UK} / \text{Pop}_{UK}} \right]_{y,t} - \left[\frac{\text{GVA}_i / \text{Pop}_i}{\text{GVA}_{UK} / \text{Pop}_{UK}} \right]_{y,t-1}$$

In this expression, y refers to the year to which the productivity estimate refers, and t refers to the year in which the productivity estimate was published. The difference between t and t-1 is driven by the availability of more complete data being available for year y.

This can be re-expressed in an alternative way to allow this final revision to be decomposed into revisions caused by changes to the underlying source data and the methodological change. The underpinning idea to this decomposition is to isolate individually the impact of the revisions to GVA, the revisions to the population estimates and the two methodological changes.

	Publication	Basis of GVA	Headline series
GVA^0	Regional Accounts 2006	Residence	Smoothed
GVA^1	Regional Accounts 2007	Residence	Smoothed
GVA^2	Regional Accounts 2007	Workplace	Smoothed
GVA^3	Regional Accounts 2007	Workplace	Unsmoothed

P^0 = Population estimates 2006 P^1 = Population estimates 2007

Using the above notation, it is possible to decompose the revision to the headline series into four components. The first two steps of the methodology show the contribution of source data revisions while the last two steps show the contribution of the methodological changes. The contributory effects can be derived since this is an additive model.

Step 1: Contribution of revisions to GVA estimates

$$\left[\frac{\text{GVA}_i^1 / \text{Pop}_i^0}{\text{GVA}_{UK}^1 / \text{Pop}_{UK}^0} \right]_{y,t} - \left[\frac{\text{GVA}_i^0 / \text{Pop}_i^0}{\text{GVA}_{UK}^0 / \text{Pop}_{UK}^0} \right]_{y,t-1}$$

Step 2: Contribution of revisions to population estimates

$$\left[\frac{\text{GVA}_i^1 / \text{Pop}_i^1}{\text{GVA}_{UK}^1 / \text{Pop}_{UK}^1} \right]_{y,t} - \left[\frac{\text{GVA}_i^1 / \text{Pop}_i^0}{\text{GVA}_{UK}^1 / \text{Pop}_{UK}^0} \right]_{y,t-1}$$

Step 3: Contribution of switch from residence-based to workplace-based GVA

$$\left[\frac{\text{GVA}_i^2 / \text{Pop}_i^1}{\text{GVA}_{UK}^2 / \text{Pop}_{UK}^1} \right]_{y,t} - \left[\frac{\text{GVA}_i^1 / \text{Pop}_i^1}{\text{GVA}_{UK}^1 / \text{Pop}_{UK}^1} \right]_{y,t-1}$$

Step 4: Contribution of switch from smoothed to unsmoothed GVA

$$\left[\frac{\text{GVA}_i^3 / \text{Pop}_i^1}{\text{GVA}_{UK}^3 / \text{Pop}_{UK}^1} \right]_{y,t} - \left[\frac{\text{GVA}_i^2 / \text{Pop}_i^1}{\text{GVA}_{UK}^2 / \text{Pop}_{UK}^1} \right]_{y,t-1}$$

The sum of these four expressions is equal to the final revision, as expressed in the underlying ratios of output to input. The final expression (below) illustrates the differences between the newly published estimates (published in February 2008 for 1996 to 2005) and previously published estimates.

$$\left[\frac{\text{GVA}_i^3 / \text{Pop}_i^1}{\text{GVA}_{UK}^3 / \text{Pop}_{UK}^1} \right]_{y,t} - \left[\frac{\text{GVA}_i^0 / \text{Pop}_i^0}{\text{GVA}_{UK}^0 / \text{Pop}_{UK}^0} \right]_{y,t-1}$$

they work, whereas residence-based GVA allocates these earnings to the region in which they live. These estimates only differ for three NUTS1 level regions: London, the South East and the East of England.

ONS recommends that the preferred measure of GVA should be on a workplace basis. The GVA per head measure is not traditionally regarded as a productivity measure but rather as an indicator of a region's economic performance. Unlike the labour productivity measures, the GVA per head series previously used the residence-based measure of GVA as the output measure. However, ONS advice is that, conceptually, GVA should be measured on a workplace basis. This is also in line with internationally agreed conventions. Residence-based GVA at the NUTS1 level continues to be made available due to historical and ongoing use for some particular purposes. In the calculation of GVA per head, the denominator is residence based, whereas the labour productivity measures use workplace-based denominators. The residence-based GVA has been used for GVA per head at the regional level to overcome biases that result from using a workplace-based numerator and a residence-based denominator.

Whereas this approach is justifiable if these GVA per head estimates are viewed in isolation, this tends not to be the case. Users compare the different measures available to better understand regional productivity. However, there is an inconsistency between these different series that hampers such comparisons.

For example, differences between GVA per filled job and GVA per hour worked for any region is driven by differences in working patterns; a region may comparatively perform better on an hours worked measure as the average number of hours worked in that region is relatively fewer. The difference between these two series is caused by the measure of labour input. However, the same analysis cannot be used when comparing either of these labour productivity measures with the GVA per head series if a residence-based measure of GVA is used for the output per head series, as there are also differences in the output measure.

Comparisons are not only made between differing productivity series but also across different regional levels. GVA per head estimates are also available at the NUTS2 and 3 level but these are not consistent with the headline NUTS1 level estimates. Residence-based GVA estimates are not produced at these lower regional levels, meaning that the workplace-based GVA has to be used as the numerator. This means that, for example, it is not possible to decompose the residence-based GVA per head estimate for London into the NUTS2 and 3 levels that comprise London as there is an inconsistency in the source data. Such analyses can be of importance in identifying areas that are performing well at these lower regional levels, and can help explain why such NUTS1 level regions are performing well economically.

From February 2008, in the regional economic indicators articles, the GVA per head series at the NUTS1 level will use workplace-based GVA as the output measure to achieve greater consistency across the different regional productivity estimates, in line with ONS recommendations.

Switching to using the unsmoothed GVA series as the output measure for all regional productivity measures

The headline regional GVA estimates that are published in the regional accounts are calculated using a five-year moving average. These estimates have been used as the output measure for all regional productivity estimates. The reason for presenting the smoothed GVA estimates as the headline series is to overcome the volatility that tends to be seen in the raw underlying estimates, caused by sampling errors. These errors are more pronounced at the regional level than they are at the national level, as the estimates are based on smaller sample sizes.

Although these smoothed GVA estimates remove some of the year-to-year volatility caused by sampling errors and conceptually give a more credible measure of the true economic activities of regions, there is an argument that the unsmoothed series should be used for regional productivity estimation. This is because for productivity purposes, the output estimates are not being used in isolation but are being used with measures of labour input. These latter measures are not being adjusted to account for any possible sampling errors that may be introducing high levels of volatility. Using a smoothed output measure alongside an unsmoothed input measure presents some conceptual issues with regards to interpreting the resultant productivity estimates.

When a data series experiences a high degree of volatility driven by sampling errors, the series is said to be 'noisy'. This means the time series can be thought of consisting of the real data and 'noise'. In terms of data analysis, it is the real data that are of interest. The effect of smoothing the data is to disperse any extreme values over different time periods. However, this also causes the nature of the series to change as it moves the data (both the real and the noise component) from one period to other periods. As a stand-alone measure, a smoothed GVA series gives a better indication of the underlying trend to movements in output; hence it is presented as the headline measure. However, this is an issue if such a series is used in the construction of a ratio such as productivity. It may mean that the resultant productivity estimates are not the best indication of real regional productivity.

The second methodological change that will come into effect from February 2008 is the use of unsmoothed regional GVA estimates as the measure of output for all regional productivity calculations. This still ensures that there is consistency across all three measures of regional productivity, as well as across the three regional breakdowns for each measure.

Decomposition of revisions

Revisions to productivity estimates are usually caused by revisions to the underlying source data (that is, revisions to GVA and/or the measure of labour input). However, the introduction of a new regional productivity methodology introduces another source of revisions. This section decomposes these final revisions by reason. **Box 1** outlines in detail the methodology being used to decompose the final revisions to the published regional productivity estimates, which reflect the contribution of source data and methodology-driven revisions.

Revisions to the underlying source data will always occur as data referring to year y become more readily available at time period t relative to t-1. However, data can also be revised as a result of methodological changes, which is relevant to both input series.

The large upward revisions to the regional GVA estimates (which is why these revisions contributions are positive) was caused by the incorporation of new estimates for own-account software investment in Blue Book 2007 (see Chamberlin, Clayton and Farooqui 2007). These revisions went into the gross trading profits of corporations (GTPOC) component of GVA. Regions with a high GTPOC to GVA ratio will experience the largest software investment-based revisions.

There were also revisions to the population estimates that are used to

Table 3
Decomposition of revisions to GVA per head: by NUTS1 region, 2005

	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
GVA revisions	1.1	-0.5	-0.3	-1.2	-0.9	-0.9	2.7	0.5	-0.5	0.1	-1.0	-0.9	1.0
Population revisions	0.3	0.1	-0.7	-0.4	0.3	-0.4	1.2	-0.2	-0.3	0.0	0.2	0.0	0.0
Switch to workplace-based GVA	0.0	0.0	0.0	0.0	0.0	-10.6	15.1	-6.6	0.0	0.0	0.0	0.0	0.0
Switch to unsmoothed GVA	0.3	0.0	-0.3	-0.5	-0.1	0.1	0.7	-0.3	0.4	0.0	-0.6	0.0	0.4
Sum	1.7	-0.3	-1.3	-2.1	-0.7	-11.8	19.7	-6.6	-0.4	0.1	-1.4	-0.8	1.5

Source: Office for National Statistics

construct estimates of GVA per head at the regional level. These estimates were revised from 2002 to 2005, reflecting an improved methodology for estimating international migration. These improvements allowed a better regional distribution of international in-migrants by using the Labour Force Survey (LFS) in combination with the International Passenger Survey. These changes help explain why the total population estimates have been revised upwards by almost 30,000. The impact at the regional level varies across the 12 NUTS1 level regions, which is why these contributory effects can differ in magnitude according to region. Details of these methodological changes, as well as the other changes, can be found on the National Statistics website at www.statistics.gov.uk/statbase/product.asp?vlnk=14834

Table 3 shows the magnitude of the revisions to the GVA per head series at the NUTS1 level, along with its contributions. It can be seen from these figures that the relative sizes of these contributions does vary by region, with the final revisions to the GVA per head being predominantly driven by revisions to GVA source data for some regions (North East), while for other regions, the main contributory effect is the switch to using workplace-based GVA (London).

In absolute terms, the largest upward GVA revisions are observed for London and the South East. This is unsurprising as one would expect relatively large degrees of in-house software to be developed in these regions, based on the industrial structure there. This is reflected in a high GTPOC to GVA ratio for London (those interested in only assessing the impact of software investment are advised to look at estimates only up to 2004 because there were other factors contributing to the GVA revisions for 2005).

It should be noted that the switch from residence- to workplace-based GVA only affects three regions – London, South East and East of England – and for these regions, this change is significantly larger than the revisions due to the other factors such as the improved methodology of measuring own-account software.

Figure 3 illustrates the contributions of the GVA per head revisions in 2005 for London, the South East and the East of England. It is clear to see that the switch to the workplace-based measure of GVA is the largest component. The sign of these contributions is as expected. There is a high level of commuting from the South East and the East of England to London. Under the previous methodology, where GVA was residence based, the output of these commuters would have been allocated to the regions where they lived (in other words, the South East and the East of England). However, the switch to using a workplace-based measure of GVA means that the output of these commuters is now being allocated to the region in which they work (that is, London). Therefore the contribution to the GVA per head revision for London is upwards, and for the South East and the East of England is downwards.

Figure 3
Decomposition of revisions to GVA per head for East of England, London and the South East, 2005

Source: Office for National Statistics

Figure 4 shows the effect of changes to the regional productivity estimates as measured by output per filled job, and **Figure 5** shows the same effect on output per hour worked. The newly published estimates (that is, the estimates produced using the new outlined methodology) are presented as a time series alongside the estimates that would have been published had there been no change to the methodology. For these labour productivity measures, the difference reflects the change from smoothed to unsmoothed GVA estimates. The estimates are presented for London and Wales, which are the regions with the highest and lowest levels of productivity based on both measures.

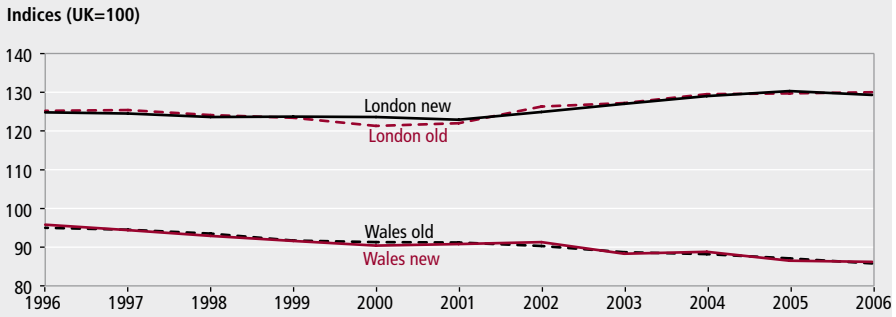
It can be seen from these charts that the impact on both these productivity measures is minimal. The charts show the newly published estimates (1996 to 2006) using the new methodology outlined in this article. These are presented alongside the estimates that would have been published had there been no change.

Switching to the unsmoothed GVA series as the output measure has not led to a significant increase in volatility of either productivity series for either London or Wales. This is also the case for the other NUTS1 regions.

Other regional indicators

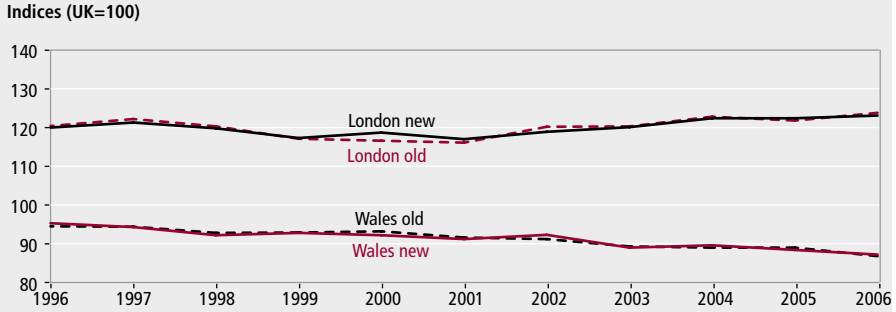
The next section presents indicators of regional welfare and of various drivers of regional productivity. These drivers include

Figure 4
The impact on GVA per filled job of switching to unsmoothed GVA as the output measure



Source: Office for National Statistics

Figure 5
The impact on GVA per hour worked of switching to unsmoothed GVA as the output measure



Source: Office for National Statistics

innovation, enterprise, competition and skills. The last part of this article focuses on developments in regional labour markets.

Welfare

Regional GDHI up to 2005 was published in March 2007. Estimates up to 2006 are expected to be published in March 2008. GDHI estimates are published at current basic prices and so do not take into account inflation effects or regional price differences. GDHI measured in absolute terms (£ million) does not take into account the population distribution both within and across regions. For more reliable comparisons of regional income levels, the residence-based measure of GDHI per head can be used as an indicator of the welfare of people living in a region. **Table 4** shows these estimates from 2000 to 2005. In 2005, London (£15,885), the South East (£14,941) and the East of England (£14,198) were the only regions where GDHI per head was greater than the UK average. However, Table 4 also shows that London and the South East were the regions which had the lowest percentage growth of this indicator between 2000 and 2005 (18.2 and 19.4 per cent, respectively). The three regions that had a level of GDHI lower than £12,000 per head (the North East, Northern Ireland and Wales) had among the largest improvements over this five-year period (at 22.6, 24.7 and 25.6 per cent growth, respectively). Also, the East Midlands saw large growth in its GDHI per head indicator between 2000 and 2005 (at 25.6 per cent).

Gross median weekly earnings estimates were published in November 2007 with some changes to their methodology. Results for 2007 take account of a small number of methodological changes which will improve the quality of results. These include changes to the sample design itself, as well as the introduction of an automatic occupation coding tool, called ACTR. Therefore these results are only comparable with the 2006 results which were also produced using this methodology and are discontinuous with results from previous years. **Table 5** shows that all regions except Northern Ireland experienced increases in gross median weekly earnings in 2007. London maintained the noticeable lead in 2007 as the region with the highest gross median weekly earnings for full-time employees, at £580.9. Northern Ireland had the lowest gross median earnings, at £401.9, followed by the North East at £402.9 and Wales at £404.7.

Figure 6 shows the estimates on gross median weekly pay, by sex, for 2007. Females across all UK regions had lower pay than males. However, in terms of annual percentage growth, pay for females grew stronger than for males in six of the 12 UK regions. The annual growth rate

Table 4
Headline gross disposable household income per head at current basic prices: by NUTS1 region

£ per head and percentages

	United Kingdom[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
2000	10,906	9,261	9,979	9,964	9,972	9,949	11,681	13,439	12,509	10,806	9,433	10,168	9,270
2001	11,588	9,810	10,560	10,514	10,628	10,547	12,509	14,223	13,320	11,508	10,070	10,800	9,819
2002	11,930	10,147	10,874	10,834	11,008	10,854	12,909	14,495	13,652	11,868	10,456	11,199	10,176
2003	12,409	10,576	11,304	11,306	11,559	11,303	13,376	15,039	14,104	12,367	10,932	11,682	10,668
2004	12,773	10,920	11,673	11,687	11,993	11,670	13,722	15,396	14,424	12,718	11,322	12,047	11,086
2005[2]	13,279	11,356	12,186	12,197	12,522	12,133	14,198	15,885	14,941	13,258	11,851	12,554	11,564
Percentage change													
2000 to 2005	*21.8*	*22.6*	*22.1*	*22.4*	*25.6*	*22.0*	*21.5*	*18.2*	*19.4*	*22.7*	*25.6*	*23.5*	*24.7*

Notes:

1 UK less extra-regio.
2 Provisional.

Source: Office for National Statistics

Table 5
Gross median weekly pay of full-time employees: by NUTS1 region

£ per week

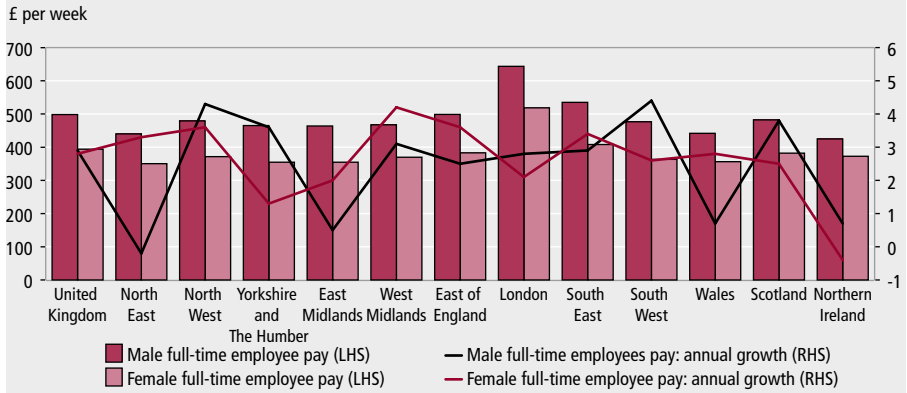
	United Kingdom	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East of England	London	South East	South West	Wales	Scotland	Northern Ireland
2004	419.2	370.2	394.1	389.4	383.6	392.0	419.1	537.4	447.2	392.6	381.3	390.4	372.6
2005	431.2	383.7	406.4	398.8	405.2	402.4	427.7	555.9	450.4	400.0	389.7	408.6	385.2
2006[1]	443.6	394.8	416.8	409.0	419.1	412.5	440.6	569.2	469.0	413.7	400.0	428.1	402.5
2007[1]	456.7	402.9	434.2	422.3	420.2	430.0	450.0	580.9	480.7	427.8	404.7	441.5	401.9

Note:

1 Discontinuity with results from 2005 and 2004 due to methodological changes.

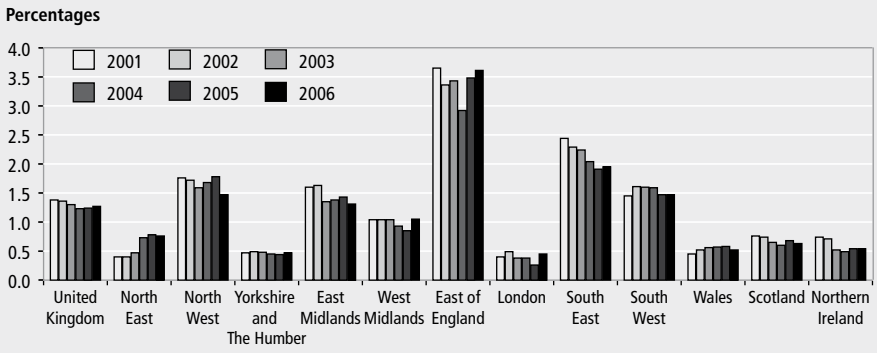
Source: Office for National Statistics

Figure 6
Gross median weekly pay: by sex and NUTS1 region, 2007



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

Figure 7
Business expenditure on R&D as a percentage of headline workplace based GVA: by NUTS1 region



Source: Office for National Statistics

of female pay was greatest in the West Midlands.

Drivers of productivity

The following indicators represent the drivers of productivity as identified by HM Treasury and the Department for Business, Enterprise and Regulatory Reform (BERR). Research and Development (R&D) statistics provide an indicator for innovation; VAT statistics on net registration change and business survival rates provide an indicates for enterprise; and UK regional trade in goods provides an indicator for competition.

Innovation

Innovation is a necessary, although not sufficient, condition for economic success and is therefore recognised as an important driver of productivity. Innovation can mean either the invention of new, more valuable products or services, or the development of new processes that increase efficiency. R&D is an input to the innovation process and defined by the Organisation for Economic Co-operation and Development (OECD) 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 the stock of knowledge to devise new applications'.

Statistics on Business Expenditure on Research and Development consistent with these internationally agreed standards were published in November 2007. New estimates for 2006 were published at the NUTS1 level.

Table 6 presents expenditure on R&D performed in UK businesses by region from 2001 to 2006. The East of England and the South East had the highest business expenditure on R&D in 2006 and were the only regions to have expenditure higher than £3 billion. Northern Ireland, Wales and the North East remained the regions with the lowest R&D expenditure. London had the highest percentage growth in 2006, at 82.2 per cent. The West Midlands and Yorkshire and The Humber were the regions with the next highest growth in 2006, at 29.8 and 12.2 per cent, respectively, despite being ranked low when comparing their absolute expenditure on R&D with other regions. R&D expenditure declined in the North West, Wales, the East Midlands and Scotland. The greatest drop was in the North West, with a decline of 14.0 per cent.

The East of England accounted for 25.1 per cent of total UK expenditure on R&D in 2006, and the South East contributed a further 22.9 per cent. Together these two adjacent regions accounted for around a half of R&D expenditure within the UK. The lowest share of R&D expenditure was in Northern Ireland which consisted of just 1.0 per cent of the UK total.

Analysing R&D as a percentage of GVA is a measure commonly used in international comparisons and can further explain the above trends. **Figure 7** shows that the East of England was the region with the highest share of R&D expenditure in terms of GVA (3.6 per cent in 2006) and that this has been the case since 2001.

The large increase in expenditure in London and the West Midlands in 2006 (identified in Table 6) is also reflected when R&D expenditure is analysed as a percentage of GVA, with these regions'

Table 6
Expenditure on research and development performed in UK businesses: by NUTS1 region

£ million and percentages

	United Kingdom[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
2001	11,978	119	1,554	298	895	735	2,768	649	3,141	988	150	532	150
2002	12,469	124	1,602	336	972	773	2,650	847	3,124	1,157	186	550	149
2003	12,677	152	1,545	345	868	809	2,936	709	3,252	1,229	207	508	116
2004	12,668	257	1,739	343	936	758	2,672	744	3,089	1,296	226	493	116
2005	13,310	289	1,892	344	1,001	719	3,287	538	3,035	1,249	233	586	136
2006	14,306	293	1,627	386	977	933	3,570	980	3,279	1,316	222	579	145
Percentage share of UK total in 2006	*100.0*	*2.0*	*11.4*	*2.7*	*6.8*	*6.5*	*25.0*	*6.9*	*22.9*	*9.2*	*1.6*	*4.0*	*1.0*
2006 percentage growth[1]	*7.5*	*1.4*	*–14.0*	*12.2*	*–2.4*	*29.8*	*8.6*	*82.2*	*8.0*	*5.4*	*–4.7*	*–1.2*	*6.6*

Note:

1 Year-on-year.

Source: Office for National Statistics

percentage shares both increasing by 0.2 percentage points, respectively. Despite this increase, London remains the lowest of the regions. This may not be suggestive of low levels of innovation in London but could reflect how regional industry composition affects R&D as an indicator of innovation. London has a large concentration of service industries, but service industries may not be R&D intensive (within the OECD definition) if, for example, they rely heavily on human capital. If innovation occurs in other forms it may not be captured by the R&D measure.

Enterprise

Table 7 shows the net changes in VAT registered businesses for UK regions in the years 1999 to 2006. Estimates for 2006 and revisions to previous years were published in November 2007 by BERR. VAT registrations and deregistrations are the best official guide to the pattern of business start-ups and closures. They are an indicator of the level of entrepreneurship and of the health of the business population. Many factors influence the pattern of business start-ups. Among these, the most important is economic growth, which encourages new ventures and creates demand for business.

Table 7 shows an overall positive net change in VAT registrations and deregistrations during 2006 at the UK level, meaning that more enterprises became registered than deregistered in that period. This is reflected in all UK regions, with the smallest net increase of 600 seen in Northern Ireland and the highest in London at 7,300.

Overall, four regions (East of England, Northern Ireland, the West Midlands and Wales) saw a smaller net increase in 2006 compared with 2005. However, the UK figure was the highest seen since 1999.

It should be noted that regions with high registration rates tend to also have high deregistration rates. Part of the reason for this is, of course, the sheer difference in the sizes of the regions – regions with larger populations and economies would be expected to have higher absolute numbers of registrations and deregistrations if all other factors were equal. However, this could also be due to the effects of market sorting (when competitive entrants push the unproductive out of a market) being more significant in some regions than others. This could partly also be due to the industrial mix in each region, with some sectors prone to higher rates of turnover than others.

The regional variations are linked geographically in that five of the six regions with a net change over 3,000 are situated next to each other (London, East of England, East Midlands, South East and South West), with the exception (the North West) interestingly being situated next to the North East – the region with the lowest net change in England.

Business survival rates data on the proportion of businesses that remain registered for VAT three years after their initial registration have not been updated since the last article. These estimates may be updated again around February 2009. Although there has been a general increase in business survival rates since 1995, these rates vary greatly between regions. Northern Ireland had the highest survival rate (78.5 per cent) for businesses registered

Table 7
VAT registrations and deregistrations, net change:[1] by NUTS1 region

Thousands

	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
1999	30.1	0.5	1.7	1.3	1.7	2.3	3.1	8.6	6.5	2.5	0.1	0.9	0.8
2000	27.7	0.7	1.7	1.4	1.9	2.7	3.2	6.7	5.3	2.0	0.7	1.0	0.6
2001	19.5	0.2	1.4	0.8	1.6	2.1	1.9	3.6	4.0	1.8	0.7	0.5	0.8
2002	22.1	0.6	1.8	1.4	2.3	2.5	3.0	1.7	4.2	2.5	0.3	0.9	1.1
2003	36.9	1.1	3.9	3.3	2.8	2.9	3.6	6.2	5.9	3.3	0.9	1.9	1.1
2004	32.5	0.8	3.3	2.5	2.4	2.7	2.9	5.7	4.7	2.9	1.4	2.0	1.1
2005	38.2	1.2	4.3	2.7	2.8	3.1	4.1	7.2	5.1	3.3	1.4	2.1	1.1
2006	39.1	1.2	4.3	2.8	3.1	2.9	3.5	7.3	6.0	3.7	1.3	2.6	0.6

Note:

1 Net change is the net gain or loss in the stock of registered enterprises each year – equal to registrations *less* deregistrations.

Source: Department for Business, Enterprise and Regulatory Reform

in 2002 and London had the lowest (66.9 per cent).

Competition

HM Revenue & Customs publishes regional trade statistics on export trade in goods by statistical value, which provide an indicator of competition. Trade in goods by definition excludes 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. New estimates for the third quarter of 2007 were published in December 2007, presented here in **Table 8**.

The total value of UK exports for the 12 months ending September 2007 dropped by 13.2 per cent compared with the 12 months ending September 2006. The value of UK exports to the EU decreased by 19.3 per cent over this period. The only UK region that increased was Northern Ireland, where exports rose by 6.9 per cent. The value of UK exports to countries outside the EU decreased by 3.5 per cent. Exports to non-European destinations from eight UK regions decreased in the year ending September 2007 compared with the year ending September 2006. The only regions that increased were the North East, Yorkshire and The Humber, Northern Ireland and Scotland.

In terms of the latest quarter estimates (2007 quarter 3) compared with the previous quarter, most regions saw a decline in the value of exports to the EU, except for the South West and London, which increased by 4.9 and 4.3 per cent, respectively. However, for comparison, in the third quarter of 2006, the value of exports to the EU decreased for all 12 regions.

The value of exports to countries outside the EU in the third quarter of 2007 showed a similar trend; while exports from eight regions worsened compared with the previous quarter, only four regions, the South West, the East Midlands, the North East and Scotland showed an increase in exports to countries outside the EU. In Yorkshire and The Humber and Wales, the value of exports in the third quarter of 2007 decreased by more than 10 per cent. The South West saw the strongest increase in the value of exports, with a 10.9 per cent increase.

Figure 8 shows the value of export goods as a percentage of headline workplace-based regional GVA. This basis of interpreting the results is more useful than looking at the absolute numbers because it takes into account the differing sizes of regional economies. In 2006, the East Midlands was the region where exports accounted for the highest percentage of GVA (23.9 per cent), which marks a steady increase since 2004. The region where exports accounted for the smallest percentage of GVA (12.2 per cent) in 2006 was the South West, although the percentage has been rising consistently since 2002. The most significant drop was in Scotland, where exports in 2006 accounted for 6.3 percentage points less in terms of GVA than they did in 2002.

Skills

The skills of workers are important to productivity as they define the capabilities that the labour force can put into the production process. It is useful to be able to analyse skills from two perspectives: the

Table 8
UK regional trade in goods – statistical value of exports: by NUTS1 region

£ million

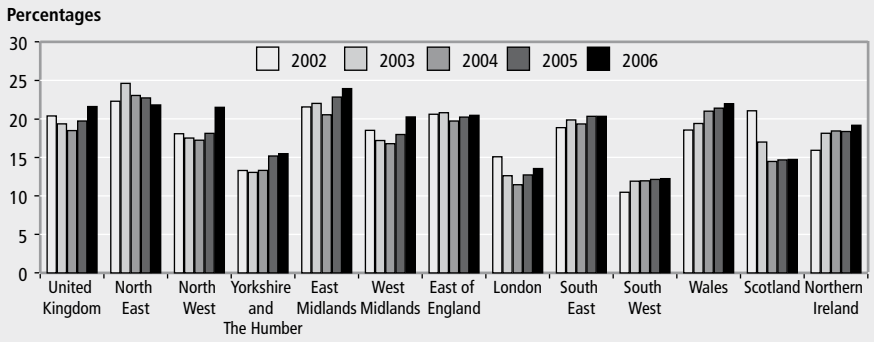
	United Kingdom	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East of England	London	South East	South West	Wales	Scotland	Northern Ireland
EU[1] exports													
2005 Q4	32,267	1,369	2,789	1,728	2,416	2,139	2,883	2,642	4,938	1,701	1,306	1,629	746
2006 Q1	42,239	1,363	3,480	2,138	2,877	2,740	3,367	4,344	5,347	1,785	1,482	1,701	782
2006 Q2	46,100	1,449	4,774	2,292	3,248	3,652	3,510	5,576	5,185	1,748	1,517	1,858	814
2006 Q3	31,854	1,285	3,063	1,580	2,483	2,677	2,647	2,181	4,295	1,587	1,368	1,709	804
12 months ending September													
2006	152,460	5,466	14,106	7,738	11,024	11,208	12,407	14,743	19,765	6,821	5,673	6,897	3,146
2006 Q4	31,086	1,398	2,566	1,694	2,152	2,171	2,793	2,164	4,708	1,641	1,307	1,694	835
2007 Q1[2]	31,545	1,312	2,716	1,749	2,285	2,247	3,150	2,213	4,584	1,719	1,433	1,566	842
2007 Q2[2]	30,916	1,274	2,784	1,692	2,014	2,319	2,998	2,026	4,568	1,568	1,381	1,617	843
2007 Q3[2]	29,537	1,183	2,695	1,603	1,979	1,952	2,815	2,113	4,365	1,645	1,233	1,344	805
12 months ending September													
2007	123,084	5,167	10,761	6,738	8,430	8,689	11,756	8,516	18,225	6,573	5,354	6,221	3,325
Non-EU exports													
2005 Q4	25,866	826	2,560	1,404	1,966	2,093	2,434	4,417	4,219	1,179	859	1,663	477
2006 Q1	22,745	703	2,502	1,145	1,788	1,803	1,999	3,846	3,570	939	865	1,613	431
2006 Q2	24,312	701	2,633	1,247	1,830	1,797	2,058	4,147	3,965	1,071	952	1,766	483
2006 Q3	21,910	713	2,301	1,254	1,742	1,534	1,826	3,137	3,655	1,074	981	1,624	460
12 months ending September													
2006	94,833	2,943	9,996	5,050	7,326	7,227	8,317	15,547	15,409	4,263	3,657	6,666	1,851
2006 Q4	23,575	848	2,421	1,313	1,791	1,579	2,022	3,939	3,531	1,113	947	1,495	505
2007 Q1[2]	21,190	807	2,261	1,247	1,622	1,479	1,777	3,484	3,112	917	839	1,683	469
2007 Q2[2]	23,923	1,009	2,484	1,564	1,654	1,607	2,002	3,458	4,004	992	956	1,991	521
2007 Q3[2]	22,856	1,021	2,417	1,402	1,685	1,595	1,843	3,402	3,667	1,100	851	2,014	520
12 months ending September													
2007	91,544	3,685	9,583	5,526	6,752	6,260	7,644	14,283	14,314	4,122	3,593	7,183	2,015

Notes:

1 EU data refer to EU25 up to 2006 Q4 and EU27 from 2007 Q1.
2 Provisional.

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

Figure 8
Value of total export goods as a percentage of headline workplace-based GVA: by NUTS1 region

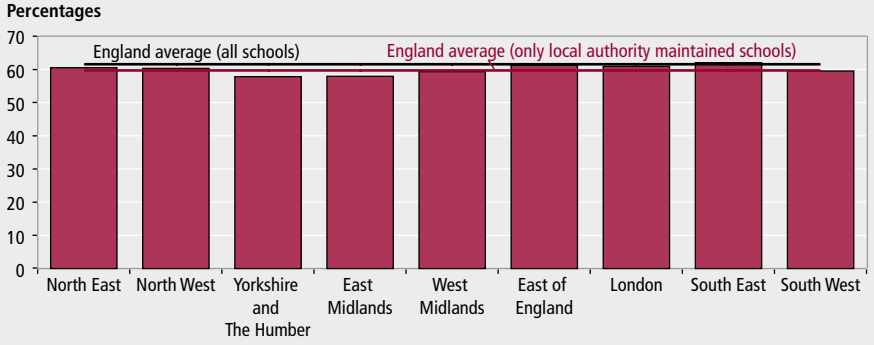


Source: HM Revenue and Customs, Regional Trade Statistics and Office for National Statistics

Figure 9
Working age population with no qualifications: by NUTS1 region, second quarter 2007

Source: Department for Innovation, Universities and Skills; Labour Force Survey, Office for National Statistics

Figure 10
Pupils achieving five or more grades A* to C at GCSE level or equivalent: by NUTS1 region, 2006/07[1]



Note:

1 Revised data, including attempts and achievements by these pupils in previous academic years.

Source: Department for Children, Schools and Families

qualifications of the current working age population and the qualifications of young people representing the future capabilities of the labour force.

The latest estimates on the highest qualifications of the working age population (males aged 16 to 64 and females aged 16 to 59) are based on the second quarter 2007 LFS estimates. The characteristics of the local economies will dictate what labour skills are required and thus affect the comparability of these estimates. **Figure 9** shows the percentage of the working age population who have no qualifications, by region, against the UK average. Northern Ireland has the highest proportion with no qualifications (8.2 percentage points above the UK average), whereas the opposite is the case in the South East and the South West (3.9 and 3.8 percentage points lower than the UK average). This does not necessarily mean that these regions have the most qualified working age population, but does indicate where there is a larger proportion of the working population with no qualifications. This may be due to the skill requirements dictated by the regional economies; it could mean that a significant number of those with qualifications have migrated out of these regions; and it may also reflect a higher proportion of those who have migrated into these regions having no qualifications that are recognised in this country.

Data on the percentage of pupils achieving five or more grades A* to C at GCSE level or equivalent in each region in 2006/07 are illustrated in **Figure 10**. Equivalent level qualifications are defined in Notes and Definitions on the ONS Regional Snapshot web pages. The regional breakdown for these data in England is only available for pupils at local authority maintained schools, although information for the devolved administrations is based on all schools. Given this, it is possible to calculate two averages for England as a whole: one based on just local authority maintained schools and one for all schools, as is presented in Figure 10. This shows that the average is higher when calculated on all schools, reflecting the higher results obtained by pupils in non-local authority establishments. Within local authority maintained schools in English regions, the South East, the East of England, London, the North East and the North West performed above the England average for these schools, while Yorkshire and The Humber was the lowest performing region in England.

Table 9
Employment[1] rates for persons 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
2004	Jul–Sep	74.7	70.1	73.5	74.3	75.6	75.1	78.9	69.4	79.0	78.7	75.1	71.3	75.0	67.0
	Oct–Dec	74.9	69.8	74.1	74.5	76.1	74.9	78.8	69.3	79.1	78.7	75.2	72.3	75.1	69.2
2005	Jan–Mar	74.9	70.3	73.3	74.5	76.4	74.7	78.8	69.8	78.9	78.8	75.1	71.7	75.3	68.8
	Apr–Jun	74.7	70.2	73.3	74.3	76.5	74.4	78.7	69.3	79.0	78.8	75.0	71.4	75.0	68.5
	Jul–Sep	74.8	69.7	73.5	74.7	77.2	74.0	78.5	69.5	78.9	78.3	75.0	72.3	75.2	69.9
	Oct–Dec	74.5	70.1	72.9	74.4	77.2	73.4	77.5	69.3	78.8	77.8	74.6	71.8	75.4	68.7
2006	Jan–Mar	74.6	70.9	73.4	74.2	77.0	73.8	77.4	69.9	78.8	78.1	74.9	71.5	75.3	69.4
	Apr–Jun	74.6	71.7	73.3	74.1	76.9	73.8	76.9	69.5	79.0	78.4	74.8	71.5	74.8	70.1
	Jul–Sep	74.5	70.9	73.5	73.5	77.1	73.9	77.0	69.5	78.9	77.8	74.7	72.1	75.2	68.9
	Oct–Dec	74.5	71.2	73.0	73.8	76.5	73.2	77.1	69.7	78.7	78.4	74.6	71.8	76.1	69.5
2007	Jan–Mar	74.3	70.9	72.5	72.7	76.0	72.7	77.4	69.9	78.2	78.0	74.3	71.7	76.6	70.5
	Apr–Jun	74.4	71.2	72.6	73.1	75.8	72.6	77.2	69.7	78.6	78.0	74.4	72.3	77.2	70.5
	Jul–Sep	74.4	72.0	72.2	73.2	75.7	72.9	77.0	70.6	78.7	78.5	74.6	71.2	76.5	69.9

Note:

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

Source: Labour Force Survey, Office for National Statistics

The labour market

Table 9 shows the seasonally adjusted employment rate obtained from the LFS. This employment rate represents the number of people of working age in employment, expressed as a proportion of the population.

In quarter three (July to September) of 2007, the UK employment rate was 74.4 per cent, down 0.1 percentage points from a year ago but unchanged from quarter two (April to June) of 2007. Regional rates varied from 78.7 per cent in the South East to 69.9 per cent in Northern Ireland.

Five regions had an increase in the employment rate over the year. Scotland had a rise of 1.3 percentage points and the rate for the North East increased by 1.1 percentage points. Seven regions experienced falls in their employment rates. The East Midlands had an annual fall of 1.4 percentage points and the North West decreased by 1.2 percentage points.

Table 10 shows the unemployment rate (according to the internationally consistent International Labour Organisation (ILO) definition) for persons aged 16 and over from the LFS. The UK rate in the third quarter of 2007 was 5.4 per cent, unchanged from the previous quarter and down 0.2 percentage points on a year earlier. Regionally, the rates ranged from 6.5 per cent in the West Midlands to 3.8 per cent in Northern Ireland.

Over the year, the unemployment rate decreased in six regions. Four of these regions had a fall of 0.5 percentage points or more: London down 1.9 percentage points and Northern Ireland down 1.0 percentage points. The unemployment rate rose in five regions. The East Midlands had the largest increase of 0.5 percentage points.

Table 11 shows economic inactivity rates for persons of working age from the LFS. The UK rate in the third quarter of 2007 was 21.2 per cent, unchanged from the previous quarter but up 0.2 percentage points on a year earlier. Across the regions, rates varied from 17.5 per cent in the South East to 27.3 per cent in Northern Ireland.

Compared with a year earlier, five regions had a decrease in the inactivity rate and thus a corresponding increase in the working-age activity rate. Scotland had the largest annual fall of 1.3 percentage points. Seven regions had an increase in the economic inactivity rate over the year. The largest annual rise was in the East Midlands with 1.0 percentage points.

Table 12 shows the number of employee jobs, not seasonally adjusted, from the Short-Term Employers Surveys. The number of UK employee jobs was 27.1 million in September 2007, which marked an increase of 213,000 compared with September 2006. In percentage terms, this was a 0.8 per cent increase.

There were annual increases in all regions. The largest percentage rise was in Northern Ireland (1.7 per cent).

Table 13 shows the claimant count rate (referring to people claiming Jobseeker's Allowance benefits as a proportion of the workforce). The UK rate was 2.5 per cent in December 2007, unchanged from November 2007, but 0.4 percentage points down on a year earlier. This national rate masks large variations between regions and component countries of the UK. In December 2007, the North East had the highest claimant count rate in the UK at 3.8 per cent. The North East was followed by the West Midlands (3.5 per cent), the North West (3.1 per cent) and Yorkshire and The Humber (2.9 per cent). The lowest claimant counts were measured in the South West (1.4 per cent) and the South East (1.5 per cent). The claimant count rate was 2.6 per cent in Scotland and 2.7 per cent in both Northern Ireland and Wales.

Compared with a year earlier, all regions had a lower claimant count rate. The largest decrease was 0.6 percentage points, which occurred in London.

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Table 10
Unemployment rates for persons 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
2004	Jul–Sep	4.7	5.9	4.5	4.6	4.1	5.0	3.6	7.2	3.6	3.3	4.6	4.9	5.3	5.0
	Oct–Dec	4.7	6.4	4.6	4.6	4.2	4.7	3.8	7.2	3.5	3.3	4.6	4.2	5.7	4.6
2005	Jan–Mar	4.7	5.8	4.7	4.4	4.3	4.7	3.8	6.7	3.7	3.6	4.6	4.6	5.5	4.8
	Apr–Jun	4.8	6.8	4.4	4.8	4.2	4.7	3.9	7.2	3.8	3.2	4.7	4.6	5.4	4.9
	Jul–Sep	4.8	6.7	4.5	4.5	4.4	4.7	4.1	6.7	4.0	3.7	4.8	4.6	5.5	4.3
	Oct–Dec	5.1	6.5	4.9	5.4	4.6	5.3	4.5	7.4	4.2	3.9	5.2	4.9	5.2	4.5
2006	Jan–Mar	5.2	6.6	4.9	5.4	5.0	5.2	4.8	7.7	4.5	3.6	5.3	4.8	5.3	4.4
	Apr–Jun	5.5	6.1	5.3	5.7	5.4	5.7	5.0	7.9	4.7	3.7	5.5	5.7	5.4	4.2
	Jul–Sep	5.6	6.9	5.6	6.0	5.3	6.1	5.0	8.0	4.5	3.9	5.7	5.4	5.0	4.7
	Oct–Dec	5.5	6.5	5.3	6.0	5.8	6.5	4.5	7.9	4.3	3.8	5.6	5.2	5.2	4.2
2007	Jan–Mar	5.5	6.8	5.7	6.2	5.5	6.4	4.7	7.3	4.6	3.9	5.7	5.5	4.9	4.2
	Apr–Jun	5.4	6.5	5.8	5.6	5.0	6.8	4.6	7.5	4.2	4.0	5.5	5.5	4.5	3.7
	Jul–Sep	5.4	6.4	6.0	5.5	5.8	6.5	5.2	6.2	4.5	4.1	5.5	5.4	4.9	3.8

Source: Labour Force Survey, Office for National Statistics

Table 11
Economic inactivity rates for persons 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
2004	Jul–Sep	21.5	25.4	23.0	22.1	21.1	20.9	18.1	25.1	17.9	18.6	21.2	24.9	20.7	29.4
	Oct–Dec	21.3	25.3	22.3	21.8	20.5	21.3	18.0	25.3	17.9	18.6	21.1	24.5	20.2	27.4
2005	Jan–Mar	21.4	25.3	23.0	22.0	20.2	21.6	18.0	25.0	18.0	18.2	21.2	24.7	20.1	27.6
	Apr–Jun	21.4	24.6	23.2	21.9	20.1	21.8	18.1	25.2	17.8	18.5	21.2	25.1	20.6	27.8
	Jul–Sep	21.3	25.3	22.9	21.6	19.2	22.2	18.0	25.3	17.8	18.6	21.2	24.1	20.3	26.9
	Oct–Dec	21.4	25.0	23.3	21.2	18.9	22.4	18.7	25.1	17.7	18.9	21.2	24.4	20.4	28.0
2006	Jan–Mar	21.1	23.9	22.7	21.5	18.8	22.0	18.6	24.2	17.4	18.9	20.8	24.8	20.4	27.3
	Apr–Jun	21.0	23.5	22.5	21.3	18.6	21.6	18.9	24.4	17.1	18.4	20.7	24.0	20.8	26.7
	Jul–Sep	21.0	23.8	22.1	21.7	18.5	21.2	18.9	24.2	17.3	18.9	20.7	23.7	20.8	27.5
	Oct–Dec	21.0	23.7	22.8	21.3	18.7	21.6	19.1	24.2	17.7	18.4	20.8	24.1	19.7	27.4
2007	Jan–Mar	21.2	23.8	23.0	22.4	19.5	22.2	18.6	24.4	18.0	18.7	21.1	24.0	19.3	26.4
	Apr–Jun	21.2	23.8	22.8	22.5	20.1	21.9	18.9	24.6	17.9	18.6	21.2	23.4	19.1	26.7
	Jul–Sep	21.2	23.1	23.0	22.4	19.5	21.9	18.6	24.7	17.5	18.1	21.0	24.5	19.5	27.3

Source: Labour Force Survey, Office for National Statistics

Table 12
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
Sep 03[2]	26,179	999	2,948	2,171	1,756	2,308	2,286	3,919	3,600	2,120	22,106	1,117	2,283	673
Sep 04[2]	26,416	1,017	2,988	2,229	1,779	2,298	2,291	3,909	3,613	2,155	22,279	1,152	2,301	684
Sep 05[2]	26,820	1,054	2,991	2,219	1,826	2,331	2,304	3,985	3,680	2,194	22,583	1,169	2,373	695
Sep 06[2]	26,892	1,046	2,991	2,221	1,836	2,364	2,367	3,973	3,646	2,204	22,648	1,180	2,359	705
Dec 06[2]	27,135	1,059	3,012	2,233	1,865	2,378	2,385	4,024	3,672	2,219	22,847	1,191	2,384	714
Mar 07[2]	26,881	1,047	2,986	2,223	1,839	2,358	2,347	3,998	3,631	2,195	22,624	1,182	2,362	713
Jun 07[2]	27,030	1,050	3,002	2,238	1,841	2,371	2,360	4,018	3,657	2,208	22,744	1,192	2,377	717
Sep 07	27,105	1,053	3,002	2,237	1,859	2,376	2,373	4,026	3,664	2,222	22,812	1,196	2,380	717

Notes:

1 Employee jobs figures are of 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.
2 Revised.

Source: Employer Surveys

Table 13
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
2001		3.1	5.6	3.7	3.9	3.1	3.7	2.0	3.3	1.5	2.1	3.0	3.9	3.9	4.9
2002		3.1	5.0	3.5	3.6	2.9	3.5	2.1	3.5	1.6	1.9	2.9	3.5	3.8	4.4
2003		3.0	4.5	3.2	3.3	2.8	3.5	2.1	3.6	1.7	1.9	2.9	3.3	3.7	4.1
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	Dec	2.9	4.2	3.4	3.3	2.8	3.9	2.3	3.3	1.8	1.8	2.9	3.0	3.1	3.1
2007	Jan	2.9	4.1	3.3	3.2	2.8	3.9	2.3	3.3	1.7	1.8	2.8	2.9	2.9	3.0
	Feb	2.8	4.2	3.3	3.2	2.8	3.9	2.3	3.2	1.7	1.8	2.8	2.9	3.0	3.0
	Mar	2.8	4.1	3.3	3.2	2.8	3.8	2.3	3.2	1.7	1.7	2.8	2.9	2.9	3.0
	Apr	2.8	4.1	3.2	3.1	2.7	3.7	2.2	3.1	1.7	1.7	2.7	2.9	2.9	2.9
	May	2.7	4.0	3.2	3.1	2.7	3.7	2.2	3.1	1.6	1.6	2.7	2.8	2.8	2.9
	Jun	2.7	4.0	3.1	3.1	2.7	3.7	2.2	3.0	1.6	1.6	2.7	2.8	2.7	2.8
	Jul	2.7	4.0	3.1	3.1	2.7	3.6	2.1	3.0	1.6	1.6	2.6	2.8	2.7	2.7
	Aug	2.6	3.9	3.1	3.0	2.6	3.6	2.1	2.9	1.6	1.5	2.6	2.8	2.7	2.7
	Sep	2.6	3.9	3.1	3.0	2.6	3.6	2.1	2.9	1.5	1.5	2.6	2.8	2.7	2.7
	Oct	2.5	3.9	3.1	2.9	2.6	3.6	2.0	2.8	1.5	1.5	2.5	2.7	2.6	2.7
	Nov	2.5	3.8	3.1	2.9	2.5	3.5	2.0	2.8	1.5	1.5	2.5	2.7	2.6	2.7
	Dec	2.5	3.8	3.1	2.9	2.5	3.5	2.0	2.7	1.5	1.4	2.5	2.7	2.6	2.7

Note:

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

Source: Labour Force Survey, Office for National Statistics

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Key time series

National accounts aggregates

Last updated: 23/01/08

Seasonally adjusted

	£ million		Indices (2003 = 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
2002	1,055,793	937,323	94.4	94.3	97.1	97.3	97.3	97.0	97.0
2003	1,118,245	993,507	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2004	1,184,296	1,051,934	105.9	105.9	103.4	103.3	103.3	102.6	102.5
2005	1,233,976	1,096,629	110.3	110.4	104.2	105.2	105.2	104.9	104.9
2006	1,303,573	1,158,871	116.6	116.6	105.8	108.2	108.3	107.7	107.7
2007						111.6	111.7		
2002 Q1	259,054	229,737	92.7	92.5	95.9	96.4	96.5	96.1	95.9
2002 Q2	262,774	233,372	94.0	94.0	96.2	97.0	96.9	96.9	97.0
2002 Q3	265,836	236,103	95.1	95.1	98.3	97.7	97.6	97.4	97.4
2002 Q4	268,129	238,111	95.9	95.9	98.2	98.2	98.1	97.7	97.7
2003 Q1	272,953	242,612	97.6	97.7	99.4	98.8	98.8	98.9	98.9
2003 Q2	277,119	246,427	99.1	99.2	98.9	99.3	99.3	99.8	99.9
2003 Q3	281,996	250,492	100.9	100.9	100.0	100.4	100.4	100.4	100.5
2003 Q4	286,177	253,976	102.4	102.3	101.7	101.5	101.6	100.9	100.7
2004 Q1	288,912	256,106	103.3	103.1	101.9	102.2	102.2	101.1	100.9
2004 Q2	295,066	262,094	105.5	105.5	103.2	103.1	103.2	102.3	102.3
2004 Q3	297,941	264,732	106.6	106.6	103.0	103.5	103.5	102.9	103.0
2004 Q4	302,377	269,002	108.2	108.3	105.4	104.1	104.2	103.9	104.0
2005 Q1	303,996	270,082	108.7	108.7	104.2	104.4	104.4	104.2	104.1
2005 Q2	307,306	273,158	109.9	110.0	105.3	104.8	104.9	104.9	104.8
2005 Q3	308,515	273,676	110.4	110.2	103.4	105.4	105.4	104.7	104.5
2005 Q4	314,159	279,713	112.4	112.6	104.1	106.1	106.2	106.0	106.1
2006 Q1	318,656	283,557	114.0	114.2	104.7	107.0	107.2	106.5	106.5
2006 Q2	322,143	286,232	115.2	115.2	105.9	107.8	108.0	106.9	106.7
2006 Q3	329,052	292,438	117.7	117.7	106.1	108.5	108.6	108.5	108.4
2006 Q4	333,722	296,644	119.4	119.4	106.3	109.5	109.6	109.0	109.0
2007 Q1	338,708	300,744	121.2	121.1	106.8	110.4	110.5	109.8	109.6
2007 Q2	345,384	307,024	123.5	123.6	108.5	111.3	111.4	111.0	111.0
2007 Q3	349,600	311,363	125.1	125.4	108.1	112.0	112.1	111.6	111.8
2007 Q4						112.7	112.8		

Percentage change, quarter on corresponding quarter of previous year[4]

2002 Q1	*4.5*	*4.6*	*4.5*	*4.6*	*3.0*	*1.6*	*1.3*	*2.8*	*3.5*
2002 Q2	*5.3*	*5.6*	*5.3*	*5.7*	*3.0*	*2.1*	*1.7*	*3.1*	*4.0*
2002 Q3	*5.9*	*6.1*	*5.9*	*6.1*	*4.1*	*2.2*	*1.9*	*3.6*	*4.1*
2002 Q4	*5.2*	*5.3*	*5.3*	*5.4*	*4.4*	*2.4*	*2.2*	*2.8*	*3.0*
2003 Q1	*5.4*	*5.6*	*5.3*	*5.6*	*3.6*	*2.5*	*2.4*	*2.9*	*3.1*
2003 Q2	*5.5*	*5.6*	*5.4*	*5.5*	*2.8*	*2.4*	*2.5*	*3.0*	*3.0*
2003 Q3	*6.1*	*6.1*	*6.1*	*6.1*	*1.7*	*2.8*	*2.9*	*3.1*	*3.2*
2003 Q4	*6.7*	*6.7*	*6.8*	*6.7*	*3.6*	*3.4*	*3.6*	*3.3*	*3.1*
2004 Q1	*5.8*	*5.6*	*5.8*	*5.5*	*2.5*	*3.4*	*3.4*	*2.2*	*2.0*
2004 Q2	*6.5*	*6.4*	*6.5*	*6.4*	*4.3*	*3.8*	*3.9*	*2.5*	*2.4*
2004 Q3	*5.7*	*5.7*	*5.6*	*5.6*	*3.0*	*3.1*	*3.1*	*2.5*	*2.5*
2004 Q4	*5.7*	*5.9*	*5.7*	*5.9*	*3.6*	*2.6*	*2.6*	*3.0*	*3.3*
2005 Q1	*5.2*	*5.5*	*5.2*	*5.4*	*2.2*	*2.2*	*2.2*	*3.1*	*3.2*
2005 Q2	*4.1*	*4.2*	*4.2*	*4.3*	*2.1*	*1.6*	*1.6*	*2.5*	*2.4*
2005 Q3	*3.5*	*3.4*	*3.6*	*3.4*	*0.5*	*1.8*	*1.8*	*1.7*	*1.5*
2005 Q4	*3.9*	*4.0*	*3.9*	*4.0*	*–1.2*	*1.9*	*1.9*	*2.0*	*2.0*
2006 Q1	*4.8*	*5.0*	*4.9*	*5.1*	*0.5*	*2.5*	*2.7*	*2.2*	*2.3*
2006 Q2	*4.8*	*4.8*	*4.8*	*4.7*	*0.6*	*2.9*	*3.0*	*1.9*	*1.8*
2006 Q3	*6.7*	*6.9*	*6.6*	*6.8*	*2.6*	*2.9*	*3.0*	*3.6*	*3.7*
2006 Q4	*6.2*	*6.1*	*6.2*	*6.0*	*2.1*	*3.2*	*3.2*	*2.8*	*2.7*
2007 Q1	*6.3*	*6.1*	*6.3*	*6.0*	*2.0*	*3.2*	*3.1*	*3.1*	*2.9*
2007 Q2	*7.2*	*7.3*	*7.2*	*7.3*	*2.5*	*3.2*	*3.1*	*3.8*	*4.0*
2007 Q3	*6.2*	*6.5*	*6.3*	*6.5*	*1.9*	*3.2*	*3.2*	*2.9*	*3.1*
2007 Q4						*2.9*	*2.9*		

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 For index number series, these are derived from the rounded figures shown in the table.

Gross domestic product: by category of expenditure

Last updated: 23/01/08

£ million, chained volume measures, reference year 2003, 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 at product market prices
	ABJR	HAYO	NMRY	NPQT	CAFU	NPJR	YBIM	IKBK	ABMG	IKBL	GIXS	ABMI
2002	676,833	27,130	224,868	184,701	2,289	183	1,116,239	280,593	1,396,862	308,706	0	1,088,108
2003	697,160	27,185	232,699	186,700	3,983	–37	1,147,690	285,397	1,433,087	314,842	0	1,118,245
2004	721,434	27,327	240,129	197,655	4,597	–42	1,191,099	299,289	1,490,388	335,703	0	1,154,685
2005	732,005	28,167	246,527	200,654	3,611	–354	1,210,610	323,749	1,534,359	359,626	1,183	1,175,916
2006	746,097	29,868	251,134	216,465	1,236	290	1,245,090	359,413	1,604,503	395,626	1,246	1,210,122
2007												1,247,917
2002 Q1	167,588	6,762	55,756	44,562	1,059	66	275,814	69,440	345,256	75,709	0	269,595
2002 Q2	168,803	6,756	56,288	45,610	409	48	277,926	71,533	349,504	78,367	0	271,044
2002 Q3	169,715	6,793	56,429	46,422	520	62	280,004	71,056	351,089	78,006	0	273,034
2002 Q4	170,727	6,819	56,395	48,107	301	7	282,495	68,564	351,013	76,624	0	274,435
2003 Q1	171,828	6,843	57,099	46,805	–477	–8	282,249	72,662	354,921	78,836	0	276,082
2003 Q2	174,146	6,779	57,684	46,131	–635	94	284,342	70,610	354,945	77,283	0	277,686
2003 Q3	175,140	6,790	58,445	45,964	2,223	–68	288,498	70,334	358,825	78,089	0	280,743
2003 Q4	176,046	6,773	59,471	47,800	2,872	–55	292,601	71,791	364,396	80,634	0	283,734
2004 Q1	178,197	6,830	59,969	49,353	–439	112	294,023	73,389	367,412	81,648	0	285,764
2004 Q2	180,362	6,805	59,530	49,159	1,042	–90	296,808	74,861	371,670	83,313	0	288,357
2004 Q3	181,032	6,826	60,002	49,832	1,047	–96	298,644	75,097	373,741	84,300	0	289,441
2004 Q4	181,843	6,866	60,628	49,311	2,947	32	301,624	75,942	377,565	86,442	0	291,123
2005 Q1	182,466	7,005	60,858	49,393	1,894	–158	301,458	75,952	377,410	85,898	253	291,764
2005 Q2	182,306	6,987	61,613	49,334	797	86	301,122	79,576	380,698	87,920	300	293,078
2005 Q3	183,174	7,042	61,885	50,642	853	–201	303,394	82,357	385,751	91,483	320	294,588
2005 Q4	184,059	7,133	62,171	51,285	67	–81	304,636	85,864	390,500	94,325	310	296,486
2006 Q1	184,076	7,355	62,842	52,200	483	101	307,056	93,877	400,933	102,099	377	299,211
2006 Q2	186,465	7,436	62,502	53,184	76	229	309,892	96,051	405,943	104,855	351	301,439
2006 Q3	186,828	7,509	62,718	54,636	1,037	–28	312,700	84,680	397,379	94,387	298	303,290
2006 Q4	188,728	7,568	63,072	56,445	-360	–12	315,442	84,805	400,248	94,285	220	306,182
2007 Q1	190,114	7,628	63,424	57,013	233	69	318,481	84,607	403,087	94,538	–17	308,532
2007 Q2	191,491	7,698	63,740	56,582	663	322	320,498	84,813	405,312	94,088	–98	311,126
2007 Q3	193,591	7,757	63,932	57,919	2,095	52	325,343	86,472	411,815	98,472	–153	313,190
2007 Q4												315,069
Percentage change, quarter on corresponding quarter of previous year												
2002 Q1	*4.0*	*–1.6*	*4.0*	*0.9*			*3.1*	*–2.6*	*1.8*	*2.5*		*1.6*
2002 Q2	*4.0*	*–0.5*	*4.4*	*1.6*			*2.9*	*3.2*	*3.0*	*6.0*		*2.1*
2002 Q3	*3.3*	*0.5*	*3.3*	*3.1*			*2.8*	*4.6*	*3.2*	*6.4*		*2.2*
2002 Q4	*3.1*	*1.3*	*2.1*	*9.0*			*3.8*	*–0.8*	*2.8*	*4.5*		*2.3*
2003 Q1	*2.5*	*1.2*	*2.4*	*5.0*			*2.3*	*4.6*	*2.8*	*4.1*		*2.4*
2003 Q2	*3.2*	*0.3*	*2.5*	*1.1*			*2.3*	*–1.3*	*1.6*	*–1.4*		*2.5*
2003 Q3	*3.2*	*0.0*	*3.6*	*–1.0*			*3.0*	*–1.0*	*2.2*	*0.1*		*2.8*
2003 Q4	*3.1*	*–0.7*	*5.5*	*–0.6*			*3.6*	*4.7*	*3.8*	*5.2*		*3.4*
2004 Q1	*3.7*	*–0.2*	*5.0*	*5.4*			*4.2*	*1.0*	*3.5*	*3.6*		*3.5*
2004 Q2	*3.6*	*0.4*	*3.2*	*6.6*			*4.4*	*6.0*	*4.7*	*7.8*		*3.8*
2004 Q3	*3.4*	*0.5*	*2.7*	*8.4*			*3.5*	*6.8*	*4.2*	*8.0*		*3.1*
2004 Q4	*3.3*	*1.4*	*1.9*	*3.2*			*3.1*	*5.8*	*3.6*	*7.2*		*2.6*
2005 Q1	*2.4*	*2.6*	*1.5*	*0.1*			*2.5*	*3.5*	*2.7*	*5.2*		*2.1*
2005 Q2	*1.1*	*2.7*	*3.5*	*0.4*			*1.5*	*6.3*	*2.4*	*5.5*		*1.6*
2005 Q3	*1.2*	*3.2*	*3.1*	*1.6*			*1.6*	*9.7*	*3.2*	*8.5*		*1.8*
2005 Q4	*1.2*	*3.9*	*2.5*	*4.0*			*1.0*	*13.1*	*3.4*	*9.1*		*1.8*
2006 Q1	*0.9*	*5.0*	*3.3*	*5.7*			*1.9*	*23.2*	*6.2*	*18.8*		*2.4*
2006 Q2	*2.3*	*6.4*	*1.4*	*7.8*			*2.9*	*20.7*	*6.6*	*19.2*		*2.8*
2006 Q3	*2.0*	*6.6*	*1.3*	*7.9*			*3.4*	*1.5*	*3.0*	*3.0*		*3.0*
2006 Q4	*2.5*	*6.1*	*1.4*	*10.1*			*3.6*	*–2.4*	*2.3*	*–0.6*		*3.2*
2007 Q1	*3.3*	*3.7*	*0.9*	*9.2*			*3.7*	*–9.9*	*0.5*	*–7.4*		*3.1*
2007 Q2	*2.7*	*3.5*	*2.0*	*6.4*			*3.4*	*–11.7*	*–0.2*	*–10.3*		*3.2*
2007 Q3	*3.6*	*3.3*	*1.9*	*6.0*			*4.0*	*2.1*	*3.6*	*4.3*		*3.3*
2007 Q4												*2.9*

Notes:

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

Source: Office for National Statistics

Labour market summary

Last updated: 16/01/08

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
Sep–Nov 2005	47,957	30,335	28,798	1,537	17,622	*63.3*	*60.0*	*5.1*	*36.7*
Sep–Nov 2006	48,352	30,770	29,092	1,678	17,582	*63.6*	*60.2*	*5.5*	*36.4*
Dec–Feb 2007	48,454	30,752	29,052	1,700	17,702	*63.5*	*60.0*	*5.5*	*36.5*
Mar–May 2007	48,556	30,818	29,152	1,666	17,738	*63.5*	*60.0*	*5.4*	*36.5*
Jun–Aug 2007	48,658	30,843	29,181	1,662	17,816	*63.4*	*60.0*	*5.4*	*36.6*
Sep–Nov 2007	48,767	31,004	29,355	1,649	17,762	*63.6*	*60.2*	*5.3*	*36.4*
Male	MGSM	MGSG	MGSA	MGSD	MGSJ	MGWH	MGSS	MGSY	YBTD
Sep–Nov 2005	23,262	16,454	15,549	904	6,808	*70.7*	*66.8*	*5.5*	*29.3*
Sep–Nov 2006	23,485	16,666	15,710	956	6,819	*71.0*	*66.9*	*5.7*	*29.0*
Dec–Feb 2007	23,542	16,682	15,709	973	6,860	*70.9*	*66.7*	*5.8*	*29.1*
Mar–May 2007	23,599	16,747	15,787	960	6,852	*71.0*	*66.9*	*5.7*	*29.0*
Jun–Aug 2007	23,657	16,738	15,786	952	6,918	*70.8*	*66.7*	*5.7*	*29.2*
Sep–Nov 2007	23,715	16,811	15,872	939	6,905	*70.9*	*66.9*	*5.6*	*29.1*
Female	MGSN	MGSH	MGSB	MGSE	MGSK	MGWI	MGST	MGSZ	YBTE
Sep–Nov 2005	24,695	13,881	13,249	633	10,814	*56.2*	*53.6*	*4.6*	*43.8*
Sep–Nov 2006	24,867	14,104	13,382	722	10,763	*56.7*	*53.8*	*5.1*	*43.3*
Dec–Feb 2007	24,912	14,070	13,343	726	10,842	*56.5*	*53.6*	*5.2*	*43.5*
Mar–May 2007	24,957	14,071	13,365	706	10,886	*56.4*	*53.6*	*5.0*	*43.6*
Jun–Aug 2007	25,002	14,104	13,395	710	10,897	*56.4*	*53.6*	*5.0*	*43.6*
Sep–Nov 2007	25,051	14,194	13,484	710	10,857	*56.7*	*53.8*	*5.0*	*43.3*

	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
Sep–Nov 2005	37,153	29,206	27,693	1,512	7,947	*78.6*	*74.5*	*5.2*	*21.4*
Sep–Nov 2006	37,418	29,553	27,902	1,651	7,866	*79.0*	*74.6*	*5.6*	*21.0*
Dec–Feb 2007	37,470	29,526	27,850	1,676	7,944	*78.8*	*74.3*	*5.7*	*21.2*
Mar–May 2007	37,522	29,576	27,937	1,639	7,946	*78.8*	*74.5*	*5.5*	*21.2*
Jun–Aug 2007	37,574	29,584	27,948	1,636	7,990	*78.7*	*74.4*	*5.5*	*21.3*
Sep–Nov 2007	37,624	29,715	28,088	1,627	7,909	*79.0*	*74.7*	*5.5*	*21.0*
Male	YBTG	YBSL	YBSF	YBSI	YBSO	MGSP	MGSV	YBTJ	YBTM
Sep–Nov 2005	19,237	16,064	15,170	893	3,173	*83.5*	*78.9*	*5.6*	*16.5*
Sep–Nov 2006	19,417	16,254	15,307	946	3,163	*83.7*	*78.8*	*5.8*	*16.3*
Dec–Feb 2007	19,461	16,271	15,306	965	3,190	*83.6*	*78.7*	*5.9*	*16.4*
Mar–May 2007	19,505	16,332	15,384	949	3,173	*83.7*	*78.9*	*5.8*	*16.3*
Jun–Aug 2007	19,549	16,308	15,367	941	3,241	*83.4*	*78.6*	*5.8*	*16.6*
Sep–Nov 2007	19,584	16,385	15,454	931	3,199	*83.7*	*78.9*	*5.7*	*16.3*
Female	YBTH	YBSM	YBSG	YBSJ	YBSP	MGSQ	MGSW	YBTK	YBTN
Sep–Nov 2005	17,916	13,142	12,523	619	4,774	*73.4*	*69.9*	*4.7*	*26.6*
Sep–Nov 2006	18,001	13,299	12,595	704	4,702	*73.9*	*70.0*	*5.3*	*26.1*
Dec–Feb 2007	18,009	13,255	12,544	711	4,754	*73.6*	*69.7*	*5.4*	*26.4*
Mar–May 2007	18,017	13,244	12,554	690	4,773	*73.5*	*69.7*	*5.2*	*26.5*
Jun–Aug 2007	18,025	13,276	12,581	695	4,749	*73.7*	*69.8*	*5.2*	*26.3*
Sep–Nov 2007	18,040	13,330	12,633	697	4,710	*73.9*	*70.0*	*5.2*	*26.1*

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

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

Prices

Last updated: 15/01/08

Percentage change over 12 months

	Consumer prices						Not seasonally adjusted, except for series PLLW, RNPE and RNPF 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]	PLLW[3]	RNPE[3]	RNPF[3]
2004 Jan	1.4	1.5	1.3	2.6	2.4	2.0	1.6	1.4	–0.3	0.0
2004 Feb	1.3	1.3	1.1	2.5	2.3	1.9	1.6	1.5	–0.8	–0.4
2004 Mar	1.1	1.1	1.0	2.6	2.1	1.7	1.4	1.5	0.8	–0.1
2004 Apr	1.1	1.1	1.0	2.5	2.0	1.8	1.8	1.3	2.9	–0.1
2004 May	1.5	1.4	1.3	2.8	2.3	2.2	2.5	1.4	5.6	0.6
2004 Jun	1.6	1.5	1.4	3.0	2.3	2.3	2.6	1.4	3.8	1.3
2004 Jul	1.4	1.4	1.2	3.0	2.2	2.0	2.6	1.7	3.9	1.8
2004 Aug	1.3	1.3	1.1	3.2	2.2	2.0	2.8	2.2	4.6	2.4
2004 Sep	1.1	1.0	0.9	3.1	1.9	1.7	3.1	2.3	8.1	3.6
2004 Oct	1.2	1.2	1.1	3.3	2.1	2.0	3.5	2.9	9.0	4.6
2004 Nov	1.5	1.4	1.4	3.4	2.2	2.2	3.5	3.0	6.4	4.5
2004 Dec	1.7	1.7	1.6	3.5	2.5	2.5	2.9	2.5	4.0	4.0
2005 Jan	1.6	1.7	1.5	3.2	2.1	2.0	2.6	2.6	9.7	7.5
2005 Feb	1.7	1.7	1.6	3.2	2.1	2.0	2.7	2.5	11.0	8.2
2005 Mar	1.9	2.0	1.8	3.2	2.4	2.3	2.9	2.4	11.1	7.4
2005 Apr	1.9	2.0	1.9	3.2	2.3	2.3	3.3	2.6	10.1	7.0
2005 May	1.9	2.0	1.8	2.9	2.1	2.2	2.7	2.5	7.6	6.7
2005 Jun	2.0	2.2	1.9	2.9	2.2	2.2	2.5	2.2	11.8	7.4
2005 Jul	2.3	2.5	2.3	2.9	2.4	2.5	3.1	2.2	14.1	8.7
2005 Aug	2.4	2.6	2.3	2.8	2.3	2.3	3.0	1.9	13.0	7.6
2005 Sep	2.5	2.6	2.4	2.7	2.5	2.5	3.3	2.1	10.6	5.6
2005 Oct	2.3	2.5	2.3	2.5	2.4	2.3	2.6	1.4	8.8	7.0
2005 Nov	2.1	2.3	2.1	2.4	2.3	2.3	2.3	1.3	13.5	9.6
2005 Dec	1.9	2.1	1.8	2.2	2.0	2.0	2.4	1.8	17.9	12.0
2006 Jan	1.9	2.1	1.9	2.4	2.3	2.3	2.9	1.7	15.8	10.2
2006 Feb	2.0	2.1	2.0	2.4	2.3	2.3	2.9	1.7	15.0	10.6
2006 Mar	1.8	1.9	1.7	2.4	2.1	2.2	2.5	1.9	13.0	10.0
2006 Apr	2.0	2.1	2.0	2.6	2.4	2.3	2.5	2.2	15.3	10.0
2006 May	2.2	2.3	2.2	3.0	2.9	2.8	3.1	2.4	13.6	8.6
2006 Jun	2.5	2.6	2.4	3.3	3.1	3.2	3.4	2.9	11.1	8.7
2006 Jul	2.4	2.4	2.3	3.3	3.1	3.2	2.9	2.5	10.6	8.3
2006 Aug	2.5	2.6	2.4	3.4	3.3	3.4	2.7	2.3	8.0	7.9
2006 Sep	2.4	2.6	2.3	3.6	3.2	3.3	1.9	2.2	5.4	7.4
2006 Oct	2.4	2.7	2.3	3.7	3.2	3.3	1.6	2.6	4.6	6.3
2006 Nov	2.7	3.0	2.6	3.9	3.4	3.6	1.8	2.5	3.4	4.9
2006 Dec	3.0	3.2	2.9	4.4	3.8	3.9	2.2	2.4	2.5	3.1
2007 Jan	2.7	2.9	2.6	4.2	3.5	3.7	2.2	2.5	–2.1	1.5
2007 Feb	2.8	2.9	2.6	4.6	3.7	3.9	2.3	2.7	–1.1	1.4
2007 Mar	3.1	3.1	2.9	4.8	3.9	4.0	2.7	2.8	0.7	2.4
2007 Apr	2.8	2.9	2.6	4.5	3.6	3.7	2.4	2.4	–0.9	1.9
2007 May	2.5	2.6	2.3	4.3	3.3	3.4	2.4	2.2	1.2	3.6
2007 Jun	2.4	2.5	2.2	4.4	3.3	3.3	2.5	2.1	2.4	3.3
2007 Jul	1.9	2.0	1.7	3.8	2.7	2.6	2.5	2.2	0.6	1.5
2007 Aug	1.8	1.9	1.6	4.1	2.7	2.6	2.4	2.4	1.1	2.0
2007 Sep	1.8	1.7	1.6	3.9	2.8	2.8	2.9	2.2	7.2	3.5
2007 Oct	2.1	1.9	1.8	4.2	3.1	3.0	3.9	2.3	9.0	2.8
2007 Nov	2.1	1.9	1.8	4.3	3.2	3.0	4.5	2.2	10.2	1.7
2007 Dec	2.1	2.0	1.9	4.0	3.1	3.1	5.0	2.6	11.2	3.6

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.

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 who:

- were not in employment during the reference week, and
- reported that they had been made redundant in the month of, or the two calendar months prior to, the reference week

plus the number of people who:

- were in employment during the reference week, and
- started their job in the same calendar month as, or the two calendar months prior to, the reference week, and
- reported that they had been made redundant in the month of, or the two calendar months prior to, the reference week

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 old *Economic Trends* tables and 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.

Weblink: www.statistics.gov.uk/elmr/02_08/data_page.asp

Title	Frequency of update	Updated since last month
UK economic accounts		
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	Q	.
1.14 Private non-financial corporations: secondary distribution of income account and capital account	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		
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/02_08/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	M	✔
4.04	Indicators of fixed investment in dwellings	M	✔
4.05	Number of property transactions	M	✔
4.06	Change in inventories	Q	•
4.07	Inventory ratios (THIS TABLE IS NO LONGER BEING UPDATED)	Q	•
4.08	Retail sales, new registrations of cars and credit business	M	✔
4.09	Inland energy consumption: primary fuel input basis	M	•

Selected financial statistics

5.01	Sterling exchange rates and UK reserves	M	✔
5.02	Monetary aggregates	M	✔
5.03	Counterparts to changes in money stock M4	M	✔
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

6.01	Working-age households	A	•
6.02	Local labour market indicators by unitary and local authority	Q	•
6.03	Employment by occupation	Q	•
6.04	Employee jobs by industry	M	✔
6.05	Employee jobs by industry division, class or group	Q	✔
6.06	Employee jobs by region and industry	Q	•
6.07	Key productivity measures by industry	M	✔
6.08	Total workforce hours worked per week	Q	✔
6.09	Total workforce hours worked per week by region and industry group	Q	•
6.10	Job-related training received by employees	Q	•
6.11	Unemployment rates by previous occupation	Q	•

Weblink: www.statistics.gov.uk/elmr/02_08/data_page.asp

6.12	Average Earnings Index by industry: excluding and including bonuses	M	✔
6.13	Average Earnings Index: effect of bonus payments by main industrial sector	M	✔
6.14	Median earnings and hours by main industrial sector	A	•
6.15	Median earnings and hours by industry section	A	•
6.16	Index of wages per head: international comparisons	M	✔
6.17	Regional Jobseeker's Allowance claimant count rates	M	✔
6.18	Claimant count area statistics: counties, unitary and local authorities	M	✔
6.19	Claimant count area statistics: UK parliamentary constituencies	M	✔
6.20	Claimant count area statistics: constituencies of the Scottish Parliament	M	✔
6.21	Jobseeker's Allowance claimant count flows	M	✔
6.22	Number of previous Jobseeker's Allowance claims	Q	✔
6.23	Interval between Jobseeker's Allowance claims	Q	•
6.24	Average duration of Jobseeker's Allowance claims by age	Q	•
6.25	Vacancies by size of enterprise	M	✔
6.26	Redundancies: re-employment rates	Q	•
6.27	Redundancies by Government Office Region	Q	•
6.28	Redundancy rates by industry	Q	•
6.29	Labour disputes: summary	M	✔
6.30	Labour disputes: stoppages in progress	M	✔

Notes

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

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01633 456961
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024 7682 3439
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Department for Children, Schools and Families Public Enquiry Unit
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For statistical information on

Average Earnings Index (monthly)
01633 819024

Claimant count
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Consumer Prices Index
01633 456900
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Earnings
Annual Survey of Hours and Earnings
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Basic wage rates and hours for manual workers with a collective agreement
01633 819008

Low-paid workers
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lowpay@ons.gsi.gov.uk

Labour Force Survey
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Economic activity and inactivity
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Employment
Labour Force Survey
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labour.market@ons.gsi.gov.uk

Employee jobs by industry
01633 812318

Total workforce hours worked per week
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productivity@ons.gsi.gov.uk

Workforce jobs series – short-term estimates
01633 812318
workforce.jobs@ons.gsi.gov.uk

Labour costs
01633 819024

Labour disputes
01633 819205

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

Labour Force Survey Data Service
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lfs.dataservice@ons.gsi.gov.uk

New Deal
0114 209 8228

Productivity and unit wage costs
01633 812766

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

2008 edition. Palgrave Macmillan, ISBN 0-230-52583-2. Price £47.50.

www.statistics.gov.uk/products/p4861.asp

Foreign Direct Investment (MA4)

2006 edition

www.statistics.gov.uk/products/p9614.asp

Input-Output analyses for the United Kingdom

2006 edition

www.statistics.gov.uk/products/p7640.asp

Research and development in UK businesses (MA14)

2006 edition

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www.statistics.gov.uk/products/p930.asp

United Kingdom Balance of Payments (Pink Book)

2007 edition. Palgrave Macmillan, ISBN 978-1-4039-9397-7. Price £49.50.

www.statistics.gov.uk/products/p1140.asp

United Kingdom National Accounts (Blue Book)

2007 edition. Palgrave Macmillan, ISBN 978-1-4039-9398-4. Price £49.50.

www.statistics.gov.uk/products/p1143.asp

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

2007 quarter 3

www.statistics.gov.uk/products/p242.asp

United Kingdom Economic Accounts

2007 quarter 3. Palgrave Macmillan, ISBN 978-0-230-20565-9. Price £35.

www.statistics.gov.uk/products/p1904.asp

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

2007 quarter 3

www.statistics.gov.uk/products/p731.asp

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

January 2008. Palgrave Macmillan, ISBN 978-0-230-20184-2. Price £47.50.

www.statistics.gov.uk/products/p376.asp

Focus on Consumer Price Indices

December 2007

www.statistics.gov.uk/products/p867.asp

Monthly review of external trade statistics (MM24)

December 2007

www.statistics.gov.uk/products/p613.asp

Producer Price Indices (MM22)

December 2007

www.statistics.gov.uk/products/p2208.asp

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/products/p4315.asp

National Accounts Concepts, Sources and Methods

www.statistics.gov.uk/products/p1144.asp

Sector classification guide (MA23)

www.statistics.gov.uk/products/p7163.asp

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