national STATiSTiCS

Economic & Labour Market Review

Contents

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About the Office for National Statistics

The Office for National Statistics (ONS) is the government agency responsible for compiling, analysing and disseminating economic, social and demographic statistics about the UK. It also administers the statutory registration of births, marriages and deaths in England and Wales.

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

In brief

Statistical evidence on the economic impact of immigration: House of Lords Select Committee on Economic Affairs

The National Statistician, Karen Dunnell, has been invited to give evidence to the House of Lords Select Committee on Economic Affairs as part of its inquiry into the economic impact of immigration. A document has been submitted to the Select Committee to provide statistical evidence as background to their investigation. It has been drawn together by the Office for National Statistics (ONS), assisted by the Department for Work and Pensions and the Home Office.

The submission contains a wealth of information on migration. Key sources and indicators are described and figures provided on the characteristics and distribution of recent migrants. Latest trends and future assumptions about migrant numbers are explained, with their impact on population projections. The employment patterns of immigrants are also documented and related to time in this country. The submission explains why measuring international migration is complex and how making accurate estimates relies on multiple sources of information, each designed for different statistical and administrative purposes.

While estimating the impact of migration levels on GDP is outside the scope of the statistics produced by ONS, the submission explains how the national accounts framework captures immigrants' production, income and expenditure. While there may be issues of under-recording, particularly when activity is illegal or informal, the use of balancing and other adjustments to produce a single growth estimate are thought to help minimise the problem.

The submission concludes with an indication of where improvements are needed in existing sources, methods and definitions and how these could be achieved. An Inter-Departmental Task Force on international migration statistics, set up by the National Statistician, reported in December 2006. It recommended timely improvements that could be made to estimates of migration and migrant populations in the United Kingdom, both nationally and at local level. The submission lists these recommendations and describes improvements made since the report was published. It also provides information about work in progress and plans for further improvements over a two- to five-year period.

The full document can be downloaded from the National Statistics website at the address given below.

More information

www.statistics.gov.uk/about/other_letters/downloads/stat_submission_holeac.pdf

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Cross-government review of equality data

The Cabinet Office Equalities Review, published in February 2007, recommended that ONS should lead a cross-government review of data needs for measuring equality. To steer this review, ONS set up a task force, consisting of representatives from devolved governments and a number of Whitehall departments.

The Equalities Review recommended a measurement framework which should be used as a starting point for such a review. The framework consists of seven 'equality characteristics', (for example, age and gender), to which the review team added socio-economic status, and ten 'equality domains' (such as health and education). Focus was on the domains highlighted in the Equalities Review as those where gaps are most likely to cause further inequalities. These included inequalities, for example, in the 'productive and valued activities' domain defined in the Equalities Review as including paid work, caring, work/life balance and work conditions. For each of the domains within the scope of the data review, data availability was considered on equality of outcome, equality of process (for example, information available on discrimination) and equality of choice or control.

It was found that:

- there is more equality information available than reported in the Equalities Review and there are developments underway which will improve the situation further. However, a number of significant gaps still remain including information on sexual orientation in relation to employment outcomes
- at the UK level, coverage of the measurement framework by major data sources is fair
- there is a lack of strategic co-ordination across data providers and other data stakeholders, particularly at UK level, and this has contributed to the current data gaps and inconsistencies. This is particularly true in the areas of harmonising classifications and data presentation
- there is little coherence in the way equality data are presented and there are issues with data accessibility

Eight principles have been proposed to underpin the collection and presentation of equality data and a range of recommendations for improving processes, data comparability, equality data and data presentation, with estimated timings for their implementation. The full report is planned for publication on 31 October 2007.

The February Equalities Review can be accessed at the address given below.

More information

http://archive.cabinetoffice.gov.uk/equalitiesreview/

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Globalisation and the statistical challenges discussed at the Director Generals of Institutes of National Statistics (DGINS) Conference

Over 120 delegates, including Director Generals of National Statistics from 38 European countries and representatives for international organisations led by Eurostat and including the United Nations, the Organisation for Economic Co-operation and Development and the European Central Bank, met in Budapest in September for the latest

Statistical Programme Committee and Director Generals of Institutes of National Statistics (DGINS) Conference.

The main theme of this 93rd DGINS Conference was 'Globalisation', aiming to explore how the statistical offices of the EU Member States and the European Statistical System as a whole can meet the statistical challenges of globalisation. DGINS recognised how globalisation affects almost all fields of the economy, society, culture and environment. In this context of expanding globalisation, statisticians have to face the increasing demand of measuring effectively its scope and impacts.

The conference focused on the role to be played by statistical agencies in enabling the measurement of the impacts of globalisation and the developments required to improve their measurement as well as understanding of key changing aspects of globalisation that have long been the subject of statistical measurement – such as migration and trade. These points were explored and discussed in a number of lively facilitated sessions and a concluding session in which the UK's National Statistician, Karen Dunnell, played a key role on the discussion panel.

A paper submitted by the Office for National Statistics was well received by conference delegates. A partly revised version of this paper was published in September's Economic & Labour Market Review, summarising the increasing relevance of globalisation statistics and articulating the responses to the main challenges to statistical measurement.

Delegates responded very collaboratively, recognising that globalisation represented a common statistical challenge and one in which international co-operation would increasingly play a key role towards meeting the challenge. Both risks and opportunities were identified. On the downside, it was perceived that aspects of globalisation could potentially dent trust in the accuracy and relevance of official statistics. These could also put extra burdens on already overstretched resources. The upside was that it motivated statistical agencies to be innovative and to work together to develop and refresh conceptual frameworks and methodologies, to use new technologies and to raise skills levels.

The main components of a shared action plan emerged throughout the conference and will be followed up on and refined by Eurostat.

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UPDATES

Updates to statistics on www.statistics.gov.uk

6 September

Index of production

Manufacturing: 0.8% three-monthly rise to July
www.statistics.gov.uk/cci/nugget.asp?id=198

10 September

Producer prices

Factory gate inflation remains unchanged
www.statistics.gov.uk/cci/nugget.asp?id=248

11 September

UK trade

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

12 September

Average earnings

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

Employment

Rate rises to 74.4% in three months to July 2007
www.statistics.gov.uk/cci/nugget.asp?id=12

Public sector employment

Employment falls in Q2 2007
www.statistics.gov.uk/cci/nugget.asp?id=407

13 September

Businesses

Stock increases by 1.7% between 2006 and 2007
www.statistics.gov.uk/cci/nugget.asp?id=1238

18 September

Inflation

August: CPI down to 1.8%; RPI at 4.1%
www.statistics.gov.uk/cci/nugget.asp?id=19

20 September

Retail sales

Underlying growth remains firm
www.statistics.gov.uk/cci/nugget.asp?id=256

24 September

Public sector

August: £7.0 billion current budget deficit
www.statistics.gov.uk/cci/nugget.asp?id=206

25 September

Business investment

0.4% rise in Q2 2007
www.statistics.gov.uk/cci/nugget.asp?id=258

Investment

Institutional net investment £22.7 billion in Q2 2007
www.statistics.gov.uk/cci/nugget.asp?id=396

26 September

Balance of payments

Q2 2007: UK deficit falls
www.statistics.gov.uk/cci/nugget.asp?id=194

GDP growth

Economy rose by 0.8% in Q2 2007
www.statistics.gov.uk/cci/nugget.asp?id=192

27 September

Index of services

1.0% three-monthly rise into July
www.statistics.gov.uk/cci/nugget.asp?id=558

Productivity

Productivity growth falls
www.statistics.gov.uk/cci/nugget.asp?id=133

28 September

UK Government debt and deficit

Deficit 2.5% of GDP
www.statistics.gov.uk/cci/nugget.asp?id=277

1 October

International comparisons of productivity

New estimates for 2006
www.statistics.gov.uk/cci/nugget.asp?id=160

2 October

Corporate profitability

15.7% in Q2 2007
www.statistics.gov.uk/cci/nugget.asp?id=196

FORTHCOMING RELEASES

Future statistical releases on www.statistics.gov.uk

8 October

Index of production – August 2007

MQ5: investment by insurance companies, pension funds and trusts – Q2 2007

Producer prices – September 2007

9 October

UK trade – August 2007

10 October

MM19: Aerospace and electronic cost indices – July 2007

11 October

Occupational pension schemes annual report

12 October

MM24: Monthly review of external trade statistics – August 2007

16 October

Consumer price indices – September 2007

Digest of engineering turnover and orders – August 2007

MM22: Producer prices – September 2007

17 October

Labour market statistics – October 2007

18 October

Public and private sector breakdown of labour disputes

Public sector finances – September 2007

Retail sales – September 2007

SDM28: Retail sales – September 2007

19 October

Gross domestic product (GDP) preliminary estimate – Q3 2007

Index of services – August 2007

22 October

Focus on consumer price indices – September 2007

23 October

Public sector finances: supplementary (quarterly) data

24 October

Average weekly earnings – August 2007

25 October

Monthly digest of statistics – October 2007

26 October

Distributive and service trades – August 2007

Economic review

October 2007

Anis Chowdhury
Office for National Statistics

SUMMARY

GDP continued to grow robustly in 2007 quarter two, driven mainly by the services sector and supported by an upturn in manufacturing output. On the expenditure side in 2007 quarter two, business investment and household spending strengthened. The current account deficit narrowed in 2007 quarter two. The trade deficit narrowed in 2007 quarter two. The labour market remains buoyant but average earnings remains relatively subdued. The public sector finances position deteriorated in August 2007. Consumer inflation fell in August. Producer output price inflation was unchanged in August, and still exhibited signs of upward pressure.

GROSS DOMESTIC PRODUCT

Second quarter growth of 0.8 per cent

GDP growth for the second quarter of 2007 is estimated to have grown fairly strongly, by 0.8 per cent, unchanged from the growth rate in the previous quarter. The annual rate of growth was 3.1 per cent, also unchanged from the previous quarter (**Figure 1**).

The growth rate in the UK economy in 2007 quarter two continued to be led by strong growth in services sector output. The growth in the latest quarter was also due to strengthening in production output, driven by strong manufacturing and mining and quarrying output. Construction output also contributed to growth by sustaining the strong rate of growth from the previous quarter.

OTHER MAJOR ECONOMIES

Global growth weakens

Data for 2007 quarter two are now available for the other major OECD countries and these show a mixed, but overall, a weakening picture of the world economy.

US GDP data for the second quarter of 2007 showed an upturn compared to a deceleration in quarter one. Growth was a fairly strong 1.0 per cent in the second quarter, an acceleration from subdued 0.2 per cent growth in the previous quarter. The strengthening in growth in the latest quarter may partly be attributed to weak quarter one data, particularly in terms of government consumption and net exports. In the second quarter, growth was mainly led by corporate non-residential investment which accelerated, by 7.0 per cent following 6.0 per cent growth in the previous quarter, but this was mainly concentrated in structural spending. Net exports also contributed to growth, with growth of 1.9 per cent following growth of 1.6 per cent in the previous quarter. The upsides to growth were partially offset by weak growth in consumer spending, partly due to the impact of higher energy prices. Consumption growth was 0.4 per cent in quarter two, a marked slowdown from growth of 0.9 per cent in quarter one.

Japan's GDP growth in contrast shrank in 2007 quarter two. Growth fell by 0.3 per cent compared to growth of 0.7 per cent in the previous quarter. The marked deceleration was partly due to a weak net export picture, with exports growing by 0.8 per cent compared to 3.4 per cent in the previous quarter. Residential investment contracted markedly, by 3.4 per cent in quarter two after falling by 0.8 per cent in the previous quarter. Capital investment also declined, by 2.6 per cent compared to a fall of 1.2 per cent in the previous quarter. Household consumption showed a weakening picture with growth of 0.3 per cent compared to 0.8 per cent in the previous quarter.

Growth in the three biggest mainland EU economies – Germany, France and Italy – also exhibited signs of weakening. According to the Eurostat's estimate, euro area GDP grew by 0.3 per cent in 2007 quarter two. This is a deceleration compared to growth of 0.7 per cent growth in the previous quarter.

German GDP growth according to the initial estimate showed a deceleration in the latest quarter. Growth was 0.3 per cent compared to a modest growth of 0.5 per cent in the previous quarter. Growth was

Figure 1
Gross Domestic Product
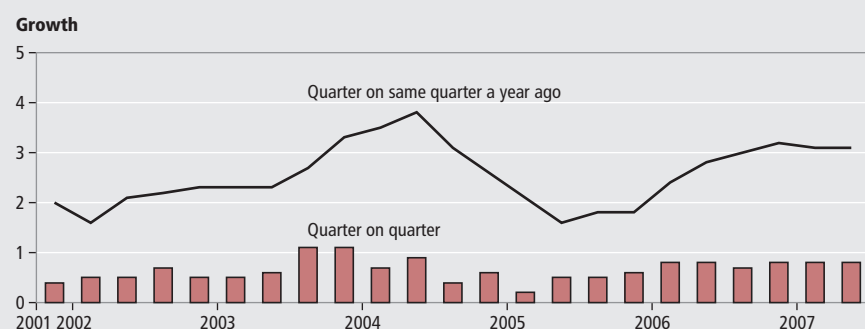
mainly driven by an increase in exports which grew by 0.9 per cent, following a fall of 0.3 per cent in quarter one. Imports in contrast fell by 0.9 per cent in the second quarter. Household consumption expenditure also contributed to growth, but by a lesser extent. Growth was 0.6 per cent, reversing the marked decrease of 1.8 per cent in the previous quarter. This was countered by a negative contribution from investment which fell by 1.3 per cent in 2007 quarter two, reversing positive growth of 2.1 per cent in the previous quarter; strong growth in capital and machinery investment was offset by a strong decrease in construction investment. Government expenditure made a neutral contribution to growth. French GDP growth slowed in 2007 quarter two; growth was 0.3 per cent compared to growth of 0.5 per cent in quarter one. The deceleration was partly due to a weak net export picture with imports growing by 2.1 per cent from 0.7 per cent in the previous quarter and exceeding exports. The weakening in GDP growth was also partly due to virtually flat business investment which decelerated sharply from the previous quarter. This was offset by fairly strong growth in household consumption expenditure of 0.6 per cent, up marginally from 0.5 per cent in the previous quarter. The initial estimate of Italian GDP growth was just 0.1 per cent following 0.3 per cent growth in the previous quarter. The breakdown to the growth was not yet available at the time of writing, although early indications point towards a zero contribution from industrial production in quarter two.

FINANCIAL MARKETS

Share prices moderate and pound weakens

Equity performance, after exhibiting a strong bounce-back in 2007 quarter one, showed a slowdown in the latest quarter, but was still evident of fairly buoyant growth. The FTSE All-Share index rose by around 4.0 per cent in 2007 quarter two after growing by around 11.0 per cent in the previous quarter. The slower rate of equity growth may mainly be attributed to higher interest rates and its possible impact, in terms of lower GDP growth and reduced company profitability. In the first two months of quarter three, the index fell by on average 3.0 percentage points. This could be partly attributable, in addition to the above, to the markets risk aversion towards assets associated with the US sub prime housing market.

As for currency markets, 2007 quarter two saw sterling's average value broadly weakening compared to the previous quarter. The pound appreciated against the dollar by around 1.7 per cent in 2007 quarter two, a lower rate of appreciation compared to around 2.0 per cent in 2007 quarter one. Against the euro, sterling's value depreciated by around 1.0 per cent after appreciating by around 0.5 per cent in the previous quarter. Overall, the quarterly effective exchange rate depreciated by around 0.5 per cent following appreciation of around 1.0 per cent in 2007 quarter one (**Figure 2**). In the first two months of quarter three there was a further weakening with the pound appreciating on average by just 0.5 per cent against the dollar. Against the euro the pound depreciated by 0.3 per cent. Overall, the effective exchange rate was virtually flat on average in the first two months of quarter three.

The recent movements in the exchange rate might be linked to a number of factors. Firstly, exchange rate movements can be related to the perceptions of the relative strengths of the US, the Euro and UK economy. The appreciation of the pound against the dollar in 2007 quarter two may be partly linked to perceptions of stronger UK economic growth, leading to greater inflationary pressures and therefore the prospects of higher interest rates in the UK. The potential for future rate rises may have been a factor in sterling's recent appreciation. In fact, interest rates were increased by a further 0.25 percentage point in June 2007, which followed the 0.25 percentage point interest increase in May 2007 and leaves interest rates currently standing at 5.75 per cent. The slower appreciation in the third quarter may be partly a result of perceptions that interest rate rises may have peaked.

In contrast, there have been particular concerns in recent months regarding the

relative weakness of US GDP growth. Furthermore, inflationary pressures have been relatively subdued in the US. This may have lessened the likelihood of further interest rate rises in the US. In fact, US interest rates were lowered by 0.50 percentage points in September 2007 to 4.75 per cent, in response to fears about a US economic slowdown, partly caused by the housing market weakness.

In the euro-area, the depreciation of the pound against the euro in the second quarter of 2007 may have come in response to further monetary tightening, with the European Central Bank (ECB) raising interest rates by 0.25 percentage points in March 2007. The prospects for future interest rate rises may have weighed as a factor; in fact, interest rates were increased by a further 0.25 percentage points in June to leave interest rates currently standing at 4.0 per cent. The rise in the euro has been further underpinned by relatively robust growth in the euro-zone. However, compared to US and UK rates, euro-zone interest rates still remain fairly moderate and accommodative.

Secondly, another factor for the US depreciation relative to the pound may be due to the current account deficit which is generally seen as a weakness for the US economy. The dollar may have fallen recently in response to a readjustment process, with the intended consequence of making exports cheaper and imports dearer- thus in theory leading to switch in expenditure to home produced goods and ultimately leading to a narrowing in the deficit.

Thirdly, another factor may be due to a lack of international appetite for dollar denominated assets, particularly from central banks, whom are choosing to mix up their currency assets on their balance sheets (for portfolio and risk management purposes) thereby further undermining the value of the dollar.

Figure 2
Exchange rates

£ equals
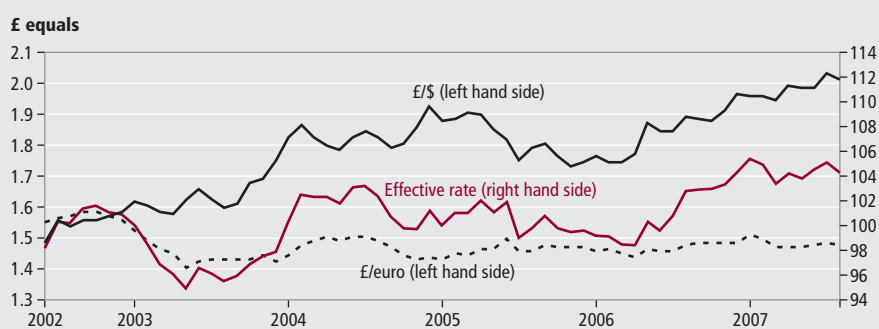
OUTPUT

Services sector drives economic growth

GDP growth in 2007 quarter two was estimated at 0.8 per cent, similar to the rate in the previous quarter. On an annual basis it was 3.1 per cent, also unchanged from the previous quarter.

Construction activity is estimated to have grown strongly in the second quarter of 2007. Construction output grew by 0.8 per cent in 2007 quarter two, unchanged from growth in the previous quarter. Comparing the quarter on the quarter a year ago, construction output rose by 3.5 per cent following growth of 2.7 per cent in the previous quarter (**Figure 3**).

As for external surveys of construction, the CIPS survey signalled strengthening activity in 2007 quarter two with the average headline index at 59.3, up from 58.0 in the previous quarter. Stronger activity was driven by a rise in commercial activity. In August 2007, the headline index strengthened to 64.8. The RICS in its 2007 quarter two construction survey reported that growth in construction workloads slowed markedly in the second quarter, although remaining firm. The balance was 16, down from 28 in 2007 quarter one.

Total output from the production industries rose by 0.7 per cent in 2007 quarter two after falling by 0.2 per cent in the previous quarter. On an annual basis it also rose by 0.7 per cent compared to virtually flat growth in the previous quarter. The main contributions to the pick up in the latest quarter came from a turnaround in manufacturing output. Manufacturing output grew by 0.8 per cent, after contracting by 0.5 per cent in the previous quarter. On an annual basis, manufacturing output grew by a robust 1.1 per cent, up marginally from growth of 1.0 per cent in the previous quarter (**Figure 4**). The contribution to GDP growth was also provided by fairly strong growth in the output of the mining and quarrying industries (including oil & gas) which grew by 1.3 per cent in 2007 quarter two, down from 1.6 per cent in the previous quarter. On an annual basis, output contracted by 1.3 per cent, a lower rate of contraction compared to a decrease of 6.7 per cent in 2007 quarter one. This was offset by a weakening in the output of the electricity, gas and water supply industries which decreased by 0.4 per cent in the second quarter compared to growth of 1.3 per cent in the previous quarter. On an annual basis,

output fell by 1.1 per cent compared to a fall of 3.3 per cent in the first quarter.

Production growth has generally been weak 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. However, there was a weakening in manufacturing output in the last two quarters. In the latest quarter, the picture has somewhat reversed with a revival in total production output, driven mainly by a strengthening in manufacturing output. The output of the agriculture, forestry and fishing industries weakened in the latest quarter and was 0.2 per cent, down

from strong growth of 1.1 per cent in the previous quarter.

According to the latest figures, total production output increased by 0.8 per cent in the three months to July. Manufacturing output increased by 0.8 per cent, mining and quarrying output increased by 1.2 per cent and output of the electricity, gas and water supply industries increased by 0.9 per cent, in the latest three months compared to the previous three months.

External surveys of manufacturing for 2007 quarter two showed a mixed 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

Figure 3
Construction output

Figure 4
Manufacturing output
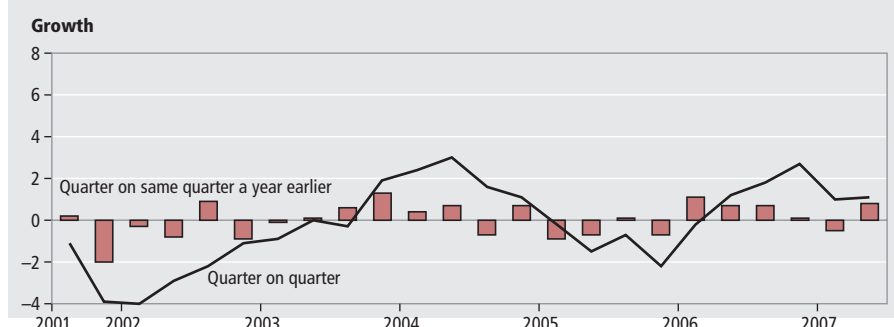
Figure 5
External manufacturing indicators
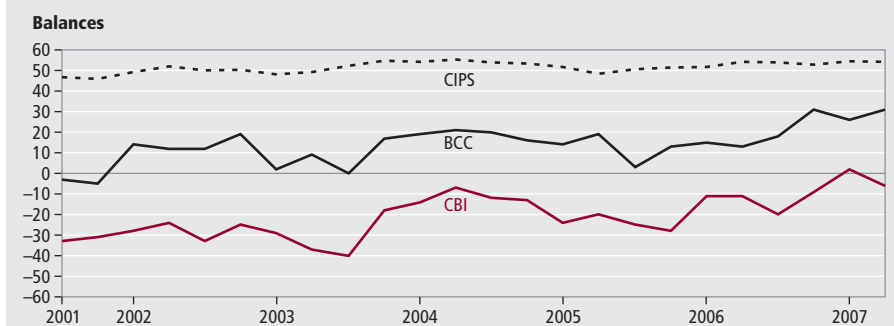
term. These differences happen partly because the series are not measuring exactly the same thing. External surveys measure the direction rather than the magnitude of a change in output and often inquire into expectations rather than actual activity. However, in the latest quarter, there appears to be signs of the gap narrowing, with some external measures.

The CIPS average headline index for manufacturing indicated a stable but robust picture in the latest quarter. The headline index was 54.3, similar to the index in the previous quarter. Growth was led by both increases in output. In August 2007, the headline index strengthened to 56.3. The CBI in its 2007 quarter two Industrial Trends survey reported a slowdown in manufacturing activity with the total orders index at minus 6 from plus 2 in the previous quarter. According to the latest survey in September, the CBI reported a robust picture with the index at plus 6. The BCC in its 2007 quarter two survey reported an improvement in manufacturing activity. The net balance for home sales rose to plus 31 from plus 26 in quarter one.

Overall the service sector, by far the largest part of the UK economy, continues to be the main driver of UK growth. Growth was 0.9 per cent in 2007 quarter two, down from 1.0 per cent in the previous quarter (**Figure 6**). Growth on an annual basis was 3.7 per cent, down from 3.9 per cent in the previous quarter. Growth was recorded across most sectors. The main contribution to the growth rate continues to be driven by business services and finance output which grew by 1.7 per cent in the latest quarter, an acceleration from 1.0 per cent growth in the previous quarter. Transport, storage and communication also grew strongly at 0.8 per cent, but was down from 1.9 per cent growth in the previous quarter. The output of the distribution, hotels and catering sector also grew fairly strongly at 0.6 per cent, a deceleration from growth of 1.0 per cent in the previous quarter. The output of government and other services in contrast was virtually flat after modest growth of 0.5 per cent in the previous quarter.

The external surveys on services continued to show a fairly robust picture in line with the official picture. The CIPS average headline index in 2007 quarter two was 57.4, although down from 58.1 in the previous quarter and continued to be led by new orders. In August 2007, the index was 57.6. It should be noted that the CIPS survey has a narrow coverage of the distribution and government sectors.

Figure 6
Services output

Growth
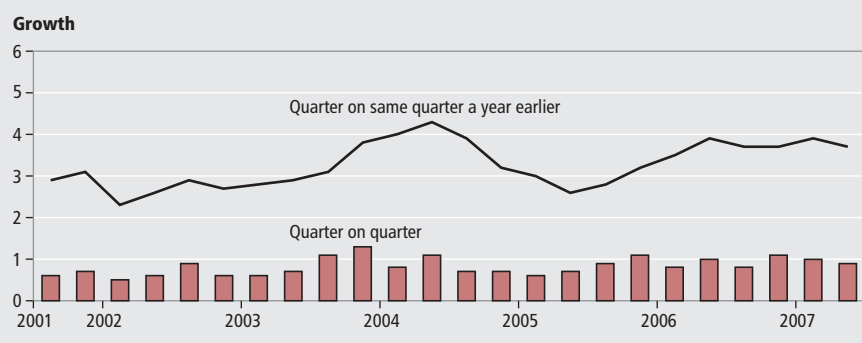
Figure 7
External services

Balances

The CBI and BCC also report a fairly buoyant picture (**Figure 7**). The CBI in its latest services sector survey in August reported a split in fortunes between business and professional services firms. Business volumes saw sales growth whilst consumer services firms sales growth decelerated. The consumer services volume balance was at plus 15 from plus 44 in the previous quarter. For business & professional services, the balance was at plus 31 from plus 27 in the previous quarter. The BCC in its 2007 quarter two survey reported a mixed picture of service sector activity. The net balance for home sales rose 9 points to plus 36, and was the highest since 2004 quarter two. The net balance for home orders fell 4 points to plus 24, the lowest since 2006 quarter three.

The UK sectoral account shows the UK corporate sector once again as being a big net lender in 2007 quarter two. Despite the surplus, the overall debt level remains high due to the heavy borrowing between 1997 and 2001. The household sector remains a net borrower as income growth proved insufficient to finance total outlays. Households debt levels continue be relatively high, although the quarterly interest payments on the loans are still being kept down by low interest rates as a

proportion of income, although they have steadily increased in recent quarters due to rises in interest rates. The level of central government borrowing rose in 2007 quarter two from the previous quarter, and remains high due to higher rises in cash expenditure exceeding tax receipts. The current account of the UK balance of payments continues to be in deficit.

EXPENDITURE

Consumers' spending buoyant

Household consumption expenditure growth accelerated slightly in 2007 quarter two at a fairly strong rate of 0.8 per cent. This follows growth of 0.7 per cent in the previous quarter. Growth compared with the same quarter a year ago was 2.7 per cent, down from 3.2 per cent in the previous quarter (**Figure 8**). In terms of expenditure breakdown, the growth in household consumption expenditure was recorded across all goods but was mainly driven by an acceleration in durable and semi-durable goods expenditure. This was offset by lower growth in non-durable and services goods. There are a number of reasons why household consumption expenditure could have strengthened.

Figure 8
Household demand
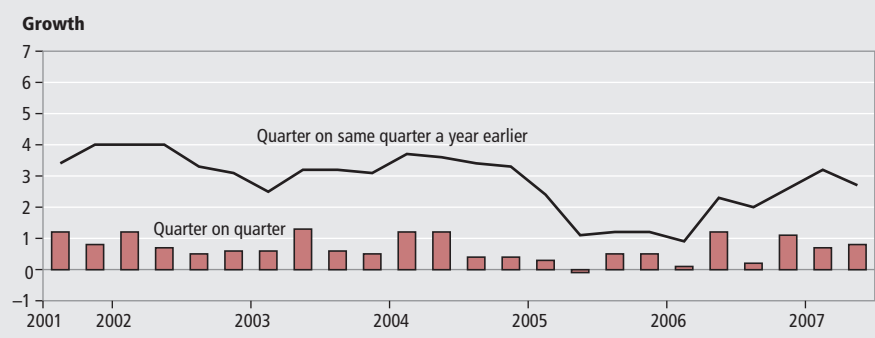
Growth

One key indicator of household expenditure is retail sales. Retail sales appear to have strengthened in 2007 quarter two. Retail sales grew by 1.1 per cent in the latest quarter, an acceleration from growth of 0.5 per cent in the previous quarter. The increase in retail sales may be partly attributed to heavy discounting in shops and early sales which can be reflected in the price deflator (that is, shop prices) which on average grew by just 0.5 per cent in the latest quarter. Retail sales figures are published on a monthly basis and the latest available figures for July showed a buoyant underlying growth (**Figure 9**). This may suggest that in the second quarter and in the third quarter, interest rate rises don't seem to be having much of an impact as yet on spending. But it should be noted that retail sales account around 40 per cent of household expenditure. According to the latest figures, the volume of retail sales in the three months to August 2007 was 1.3 per cent higher than the previous three months. This followed growth of 1.3 per cent in the three months to July. On an annual basis, retail sales continued to grow strongly. Retail sales on the latest three month on the same three months a year ago rose by 4.3 per cent, compared to 4.1 per cent in the three months to July compared to the same period a year ago.

At a disaggregated level, retail sales growth during the three months to the end of August was driven by an acceleration in growth in the 'Predominantly non-food stores' sector which grew by 2.2 per cent, up from 2.0 per cent growth in the previous month. Within this sector in the three months to August, growth was registered across most sectors and was led by the 'Household good stores' sector which grew by 5.3 per cent. The 'non-specialised stores' sector also recorded strong growth of 5.1 per cent. In contrast, retail sales growth in the 'Textile, clothing and footwear stores' sector showed a fall of 1.5 per cent. Growth in the 'Predominantly food stores' sector fell by 0.1 per cent in August. The buoyancy in retail sales could be partly attributed to the fall in shop prices, which fell by 1.0 per cent in August.

External surveys for retail reported a slowing picture of growth. The CBI in its monthly Distributive Trades survey reported that retail sales volumes grew, with a balance of plus 15 in August, down from plus 18 in July. The BRC report that retail sales increased by 1.8 per cent on a like-for-like basis in August, up from 1.2 per cent in the previous month but lower than the 2.5 per cent recorded in August 2006 (**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, increases in interest rates increases debt servicing costs, may discourage borrowing and in the process displace consumer expenditure on certain goods. However, according to the latest figures, there does not seem to be any discernible impact on borrowing so far, in response to past interest rate rises.

The financial account shows that the general movement from net lending to borrowing since 1992 has primarily been facilitated by increases in both secured and unsecured lending. In 2007 quarter two, there was strengthening in both with lending continuing to be driven by loans on secured dwellings. In the latest quarter, borrowing secured on dwellings rose to around £27 billion from around £23 billion in the previous quarter. Unsecured lending also rose, to around £2.3 billion, up from

Figure 9
Retail sales

Growth
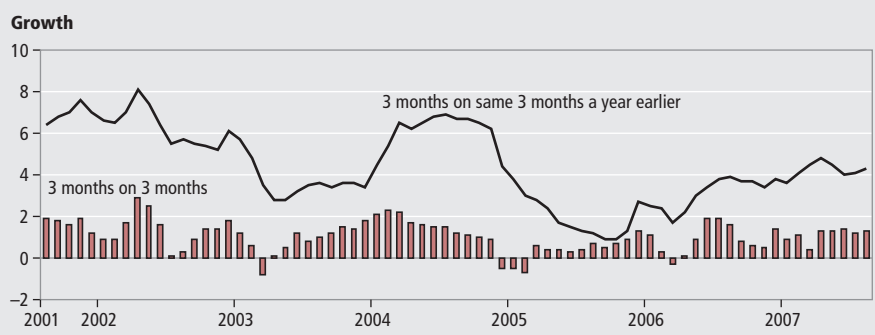
Figure 10
External retailing indicators

Balances
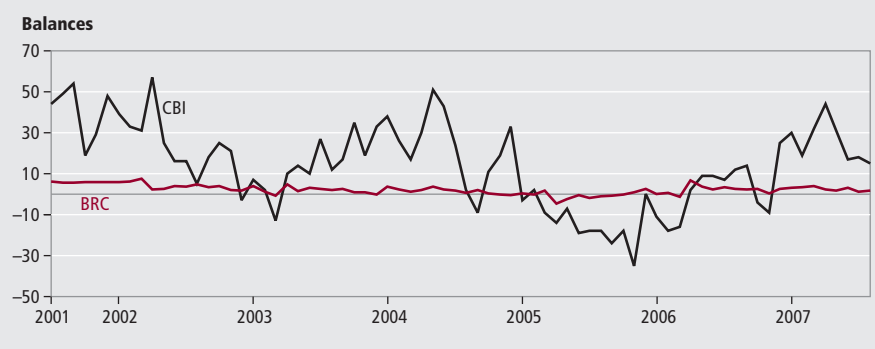
around £1.0 billion in 2007 quarter one.

The increase in house prices may have been a source of expenditure through household equity withdrawal. Although there are signs of an underlying slowdown in 2007 quarter two compared to quarter one, annual house price inflation still remains fairly buoyant. Bank of England figures for 2007 quarter one show HEW, according to the latest figures, at a strong £13.2 billion and which may continue at a broadly similar level in 2007 quarter two.

The strength in consumer spending may also be explained by the rise in the real households' disposable income in 2007 quarter two, reversing the fall in the previous quarter. In both quarters' taxation on income has played a key part in the rise and fall. Real households' disposable income increased by 1.1 per cent in the latest quarter, driven mainly by a fall of around 3.0 per cent on taxation on income. In the previous quarter, real household disposable income fell by 1.1 per cent, due mainly to the fiscal drag effects of a 6.0 per cent rise of taxation on income (**Figure 11**).

The savings ratio may also partially explain the relative buoyancy in consumer spending. The savings ratio was 3.1 per cent in 2007 quarter two, although up from 2.0 per cent in the previous quarter, it is still low compared to the average rate of 5.0 per cent seen in the whole of 2006. Thus, the draw down in households' savings may have provided somewhat, a fillip to households' expenditure (**Figure 12**).

Other measures of expenditure also show a relatively strong picture and which may explain the acceleration in household spending. M4 (a broad money aggregate of UK money supply) rose by £50.6 billion in 2007 quarter two, up from £44.8 billion in quarter one. M4 lending (excluding the effects of securitisations, etc) rose by £75.0 billion in 2007 quarter two, up from £73.6 billion in the previous quarter.

Finally, underlying fundamentals such as the prevalence of a relatively healthy labour market, together with a confident outlook on the economy by consumers, may have underpinned buoyant consumption growth. Consumers may also have resorted to current spending in anticipation of higher borrowing costs in the future.

BUSINESS DEMAND

Business investment strengthens

Total investment weakened in 2007 quarter two, compared to the previous

Figure 11
Real households' disposable income
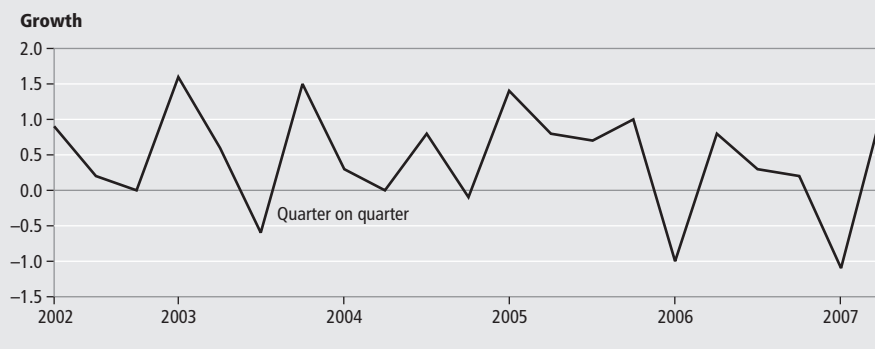
Growth

Figure 12
Savings ratio
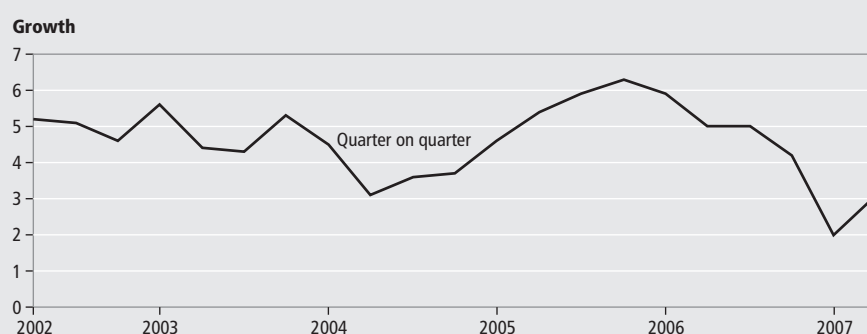
Growth

Figure 13
Total fixed investment
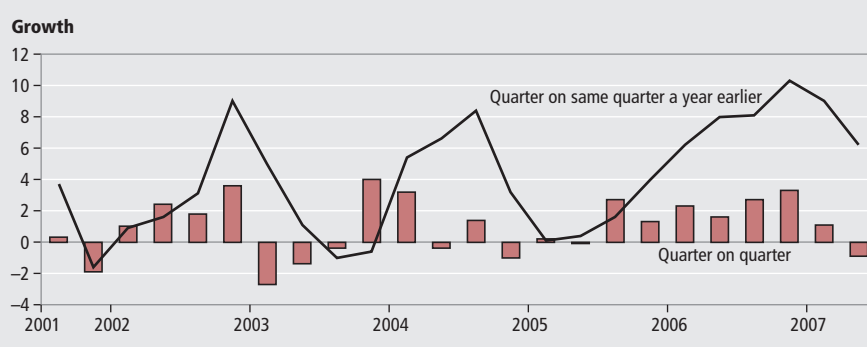
Growth

quarter. Growth contracted by 0.9 per cent following an increase of 1.1 per cent in the previous quarter. On an annual basis, total investment grew by 6.2 per cent, a slowdown from 9.0 per cent growth in the previous quarter. The weakening in total investment was primarily driven by slower growth in dwellings investment and to a lesser extent other machinery and equipment (**Figure 13**).

Business investment grew relatively strongly throughout 2006. In 2007 quarter one, business investment weakened. In the latest quarter, there appears to be turnaround with a recording of fairly modest growth. Business investment grew by 0.4 per cent in 2007 quarter two, in

contrast to the fall of 0.5 per cent in the previous quarter. Business investment on an annual basis slowed but still continues to grow fairly robustly. Growth was 7.6 per cent, down from 9.8 per cent annual growth in the previous quarter.

According to the sectoral accounts, the private non-financial corporate sector was a net lender in 2007 quarter two lending £11.0 billion, up from £9.5 billion in the previous quarter. This is mainly due to higher profits. Corporate sector debt levels remain high despite the sector surplus of recent years. The financial balance sheet shows the corporate sector had net liabilities of around £1.9 billion.

Evidence on investment intentions from

the latest BCC and CBI surveys showed a mixed picture. According to the quarterly BCC survey, the balance of manufacturing firms planning to increase investment in plant and machinery rose 10 points to plus 28 and in services firms fell by 1 point to plus 19 in 2007 quarter two. The CBI in its 2007 quarter two Industrial Survey reported a subdued investment picture, with the investment balance of plant and machinery at minus 6.

GOVERNMENT DEMAND

Government expenditure moderates

Government final consumption expenditure grew fairly modestly in 2007 quarter two. Growth was 0.3 per cent, down from 0.5 per cent in quarter one. Growth quarter on quarter a year ago strengthened. Growth was 2.0 per cent, compared to 1.2 per in 2007 quarter one (**Figure 14**).

Public sector finances worsen

The latest figures on the public sector finances reported in the current financial year to August 2007, illustrated a relatively weak picture. It showed a higher current budget deficit together with 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 August 2007, the current budget was in deficit by £7.0 billion; this compares with a deficit of £5.5 billion in August of 2006. In the financial year April to August 2007/08, the deficit was £11.7 billion; this compares with a deficit of £8.6 billion in the financial year April to August 2007. Net borrowing was £9.1 billion in August 2007; this compares with £6.7 billion in August 2006. In the financial year April to August 2007/08, net borrowing was £19.2 billion; this compares with net borrowing of £16.0 billion in the financial year April to August 2006/07. The higher current budget deficit was due to lower corporation tax, income tax and VAT receipts in August; this continued to be outweighed by expenditure, particularly on government capital projects.

The financial account shows that the issuance of both sterling treasury bills and government securities has financed this net borrowing. The latest quarter saw the outstanding amount of government securities at £445.0 billion and of Treasury bills at £16.8 billion.

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 August 2007 was 36.7 per cent of GDP. This compares with 36.2 per cent of GDP in August 2006. In the financial year 2006/7, net debt as a percentage of GDP was 36.9 per cent.

TRADE AND THE BALANCE OF PAYMTS

Current account deficit narrows; goods deficit narrows

The publication of the latest quarterly Balance of Payments shows that the current account deficit narrowed in 2007 quarter two to £9.1 billion, from a deficit of £10.6 billion in the previous quarter (**Figure 15**). As a proportion of GDP, the deficit fell to 2.6 per cent of GDP from 3.1 per cent in 2007 quarter one. The narrowing in current account deficit in 2007 quarter two was due to a higher surplus on investment income and trade in services, and a lower deficit on trade in goods and current transfers. The surplus in income rose to £5.3 billion from £4.9 billion, while the surplus in the trade in services rose to £8.9 billion from £8.2 billion. The increase in income was driven by a rise

in earnings on other investment abroad and on portfolio investment in debt securities, which outweighed a fall in earnings on direct investment abroad and on portfolio investment abroad in equity securities.

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 two showed the UK continuing to have a large trade deficit in goods with levels of imports rising faster than exports, although it narrowed in the latest quarter. This has provided a roughly neutral contribution towards GDP growth in the second quarter. The goods trade deficit was £20.3 billion, down from the £20.6 billion in 2007 quarter one. In terms of growth, exports of goods fell by 0.9 per cent in 2007 quarter two whilst imports of goods fell by 0.7 per cent. Services exports rose 1.8 per cent whilst services imports rose by 0.4 per cent. Total exports rose just 0.2 per cent whilst total imports fell by 0.4 per cent.

According to the latest trade figures in July, the UK's deficit on trade in goods and services is estimated to have widened. The

Figure 14
Government spending
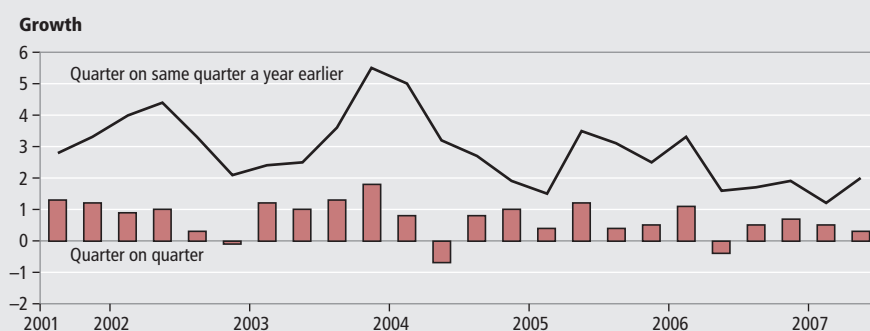
Figure 15
Balance of payments
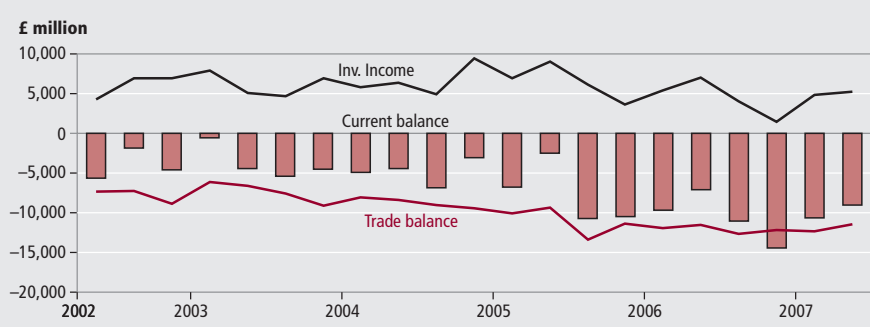
total trade balance was at £4.4 billion, up from £3.9 billion in June. The widening deficit is due mainly to a higher deficit in trade in goods to Non-EU countries which widened to £4.5 billion from £3.4 billion in June. This was offset by a lower deficit to EU countries which narrowed to £2.6 billion from £3.1 billion in June. Total exports rose by 3.6 per cent whilst total imports rose by 4.1 per cent on the month. In the three months ended July, the deficit on trade in goods and services was £12.3 billion, from a £12.8 billion deficit, from the previous three months. In terms of growth, total exports rose by 4.8 per cent whilst total imports rose by 2.2 per cent.

However, these figures are distorted by volatility in VAT Missing Trader Intra-Community (MTIC) Fraud and therefore needs 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 have fallen to £0.1 billion in July and by £0.2 billion in the second quarter of 2007.

Overall, the persistence of the current account deficit has led to the deterioration in the UK's international investment position (IIP) with the rest of the world. The net asset/liability was negative to the tune of £294.0 billion at the end of the second quarter of 2007 compared with net external liabilities of £312.9 billion at the end of the previous quarter. UK assets abroad increased by £158.8 billion from the end of the first quarter to a level of £5,917.0 billion at the end of the second quarter. UK liabilities increased by £139.9 billion over the same period to a level of £6,211.0 billion. The rise in the level of both UK assets and UK liabilities in the second quarter reflects both net investment and increases in the price of equity securities.

External surveys on exports show a mixed picture. The BCC reported that the export sales net balance rose by 1 point

to plus 21 and the export orders balance fell 1 point to plus 20 in 2007 quarter one. The CBI in its 2007 quarter one Industrial Trends Survey reported that both export sales and orders were flat at zero balances. According to the latest CBI monthly Industrial Trends survey, the export balance was at minus 2 in September.

LABOUR MARKET

Labour market activity buoyant

The Labour market in the latest reference period showed a relatively strong picture – continuing the trend of fairly high levels of employment and low levels of unemployment seen throughout 2006 and in 2007. The robust labour market picture continues to be a reflection of fairly strong demand conditions in the UK economy.

The latest figure from the Labour Force Survey (LFS) pertains to the three-month period up to July 2007 and showed positive picture. The number of people in employment as well as the employment rate increased. The number of unemployed people and the unemployment rate fell. The claimant count decreased. The number of vacancies increased. Average earnings, excluding and including bonuses rose. Overall however, average earnings remain subdued with weak real wage growth.

Looking at a detailed level, the increase in the employment level was mainly driven by a rise in employees, particularly full time employees, offset by a decrease in the number of people in self-employment, continuing the tend from the previous few months.

The current working age employment rate was 74.4 per cent, in the three months to July 2007, up 0.1 percentage points from the three months to April 2007 but down 0.2 percentage points from a year earlier.

The number of people in employment rose by 84,000 over the quarter, and up 132,000 over the year, to leave the employment level standing at 29.07 million in the three months to July 2007. The unemployment rate was 5.4 per cent, in the three months to July 2007, down 0.1 percentage points from the three months to April 2007 and down 0.2 percentage point from a year earlier (**Figure 16**). The number of unemployed people fell by 28,000, from the three months to April, and was down 53,000 from a year earlier, leaving the unemployment level currently standing at 1.65 million.

According to the LFS, in the period May to July 2007, the number of people in employment rose by 84,000. The increase was led by a rise in employees of 70,000, offset by a decrease in self-employment of 8,000. From another perspective, the number of people in full-time employment rose by 105,000, whilst people in part-time employment fell by 21,000.

Workforce jobs increases

According to employer surveys, there was an increase of 87,000 jobs in the three months to June 2007. Most sectors showed increases in jobs over the quarter. The largest quarterly contribution to the increase came from finance and business services (up 40,000), followed by distribution, hotels and restaurants (up 33,000) and agriculture, forestry and fishing (up 20,000). This was offset by a continuing decrease in the manufacturing sector (down 15,000). The other sectors to show decreases were; education, health and public administration (down 8,000) and other services (down 1,000). Over the year, total workforce jobs increased by 280,000. Of the total, the largest contribution to the increase came from finance and business services (up 161,000) followed by construction (up 70,000) and distribution, hotels and restaurants (up 60,000). The manufacturing sector in contrast lost the largest number of jobs on the year (down 51,000 jobs), followed by transport and communication (down 19,000).

Claimant count level falls

The claimant count measures the number of people claiming the Jobseekers Allowance. The latest figures for August showed the claimant count level at 852,900, down 4,200 on the previous month and down 100,400 on a year earlier. The claimant count rate in August 2007 was 2.6 per cent. The rate was virtually unchanged from the previous

Figure 16
Employment and unemployment

Percentage

Employment rates (left hand side)

Unemployment rates (right hand side)
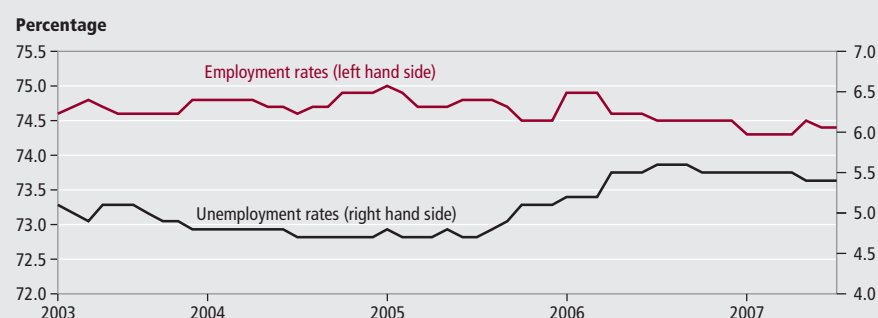
month but down 0.3 percentage points from a year earlier.

Vacancies rise

The number of vacancies created in the UK continued to show a healthy demand position for the economy. There were 662,700 job vacancies in the three months to August 2007, up 20,300 from the previous three months and up 64,600 from the same period a year earlier.

Inactivity level falls slightly

The working age inactivity rate was 21.2 per cent in the three months to July 2007, virtually unchanged from the three months to April 2007, but up 0.3 percentage points from a year earlier. In level terms, the number of economically inactive people of working age was down 1,000 over the quarter to leave the level standing at 7.95 million in the three months to July 2007. The largest inactivity decrease was amongst those categorised as 'Long-term sick' (down 29,000) followed by the 'Temporary sick' category (down 11,000). This was offset by increases in inactivity, with the largest amongst those categorised as 'Other' (up 21,000), followed by those categorised as 'Student' (up 17,000). On an annual basis, inactivity rose by 156,000, with the largest rises being amongst those categorised as 'Student' (up 85,000), followed by the 'Retired 'category (up 38,000) and those categorised as 'Looking after family/home' (up 35,000). This was offset by a decrease in those categorised as 'Long-term sick' (down 28,000).

Average earnings remain subdued

Average earnings growth continued to show a relative weak picture in July 2007 – despite average earnings (including and excluding bonuses) increasing in the latest reference period. Average earnings (including bonuses) rose by 0.1 percentage point from the previous month to 3.5 per cent Average earnings growth (excluding bonuses) was also up by 0.1 percentage point to 3.5 per cent in July compared to the previous month. In terms of the public and private sector split, the gap in wages widened in July – with a slowing in public sector wage growth, offset by an acceleration in private sector wage growth. Average earnings (excluding bonuses) grew by 2.9 per cent

in the public sector, down 0.3 percentage points from the previous month. Average earnings in the private sector in contrast rose by 0.2 percentage points to 3.7 per cent. The gap between public and private sector wages was 0.8 percentage points, compared to 0.3 percentage points in June.

Overall, the numbers still point to a fairly buoyant labour market, although it is still loose compared to previous years, with employment levels at relatively high levels and unemployment at a fairly 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.

Producer output prices buoyant; input prices rise

Industrial input and output prices are an indication of inflationary pressures in the economy. In 2007 quarter two, output prices exhibited signs of further acceleration of growth from 2007 quarter one and therefore signs of greater inflationary pressures. Input prices also accelerated in the second quarter from the first quarter of 2007. According to the latest figures in August, output prices remained steady but continued to show signs of inflationary pressures; this despite relatively weak input prices. This may suggest that firms were still attempting to maintain their profit margins, by passing on the higher price of their products to customers, after facing a profit squeeze of previous quarters.

Input prices on average rose by around 1.0 per cent in 2007 quarter two. This contrasts with 2007 quarter one where prices on average fell by 1.0 per cent. The core input price index, excluding food, beverages, tobacco and petroleum rose by around 2.8 per cent in 2007 quarter two compared to growth of 1.9 per cent in 2007 quarter one. The quicker growth in input prices was mainly driven by crude petroleum oil prices which rose by around 16 per cent, compared to a fall of around 4.0 per cent in 2007 quarter one; and to a lesser extent, metal prices which rose by around 7.0 per cent compared to growth of around 1.0 per cent in 2007 quarter one. In the year to August, input prices rose by 0.6 per cent, up from 0.3 per cent in July. The core input price index accelerated by 1.7 per cent, up from 1.2 per cent in July. The increase in the input price index was

partly driven by an increase in home food material prices which rose by 8.8 per cent in the twelve months to August and partly by imported metal and parts & equipment prices, which grew by 5.7 per cent and 3.5 per cent respectively. This was offset by a fall in gas and crude petroleum prices of 6.9 per cent and 6.3 per cent respectively in the twelve months to August.

Output prices grew on average by 2.4 per cent in 2007 quarter two, a strengthening from growth of 2.2 per cent in the previous quarter, and as mentioned earlier may be an attempt by firms to re-build their profit margins. The underlying picture suggested inflationary pressures may have moderated somewhat in the latest quarter. On the core measure which excludes food, beverages, tobacco and petroleum, producer output prices rose by 2.2 per cent in 2007 quarter two, down from 2.7 per cent growth in the previous quarter. The rise in output prices were partly driven by increases in base metal and petroleum products which rose around 5.0 per cent and 7.0 per cent respectively. According to the latest figures, output prices continued to show fairly strong growth. The output price index rose by 2.5 per cent for the third consecutive month in the year to August. The core output price index also showed signs of inflationary pressures. The output core price index rose by 2.4 per cent, up from 2.3 per cent in July. The growth in output prices was partly driven by the 'Other product' category where prices rose by 5.3 per cent and partly by food prices which rose by 3.7 per cent.

Consumer prices fall

Growth in the consumer price index (CPI) – the Government's target measure of inflation – fell in August to 1.8 per cent from 1.9 per cent in July and from the March peak of 3.1 per cent; and was below Government's 2.0 per cent inflation target for the second consecutive month and the lowest since February 2005 when it was 1.7 per cent (**Figure 17**).

The largest downward contribution to the CPI came from reductions in the cost of financial services with some lenders cutting their mortgage exit administration fees in light of the Financial Services Authority Statement of Good Practice for these charges. This required lenders to review their approach to these fees as there were concerns that consumers were being charged more than they had expected. Other large downward contributions came from: Gas and electricity bills which fell as

Figure 17
Inflation

Percentage
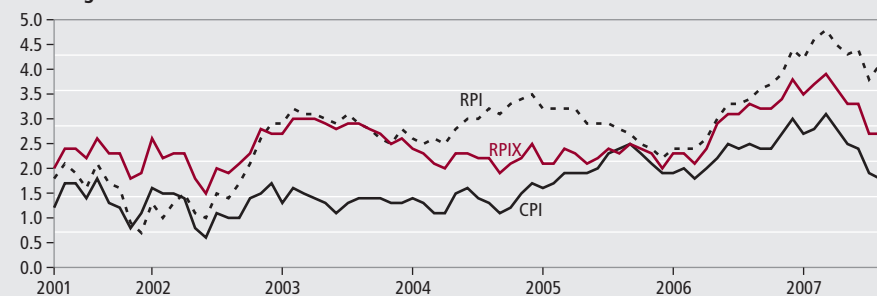
a result of the continued phasing in of tariff reductions. Over the same period last year, average bills rose; Clothing and footwear, mainly due to women's outerwear where prices rose with the introduction of the new season's stock, but by less than last year, and changes in the price of appliances and products for personal care.

The main upward pressure came from recreation and culture, due to changes in the cost of admission to live music events and theatres, and changes in the price of pre-recorded DVDs and CD ROMs. Further upward pressure came from communication. Average landline telephone bills rose this year, following changes to tariff structures and charges; last year,

by contrast, there were cuts in line rental charges. There was also a small upward effect from increases in pay-as-you-go mobile phone tariffs. RPI inflation rose to 4.1 per cent in August, up from 3.8 per cent in July, mainly due to an increase in average mortgage interest payments, with most lenders passing on July's quarter point increase in the Bank rate. Mortgage interest payments are excluded from the CPI. Other factors influencing the RPI were similar to those affecting the CPI, apart from charges for financial services which have a much lower weighting in the RPI. RPIX inflation – the all items RPI excluding mortgage interest payments – was 2.7 per cent in August, unchanged from July.

Key indicators

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

	Source CDID	2005	2006	2006 Q4	2007 Q1	2007 Q2	2007 Jun	2007 Jul	2007 Aug
GDP growth – chained volume measure (CVM)									
Gross domestic product at market prices	ABMI	1.8	2.8	0.8	0.8	0.8	..	..	..
Output growth – chained volume measures (CVM)									
Gross value added (GVA) at basic prices	ABMM	1.9	2.8	0.9	0.8	0.8	..	..	..
Industrial production	CKYW	−2.0	0.0	−0.1	−0.2	0.7	0.0	−0.1	..
Manufacturing	CKYY	−1.2	1.4	0.1	−0.5	0.8	0.1	−0.3	..
Construction	GDQB	1.5	1.1	0.9	0.8	0.7	..	..	..
Services	GDQS	2.9	3.6	1.2	0.9	0.9	..	..	..
Oil and gas extraction	CKZO	−10.5	−9.1	−0.8	1.1	1.1	−1.2	1.4	..
Electricity, gas and water supply	CKYZ	−0.4	−2.5	−1.8	1.2	−0.4	−0.6	0.2	..
Business services and finance	GDQN	4.4	5.3	1.1	1.0	1.7	..	..	..
Household demand									
Retail sales volume growth	EAPS	2.0	3.3	1.5	0.5	1.4	0.4	0.7	0.7
Household final consumption expenditure growth (CVM)	ABJR	1.5	2.0	1.1	0.7	0.8	..	..	..
GB new registrations of cars (thousands)[1]	BCGT	2,444	2,340	446	678	573	221	175	..
Labour market[2,3]									
Employment: 16 and over (thousands)	MGRZ	28,674	28,895	29,036	28,981	29,074	29,096	..	..
Employment rate: working age (%)	MGSU	74.7	74.6	74.5	74.3	74.4	74.4	..	..
Workforce jobs (thousands)	DYDC	31,042	31,409	31,608	31,602	31,689	..	..	..
Total actual weekly hours of work: all workers (millions)	YBUS	918.6	923.7	925.8	927.1	934.9	932.1	..	..
Unemployment: 16 and over (thousands)	MGSC	1,426	1,657	1,687	1,700	1,654	1,649	..	..
Unemployment rate: 16 and over (%)	MGSX	4.7	5.4	5.5	5.5	5.4	5.4	..	..
Claimant count (thousands)	BCJD	861.7	944.7	947.1	916.3	877.1	863.8	857.1	852.9
Economically active: 16 and over (thousands)	MGSF	30,100	30,552	30,723	30,681	30,728	30,745	..	..
Economic activity rate: working age (%)	MGSO	78.5	78.9	79.0	78.8	78.8	78.8	..	..
Economically inactive: working age (thousands)	YBSN	7,933	7,843	7,854	7,939	7,946	7,953	..	..
Economic inactivity rate: working age (%)	YBTL	21.5	21.1	21.0	21.2	21.2	21.2	..	..
Vacancies (thousands)	AP2Y	616.8	595.0	602.0	636.8	647.0	647.0	655.4	662.7
Redundancies (thousands)	BEAO	126	145	130	145	120	121	..	..
Productivity and earnings annual growth									
GB average earnings (including bonuses)[3]	LNNC	..	..	4.0	4.5	3.4	3.4	3.5	..
GB average earnings (excluding bonuses)[3]	JQDY	..	..	3.7	3.6	3.4	3.4	3.5	..
Whole economy productivity (output per worker)	A4YN	..	..	2.1	2.7	..	..	..	..
Manufacturing productivity (output per job)	LOUV	..	..	..	..	..	3.5	3.4	..
Unit wage costs: whole economy	LOJE	..	..	1.6	2.4	..	..	..	..
Unit wage costs: manufacturing	LOJF	..	..	..	..	..	0.3	0.8	..
Business demand									
Business investment growth (CVM)	NPEL	15.7	−4.3	4.6	−0.5	0.4	..	..	..
Government demand									
Government final consumption expenditure growth	NMRY	2.7	2.1	0.7	0.5	0.3	..	..	..
Prices (12–monthly percentage change – except oil prices)									
Consumer prices index[1]	D7G7	2.1	2.3	2.7	2.9	2.6	2.4	1.9	1.8
Retail prices index[1]	CZBH	2.8	3.2	4.0	4.5	4.4	4.4	3.8	4.1
Retail prices index (excluding mortgage interest payments)	CDKQ	2.3	2.9	3.5	3.7	3.4	3.3	2.7	2.7
Producer output prices (excluding FBTP)[4]	EUAA	2.1	2.3	2.6	2.6	2.3	2.1	2.2	2.4
Producer input prices	EUAB	11.7	9.5	3.4	−0.7	0.9	2.1	−0.3	0.7
Oil price: sterling (£ per barrel)	ETXR	30.36	35.93	31.64	29.95	34.05	35.50	37.22	35.47
Oil price: dollars ($ per barrel)	ETXQ	55.05	66.11	60.63	58.53	67.64	70.51	75.71	71.36

Seasonally adjusted unless otherwise stated

	Source CDID	2005	2006	2006 Q4	2007 Q1	2007 Q2	2007 Jun	2007 Jul	2007 Aug
								Seasonally adjusted unless otherwise stated	
Financial markets									
Sterling ERI (January 2005=100)	BK67	100.4	101.2	103.6	104.6	104.1	104.4	105.0	104.3
Average exchange rate /US$	AUSS	1.8197	1.8429	1.9169	1.9546	1.9870	1.9864	2.0338	2.0111
Average exchange rate /Euro	THAP	1.4629	1.4670	1.4854	1.4916	1.4732	1.4805	1.4821	1.4762
3-month inter-bank rate	HSAJ	4.57	5.26	5.26	5.56	5.93	5.93	6.00	6.55
Selected retail banks: base rate	ZCMG						5.50	5.75	5.75
3-month interest rate on US Treasury bills	LUST	3.92	4.89	4.89	4.91	4.68	4.68	4.82	3.74
Trade and the balance of payments									
UK balance on trade in goods (£m)	BOKI	−68,789	−77,563	−20,171	−20,605	−20,346	−6,535	−7,065	..
Exports of services (£m)	IKBB	115,182	124,586	31,596	33,231	33,986	10,807	10,814	..
Non-EU balance on trade in goods (£m)	LGDT	−31,912	−45,587	−12,529	−11,451	−10,724	−3,387	−4,480	..
Non-EU exports of goods (excl oil & erratics)[5]	SHDJ	119.8	118.0	112.6	115.2	115.3	122.2	115.6	..
Non-EU imports of goods (excl oil & erratics)[5]	SHED	116.8	124.4	127.7	126.5	128.3	132.9	138.0	..
Non-EU import and price index (excl oil)[5]	LKWQ	101.2	103.9	103.2	104.6	104.5	104.4	103.0	..
Non-EU export and price index (excl oil)[5]	LKVX	100.1	101.5	100.2	101.9	101.9	101.9	101.3	..
Monetary conditions/government finances									
Narrow money: notes and coin (year on year percentage growth)[6]	VQUU	3.1	5.1	5.1	4.1	4.8	4.8	4.3	..
M4 (year on year percentage growth)	VQJW	11.3	13.3	12.8	13.0	12.9	12.9	13.0	..
Public sector net borrowing (£m)	−ANNX	40,769	31,489	12,275	−2,902	16,363	7,266	−6,271	9,072
Net lending to consumers (£m)	RLMH	19,743	13,098	3,318	2,437	2,411	1,011	1,147	1,003

External indicators – non-ONS statistics

	Source	2007 Feb	2007 Mar	2007 Apr	2007 May	2007 Jun	2007 Jul	2007 Aug	2007 Sep
Activity and expectations									
CBI output expectations balance	ETCU	28	21	18	18	25	10	13	17
CBI optimism balance	ETBV			16			−2		
CBI price expectations balance	ETDQ	16	18	14	26	18	17	17	20

Notes:

1 Not seasonally adjusted.
2 Annual data are for April except for workforce jobs (June), claimant count (average of the twelve 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 59.

Independent forecasts

September 2007

UK forecasts

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

2007

	Average	Lowest	Highest
GDP growth (per cent)	2.9	2.5	3.0
Inflation rate (Q4, per cent)			
CPI	2.1	1.7	2.5
RPI	3.8	2.3	4.4
Claimant unemployment (Q4, million)	0.88	0.80	1.10
Current account (£ billion)	−46.3	−57.3	−29.2
Public Sector Net Borrowing (2007–08, £ billion)	33.6	23.9	40.0

2008

	Average	Lowest	Highest
GDP growth (per cent)	2.2	−0.3	2.8
Inflation rate (Q4, per cent)			
CPI	2.1	1.6	3.0
RPI	2.8	1.5	4.6
Claimant unemployment (Q4, million)	0.92	0.73	1.23
Current account (£ billion)	−48.1	−66.7	−25.4
Public Sector Net Borrowing (2008–09, £ billion)	32.5	21.2	40.2

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)	2.1	2.0	2.5	2.6
Consumer price (percentage change from previous year)	2.6	−0.3	2.0	2.3
Unemployment rate (per cent of the labour force)	4.7	3.7	6.9	5.6
Current account (as a percentage of GDP)	−6.1	4.8	0.4	−1.5
Fiscal balance (as a percentage of GDP)	−2.8	−2.7	−0.8	−1.9

2008

	US	Japan	Euro area	Total OECD
Real GDP growth (per cent)	2.6	2.2	2.2	2.7
Consumer price (percentage change from previous year)	2.2	0.4	2.1	2.0
Unemployment rate (per cent of the labour force)	4.9	3.6	6.6	5.4
Current account (as a percentage of GDP)	−6.2	5.4	0.4	−1.5
Fiscal balance (as a percentage of GDP)	−2.8	−3.2	−0.7	−1.9

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

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Using administrative data for statistical purposes

SUMMARY

This article sets out, from the perspective of the Office for National Statistics (ONS), thoughts on the use of administrative data for statistics purposes. Recent legislation gives wider opportunities to access tax data to substitute for survey data. In deciding how to pursue this advantage, important questions arise about data quality, cost and perceptions of confidentiality.

The article has four main sections. The first gives a general overview of the main types of sources for statistics. Further sections set out the ONS experience with administrative data, current plans and some of the challenges.

In June 2007, a version of this article was presented to the Third International Conference on Establishment Surveys in Montreal, Canada.

This article sets out some thoughts on the use of administrative data for statistics purposes from the point of view of a statistics producer. It is essentially a perspective from the Office for National Statistics (ONS), accepting that there are many uses of administrative systems for statistical purposes by administrative and policy departments not fully reflected here.

Recent legislation gives wider opportunities to access tax data to substitute for survey data. In deciding how to pursue this advantage, some important questions arise:

- how will data quality issues be managed?
- what will it cost and will it save money?
- how will perceptions around confidentiality be managed?

In all these issues, other countries have vast experience which will help. The article has four main sections. The first gives a general overview of the main types of sources for statistics. Further sections set out ONS experience with administrative data, current plans and some of the challenges.

Overview of sources for statistics

There are three primary sources of UK statistics: administrative systems, censuses and surveys.

Administrative statistics are the by-products of (usually) large scale administrative systems. By their very nature, these statistics are often primarily used to manage those systems or measure their effectiveness and efficiency. Administrative statistics were among the first statistics produced by government, for example, as compulsory registration of vital events took over from parish registers in the 19th century, and as trade statistics were generated by tariff administration and other trade controls. In a similar way, all government departments and agencies collect information about their staff, expenditure, receipts, activity, output, and so on. While the predominant use is for management and monitoring purposes, many are turned into statistical series and published to enable the rest of government and the population at large to judge government performance and to contribute to a picture of the economy and society. ONS currently uses a range of these data from across government, for example, NHS local registers for migration of patients between areas, and a sample of national insurance numbers for the Annual Survey of Hours and Earnings. In general, these administrative systems are managed by government departments, and ONS requires a legal gateway to enable it to receive such data where they are disclosive, such as unit record data. These legal gateways do not generally allow ONS to receive substantive information from these records, just the basic information about the entity of interest. Thus most statistical analysis from these systems is produced by the departments themselves and this forms part of the wider UK statistical system.

Like most administrative sources, censuses aim to cover the whole population of interest. Thus the population censuses cover all people living in every residential address in the UK. The major advantage over administrative sources is that a census can be specifically designed to measure the

population of concern, and each element in its design can be statistically controlled. Even a census is not fully comprehensive and needs to be supported by a coverage survey to provide a complete measure of the population. The major drawback of a census is the cost.

Sample surveys have developed as a whole branch of statistics in their own right. Statistical methods determine how representative samples are taken from a population of people, businesses and so on and how attributes for the whole population are estimated, within known error or confidence limits. These methods are now used extensively by National Statistics Institutes and many other bodies worldwide. Not only do they enable the production of estimates at a known level of accuracy at a lower cost and more speedily than a census, but they can research an issue in greater depth. Interviewer expertise can be developed (for face to face and telephone collection) – a smaller number of observations collected well will have higher quality than a larger number collected poorly. Sample surveys are generally more flexible than administrative sources as they can be designed to meet a precise purpose as opposed to being the by-product of another system. However, they cannot produce precise detailed statistics and are highly dependent on high-quality registers.

These three primary data sources are used to provide single source statistics in their own right – census reports and survey publications, but are also often combined to provide more complex secondary statistics – index numbers, labour market analysis and using conventional frameworks such as the National Accounts and mid-year population estimates. Repeated in a consistent way over time, these sources provide valuable time series, and most importantly statistical registers, which form the basis of sampling frames for surveys as well as a source for further analysis. Taken together they provide the source material for all ONS statistical analysis.

Current ONS experience with administrative data

There are four main statistical uses of administrative data in ONS: analysis as a single source, use linked with other sources for analysis, neighbourhood statistics, and in register building. Each of these is considered below.

Single source analysis

Statistics which are a single source product of an administrative system are widely used

in the management of that system and to assess policy options for change. Targets have become an important part of the assessment of government performance, and many of these targets – whether they are examination performance, hospital waiting lists or crime statistics – are statistics produced from the systems which administer these policies. Such statistics are often held in departmental management information systems and are used for internal management purposes as well as for providing measures for external accountability. This dual purpose leads to challenges of integrity: in recent years both the Royal Statistical Society and the Statistics Commission have published reports on the use and challenges of statistics for performance indicators.

Linked sources

Two well-known linked sources are the ONS and the Department for Work and Pensions' (DWP) Longitudinal Studies. Both are good examples of how linked data can assist policy analysis.

The ONS Longitudinal Study (LS) contains linked census and vital event data for 1 per cent of the population of England and Wales. Information from the 1971, 1981, 1991 and 2001 Censuses has been linked, along with information on births, deaths and cancer registrations. At each census, data on slightly more than 500,000 sample members are added. During the 30 years of the study, around 1 million people have been recorded in the sample at some point.

The study was set up in the 1970s to meet the need for better data on mortality and fertility. Since then it has been used to address a wide range of research questions including studies of social mobility, ageing and migration. Studies that make the fullest use of LS data are those that link social, occupational and demographic information at successive censuses to data on vital events, such as studies of mortality, cancer incidence and survival, and fertility patterns.

Introduced in January 2004, and enhanced in October 2005, the Work and Pensions Longitudinal Study (WPLS) links benefit and programme information held by DWP on its customers, with employment records from HM Revenue & Customs (HMRC). New data-sharing provisions introduced in the Employment Act 2002 enabled DWP to receive further data on employment from HMRC and use the information for wider purposes. DWP and HMRC have been working together to progress this initiative and to develop safeguards.

The WPLS offers DWP the opportunity to significantly improve both its analytical evidence base and its operational effectiveness. It supports the Department's agenda for child poverty, welfare-to-work and retirement income planning policy, and enables it to find out more about what works and what does not. This allows the department increasingly to target resources to the appropriate people, in the appropriate way.

Neighbourhood Statistics

The Neighbourhood Statistics website (www.neighbourhood.statistics.gov.uk/) provides a powerful platform through which a wide range of high-quality small-area statistics is disseminated to an expanding audience of users involved in regeneration, to the local public sector and to the wider population. Neighbourhood Statistics were developed following the Social Exclusion Unit's 1998 report on deprived neighbourhoods. That report recognised that government plans for the regeneration of the inner cities would be hampered by poor data availability. At the time there were few statistics available at a low geographic level. What did exist was held by individual departments and was not underpinned by consistent definitions or approach. Following a six-year development programme, the small area statistical landscape has been transformed.

Administrative sources have been the backbone of the neighbourhood statistics development, enabling the website to provide analysis at local area level for: access to services; community wellbeing; crime and safety; economic deprivation; education, skills and training; health and care; housing; population and migration; physical environment; and work deprivation, as well as the results of the 2001 Census.

Registers

Registers, requiring comprehensive coverage, are normally derived primarily from administrative systems but are often augmented by information from survey sources. ONS uses two basic registers whose main purposes are as sampling frames for its various surveys.

The postcode address file. This is created by Royal Mail to plan postal delivery work. In the absence of a comprehensive population register, it is the most frequently used sampling frame for household and person surveys, although it depends on postal delivery staff to keep it up to date. It is a key asset as it allows

stratification of samples by geography and clear identification of the address to target. It has little information about the other characteristics of addresses, and no information on who is resident at each address.

The Inter-Departmental Business Register. The IDBR is the comprehensive list of UK businesses that is used by government for statistical purposes. It provides a sampling frame for surveys of businesses carried out by ONS and by other government departments. It has enough information, for example, about size and industry, to enable efficient sampling stratified by these characteristics. It is also used in its own right to produce basic information about the structure of business in the UK and how it has changed over time.

The business register is based on inputs from three administrative sources:

- traders registered for value-added tax purposes with HMRC
- employers operating a pay-as-you-earn scheme, and
- incorporated businesses registered at Companies House

The ONS Business Register Survey and other surveys supplement these administrative sources, identifying and maintaining the business structures necessary to produce detailed industry and small area statistics.

The IDBR covers businesses in all parts of the economy, other than some very small businesses (self-employed, and those without employees and low turnover) and some non-profit making organisations. With 2.1 million businesses listed, it provides nearly 99 per cent coverage of UK economic activity.

Current plans and future directions

The Statistics and Registration Services Act 2007 provides a major opportunity to extend the availability of administrative sources for statistical purposes. It enables ONS to receive administrative data from other government departments, subject to the agreement of that department, provided Parliament agrees each specific case. The Act will come into force in April 2008, and the Government Statistical Service is now developing a strategy for taking forward its provisions. Greater access to administrative data will bring significant benefits to UK statistics in a number of areas. The main benefits are:

- improved analytical capability in areas such as measures of economic activity, the labour market, pensions analysis, income and wealth, population and migration statistics, and measures of ethnicity and diversity
- improved local area analysis – the strength of administrative data in covering whole populations enables local area analysis to be produced to a level of detail not permitted by sample surveys
- reduced costs to business – replacing survey data with administrative sources enables sample sizes of surveys to be cut, reducing the form filling cost to industry

Looking to the future, it is clear that analysis of administrative sources at unit record level, often using linked data sets, is a growing area of competence for government statisticians. Its wide coverage and detail enables specific analysis of policy issues which aggregate survey results cannot address. Policy issues are increasingly cross cutting as interest grows in causal relationships across the economy and society.

Questions such as:

- why do some small businesses grow and others do not?
- what causes innovation?
- what are the determinants of poverty?

can only be answered by linking administrative data sets with each other and with survey data. While administrative data provide the impacts of policy measures, censuses and surveys provide the important demographic and structural characteristics that are needed.

There are two areas where the need for better use of administrative data is well established and is a priority for ONS:

- to reduce business survey compliance costs
- to improve population statistics

Both these uses will require integration of administrative sources with survey data at unit record level. Integration of unit record business data into business surveys (mainly for small businesses) to replace survey collection will be a new venture for ONS. There is considerable international experience, in the Nordic countries, and in Canada, so much can be learnt from them. Data editing and modelling routines will need to be looked

at carefully to ensure the best use is made of these data.

ONS has conducted a limited feasibility study to look at using corporation tax records to replace some collection from the Annual Business Inquiry (ABI). The ABI is the main annual survey collecting structural data for the National Accounts. It collects the main components of value added. In this respect it has similarities with corporation tax returns made to HMRC. ONS has obtained authorisation for a limited matching exercise for these two data sources, under confidential conditions, and the first results are now becoming available. These indicate that, for smaller companies (those with a simple structure), there is a straightforward match for 85 per cent of records and, with further matching effort, this proportion rises to 99 per cent. For nearly half the cases where the units matched, the turnover figures were within 5 per cent. However, for a quarter of businesses, the differences exceeded 25 per cent. Further work on the causes of the major differences is continuing. If this work is successful, tax data can be used to reduce substantially the statistical reporting burden for smaller companies.

A second initiative is the new population statistics strategy which aims to provide a long-term vision for population statistics. The decennial Census traditionally provides benchmark population statistics updated with mid-year estimates from registration sources. But this has not been robust in the face of population changes and changing user needs. Populations have become more mobile and residency arrangements and household structures have become more complex. In addition, there are needs for increased frequency, and a more flexible counting base, for example, usual residence and daytime/service population. Users require improved accuracy and more confidence in the estimates and have a strong demand for more small area statistics. The main components of the proposed system are:

- a high-quality address register
- a possible population register
- the integrated household survey integrating continuous household survey data
- a linked statistical database, linking administrative and survey data at individual and household level
- a full Census for 2011 which potentially enables census and statistical databases to be linked to create a population statistics database

The statistical challenges

Given the essential differences between administrative statistics and those based on survey samples, there are inevitably some importance differences in their attributes, their quality and their appropriateness for particular purposes. There are important challenges in how a statistics office manages data quality issues; whether this will add significantly to cost or save money; and issues of public perception of confidentiality.

The most important defining aspect of administrative statistics is their linkage with that administrative system. That linkage brings advantages and drawbacks. While the resulting statistics will be highly relevant to the management of that system, attempts to use them for broader purposes immediately lead to quality issues which can be expensive to remedy, and can lead to misleading conclusions. A major perceived advantage of administrative data is that they might be essentially cost free. The administrative system exists for its own purpose and bears its own cost. Producing summary statistics often requires minimal marginal cost. This saving can be illusory, especially if the statistics are used to measure aspects not closely related to the domain covered by the administrative system. So a social security system can be used to produce statistics showing the operation of that system, at low cost, but attempts to use those statistics to derive measures of poverty will usually require additional cleaning, and possibly matching with other data sources, or modelling, which can all be expensive and testing for the quality of those estimates.

The second major advantage is that administrative statistics usually cover the whole of their particular population. This allows analysis of small population groups and is especially useful for those interested in rare populations, small geographies and local area information. However, the population measured is that covered by the administrative system, which may not be the population of interest for analytical purposes. Although administrative databases can be large and unwieldy for analysis, this can be overcome by sampling.

Administrative statistics will be regularly updated by the administrative system, but their timeliness will be driven by the needs of that system. Tax records can be slow; birth registrations can be quick. Essentially the close linkage with the administrative system, while potentially bringing benefits, can also be a significant drawback. All the attributes of administrative statistics are set by the needs of the administrative

system. As a by-product, analytical needs have very little influence over any aspect of the system. Thus, questions of definition, units, classification, coverage, methodology, frequency and timing are determined necessarily by consideration of the administrative system of interest. Changes in policy and administrative practice can have serious implications for resulting statistical measures and time series. Adding further items of information, improving data cleaning or changing definitions will often improve statistical quality, but will usually impose large administrative costs which the owner of the administrative system is often unwilling to bear. If systems fail (as has recently happened with birth and death registrations in the UK), the departmental priority will be to fix the administrative system, leaving statistical uses until later. It is more important to register deaths quickly than to produce the statistical analysis of deaths.

By contrast, sample surveys are usually specifically designed for analytical purposes, so the coverage, definitions, methodology and timing can be designed to meet analytical needs. However, sample sizes can be small – large-scale surveys are expensive, and small-scale surveys have limited use for analysing small populations or local areas. Samples are subject to sampling error and non-response bias. Non-response bias is partly related to response rates, and household survey response rates have been falling over the last ten years, raising concerns about the continued accuracy of survey outputs. In addition, there cannot be any certainty in the accuracy of business survey responses compared, for example, with administrative data collected for tax purposes. Furthermore, surveys impose some compliance cost on

respondents – whether they are statutory surveys of businesses or voluntary surveys of individuals. Administrative systems may include some collection of data from individuals, such as medical records, but the individuals concerned will see this as a necessary part of the administrative process rather an additional statistical burden.

A key issue is therefore how much influence statisticians can have on the design and operation of administrative systems. In international discussions, statisticians from other countries are often negative about the extent of this influence.

The UK position is more fortunate. UK statisticians work in policy departments on administrative data sets. They are in a good position to influence the characteristics of those data sets, and are in the Government Statistical Service – so can appreciate wider statistical needs across government.

The advantages and disadvantages of these two sources can be summarised according to the different dimensions of quality as illustrated in **Table 1**.

Statistical quality measurement is based on a set of well-understood techniques. Non-sampling errors are often measured through analysis of the process or external comparisons with other data sources. These measures are not always available for administrative data sources, making the measurement of their quality more problematic. In addition, little may be known about the quality of new potential statistical sources, and how difficult this will be to assess.

It is not surprising that many statistical agencies have often favoured the use of surveys over administrative data given the greater control possible over quality, and the difficulties some have in gaining access to

Table 1

Illustrating some of the different aspects of quality for administrative and survey sources

Dimensions of quality	Administrative data	Sample surveys
Relevance	Definitions and coverage will be relevant to the administrative system, rather than the analytical need. Good source for detailed and local area analysis.	Surveys can be designed to be relevant to the analytical need. Quality for detailed analysis is constrained by sample sizes
Accuracy	Subject to non-sampling error. Not under the control of statisticians	Subject to sampling as well as non-sampling error. Under statistical control
Timeliness	Some sources (eg tax data) less timely than surveys	Many administrative sources very quick. Surveys subject to response times.
Accessibility	Depends on legal structure. May also be technical and institutional barriers	Under direct control of the statistical agency
Comparability	Dependent on changing administrative definitions over time	Under direct control of the statistical agency
Coherence	Often enables data linking if common identifiers exist	Depends on common registers

administrative records. But at a time when governments are particularly looking at reducing the cost that they impose on society and business, there is a continued drive to reduce survey compliance costs. The UK has a good record of measuring and reducing these costs, but is looking for a significant further reduction of 25 per cent over the next ten years; a reduction which can only be achieved by replacing some survey data with administrative data if adequate statistical outputs are to be maintained. The challenge for the statistician is how to achieve this without losing statistical control over definition and methods and without lowering statistical quality.

A further challenge concerns perceptions of confidentiality. Many of the strongest benefits for statistical analysis come when it is possible to link administrative records from different systems together, or when they can be linked with population censuses or surveys. All this linking must be done under statistically controlled conditions, but it offers powerful analysis of some of the cross cutting policy issues of wide interest to governments and the public. Linking censuses and surveys with tax and benefit records provides an analysis of the demographic and household composition for those in poverty. Linking with educational achievement records provides insights into one cause of poverty. These linking studies require a common identifier to link the records, which is not always available for the relevant data sets. It also requires a public understanding of the way that these records are being linked and the differences between linking data sets for statistical purposes and linking for administrative or policy purposes. When linking is for statistical purposes, it all takes place within a statistical authority and the only information to leave that protected domain is in the form of non-disclosive analysis, providing useful insights into characteristics of the population or businesses, but not providing any information which could lead to any disclosive inferences being drawn

about individuals or businesses. This is not well understood publicly, and with keen interest being shown on data privacy issues, statisticians need to proceed with caution.

Conclusions

It is clear that administrative sources, censuses and surveys each have their own strengths and weaknesses. The impression of this author is that the UK statistical system is more survey-reliant than many other countries and has traditionally made less use of administrative data for wider statistical purposes, partly because of the lack of a comprehensive population register. With a growing focus on reducing compliance costs; increasing interest in local area information; and in cross cutting policy analysis requiring data linkage, ONS is reassessing the place of administrative data in the UK statistical system. The new Statistics and Registration Services Act provides the means for this.

However, there is continuing need to bear in mind the relative quality attributes of administrative and survey data. Increased use of administrative data will require quality issues to be addressed and this may mean that the idea of administrative data as a 'cost-free' source may be illusory. Solutions will need to be sought in two ways. Firstly, it will be important for statisticians to work more closely and have more influence with the owners of administrative sources. This is the only way to ensure the maximum analytical use of these sources, through the use of common statistical definitions and classifications. In the UK, government statisticians are well-placed to exert this influence. Secondly, statisticians will need to develop and invest more faith in automatic editing procedures which clean data without requiring contact with the data subject. This will be especially important for variables which are of little interest to the administrative data owner, but of greater interest to the analyst.

Finally is the issue of public perception of confidentiality. This may limit the speed at

which progress can be made, building trust along the way.

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The treatment of pensions in the National Accounts

SUMMARY

This article explains the important concepts and principles that apply in the National Accounts with regard to pensions. The impact of different types of pension schemes in the sector accounts is described (concentrating on the household sector), and the different ways in which pension schemes affect key statistics such as gross domestic product, gross disposable income and the household saving ratio are discussed.

Pensions are a means of providing an income to a person who has retired. That is not to say that all sources of post-retirement income are pensions, but for many people pensions are a significant part of their planning for retirement. The right to a pension is usually obtained by making contributions while working and the benefits are due after retiring. As such, people tend to view pensions as a form of 'deferred pay'. It is the role of the National Accounts to record this payment, but when it is recorded, where in the accounts, and what value, are all dependent on the type of pension scheme under consideration.

To illustrate the diversity of pension schemes in the UK, consider the following:

- the state pension
- the state second pension
- personal pensions
- personal stakeholder pensions
- group stakeholder pensions
- teachers' pensions
- company final salary schemes
- company pensions

The methods used in the UK National Accounts are consistent with the EU's *European System of Accounts 1995* (ESA 95), which is in turn consistent with the UN's *System of National Accounts 1993* (SNA 93). Although most of these types of pension were in existence and available in the UK when these manuals were written, it is probably fair to say that householders are taking advantage of a wider range of pension products (whether through choice or compulsion) than ever before and that the pension market as a whole is markedly different in character compared with how it was even ten years ago. With the pension market as dynamic as it is now, anyone interested in some of the National Accounts' key statistics, such as gross domestic product (GDP), real household gross disposable income or the household saving ratio, will want to know how these statistics are affected by pension transactions.

The National Accounts attempt to capture the economic reality underlying the activities taking place in the UK. It is important to realise that UK law, for example, makes distinctions that do not necessarily accord with economic reality. This might be because of ease of regulation, historic causes, moral standards and so on. The National Accounts are not the same as the business accounts of a large company. The importance of price indices and 'real' growth rates in National Accounts is a good example of how they aim to illustrate economic reality rather than simply present the financial transactions of 'UK plc'.

Classifying schemes

There are various ways in which pension schemes may be classified. A glance down table 6.1.4S of *The Blue Book* (ONS 2007a) gives an indication of the distinctions employed in the National Accounts. 'Social', 'funded', and 'employers' indicate some of the more significant concepts in the present context.

'Social' is a key National Accounts concept, and the first to bear in mind when considering a pension scheme. Part of the SNA definition is as follows:

one or more of the following conditions must be satisfied:

   (a) participation in the scheme is obligatory either by law for a specified category of worker … or under the terms and conditions of employment …;
   (b) the scheme is a collective one operated for the benefit of a designated group of workers … participation being restricted to members of that group;
   (c) an employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, whether or not the employee also makes a contribution. (*SNA* 4.87)

So schemes where the employer is involved fall under the 'social' concept, since they satisfy (b) and probably (c), whereas a personal pension taken up by an individual to supplement their state pension would not be. On the other hand, it may be that some schemes now being developed go beyond what SNA 93 had in mind and classification may be less clear cut. In the case of 'group personal pensions' (GPPs), which have been classified by the Office for National Statistics (ONS) as personal (non-social) pensions, there are two slight ambiguities. First, government rules now require individuals to participate in the state second pension or an approved

personal pension – GPPs count as approved pensions. Second, whether the scheme is collective or not is a grey area. GPPs might be offered collectively, but there is nothing collective about the pensions when they are taken out – the relationship is between the individual and the pension company, not the employer.

'Funded', applied to a pension scheme, means that there is a specific financial fund to which contributions are made and from which benefits are paid. By contrast, an unfunded scheme is one where there is no specific reserve: for example, the UK state pension is unfunded, because it is paid for through general taxation. Describing a pension scheme as 'funded' does not itself mean that it is able to pay out the benefits that the scheme's members may expect – a funded pension scheme may be 'underfunded' or 'overfunded'. The existence of this fund is important when starting to look at the flow of pension-related money through the National Accounts. Funded schemes in SNA 93 can be divided further between those that are autonomous and those that are non-autonomous. This distinction is of little importance in the UK and can be ignored.

There are other distinctions which are of major interest to commentators. One is whether or not a scheme is a final salary scheme. This phrase does not appear in the National Accounts. In these schemes the amount of benefit is determined by

factors such as the length of service and the employee's salary, and not particularly by the amount that has been contributed. These schemes are called defined benefit schemes in the SNA. Although they are not singled out in the National Accounts, the major public sector final salary schemes are identified, so that the contributions made to them by employers and employees and the benefits paid out by them can be seen. Since the fall of the stock exchange in 2001, there has been a major switch taking place in the private sector, with defined benefit schemes closing and replaced by defined contribution ones. In the private sector in 2005, there were an estimated 12,000 defined benefit schemes compared with about 18,000 in 2004. Between 2005 and 2006 the number of active members of defined benefit schemes in the private sector fell by 0.31 million to 3.35 million. During this time the membership of defined contribution schemes increased from 1.02 million to 1.09 million (ONS 2007b).

Another distinction of interest to commentators is that between occupational and non-occupational, but this distinction is not of much concern to the National Accounts as such; the differences between the two are largely captured by the social concept described earlier (the state pension being the major exception – it is not occupational but is a social scheme).

The pension schemes listed earlier can be classified in **Table 1**.

Table 1
Classification of pension schemes

	Social	Defined benefit	Funded
State pensions	✓	✗	✗
Personal pensions (including stakeholder)	✗	✗	✓
Group personal pensions (including stakeholder)	✗	✗	✓
Teachers' pensions	✓	✓	✗
Company final salary schemes	✓	✓	Probably
Company pensions (not final salary)	✓	✗	✓

Pension funds and 'property income'

The existence of a fund means there are reserves which in some sense belong to the household sector. The economic reality is that these funds are a form of saving by the household sector, but are being managed within the financial corporations sector. So the National Accounts create a 'net equity of households in pension funds' (coded as AF.612 for social pension funds) which

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Box 1
Household sector and 'NPISH' sector

In the National Accounts, institutions are allocated to a sector. There are five broad sectors: financial corporations (such as banks and insurance firms); non-financial corporations (such as supermarkets and manufacturing industries); general government (local authorities and central government); households; and rest of the world. The household sector includes long-term residents of institutions such as prisons, care homes and monasteries. Another sector, the non-profit institutions serving households (NPISH), is included with the household sector in the UK National Accounts. This sector includes charities, trade unions, political parties, state-funded universities, churches and other types of units.

Box 2
Principle 1

Pension funds belong to the household sector. (*SNA* 11.93)

Box 3

The liabilities of unfunded schemes

According to the SNA, there is no liability to be recorded for unfunded pension schemes because there is no fund. This has been the cause of much discussion, with many commentators arguing that these schemes have a liability irrespective of the existence of a ring-fenced financial fund. In spring 2008, the UN is expected to publish the new revision of the SNA, to be implemented in 2012, and there is likely to be some attempt to record this, perhaps in a satellite account.

is an asset of the household sector, whose counterpart is a liability on those financial corporations, effectively 'returning' the reserves back to the household sector. (This reflects economic reality – whoever controls the fund is in charge of a big pot of money, and will be investing it in various assets, so the National Accounts ought to record the activity within the financial corporations sector; but ultimately the money belongs to the household sector, and the National Accounts record it as well in the form of this net equity.) The net equity is found in the financial balance sheet (it is part of AF.61, which includes the net equity of households in life insurance funds and non-social pension funds) as an asset for the household sector – see Table 6.1.9 of *The Blue Book* and Table 4.4.8 for the liability to the financial corporations.

The money being invested by pension funds normally makes a return, and this ultimately belongs to scheme members. It is 'new' money for them which appears early on in the sequence of accounts – in the allocation of primary income account in fact – and is recorded as paid by the financial corporations sector. This is the item known as 'property income attributed to insurance policy holders' (coded as D.44) in Table 6.1.3. This item includes money associated with insurance and all funded pension schemes, both social and personal.

For unfunded schemes, including the state pension and some defined benefit schemes, there is no property income because there is no fund. Nor is there any 'net equity of households in pension funds'.

Flows of money through the National Accounts

The diagrams in **Figure A1** of the Appendix show the flows into and out of the household sector for the next sections. The numbers on the arrows are intended to give an idea

of the size of the flows involved in 2006, in £ billion, but are not all necessarily accurate.

Rerouting

Intuitively, the flow of pension money should be quite simple. In an occupational scheme, there appear to be three major flows. Money flows from the employer to the pension scheme (the employer's contribution), from the employees to the same scheme (employee's contribution) and from the scheme to the retired members (the pension benefit). Similarly, in this intuitive approach, there are just two flows in personal schemes (with no employer's contribution).

However, the economic reality – which is what the National Accounts are trying to record – is that the employer's contribution is part of the employee's remuneration package. It might not count as part of their salary to other people (the taxman, for example), but it is their money, according to Principle 1. It is counted as part of 'compensation of employees', a concept that is wider than 'salary'. The SNA is very clear on this point:

> Although it is administratively more efficient for employers to pay the contributions on behalf of their employees, this must not be allowed to obscure the underlying economic reality. The payment made by the employer … is not, in fact, a current transfer by the employer [to the pension fund]. The transfer takes place between the employee and the social security fund… out of remuneration provided by the employer. (*SNA* 8.67)

This requires 'rerouting' in the National Accounts. The employer's contribution goes to the employee's pension scheme via the employee. In fact, the following principle needs to be borne in mind: all contributions made to a pension scheme are made by households.

For those contributions that appear to be

made by someone else, rerouting ensures that it is recorded as a household resource first, then paid on by the households. This explains why, in the secondary distribution of income account (see Tables 6.1.4 and 6.1.4S of *The Blue Book*), employers' contributions appearing in the household sector's 'use' can be seen; this money appeared as a household 'resource' in the allocation of primary income account (in Table 6.1.3).

Another example of rerouting was seen earlier in this article. The property income attributed to insurance policyholders is a rerouting of money from the fund to the pension holder because it is part of household saving. In fact, this money does not cross the boundary between the scheme operator and member until the pension benefits are actually being paid, but the underlying economic reality described by Principles 1 and 2 still holds, and this is what the National Accounts aim to record. The rerouting ensures that these principles are adhered to.

Imputed contributions

The National Accounts also record imputed contributions by employers. These are estimates of the contributions made by employers (usually public sector) into unfunded schemes to keep the schemes running. (An employer running an unfunded scheme is incurring a cost, and this is part of the cost of employing the members of the scheme, so is part of the compensation of the employees.) These imputed contributions are rerouted just as seen before, enabling the contribution to a pension scheme to be made by the households. The value of these imputed contributions is estimated on the basis of what the scheme currently needs to pay the benefits that are currently due. This is in marked contrast to funded schemes, which (if being run responsibly) calculate the required contributions on the basis of actuarial estimates of benefits due in the future. (In fact, for the central government

Box 4

Principle 2

All contributions made to a pension scheme are made by the household sector.

final salary schemes – including the NHS, teachers, armed forces and civil service schemes – ONS uses calculations by either the Government Actuary's Department or private sector actuarial firms appointed by some of these schemes. These funds are called 'notionally funded', but nevertheless are classified as unfunded schemes.)

Contributions and benefits

When contributions are made (including the employer's actual and imputed contributions) to a social scheme, this is recorded in the secondary distribution of income account as money leaving the household sector. Once the benefits start being received, this is recorded as money coming into the sector. In this way this account is reflecting a kind of 'cash reality', and these flows contribute correctly to the 'disposable income' which closes the account.

For funded schemes there is another aspect to consider. The contributions that are made to them are being used to acquire a financial asset, the net equity of households in pension funds. Benefits deplete this asset. Money that is used to acquire a sector's financial assets comes from that sector's savings. So the treatment of funded social schemes in the earlier account means that there is a danger of recording an incorrect figure for household saving.

The point is that, according to Principle 1, this net equity belongs to the household sector and so can contribute to household saving. Another bit of rerouting needs to take place in the form of the 'adjustment for the change in the net equity of households in pension funds' (also known as the D.8 adjustment), in the use of income account (which follows the secondary distribution of income account), so that this principle is followed.

The overall result is that the 'cash reality' – contributions to social schemes flow out of the household sector and benefits flow in – is reflected in the secondary distribution of income account, while the 'financial reality' – contributions to a funded scheme are a form of saving and benefits a drawing down of a financial asset – is reflected in the use of income account.

Personal pensions are treated rather like funded social schemes in that contributions to them and benefits from them have an impact on the financial accounts and are part of household saving. But they have no impact on the secondary distribution of income account (and so there is no need for a D.8 adjustment). This represents an important caveat to the notion that the secondary distribution of income account reflects the 'cash reality' of pension schemes. Only social schemes count here (**Table 2**).

GDP

It has been seen that the flow of pensions-related money in the National Accounts can get complicated. It would be useful to know which flows impact on GDP.

For a funded scheme run by the financial corporations sector, there is an estimate made of the financial service produced by the scheme. This service may be charged explicitly by some funds as a management fee, but is often an implicit charge. In the National Accounts this charge (the 'output' of the fund) is estimated by taking the net contribution (all contributions minus benefits paid out), then subtracting the increase in size of the fund (the D.8 adjustment). This output contributes to GDP (the 'production measure' of GDP).

No such output is estimated for unfunded schemes (whose service charges are considered to be absorbed in the general costs of the scheme provider).

This financial service is paid for by the household sector. It is part of household 'final consumption' and so contributes an equal amount to the 'expenditure measure' of GDP. Looking at the estimate of a fund's output or service charge, it may be seen that the D.8 adjustment is not simply the difference between contributions (including property income) and benefits. That is, the change in the size of the fund is not simply the net contribution. The gap between these two is what is taken to be the service charge.

Increased contributions by employers to social schemes look as though they might lead to an increase in GDP because the contributions count as compensation of employees, a constituent of the income measure of GDP. But employers making more of these contributions will be eating into their gross operating surplus instead (another important constituent of the income measure). So there is no net effect on GDP in this case.

Disposable income and the saving ratio

Disposable income is the balancing item of the secondary distribution of income account, and represents the money

Table 2
Contributions to, and benefits paid by, social pension schemes

											£ billion
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Funded schemes	Contributions	46	47	50	52	54	59	65	69	80	88
	Benefits	30	33	35	38	37	40	42	43	47	51
Unfunded schemes	Contributions[1]	64	68	72	77	81	83	92	99	107	111
	Benefits[2]	47	48	50	53	56	61	64	66	71	74
	Benefits[3]	57	58	59	62	65	70	73	76	80	84

Notes: *Source: Office for National Statistics*
1 This includes contributions to the National Insurance fund.
2 These benefits include the state pension but exclude other National Insurance benefits.
3 These benefits include all the National Insurance benefits.

Box 5

The service charge of pension funds

Suppose Anna has £100 to put into her funded social pension scheme. She thinks this will count as £100 of her savings. She knows that in the National Accounts the £100 will be transferred out as D.6112, but expects this to be corrected by the D.8 adjustment. So why has a national accountant told her that the adjustment is only £99? He explains to Anna that he has seen her pension asset has increased by only £99, so she has effectively paid a £1 service charge to the financial corporations sector. That means the D.6112 flow is £99, not £100, Anna's expenditure has increased by £1 and her saving has increased by £99, not £100. Meanwhile Faisal also has £100 he wants to put into his pension scheme, which is a personal one. He is told that his financial assets have also increased by £99, so he has paid a similar charge of £1 to the financial corporations sector and has again saved £99, not £100. But because Faisal's pension is a personal, not social, scheme, the non-financial 'D' flows in the secondary distribution of income account do not take place.

households have available to spend. ONS also publishes real household disposable income, to enable looking at disposable income over time with price effects (inflation) removed. The flows of money associated with pensions which impact on disposable income are not simply price effects and so will also have an impact on real disposable income.

Household saving is the balancing item of the use of income account. It represents the money left for householders to save or invest, after they have spent their disposable income. But it is not simply disposable income minus expenditure, because the D.8 adjustment is included (this is money that will be invested in funded social pension schemes, so must be counted as part of household saving). A key statistic of interest is the households' saving ratio, which is this saving figure expressed as a proportion of disposable income (including the D.8 adjustment).

Bearing in mind the different ways that funded social schemes, unfunded social schemes and personal pension schemes impact on the secondary distribution and use of income accounts, the impact of these pensions on real disposable income and the saving ratio can be worked out. It has to be remembered that real disposable income is derived from the secondary distribution account and the saving ratio is derived from the use of income account.

For unfunded schemes, when a contribution is made, this is money which departs from the household sector in the secondary distribution account, so detracts from real disposable income. It also has the effect of reducing the saving ratio because the contribution is no longer there to feed through into the use of income account. When initially receiving the benefit (for example the state pension) this adds to real disposable income, and is able to contribute to the saving ratio as well.

In the case of personal pensions, the situation is reversed: contributions are included in disposable income and saving (because they are a form of investment), while benefits are not.

Funded social schemes share features with both unfunded and personal schemes. It might be said that they look like unfunded schemes in the secondary distribution account, so have similar impacts on disposable income, while they look like personal pensions in the use of income account, and so their impact on the saving ratio is similar to personal pensions (**Table 3**).

The impact of 'property income attributed to insurance policy holders'

Table 3
Which flows contribute to real household disposable income and the saving ratio

		Real disposable income	Saving ratio
Funded social schemes	Contributions	Excluded	Included
	Benefits	Included	Excluded
Unfunded social schemes	Contributions	Excluded	Excluded
	Benefits	Included	Included
Personal pension schemes	Contributions	Included	Included
	Benefits	Excluded	Excluded

(D.44) is also worth considering. The investment returns relating to pension funds add to disposable income and saving; without them, contributions would have to be a lot higher to keep the funds at similar levels, or benefits would be a lot lower to reflect the smaller funds.

Increased participation in personal pensions, all other pension activity being equal, would count towards saving, if the money being used to make contributions would have been used on consumption instead. But pensions in this case are treated in much the same way as any other financial investment – householders cutting back on expenditure to invest in an ISA, for example, will also be increasing the saving ratio.

Looking to the future

This article has described some of the key issues to bear in mind when considering the impact of pensions in the National Accounts. There are likely to be a number of changes in the forthcoming revision of the SNA expected to be published by the United Nations in spring 2008 and to be implemented in 2012. One aspect that has generated much discussion has been the fact that unfunded schemes have no liability recorded in the financial accounts. Another (closely related) has been the presentation of the pension entitlements of government employees. The UN's website on the SNA will let the interested reader follow the discussions that have taken place. ONS has pointed out that including liabilities for government unfunded schemes would change the government debt to GDP ratio from below 40 per cent to about 100 per cent, while increasing the household saving ratio.

The different treatment accorded to social and personal pensions in the National Accounts makes it difficult to make comparisons. ONS has published a number of articles about private (non-state) pension contributions (see Tily *et al* 2004, Tily and Penneck 2005, and Wild 2007), with better

estimates of contributions to these schemes in the light of improvements to surveys and methodology, and including personal pensions. Much of this work has built on the comprehensive analyses of pension statistics carried out by Adair Turner and the Pensions Commission.

It should be remembered that the increased diversity of the pensions industry makes it less and less appropriate to look to simple measures such as contributions or household saving for an indication of the 'state of the UK's pensions'. Households may look to other financial products to provide a post-retirement income, or invest in property for example. But this article has described the most important aspects of the National Accounts with respect to pensions.

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Appendix
Figure A1
Diagrams showing the flow of money through the National Accounts for some pension schemes

Householder and NPISH sector's accounts	Flow of money	Counterpart sector	ESA code	Description and comments
The state pension				
II.1.2 Allocation of primary income	← 49	Employer's	D.121	Employer's national insurance contribution rerouted, included as part of D.12 in *The Blue Book*
II.2 Secondary distribution of income	→ 49	Central government	D.6112	Employer's NI contribution, visible as series CEAN
	→ 36	Central government	D.6111	Employee's NI contribution, visible as series GCSE
	→ 3	Central government	D.6113	Self- and non-employed people's NI contribution, visible as series QWMV
	← 53	Central government	D.621	State pension, this line includes other benefits; see central government account for a breakdown
Public sector[1] defined benefit ('final salary') schemes				
II.1.2 Allocation of primary income	← 7	Central/local government	D.121	Employer's actual contribution rerouted, included as part of D.12 in *The Blue Book*
	← 5	Central government	D.122	Imputed contributions rerouted, estimated actuarially for central government (mainly NHS, teachers, armed forces and civil service), as benefits minus
	← 2	Local government	D.122	contributions for local government (mainly police and fire)
II.2 Secondary distribution of income	→ 7	Central government[2]	D.6111	Employer's actual contribution, visible as GCMP
	→ 4/2	Central/local government	D.612	Employer's imputed contribution, visible as E8AC/NMWL
	→ 6/1	Central/local government	D.6112	Employee's contribution, visible as E8AA/NMWM
	← 18/3	Central/local government	D.623	Pension, visible as E8AF/NMWK

[1] For unfunded private sector final salary schemes, analogous flows occur between the household and employer's sectors.

[2] Local government is not shown because it is included in the line D.612. Table 5.3.4S of *The Blue Book* shows that the imputed contribution is the balance between benefits and contributions

Householder and NPISH sector's accounts	Flow of money	Counterpart sector	ESA code	Description and comments
Funded social pension scheme				
II.1.2 Allocation of primary income	← 48	Employer's	D.121	Employer's pension contribution rerouted, included as part of D.12 in *The Blue Book*
	← 21	Financial corporations	D.44	Property income of policy holders – only the part relating to social pensions
II.2 Secondary distribution of income	→ 48	Financial corporations	D.6111	Employer's pension contribution, visible as RIUO
	→ 40	Financial corporations	D.6112	Employee's pension contribution, visible as GCRR, including the D.44 money less service charge
	← 51	Financial corporations	D.622	Pension, visible as D3N3
II.4 Use of income	→ 1	Financial corporations	P.31	Spending on financial services – appears as part of P.11 in the production account of financial corporations
	→ 36	Financial corporations	D.8	The D.8 figure for financial corporations is a little different with a small part allocated to the rest of the world sector
Financial accounts	← 36 →	Financial corporations	F.612	Money used to contribute to funds adds to the 'net equity' asset (AF.612), pension benefits subtract from it. The difference counts as D.8
Personal pensions				
II.1.2 Allocation of primary income	← 12	Financial corporations	D.44	Property income of policy holders – only the part relating to personal pensions
II.4 Use of income	→ 1	Financial corporations	P.31	Spending on financial services – appears as part of P.11 in the production account of financial corporations
Financial accounts	← 13 →	Financial corporations	F.611	Money used to contribute to funds adds to the 'net equity' asset (AF.611), pension benefits subtract from it. No D.8 adjustment because no activity in secondary distribution of income account (because not a social scheme)

FEATURE

John Morris and Tegwen Green
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Measuring the quality of the producer price index

SUMMARY

The calculation of standard errors for the output producer price index (PPI) has been investigated with the aim of measuring the quality of the growth rates of the published price indices. This article presents, for the first time, Office for National Statistics' (ONS) estimates of the standard errors for month-on-month and 12-month growth rates of the gross sector output PPI. It provides an account of the initial investigation of standard errors within the PPI context and explains: the PPI structure and describes the index types for which standard errors have been calculated; what standard errors are and how they can be interpreted; the new method of calculation of standard errors for the PPI; the main findings from the analysis within the context of the PPI structure; and the publication policy.

The output producer price index (PPI), produced by the Office for National Statistics (ONS), is a monthly index that measures the growth in UK factory gate prices. A new method for estimating standard errors of growth over any fixed period, for example, one month, three months and 12 months, has been developed. The overall standard error for the month-on-month growth rate of the gross sector output (GSO) PPI (including duty) is 0.2 percentage points, while, for the 12-month growth rate, the standard error is 0.7 percentage points.

This initial study focuses on the GSO all-manufacturing PPI, which measures the prices of products sold by UK manufacturers, irrespective of the classification of the customer who buys the product. Month-on-month and 12-month growth rates are the PPI First Release's main measures and these are the main components throughout the analysis.

What is the PPI?

The PPI measures the change in price of goods bought and sold by UK manufacturers. The indices are based on the estimation of average price movements for a fixed, representative sample of products. Prices are collected for these products on a monthly basis. Both input and output indices are produced. Input prices are the prices of goods bought by UK manufacturers for use in the manufacturing process and include prices for imported goods. Output prices relate to goods sold by UK manufacturers in the UK, that is, prices of exports are excluded. PPIs are

also produced on both a gross and net sector basis. The net sector series exclude transactions between companies classified to the manufacturing sector, whereas intra-sector sales are included when calculating the gross sector series.

Structure of the PPI

The structure of the PPI is defined by the European Classification of Products by Activity (CPA) which is based on the standard European industrial classification NACE (Rev. 1). The CPA divides products into hierarchically numbered categories. The CPA's lowest level is the six-digit subcategory, which is the level at which data for the PPI are collected and the lowest level at which indices are calculated. The subcategory indices are aggregated to give four-digit class indices and these, in turn, are aggregated to give the two-digit division indices. The divisional indices are then aggregated to give the overall PPI.

The remaining paragraphs in this section provide a brief sketch of the construction of the PPI; for a fuller description, see Cope and Freeman (1998).

Each subcategory index is a weighted average of price relatives, where a price relative is a current price for an item divided by an average price for the same item in the designated base year (currently 2000). The weights are derived from data for the most recently available PRODucts of the European COMmunity (PRODCOM) survey. (The PRODCOM survey contains data on sales by UK-based manufacturers of the most commonly manufactured products

in the European Union). Each weight is proportional to the product of a sample weight and the relevant product sales from the PRODCOM survey. The sample weight is determined by the probabilities of selection for the PRODCOM sample and for the PPI sample, which is a sub-sample of the PRODCOM sample. To calculate indices at higher levels, subcategory indices are weighted together using weights based on estimates of product sales for domestic consumption. These estimates are derived from PRODCOM data for the base year 2000, after subtracting export sales, which are obtained using a combination of exports data from HM Revenue & Customs and from the ONS Monthly Production Inquiry.
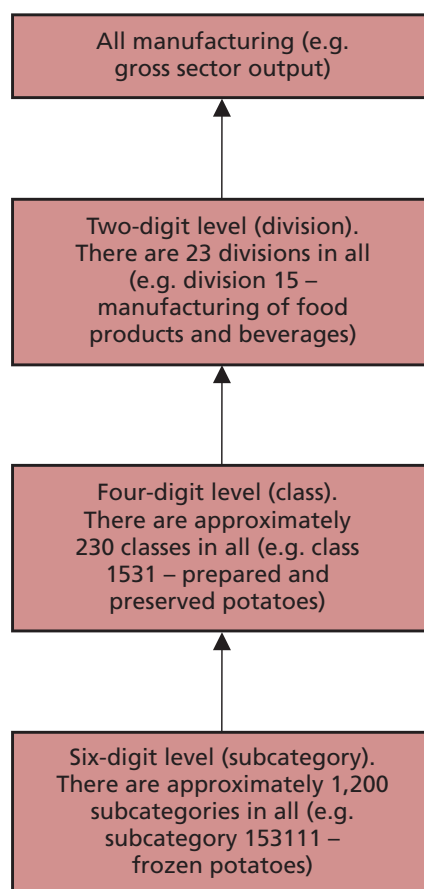
Figure 1 illustrates the PPI index structure, using division 15 (Food products, beverages and tobacco) as an example.

There are four different sets of PPIs, all with the same hierarchical structure but with different weights and different price components. These relate to GSO, Net Sector Output (NSO), gross sector input and net sector input. The analysis in this article, as mentioned in the introduction, focuses on standard errors for the overall GSO PPI and for the component divisions.

Estimating standard errors of movements in PPIs

ONS has recently devised a new method for estimating standard errors of movements in PPIs. The method is based on the concept that PPIs may be expressed as a function of monthly growth rates of price relatives. The means, variances and co-variances between these growth rates are modelled. Analysis of the data has highlighted that price movements for different items in the same subcategory and made by the same enterprise are positively correlated. Price movements for different items in different subcategories

Figure 1
Illustration of PPI index structure, using division 15

All manufacturing (e.g. gross sector output)

Two-digit level (division). There are 23 divisions in all (e.g. division 15 – manufacturing of food products and beverages)

Four-digit level (class). There are approximately 230 classes in all (e.g. class 1531 – prepared and preserved potatoes)

Six-digit level (subcategory). There are approximately 1,200 subcategories in all (e.g. subcategory 153111 – frozen potatoes)

and made by the same enterprise have also been shown to be positively correlated, although to a lesser extent. The reasoning behind the correlations within and between subcategories for the same enterprise is that businesses tend to review prices for all their products at around the same time. It is assumed that there is no correlation of price movements between products made by different enterprises on the grounds that there should be no price-setting collusion

between businesses. Estimates of standard errors for non-monthly growth rates, such as 12-month or three-month on three-month growth rates are based on the estimated variance-covariance matrix of monthly growth rates over the period required.

In some cases, the price collected is adjusted to account for a change in quality of the product. This is particularly prevalent in electrical and electronic products such as personal computers. The price is adjusted to ensure that price comparisons are on a like-for-like basis. The standard errors produced in this study are based on quality-adjusted data and no modelling error for the actual adjustment has been explicitly allowed for.

For a fuller description of the method of estimating standard errors, see Bucknall *et al* (2005) and Wood (2004).

Analysis and results
The standard errors derived using the process described above are, like the indices they relate to, estimates and are also subject to estimation error. To reduce this estimation error, the standard errors presented here have been averaged over the 12-month period July 2005 to June 2006.

Table 1, Figure 2 and **Figure 3** present the overall GSO (including duty) PPI and the divisional PPI month-on-month percentage growth rates along with their standard errors.

The median divisional standard error of the month-on-month growth is 0.2 percentage points. It can be seen that divisions 23, 27, 30, and 37 have particularly large standard errors because of large differences in price movements within component subcategories.

It is worth noting that in Table 1, the all-manufacturing month-on-month growth rate is of the same order as the standard error, indicating that for this period

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Box 1
What is a standard error?

To calculate the PPI, it would be possible, in principle, to collect complete price information every month for all products from the whole population of businesses in the UK. The resultant index would be an exact measure of the average growth rate for prices in the UK. However, this would be extremely time-consuming and expensive and would impose an unacceptable burden on businesses. So, the PPI is based on a sample of price quotes from businesses and provides an estimate of the average growth rate for the population. If a different sample were selected, it would produce a different estimate of the same population growth rate. The difference between an estimate and its true population value is known as the sampling error. The actual sampling error for any estimate is unknown, but from the sample used, one can estimate a typical error, known as the standard error.

The standard error of the mean is a measure of the spread of possible estimates of the sample average likely to be obtained when taking a sample of a certain size. This provides a means of assessing the accuracy of the estimate: the lower the standard error, the more confident one can be that the estimate of average price growth is close to the true population value. Standard errors are often used to produce confidence intervals, but when doing so it is usual to assume that the data follow a normal distribution, that is, data are distributed symmetrically around the mean. However, as many prices for the PPI remain the same from month to month, the PPI growth rates show a large peak at 0 per cent and the assumption that the distribution of the data is normal is not valid. ONS therefore considers that it is inappropriate to quote confidence intervals for the PPI.

Table 1
Month-on-month growth rates and standard errors: by division

Two digit (division)	Division description	Month-on-month growth, June 2006 (percentages)	Standard error of the month-on-month growth, 12-month average, July 2005 to June 2006 (percentage points)
All manufacturing	Gross sector output including duty	0.2	0.2
15	Food products and beverages including duty	0.1	0.2
16	Tobacco products including duty	1.1	0.1
17	Textiles	0.1	0.1
18	Wearing apparel	−0.1	0.1
19	Leather and leather products	0.0	0.3
20	Wood and wood products	0.3	0.2
21	Pulp, paper and paper products	0.2	0.2
22	Printed matter and recorded media	−0.1	0.1
23	Petroleum products including duty	−0.2	0.9
24	Chemicals, chemical products and man-made fibres	0.0	0.2
25	Rubber and plastic products	0.2	0.1
26	Other non-metallic mineral products	−0.1	0.2
27	Base metals	0.9	0.4
28	Fabricated metal products, except machinery and equipment	0.1	0.1
29	Machinery and equipment not elsewhere classified	0.2	0.1
30	Office machinery and computers	−0.7	1.2
31	Electrical machinery and apparatus not elsewhere classified	2.6	0.2
32	Radio, television, and communication equipment and apparatus	0.4	0.3
33	Medical precision and optical instruments, watches and clocks	0.1	0.2
34	Motor vehicles, trailers and semi-trailers	0.0	0.1
35	Other transport	0.3	0.2
36	Furniture; other manufactured goods not elsewhere classified	−0.8	0.1
37	Recovered secondary raw materials	3.9	3.9

Figure 2
Month-on-month growth rates: by division, June 2006

Percentages

Source: Office for National Statistics

Figure 3
Month-on-month standard errors: by division, July 2005 to June 2006[1]

Percentage points

Note:

1 12-month average.

Source: Office for National Statistics

it is impossible to distinguish any real movement from random noise. In Table 2, however, the all-manufacturing 12-month growth rate is six times the standard error, indicating that there is some distinguishable real movement. This demonstrates how much more reliable the annual movements are as indicators of the true inflation rate and highlights the importance of making due allowances for the inherent uncertainty in the estimates when making inferences from them.

Table 2, Figure 4 and **Figure 5** present the overall GSO (including duty) PPI and the divisional PPI 12-month percentage growth rates along with their standard errors.

The median divisional standard error of the 12-month growth rates is 0.6 percentage points. Again, divisions 23, 27, 30 and 37 have particularly large standard errors. Twelve-month growth rate standard errors are broadly in line with what would be expected from the equivalent month-on-month values.

A summary of the divisions with the largest standard errors is presented in **Table 3.**

Division 37 (recovered secondary raw materials) has a large standard error, because prices for copper and aluminium behave very differently from those of steel, and they are all included in the same subcategory. Division 30 is made up of office machinery and computers. There are large price movements for computers, as this is a fast-moving industry, and the changes in computer specifications and upgrades add to the disparities in price movements within this division. Division 27 (base metals) and division 23 (petroleum products) each have three subcategories with wide disparities in price movements. Petroleum and base metal prices are also highly variable, being influenced by worldwide trade markets and demand. This in turn affects the standard errors at the division level.

Net sector output

The same basic price information is used to feed into each of the PPI series. The difference between the various indices is the weights that are applied to combine the low-level series to form the higher-level indices. Indices from product level to divisional level are produced on a gross sector basis. Each division is then assigned two different weights (gross sector and net sector) and it is these weighting structures that define the different PPI series. The overall standard error for the month-on-month growth
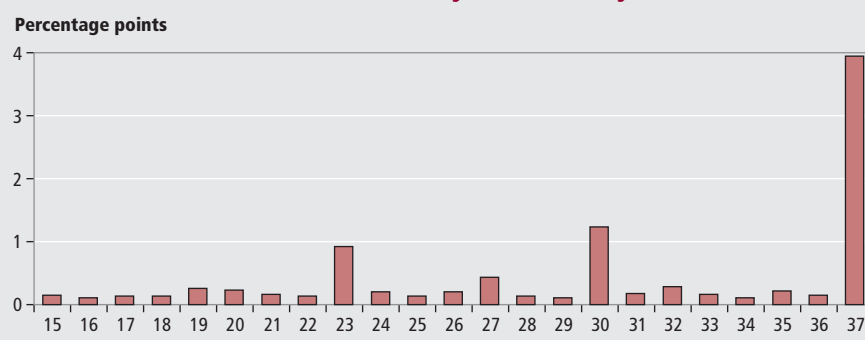
Table 2
12-month growth rates and standard errors: by division

Two digit (division)	Division description	12-month growth, June 2006 (percentages)	Standard error of the 12-month growth, 12-month average, July 2005 to June 2006 (percentage points)
All manufacturing	Gross sector output including duty	4.3	0.7
15	Food products and beverages including duty	1.6	0.5
16	Tobacco products including duty	5.1	0.5
17	Textiles	1.3	0.5
18	Wearing apparel	0.8	0.9
19	Leather and leather products	1.5	0.9
20	Wood and wood products	1.5	0.9
21	Pulp, paper and paper products	1.4	0.6
22	Printed matter and recorded media	1.8	0.5
23	Petroleum products including duty	11.2	4.5
24	Chemicals, chemical products and man-made fibres	4.7	0.6
25	Rubber and plastic products	3.5	0.5
26	Other non-metallic mineral products	2.6	0.8
27	Base metals	11.6	1.8
28	Fabricated metal products, except machinery and equipment	2.2	0.4
29	Machinery and equipment not elsewhere classified	2.7	0.4
30	Office machinery and computers	−6.0	4.5
31	Electrical machinery and apparatus not elsewhere classified	6.2	0.6
32	Radio, television, and communication equipment and apparatus	−1.2	1.1
33	Medical precision and optical instruments, watches and clocks	0.4	0.7
34	Motor vehicles, trailers and semi-trailers	1.2	0.4
35	Other transport	1.7	0.8
36	Furniture; other manufactured goods not elsewhere classified	1.0	0.6
37	Recovered secondary raw materials	56.2	14.1

Figure 4
12-month growth rates: by division, June 2006

Percentages

Source: Office for National Statistics

Figure 5
12-month standard errors: by division, July 2005 to June 2006[1]

Percentage points

Note:

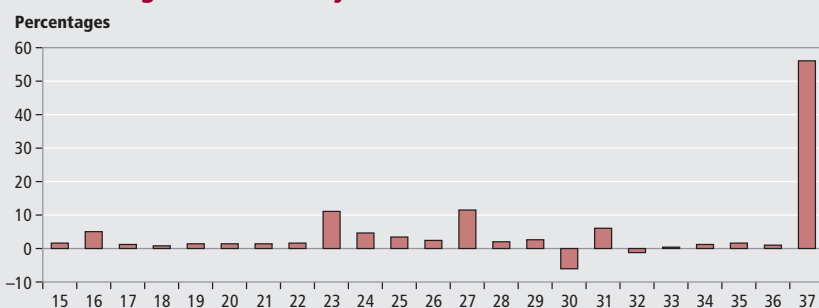1 12-month average.

Source: Office for National Statistics

rate of the NSO PPI (including duty) is 0.1 percentage points, while, for the 12-month growth rate, the standard error is 0.5 percentage points. These are lower than the respective GSO standard errors (0.2 and 0.7, respectively) as the PPI sample is designed to minimise the standard error of the top-level NSO PPI. The sample tends to be large where NSO weights are large, helping to keep the top-level standard error small. Conversely, the PPI sample tends to be small where the NSO weights are small, because these divisions have little effect on the top-level standard error. Consequently, where GSO weights are large relative to NSO weights, the effect of the relatively small sample sizes is magnified. This causes the standard error of the top-level GSO PPI to be larger than that for the NSO PPI.

Publication policy

The standard errors for the PPI month-on-month and 12-month growth will be calculated and updated annually in the spring. Details of the publication policy are given below. On 12 November 2007:

- the standard errors of growth for the following three key PPI indicators (NSO) will be published in a table in the background notes of the PPI First Release:
  - output of manufactured goods.
  - all manufacturing excluding duty
  - all manufacturing excluding food, beverages, petroleum and tobacco
- the standard errors for the all-manufacturing GSO (including duty) and for each component division will be published in the Summary Quality Report for the PPI at www.statistics.gov.uk/about/data/methodology/quality/information_business_statistics.asp
- the standard errors at class and subcategory level will be published in Excel spreadsheets on the National Statistics website
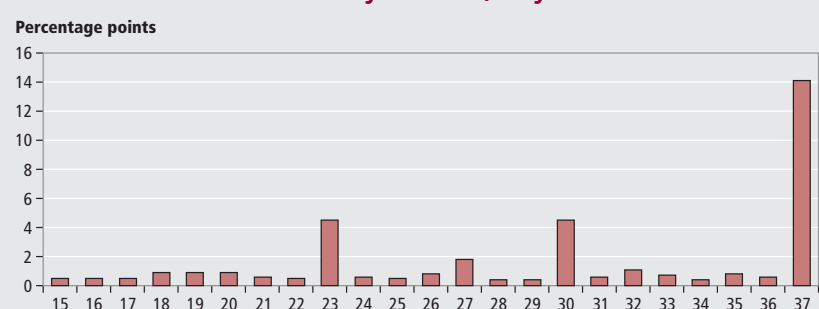
Table 3
Growth rates and standard errors across selected divisions

Two digit (division)	Division description	Month-on-month growth, June 2006 (percentages)	Standard error of the month-on-month growth, 12-month average, July 2005 to June 2006 (percentage points)	12-month growth, June 2006 (percentages)	Standard error of the 12-month growth, 12-month average, July 2005 to June 2006 (percentage points)
23	Petroleum products including duty	−0.2	0.9	11.2	4.5
27	Base metals	0.9	0.4	11.6	1.8
30	Office machinery and computers	−0.7	1.2	-6.0	4.5
37	Recovered secondary raw materials	3.9	3.9	56.2	14.1

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GDP(O) revisions analysis system: overview and indicative results

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SUMMARY

Revisions are an inevitable consequence of the need for timely estimates of economic growth and are a well-understood part of the statistical process used to compile these estimates. The Office for National Statistics (ONS) has recently done much work to improve understanding of the causes of revisions to the early estimates of gross domestic product (GDP) as measured by the output, or production, approach (GDP(O)). Linked to this work has been the development of a system for recording and quantifying GDP(O) revisions. This is a significant step forward and puts ONS at the forefront of this area of work. This article outlines the new system, presents some initial results and gives details of planned future developments.

The Office for National Statistics (ONS) has developed a new system for recording and coding GDP(O) revisions. This is an important step forward and complements the information ONS already produces about revisions to the GDP estimates. It enables much quicker, more flexible and reliable analysis of the causes of revision. This article gives an overview of the new system and explains the benefits it will bring. Indicative results of analysis based on data published in June 2007 are then presented in several different formats. Lastly, future developments and next steps are outlined.

Background

GDP(O) is the main indicator of short-term economic growth. The ONS preliminary estimate of quarterly GDP growth is based entirely on the GDP(O) measure. Published just 25 days after the end of the reference quarter, it is the fastest estimate of its type in the world. Updated estimates are published in the UK output, income and expenditure First Release (after 55 days) and the Quarterly National Accounts First Release (after around 85 days). Even after comprehensive annual data are available (usually around 18 months after the end of the reporting period), it is GDP(O) that largely determines the quarterly profile of changes in GDP within years.

Benefits of the new system

Although revisions to UK quarterly GDP estimates compare well with other advanced economies (see Fonzo 2005), supporting information about revisions is important to users. ONS recognises this and provides much background information about GDP revisions. This includes:

- briefing in the relevant First Releases
- publication of 'revisions triangles' on the National Statistics website.[1] These track revisions to GDP and its components over time
- annual analyses of the revisions performance of quarterly GDP and its components, including GDP(O) (see Obuwa and Robinson 2006 for the most recent). These analyses include explanations of significant revisions

By providing more detailed explanations for revisions to the GDP(O) data, the new GDP(O) revisions analysis system will complement these existing sources of information about revisions.

Looking ahead

In the future, when a longer span of estimates is recorded on the new system, it will also help in assessing whether any causes of revisions are predictable. This is of particular interest to users: for example, the Bank of England has recently assessed the tendency towards upward revisions to the early estimates of quarterly GDP growth. It has recently published a set of quarterly GDP estimates that reflect expected future revisions to the ONS data (see Bank of England 2007). The new GDP(O) revisions analysis system will help to inform the

Bank of England's work. It should also help to minimise future revisions, for example, by helping to target improvements to the source data.

Revisions system overview

This section gives an overview of the approach used to monitor revisions in the new system.

GDP(O) compilation is a complex process that draws on over 1,000 indicator series. This has made previous work to assess the causes of historic revisions difficult. The new revisions analysis system makes this much easier and more precise. Detailed information on revisions is recorded as each new GDP(O) estimate is produced.

The system is Excel spreadsheet-based and is designed to quantify the different causes of revisions in terms of their impact on total GDP(O). This gives great flexibility in analysing revisions. Some points to note are:

- revisions to all non-production industries (services, construction and agriculture) are stored for each 2-digit category (division) of the 2003 Standard Industrial Classification (SIC). This splits these industries into 31 components

- revisions to production industries are stored at the higher, section level. The relevant SIC sections are: mining and quarrying, manufacturing and energy supply

- revisions are then coded from a key of 14 possible causes. The key has been drawn up with reference to current work by the Organisation for Economic Co-operation and Development to develop a standard classification system for revisions to economic statistics

- some causes of revisions (including changes to adjustments and methodological reviews) are calculated automatically within the system. Other causes are identified and quantified through investigations by the GDP(O) team

- for reasons of practicality, a 'threshold' value determines the minimum revision to be investigated by the team. The threshold is set in terms of the weighted impact of revisions on total GDP(O). Typically, the threshold allows around 80 per cent by weight of revisions to be assigned to specific causes

- those revisions which are calculated automatically (such as changes to adjustments and methodological

reviews) are assigned to their relevant cause, whatever their size, and are not constrained by the threshold

'Other, not specified' contributions

The system greatly improves the precision of GDP(O) revisions analysis. However, the practical need for a threshold for manual investigation means there will be a 'not specified' contribution to revisions. To set the figures in context, some of the standard charts and tables show the 'not specified' residual as a separate category. For the data set used in this article, 15 per cent of absolute revisions to quarterly growth are not attributed to a specific cause.

Future plans include expanding the range of contributions to revisions that are calculated automatically. This will help to reduce the size of the 'not specified' category and improve accuracy.

Reasons categories: summary

There are currently 14 different codes for causes of revisions (see Appendix). The main categories covered include:

- **forecasts replaced by new survey data** – forecasts are used to produce estimates of the recent past in the absence of survey data. When forecasts are replaced by survey data from the supplier, this can lead to revisions. See Skipper (2005) for details of the forecasting methods used in GDP(O)
- **later data received from suppliers** – refers to revisions caused by updates to source data (for example, due to later survey returns or benchmarking to annual surveys)
- **seasonal adjustment**
  - **updates due to later data** – for the results presented in this article, this refers to revisions to the seasonally adjusted growth rate in a quarter where the non-seasonally adjusted growth rate is unrevised. Revisions of this type can occur when a new quarter is added to the series. They may also occur where there are revisions to the non-seasonally adjusted data for other quarters in the series
  - **annual review** – revisions may also occur after the annual review of the seasonal adjustment parameters for seasonally adjusted time series. These revisions were calculated automatically, by isolating the changes in quarterly growth rates due to updating the parameters

The definition and method for assessing the impact of revisions due to seasonal adjustment is currently under review. See **Box 1** for further details about seasonal adjustment and its impact on revisions.

- **improvements to sources and methods** (including service sector industry reviews) – revisions caused by changes to sources and methods are normally introduced at the time of the annual National Accounts *Blue Book* publication. Changes implemented in the 2007 Q1 Quarterly National Accounts data set published in June 2007 included three service sector industry reviews[2]
- **changes to quarterly data quality and coherence adjustments**
  - data quality adjustments are usually made because of uncertainties about the quality of forecasts or early survey estimates. They are reviewed when the quality of the survey estimates improves and this may lead to revisions
  - quarterly coherence adjustments are applied if ONS decides to bring the quarterly path of the GDP(O) data closer into line with the other measures of GDP. See Marks (2006) for further details about GDP(O) adjustments

Results

This section presents indicative analysis based on data published in the 2007 Q1 Quarterly National Accounts First Release in June 2007.[3]

GDP(O) data in this release included revisions back to 2005 Q1. The mean quarterly revision to headline GDP(O) was 0.00 percentage points. The absolute average revision to quarterly growth (ignoring direction) was 0.02 percentage points. These averages are based on rounded estimates. GDP(O) percentage growth rates are published to one decimal place as it is not possible to measure beyond that degree of accuracy.

Revisions by cause: overview

Figure 1 shows the main contributions to revisions, identified by the system. In summary, these were:

- later survey data and forecast replacement by new data. These were the biggest identified causes of revisions, accounting for 33 per cent, by size of impact, of all contributions to quarterly GDP(O) revisions

Box 1

Definition of seasonal adjustment impacts

Seasonal adjustment involves estimating and removing systematic calendar related variations in a time series. When new information becomes available, it is possible to obtain a more up-to-date estimate of these variations. This can cause revisions to the seasonally adjusted estimates.

Revisions to the seasonally adjusted estimates are attributable to three possible causes:

■ a new data point has been added to the not seasonally adjusted series

■ the not seasonally adjusted series has been revised at one or more historic points, and

■ the parameters (that is, specific estimation method) used in the seasonal adjustment of the relevant time series have been re-estimated

For the purposes of seasonal adjustment, a time series can be broken down into a number of different components, for example, a trend component, a seasonal component and an irregular component. A revision to the seasonally adjusted

estimate will be associated with revisions to at least one of these components. For example, a new data point or a revision to an historic point in the original series is new information that allows a more up-to-date estimate of systematic calendar variations throughout the time series.

The parameters used in the GDP(O) seasonal adjustment process are reassessed every year. This may result in updates to the parameters for individual series. Changes might include an improvement to the models used for the forecasting part of the seasonal adjustment process or changing the filters used to estimate the trend and seasonal components.

ONS's Time Series Analysis Branch is carrying out research into revisions to growth rates and aims to decompose these revisions into the separate time series components in order to provide a clearer picture of what is driving revisions in the seasonal adjustment process. This will provide a clear distinction between the types of revision associated with seasonal adjustment. The research will help to ensure the seasonal adjustment deals appropriately with revisions.

Figure 1

Contributions to revisions to quarterly GDP(O) growth, 2005Q1 to 2007Q1[1]
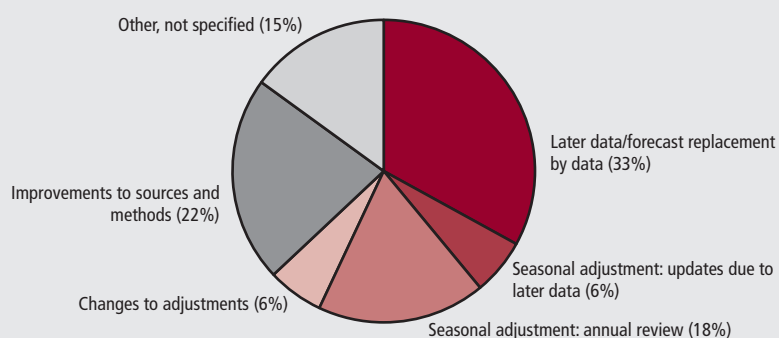
Note:

1 Data as published in June 2007.

Figure 2

Contributions to revisions to quarterly GDP(O) growth: by cause, 2005Q1 to 2007Q1[1]
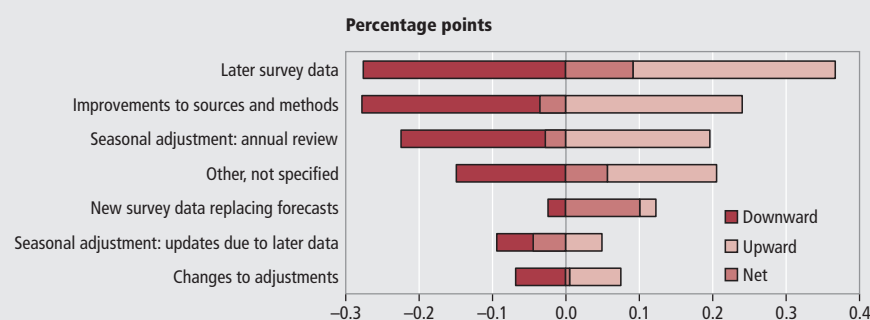
Note:

1 Data as published in June 2007.

■ updates to seasonal adjustment accounted for a further 24 per cent of contributions to revisions to quarterly growth rates. This underlines the value of ONS's current work to investigate the impact of revisions due to seasonal adjustment

■ one-off improvements to sources and methods (including service sector industry reviews) accounted for 22 per cent of contributions to revisions

Revisions by cause: detail

Figure 2 shows the causes of revisions to quarterly growth rates in more detail. These causes are ranked according to contributions to revisions to quarterly growth of headline GDP(O) (shown as percentage points). Contributions from upward and downward revisions are shown by separate bars, with the 'net' segment showing the difference between them.

Percentage points contributions as shown in Figure 2 were produced by:

■ assigning causes to revisions (as proportions of revisions to quarterly growth rates). For automatically calculated causes, this is done by the system

■ converting actual revisions to components to percentage points contributions to headline GDP(O) quarterly growth revisions

■ applying the 'causes' proportions from the first bullet point to the percentage points contributions from the second. This assigns a value to the causes of

revisions in terms of percentage points contributions to headline GDP(O) revisions

- summing the percentage points contributions from each cause. In addition to totals for absolute contributions, subtotals are produced for contributions to upward and downward revisions. These totals cover all identified causes of revisions to components, irrespective of the direction of the revision to headline GDP(O) in a particular quarter

Detailed points to note from Figure 2 are:

- later data and new survey data replacing forecasts were the largest identified cause of revisions to quarterly growth rates over this period. Together they accounted for 33 per cent of absolute contributions to revisions to quarterly GDP(O) growth, with 27 percentage points coming from later data. These revisions due to new and later source data were spread across a number of industries. The most significant are shown below (with percentages of total absolute contributions to revisions to quarterly GDP(O) growth in brackets):
  - health and social work (5.3)
  - education (4.2)
  - letting of dwellings (4.1). This category includes imputed rental income from owner-occupied dwellings

- updates to the seasonal adjustment of the quarterly path accounted for 24 per cent of absolute contributions to revisions to quarterly GDP(O) growth rates. Of this, 18 percentage points were attributable to the annual review of the seasonal adjustment parameters used for individual series (see Box 1 for further details). Industries most affected by seasonal adjustment changes include (percentages of total absolute contributions to revisions to quarterly GDP(O) growth in brackets):
  - post and telecommunication (2.7)
  - recreational, cultural and sporting activities (2.7)
  - manufacturing (2.6)
  - motor trades (2.4)

The annual review also included a one-off improvement in the method of seasonal adjustment, with the introduction of monthly rather than quarterly series being used for a

number of service sector components. This provides greater consistency between GDP(O) and the monthly Index of Services and improves the estimate of the quarterly growth

- improvements to sources and methods, including implementation of three service sector industry reviews accounted for 22 per cent of absolute contributions to revisions to quarterly growth rates. The main industries affected were (percentages of total absolute contributions to revisions to quarterly GDP(O) growth in brackets):
  - real estate activities (8.9)
  - renting of machinery and equipment (5.2): due to service sector industry review
  - research and development (3.8): due to service sector industry review

The service sector methodological industry review programme has been a major cause of historic revisions. Almost all of the service sector has now been reviewed and so this cause should not lead to significant revisions in future. There are, however, planned future methodology changes which include the allocation of Financial Intermediation Services Indirectly Measured (FISIM) in the 2008 *Blue Book* data set and the re-engineering of the UK National Accounts. Both are likely to lead to some revision to GDP(O). The estimated impact of the allocation of FISIM is shown in Akritidis (2007)

- reassessment of adjustments as data became firmer accounted for 6 per cent of absolute contributions to revisions to quarterly GDP(O) growth. However,

Figure 3
Contributions to revisions to quarterly GDP(O) growth rates: by type of output indicator, 2005Q1 to 2007Q1[1]
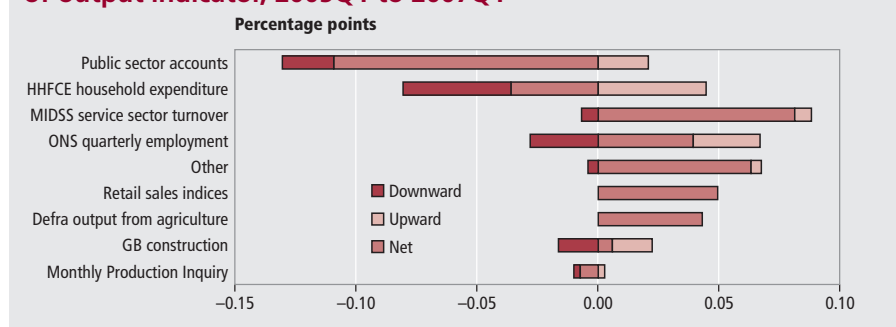
Note:

1 Data as published in June 2007.

Table 1
Details of data sources shown in Figure 3

Data source	Percentage coverage of GDP(O) (2003)	Details
Public sector accounts	10	ONS quarterly estimates of government activity
HHFCE (household final consumption expenditure)	3	ONS quarterly estimates of household expenditure, used to estimate output from services including letting of dwellings and betting and gaming
MIDSS (Monthly Inquiry into the Distribution and Service Sector)	37	ONS monthly turnover estimates, used for a range of service industries, including wholesale and accountancy
ONS quarterly employment	7	Employment estimates from ONS quarterly surveys, used as output indicators for services including public administration, market sector health and membership organisations
Retail sales indices	6	ONS monthly indices of retail output
Defra (Department for Environment, Food and Rural Affairs)	1	Quarterly estimates of output from agriculture, supplied by the Department for Environment, Food and Rural Affairs (Defra)
GB construction	6	Quarterly estimates of construction activity for Great Britain. Supplied by the Department for Business, Enterprise and Regulatory Reform
Monthly Production Inquiry	14	ONS monthly turnover estimates for production industries
Other	16	Includes: VAT-based turnover estimates, used for services industries, and data from the Bank of England on values of loans and deposits, used in estimating output from financial intermediation

the total size of adjustments to GDP(O) was reduced and on balance changes to adjustments reduced revisions. The new system makes it easier to assess the impact of adjustments on revisions; this is already proving useful in informing the allocation of adjustments

■ contributions to revisions amounting to 15 per cent were not attributed to specific causes because they fell below the threshold for manual investigation by the GDP(O) team

Revisions by type of source data

Figure 3 follows the same format as Figure 2 to show revisions by type of output indicator source data. The data sources are shown in **Table 1**. Output indicators (such as turnover and household expenditure) accounted for over 85 per cent of revisions from new/later source data. The remainder

was due to price indicators (deflators).[4]

The main points to note from **Figure 3** are:

■ a small number of input sources, such as the public sector accounts, household final consumption expenditure and Defra data had a disproportionate impact on total revisions. This is useful information in targeting future quality improvements

■ new annual data/benchmarking to annual data explains the predominance of upward revisions to the Defra data and retail sales indices

Revisions to components

The next two charts focus on absolute revisions to SIC components.

Figure 4 shows the absolute contributions to revisions to quarterly GDP(O) growth from SIC components. The

chart covers 85 per cent of total absolute contributions to revisions to GDP(O) quarterly growth.

Figure 5 shows the causes of revisions to the five most significant industries from Figure 4.

The main points to note from Figures 4 and 5 are:

■ actual revisions to real estate activities and renting of machinery and equipment were relatively large and arose mainly from improvements to sources and methods. There was a change to the source data for real estate; renting of machinery and equipment was subject to a service sector industry review. This illustrates the large impact that one-off changes to sources and methods can have at the industry level.

Future developments to the system

ONS plans to expand the automatic calculation of causes of revisions. Some progress towards this should be possible in the short term. However, looking further ahead, the new computer system being developed as part of ONS's National Accounts Re-engineering Project should allow a much greater degree of automation. This promises to make revisions analysis faster and more accurate.

Next steps

These include:

■ expanding the range of causes for revisions that are calculated automatically

■ refining the definition of revisions due to seasonal adjustment changes

■ using the information from the new system to identify ways of reducing the overall revision to GDP(O)

■ using the new system to improve the regular briefing published alongside the release of GDP(O), including an annual summary of the main causes of revisions to GDP(O) in the National Accounts *Blue Book* data set

Notes

1 GDP revisions triangles are available on the National Statistics website at www.statistics.gov.uk/statbase/product. asp?vlnk=13560

2 Details of the service sector industry reviews introduced in the 2007 Q1 Quarterly National Accounts First Release are available on the National

Figure 4

Absolute contributions to revisions to quarterly GDP(O) growth rates: by industry/SIC, 2005Q1 to 2007Q1[1,2]
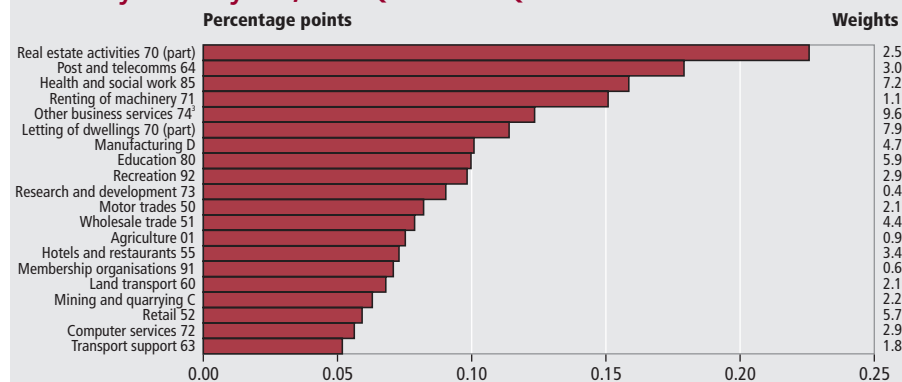
Notes:

1 Data as published in June 2007.
2 Weights are as percentages of GDP(O), 2003.
3 SIC 74 'Other business services' covers a number of services including architectural services, legal services and accountancy.

Figure 5

Absolute contributions to revisions to quarterly GDP(O) growth rates: by industry/SIC and cause, 2005Q1 to 2007Q1[1]
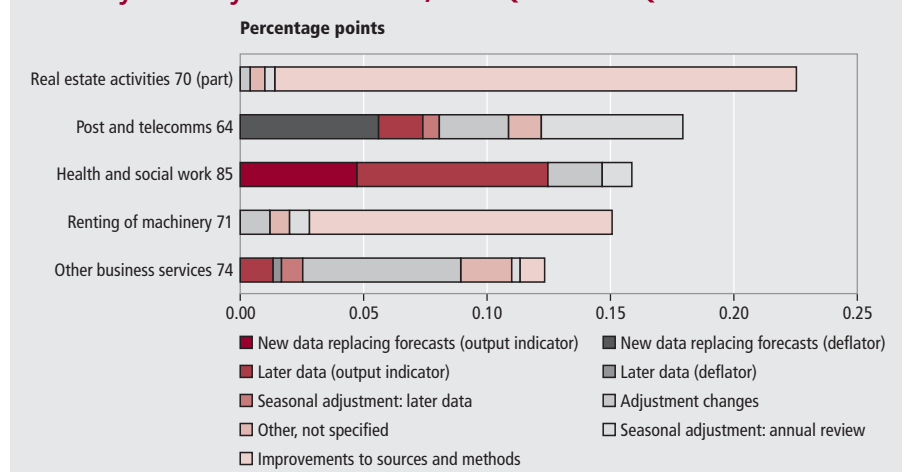
Note:

1 Data as published in June 2007.

Statistics website at www.statistics.gov.uk/iosmethodology/future_improvements.asp

3   This release is available on the National Statistics website at www.statistics.gov.uk/statbase/product.asp?vlnk=818

4   An output indicator refers to a measure of the quantity of output. This includes the value of turnover or expenditure and volume measures such as passenger-kilometres travelled. Where turnover or expenditure is used, this needs to be deflated using a price estimator to convert it to a constant price basis (that is, remove the effects of inflation). These price estimators are known as deflators.

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APPENDIX

Key (causes for revisions 1 to 14)

1 Forecast output indicator series replaced by new survey data

2 Forecast deflator series replaced by new survey data

Forecasting is used to produce estimates of the recent past in absence of survey data. This reason code is used when replacement of forecasts by data from the supplier leads to a revision.

3 Later data for output indicator series received from supplier

4 Later data for deflator series received from supplier

Refers to revisions caused by updates to source data (for example, due to later survey returns or benchmarking to annual surveys).

5 Seasonal adjustment (from later data)

Refers to revisions to the seasonally adjusted growth rate in a quarter where the non-seasonally adjusted (or original estimate) growth rate is unrevised. These revisions can occur when a new quarter is added to the series or where there are revisions to the non-seasonally adjusted data for other quarters.

6 Changes to quarterly data quality adjustments (automatically assessed)

Usually made because of uncertainties about the quality of forecasts or early survey estimates. They are reviewed when the quality of the survey estimates improves and this may lead to revisions.

7 Changes to quarterly coherence adjustments (automatically assessed)

Applied if ONS decides to bring the quarterly path of the GDP(O) data closer into line with the other measures of GDP.

8 Changes to Monthly Inquiry into the Distribution of Service Sector (MIDSS) adjustments

Adjustments applied to MIDSS turnover data when response rate is low, the quality of survey data is questioned or to compensate for the effects of sample rotation.

9 Changes to weights (automatically assessed)

10 Seasonal adjustment review (automatically assessed)

Revisions due to the annual review of the seasonal adjustment parameters. See Box 1 for further details.

11 Changes to sources and methods, including service sector industry reviews (automatically assessed)

12 Changes to annual coherence adjustments (automatically assessed)

The adjustments used to bring quarterly GDP(O) into line with the balanced annual measure. There were no changes to these adjustments in the GDP(O) data used in this article.

13 Errors – source error

Errors caused by incorrect source data.

14 Errors – processing error

Include errors from implementing system or methodology changes.

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The effect of bonuses on earnings growth in 2007

SUMMARY

This article examines the effect of bonus payments on the Average Earnings Index (AEI). The AEI is the National Statistic measure of short-term earnings growth. A separate article published in September's *Economic & Labour Market Review* describes the relationship between the AEI and the experimental series Average Weekly Earnings.

Bonus payments are a major influence on pay growth as measured by the AEI. Changes in their level or the month in which they are paid can have a significant effect on growth rates. The majority of large bonuses are generally paid in the period December to April each year, mainly, but not exclusively, in the financial services sector. The article looks at the impact of bonuses on earnings growth during the period December 2006 to April 2007.

Since 2001, there has been increased interest in how bonus payments have been affecting pay growth. ONS responded to this interest by publishing information on how earnings growth for the whole economy was affected by changes in the level and timing of bonus payments. This information was first published in 2002 covering the period from December to April, when the majority of large annual bonuses are paid. Following feedback from users, ONS improved the format of the information, outlined in Freeman (2002). The additional information has been provided again in 2007, and this article looks at what this shows about the effect of bonus payments on the AEI between December 2006 and April 2007. **Box 1** describes the calculations underlying the AEI.

Bonus effects on AEI

The main measure of earnings growth is based on the seasonally adjusted AEI series and compares average earnings in the latest three months with the same period a year earlier. Calculating growth in this manner removes some of the fluctuations caused by changes in the timing of bonus payments and/or pay settlements. **Figure 1** shows the seasonally adjusted three-month average growth rates, both including and excluding bonuses. To see how individual companies affect growth, though, the non-seasonally adjusted series needs to be considered. From the AEI methodology, it is possible to calculate the approximate effect of a single company on the single-month growth, that is, earnings in the latest month compared with the same month a year earlier. **Figure 2**

shows the non-seasonally adjusted growth rate for the whole economy, both including and excluding bonuses.

Earnings growth in 2007

Looking at the non-seasonally adjusted figures in Figure 2 over the period December 2006 to April 2007, there were some large fluctuations in pay growth including bonuses, whereas that excluding bonuses was more stable. In December 2006, pay growth including bonuses was 3.9 per cent, while that excluding bonuses was 3.6 per cent. In January 2007, pay growth including bonuses rose to 4.8 per cent, while that excluding bonuses fell slightly to 3.5 per cent. In February, pay growth including bonuses rose further to 5.4 per cent, while that excluding bonuses remained unchanged at 3.5 per cent. In March, including bonus pay growth fell back to 3.5 per cent, while the excluding bonus rate rose slightly to 3.6 per cent. In April, growth including bonuses fell to 3.1 per cent, while growth excluding bonuses fell to 3.3 per cent.

The next section looks at what caused these fluctuations in growth.

Bonus payments in 2006/07

There were three main effects that caused fluctuations in the growth rate including bonuses:

- changes in the level of bonuses paid in the same month as the previous year
- changes in the timing of bonus payments, and
- changes in the level of bonuses paid earlier or later than the previous year

Box 1

How the AEI is calculated

The AEI is the main measure of how levels of pay are changing in the Great Britain economy. Information is collected from a sample of around 8,500 companies each month on the Monthly Wages and Salaries Survey. Data are collected on the number of employees and the total pay bill for the month. Companies are also asked to supply the amount of bonus payments and arrears payments contained in total pay.

To calculate the AEI, the percentage change on the previous month in the average weekly pay per employee is calculated

for each company in the sample, for example, the change from March to April. This means that only companies that have provided data for the current and previous month are included in the calculation. The percentage changes for each company are then weighted together to give a monthly change for the whole economy. This change is applied to the index value for the previous month to give the latest index value. Separate index values are calculated for pay including and excluding bonus payments, which can indicate if bonus payments are changing at a different rate from other elements of pay.

Figure 1
Three-month average earnings growth, including and excluding bonuses, seasonally adjusted

Percentages
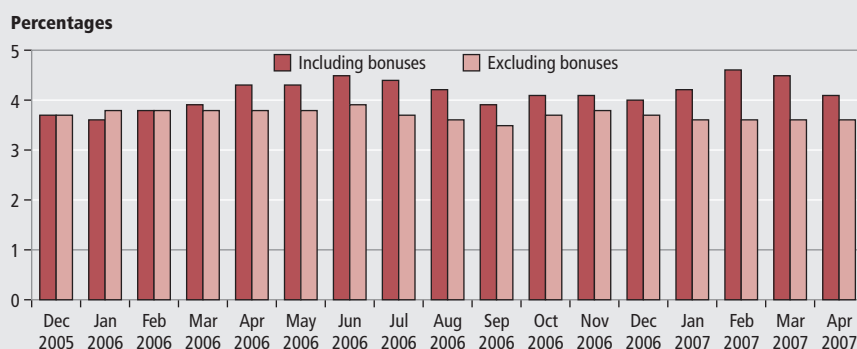
Figure 2
AEI annual growth, including and excluding bonuses, non-seasonally adjusted

Percentages
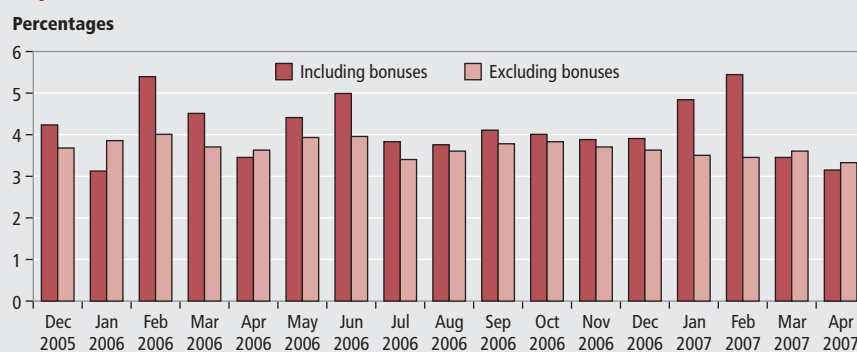
Figure 3
Contributions to changes in growth

Percentage points

Figure 3 shows how each of these contributed to the annual growth rates between December 2006 and April 2007. The biggest effects were on the data for February. In this month, the level of bonuses was higher than those that were also paid in February the previous year. There were also timing effects from bonuses moving from other months into February. Equally, there were some bonuses paid in February 2006 which were paid in other months in 2007. These more than offset the effect of those moving into February, so that growth in this month was slightly lower than the growth for those that were paid in February in both years. In general, the timing effects are less dramatic than in previous years.

The level of bonuses can be calculated from the AEI annual growth rate (see Freeman 2002). Applying this technique to the latest data, bonuses in the period December 2006 to April 2007 are approximately £3 billion higher than in the same period a year earlier.

Box 2 describes how the supplementary information breaks down the month-on-month effects of bonuses on the AEI growth rate between timing and levels effects.

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Box 2

Interpreting the data

To produce the bonus analysis, only companies that have a significant effect on the published growth rate for the whole economy are included. Due to the way that the AEI is constructed, it is possible to calculate the contribution of a single company to the whole economy month-to-month growth rate, that is, the percentage growth between two consecutive months. For the purposes of the analyses in this article, a company is included if, when they paid their bonus, they had an effect of more than 0.01 percentage points on the whole economy month-to-month growth rate.

Table 1 shows the aggregate effect of companies paying large bonuses in the period December 2006 to April 2007 and in the same period 12 months earlier. The figures show the contribution to the AEI month-to-month growth in the months that they paid their bonuses, for example, growth from January to February 2007. Figures in the white areas show effects on the AEI in the 2006/07 period; figures in the shaded areas in brackets show effects in the 2005/06 period.

Reading across the rows of the table shows what happened to the companies that paid bonuses in 2005/06. For instance, some companies paying bonuses in March 2006, with an effect of

5.2 percentage points, paid their bonuses in March 2007 with an effect of 5.3 percentage points. However, there were other companies paying bonuses in March 2006, with an effect of 0.4 percentage points, that paid their main bonuses in February 2007 with an effect of 0.3 percentage points. Looking at the totals in the final column, companies paying bonuses in March 2006 had an effect of 6.5 percentage points. When they paid their bonuses in 2006/07, they had an effect of 5.8 percentage points, that is, companies paying bonuses in March 2006 paid lower bonuses in 2006/07.

Reading down the columns of the table shows which companies were affecting growth in 2006/07. Looking at the column for February 2007, there were contributions from companies that had previously paid their bonuses in January 2006 (0.1 percentage points compared with 0.2 percentage points in 2006) and made payments later, as well as companies that had paid their bonuses in February 2006 and paid in the same month a year later (8.7 percentage points in 2007 compared with 7.6 percentage points in 2006). There was also a contribution from companies that had previously paid their bonuses in March 2006 (0.3 percentage points compared with 0.4 percentage points in 2006) and made payments earlier

Table 1
Bonus matrix for 2006/07

Contributions to month-to-month growth from firms that paid large bonuses[1] between December 2006 and April 2007

2005/06 annual bonus paid in	Whole economy growth 2005/06	Main bonus contributions 2005/06	2006/07 annual bonus paid in					
			December 2006	January 2007	February 2007	March 2007	April 2007	'Like-for-like'
December 2005	3.8	2.3	1.9	0.1	0.2	0.2	0.1	2.3
			(1.7)	(0.1)	(0.2)	(0.3)	(0.0)	(2.3)
January 2006	2.1	5.6	0.0	6.0	0.1	0.2	0.0	6.3
			(0.1)	(5.1)	(0.2)	(0.0)	(0.2)	(5.6)
February 2006	3.5	8.5	0.1	0.4	8.7	0.3	0.1	9.6
			(0.3)	(0.5)	(7.6)	(0.2)	(0.0)	(8.5)
March 2006	1.2	6.5	0.1	0.1	0.3	5.3	0.1	5.8
			(0.4)	(0.4)	(0.4)	(5.2)	(0.1)	(6.5)
April 2006	−6.9	1.3	0.3	0.2	0.1	0.3	0.9	1.7
			(0.2)	(0.3)	(0.0)	(0.0)	(0.8)	(1.3)
Total observed			2.3	6.6	9.4	6.3	1.1	
Whole economy growth 2006/07			3.9	3.0	4.1	−0.7	−7.2	

Note:

1 Includes all firms that made a contribution to the month-to-month growth of the AEI of more than 0.01 percentage points between December 2005 and April 2006 or December 2006 and April 2007.

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Measuring societal wellbeing

SUMMARY

This article provides an overview of measuring societal wellbeing, also called quality of life or social welfare. GDP and the National Accounts measure economic wellbeing according to an internationally agreed system, but they are increasingly seen as measuring only part of societal wellbeing. The article considers what societal wellbeing is and the main approaches that are emerging for how it should be measured. Some examples are given to show how government around the UK is measuring societal wellbeing.

The Organisation for Economic Co-operation and Development and other international organisations are, through the 2007 Istanbul Declaration, promoting debate about what progress means and how a shared view of societal wellbeing can be produced, based on high-quality statistics. This article is a contribution to that debate, and is aimed primarily at learning more about the needs for information on wellbeing and progress, and how it would be used. This will help the Office for National Statistics develop its analysis programme addressing the priorities of children, ageing, public sector productivity and societal welfare, which is likely to draw initially on existing indicators and may also build on developments in 'satellite' accounts that extend the coverage and scope of the National Accounts.

The UK, as a market democracy, shares a commitment with the 29 other members of the Organisation for Economic Co-operation and Development (OECD) to sustainable economic growth and employment, rising standard of living, maintaining financial stability and contributing to the development of the world economy. The National Accounts and related indicators – especially GDP per head – provide a well-established and internationally agreed way of measuring economic wellbeing.

However, for an increasing number of public policy needs, and in public debate, it is becoming recognised that there is 'more to life than GDP' (see Box 1 for an extract from a speech by Robert Kennedy that is believed to be the origin of this phrase). Fine though they may be, many of the things that Robert Kennedy listed as outside GDP are intangible, difficult to define and impossible to measure.

Various wider measures of societal wellbeing have been proposed and developed. A number of different approaches are reviewed in this article, which has been prepared as an overview of measuring societal wellbeing, part of ONS's analysis programme addressing the priorities of children, ageing, public sector productivity and societal welfare.[1] Key to taking forward work in the Office for National Statistics (ONS) on societal wellbeing is the need to understand more fully the requirements for measures beyond GDP. It is hoped this article will help gather further user needs for ONS work.

What is societal wellbeing?

There is no single definition of wellbeing. The terms wellbeing, quality of life, happiness, life satisfaction and welfare are often used interchangeably (although some disciplines draw distinctions between them). An overview of wellbeing concepts and challenges was prepared by Fiona McAllister for the Sustainable Development Research Network in 2005.[2] One of the distinctions she makes is between objective and subjective wellbeing. Objective wellbeing refers to the material and social circumstances believed to foster – or detract from – an individual's or community's sense of wellbeing. Subjective wellbeing refers to an individual's self-assessment of their own wellbeing. This assessment is likely to include relative as well as objective measures, life history, values and expectations.

Much of the discussion and research is about the wellbeing of individuals. To support policy makers wishing to take a greater focus on wellbeing and to promote consistency, the Department for Environment, Food and Rural Affairs (Defra) has worked with other government departments, the devolved administrations and other stakeholders to develop a common understanding:

Well-being is a positive physical, social and mental state; it is not just the absence of pain, discomfort and incapacity, it requires that basic needs are met, that individuals have a sense of purpose, that they feel able to achieve important personal goals and participate in society.

Box 1

Quality of life

'Too much and too long, we seem to have surrendered community excellence and community values in the mere accumulation of material things. Our gross national product ... if we should judge America by that – counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for those who break them. It counts the destruction of our redwoods and the loss of our natural wonder in chaotic sprawl. It counts napalm and the cost of a nuclear warhead, and armoured cars for police who fight riots in our streets. It counts Whitman's rifle and Speck's knife, and the television programs which glorify violence in order to sell toys to our children.

Yet the gross national product does not allow for the health of our children, the quality of their education, or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages; the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage; neither our wisdom nor our learning; neither our compassion nor our devotion to our country; it measures everything, in short, except that which makes life worthwhile. And it tells us everything about America except why we are proud that we are Americans.'

From a speech by Robert Kennedy, University of Kansas in Lawrence, 1968 (internet search)

This draws on a number of sources, particularly the World Health Organisation's definition of the health of an individual. It leads on to the question of whether the wellbeing of society as a whole is more than the sum of individual wellbeing. Clearly, there is some understanding that a community can have a sense of wellbeing. Measuring societal wellbeing overall may then involve both summarising individual (subjective) wellbeing and assessing (objective) material and social conditions.

Another way of understanding societal wellbeing is advocated by the OECD global project on measuring the progress of societies.[3] There is as yet no widespread agreement on how best to measure 'how a society is doing'. The OECD initiative also points to an important feature of the measure: are we seeking to measure the level of progress, which might be interpreted as the current stock of wellbeing, or the progress made over a given period, in the way that GDP measures total economic activity in a region over a period?

On the other hand, there are also barriers to social progress to understand. Over a century ago, aspects of life such as poverty, addition and violence were described by Joseph Rowntree as social evils and 'scourges of humanity'. The Joseph Rowntree Foundation has recently set up a project to update their founder's agenda in the 21st century. This will provide a stark backdrop to discussion of societal wellbeing.

Why measure societal wellbeing?

The glib answer is that there is more to life than GDP, so it should be measured. GDP may have been interpreted as a proxy for societal wellbeing but is increasingly seen as an incomplete measure of quality of life (see Anderson 1991). Although not described as explicitly about wellbeing, the concept of 'National Statistics' underpins it, because the aim of National Statistics is to provide an accurate, up-to-date, comprehensive and meaningful description of the economy and society of the UK. That, however, perhaps paints too broad a picture within which wellbeing or quality of life is hard to recognise. A more manageable framework appears from the context of sustainable development, in which economic, environmental and social issues and progress are seen as interdependent.

The need to measure wellbeing beyond economic growth is recognised within economics.[4] Indeed, the use and limitations of GDP as a measure of welfare were much discussed during the formative years of national accounting. It is important not to lose sight of the limitations. More recently, John Helliwell has written that:

It is incumbent on economists especially, who have been responsible for propagating the myth of economic man, to at least consider the costs of policies that rely too much on its assumed truth … The world is complex, and best understood with many measures, and seen through many lenses. Simple and widely collected measures of social capital and well-being have earned a place in the researcher's toolkit (see Helliwell 2006).

Richard Layard has called for radical reform to the theory behind public economics, to take on board the new psychology of happiness which shows that, 'despite massive increases in purchasing power, people in the West are no happier than they were fifty years ago' (see Layard 2006). Richard Easterlin was one of the first modern economists to study the relationship between GDP and happiness in the 1970s. He found that once a certain GDP is reached, the strength of the relationship between income and reported levels of happiness declines markedly. In **Figure 1**, the Easterlin paradox appears that reported happiness has remained broadly level in the US over 30 years while GDP per head in real terms has continued on a upward trend.

It is worth noting that the aim of the UK Treasury goes wider than GDP. Specifically, the aim of HM Treasury is 'to raise the

Figure 1

The Easterlin paradox
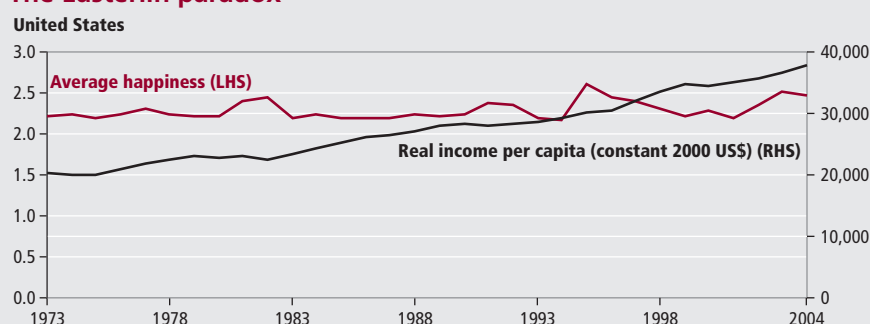
Source: Clarke et al 2006

rate of sustainable growth, and achieve rising prosperity and a better quality of life with economic and employment opportunities for all'.[5] The initial national economic development strategy of the Welsh Assembly Government highlighted 'We are … aware that increasing GDP does not automatically lead to a better quality of life for our people. The way we develop is important too' (WAG 2001). Quality of life features in all sections of the principles and priorities for the Scottish Government (2007).

The UK 2005 sustainable development strategy, *Securing the Future*, recognised that wellbeing is at the heart of sustainable development. It identified a need to ensure that wellbeing issues are being tackled consistently, in the right way and that government is genuinely making a difference to people's lives. The Local Government Act 2000 had given local authorities the power to promote social, economic and environmental wellbeing in their areas.

There are therefore public needs for information about wellbeing to make, implement and evaluate policy. These have to recognise that much of individual contentment or societal wellbeing is not influenced by government, especially after policy becomes embedded and accepted as part of the social norm.

Policy needs are accompanied by general public interest in wellbeing, including on the effectiveness of government policy. This is being addressed in other countries through publications such as the Australian Bureau of Statistics' *Measures of Australia's Progress At a Glance* and a new non-profit American institution, the State of the USA, Inc., with the goal of establishing 'a credible and reliable web-based source of high-quality data to measure America's changing economic, social and environmental conditions'.

A number of non-governmental organisations in the UK have also recognised the need to measure the wellbeing of society. The most important conclusion of the authors of the 2007 Equalities Review, *Fairness and Freedom*, is that 'a more equal Britain would be a better Britain: more prosperous, more humane, more cohesive and fairer'. Among other reports, those from the Commission on Urban Life and Faith and the new economics foundation (nef) both set an agenda and draw on existing data to present measures,[6] with nef working in particular with local authorities to develop wellbeing indicators to measure the impact of policy making.

The OECD notes that its *Going for Growth* publication focuses on policies that have the potential to improve economic performance, as measured by GDP per head. However, the OECD recognises that the wellbeing of individuals and households does not only depend on GDP per head, but also on other factors, such as leisure time, environmental quality, increases in competences and longevity, and distributive issues. This provides further impetus to the OECD's global project on measuring progress.

How should societal wellbeing be measured?

National accounts have been established for over 50 years, as a structured way of defining, measuring and presenting economic progress. Throughout this time there has been interest in setting GDP in a wider context. The International Association for Research in Income and Wealth (IARIW)[7] was founded in 1947, in conjunction with a meeting of the International Statistical Institute. Its organisers were individuals who were actively engaged in national income accounting research or who, in their official or academic positions, had been instrumental in developing the important techniques in national income and national budgeting that had been implemented in a number of countries during World War II and the immediate post-war period. IARIW's fields of interest include the development of systems of economic and social accounting, and their use for economic policy, as well as defining, measuring and analysing national income and wealth and the distribution of income and wealth, and poverty.

Sen's work on development economics, and associated research in the measurement of wellbeing through the 'capability approach', broadened the concept of economic wellbeing to include non-monetary dimensions of the quality of life, such as health, education, housing and participation in social life, as well as to allow for individual freedom. In order to capture trends in these dimensions, and to make comparisons over time and between countries, many systems of social indicators have grown up over the years, including the OECD's social indicators, first published around 1980.[8]

Happiness has been considered as a measure of societal wellbeing at least since Jeremy Bentham's writings about the proper purpose of law (1789). Bentham proposed that this, as for all human action,

was to promote 'utility' or, to use the more famous formulation, the greatest happiness of the greatest number. More recent theories, including neoclassical economics, have developed alternative models of societal gain, based on different philosophical models of how benefits might be distributed. These models often used concepts of utility that have appealing mathematical properties, but do not necessarily have meaningful, measurable counterparts. It was only in the second half of the 20th century that happiness began to be measured regularly in academic and commercial social surveys. This focuses on the perception that people have of their own wellbeing, assessed through sets of questions that tend to start with something like 'All things considered, how satisfied are you with your life as a whole nowadays?'

A body of research into happiness and life satisfaction is building up,[9] together with the view that overall life satisfaction can operate as an overall 'outcome' measure, reflecting economic wellbeing, health, education and access to services. However, it is also acknowledged that such measures have limitations. We do not know, for example, how much respondents discount current life dissatisfaction by future expectations, or the precise way in which life experience plays into current satisfaction. There may also be an increasing baseline of perceived entitlement, as prosperity is taken for granted. The measures are numerically constrained, for example, a score between 0 and 10, so that comparisons over longer periods and between places may be difficult to interpret.

Life-satisfaction/happiness and the 'capability approach' can be characterised as two main strands of research in the measurement of societal wellbeing beyond GDP. The territory beyond GDP was well mapped in 2006 in an OECD social, employment and migration working paper by Boarini, Johannson and d'Ercole.[10] Using a classification suggested there, the following components to the measurement of wellbeing can be identified:

- the National Accounts and GDP per head in particular
- ways of extending the National Accounts to include non-market activities, environmental impact, leisure time, social capital, the sharing of income within households, and various distributional concerns – which might be characterised as producing additional measures of welfare

(covering formal satellite accounts around the National Accounts and other estimates, such as those based on sustainable development principles)

- measures of specific social and environmental conditions that are related to wellbeing, which are invariably grouped into sets of indicators (for example, EU and OECD social indicator sets and the UN Human Development Index, which simply averages its component indicators)

- survey-based data on happiness and life-satisfaction

The strength of the National Accounts is that they have an internal rigour, internationally agreed and underpinned by a firm conceptual basis. However, this strength may also be a weakness when using them for wider measures of wellbeing. They do not cover, and do not claim to do so, all of the dimensions of wellbeing that are relevant. There is as yet no equivalent framework for social accounting. The promise of integration of social and economic data first set out in the 1950s in Stone's Social Accounting Matrices has not materialised, and this approach would anyway now need to be adapted to include environmental aspects. The IARIW remains an important focal point for work in this area. Sessions are being planned on measuring wellbeing and on macro indicators of wellbeing for the next IARIW general conference, in 2008.

This article reports on an initial tour of wellbeing literature and developments. It has not been possible to discover the extent to which various approaches and indicator sets are founded on articulated theoretical frameworks. Social psychology should provide sufficient established theory, for example on the hierarchy of human needs or on social deprivation, for a framework for societal wellbeing. It may well be that social psychology maps into the 'capability approach' and could be used to rationalise social indicators.

However, an initial impression remains that only now are theory and models relating to wellbeing being built. Moreover, interest is often in changes in wellbeing over time, to see how factors such as economic growth and public sector activities impact on it, which calls for more complex, dynamic theory and models.

In the absence of theory, analysts have often adopted a descriptive approach to wellbeing. A standard, cross-disciplinary definition of either quality of life or

wellbeing does not exist. Definitions vary according to research interests and objectives. Wellbeing can at best be viewed as a multidimensional, shifting concept. How it is measured relates to how the term is defined and what is being measured. Indicator sets designed to cover specific topic areas have an advantage in terms of covering a wider range of social concerns. But they are weakened by often not having any discernible theoretical basis.

Summarising an indicator set is also problematic. The full set of indicators can be presented, for example, with information that assesses the performance of each indicator. This leaves the user to weight the indicators together as appropriate for their needss, or simply to average them. The weights used in any composite index need to be explicit.

This means that indicator sets purporting to measure wellbeing on a broad basis often look just like arbitrarily chosen groups of likely looking indicators. Precisely because there is no theoretical basis, it is difficult to choose between competing sets, even though they frequently show quite different readings and comparative rankings.[11] One danger of not treating wellbeing consistently as a multidimensional concept is that particular contributions to the quality of life, for example, the quality of public space, may fail to be recognised.

Looking at the two broad approaches to measuring societal wellbeing identified in the literature (measures of a healthy society and measures of individual contentment) suggests that the quality criteria for each approach share some common features, but also have their own features:

- to measure the health/wellbeing of society through a set of measures that are grounded in a model of social behaviour, coherent, comprehensive, inclusive, consistent over time and space, and internationally agreed

- to measure individual contentment/ happiness through statistical vehicles that are reliable, understandable, representative of population as a whole, and replicable

That no framework for measuring societal wellbeing has yet been agreed, unlike the system of national accounts, may simply be that there is no common currency with which to measure the many dimensions of wellbeing. Quality-adjusted years of life and other measures of healthy life expectancy are used in the health and social care context. However, despite wellbeing having health as

a core feature, it is difficult to operationalise this across other aspects of wellbeing.

Consistency over time is another important feature. Changes in societal wellbeing might intuitively be rather slow to take effect. On the other hand, there might be some changes that reflect a paradigm shift in attitudes or outcomes (for example, how did the events of 9/11 or the Asian tsunami impact on the wellbeing of those of us who were not directly affected?). Whether change is gradual or abrupt, measures are needed that allow those changes to be determined with confidence. The analogy with measuring turning points in the economy is intriguing: might social indicators be found that lead, lag or are coincident with turning points in societal wellbeing?

In their OECD paper, Boarini *et al* conclude that:

- within the National Accounts, other and possibly better measures than GDP per head exist, for example, net national product and net income. However, these are less widely available and, where they are available, they do not change the picture given by comparing GDP per head over time or between countries

- illustrative calculations to extend the National Accounts similarly do not alter the rankings of GDP per head between countries. However, extending the National Accounts does show a different time profile in wellbeing to that shown by GDP per head

- similarly, levels of most of the specific indicators of social conditions are significantly correlated to GDP per head across OECD countries, while changes over time are not. A composite index based on these indicators points to significant difference in performance relative to GDP per head in around half of OECD countries, whatever the weights used in the index

- survey-based data on happiness and life-satisfaction across OECD countries are only weakly related to levels of GDP per head. Research on these subjective measures suggests that several distinct factors – such as joblessness, family and community ties – contribute to overall life-satisfaction and their influence cannot be reduced to a single dimension of economic resources

The authors' summary is that:

measures of economic growth remain critical for any assessment of well-being

but they need to be complemented with measures of other dimensions of well-being. How best to integrate these different measures is an open question. One approach is to take measures of economic resources as a starting point and then introduce a series of corrections to incorporate other arguments, but internationally-agreed standards on how to value these various non-market factors have yet to be developed. A different approach is to use various non-monetary indicators alongside conventional measures of economic resources: while still lacking a coherent conceptual and statistical framework, these indicators provide information that is relevant for the assessment of well-being.

Reflecting on what this means for the UK, two points should be made. First, while it is generally true that moving from GDP to net national product (NNP) or net income does not change the picture much, it does make a difference for the UK, which is an exception. UK capital stock is much lower in relation to GDP than other comparable countries, reflecting secular underinvestment. However, in national accounting terms, this does mean that depreciation in the UK is proportionately lower than for other countries. On an NNP per head basis, the UK therefore appears higher in the league table than it would on a GDP comparison basis.

Secondly, given that some satellite accounts are produced in the UK, one way forward would be to make greater use of them, retaining the rigour of national accounts but with much greater inclusion of social, environmental and economic outcomes than would be possible within national accounts. (The language here is interesting: it conveys the picture of subsidiary accounts orbiting the main National Accounts, whereas if the primary concern is to measure wellbeing then the monetary National Accounts may not have such a central position). The challenge, of course, is then to design, implement and update satellite accounts. The Atkinson Report on measuring government output and productivity recommended greater use of satellite accounts, particularly for the development of human capital through education, and for health.[12]

Examples of measuring societal wellbeing

In this section, a limited number of examples from government around the UK are examined, in each of the categories of wellbeing measurement beyond GDP listed above. This is not a comprehensive review of all work relevant to wellbeing, especially the many different indicator sets that each give a view on aspects of wellbeing. It is also not a guide to sources beyond government, such as the Economic and Social Research Council's British Household Panel Survey, which began in 1991 and includes measures of subjective wellbeing that have been widely analysed.

Extending the National Accounts

The index of sustainable economic welfare (ISEW) represents an estimate of welfare based on sustainable development principles. Daly and Cobb (1989) developed the method and Cobb and others turned this into the Genuine Progress Indicator in the mid-1990s. In the UK, developments have been led by Tim Jackson at Surrey University and nef. One variation was called the Measure of Domestic Progress and in July 2007 nef launched the European Happy Planet Index. This first ranks countries separately for their carbon footprint, life expectancy and life satisfaction. Then the indicators are put together to demonstrate the efficiency with which their resource use translates into relatively long and happy lives.[13]

Munday *et al* (2007) have calculated an ISEW for Wales covering 1990 to 2005 showing that the ISEW per head grew more strongly between 1990 and 2005 overall than did GDP per head, in contrast with the picture painted by the life satisfaction measure (for the US, but typical of OECD countries) in Figure 1. The pilot Welsh ISEW starts from consumers' expenditure (not total GDP) and a number of adjustments are made. The largest of these are for domestic labour services and public expenditure on health and education (both adding to the index) and costs of depletion of non-renewable natural resources and an adjustment to consumption for income inequality (both negative impacts).

It is clear to see how all the components of the Welsh ISEW are derived. Critiques of all ISEWs major on the selection and construction of particular elements of the index, and on how the index should be used and interpreted. The index base is personal consumption expenditure, taken as the utility gained from market goods and services.

ONS has been publishing environmental accounts in the spring and autumn of each year since 2002.[14] Environmental accounts are 'satellite accounts' to the main National Accounts. They provide information on air pollution, energy consumption, oil and gas reserves, trade in basic materials, environmental taxation and spending on environmental protection. These are related to the different industrial, commercial and domestic sectors. Environmental accounts use similar concepts and classifications of industries to those employed in the National Accounts, and they reflect the recommended European Union and United Nations framework for developing such accounts. The availability of various data sources used in Environmental Accounts varies from topic to topic. It is therefore not possible to update all sections of the publication for every edition.

Household satellite accounts measure and value the unpaid outputs produced by households in the UK. ONS published experimental estimates in 2002,[15] suggesting that the value added by UK households – or gross household product – in 2000 was some £695 billion (an amount equivalent to 78 per cent of GDP as defined in the National Accounts, excluding household product). This work, unlike the UK Time Use Survey conducted around the same time, does not appear to be widely known. It was not referred to in the ISEW for Wales mentioned above, for example. Yet simply applying a pro-rata figure for Wales to the ONS experimental estimates suggests a gross household product for Welsh households of £28 billion in 2000, five times the size of the adjustment for domestic labour included in the pilot Welsh ISEW. Recognising that all of this work is experimental, there are nevertheless marked differences between the two approaches that need to be examined further, as part of a wider debate about measuring societal wellbeing.

Since the Atkinson report, ONS has been developing measures of public service output which aim to measure changes in quality of service. A recent publication proposed that quality should be measured on two broad dimensions: the extent to which the service succeeds in delivering intended outcomes, and the extent to which it is responsive to users' needs. The strategy also said that transparent decisions, backed by research if possible, should be made on the relative importance of these aspects of quality for different services.[16]

Indicator sets

UK government sustainable development strategies have given rise to what is now a set of 68 sustainable development indicators, through which to review progress, along with other evidence, in four priority areas:

- sustainable consumption and production
- climate change and energy
- protecting natural resources and enhancing the environment, and
- creating sustainable communities and a fairer world

The indicators are updated annually and presented in a National Statistics booklet.[17] Each indicator is assessed against a baseline position and 'traffic lights' are used to signal whether there is a clear improvement, little or no change, clear deterioration or insufficient or no comparable data. In the 2007 publication, there are 93 measures that are comparable with the position in 1999. Of these, 50 (over half) showed improvement, 32 showed little or no change, and 11 had deteriorated.

With Neighbourhood Statistics (NeSS), there is a set of 13 community wellbeing/ social environment indicators for each local authority area, as well as many other indicators that add to the picture of quality of life.[18] The main policy drivers for NeSS were initially to better understand patterns of deprivation and social exclusion, but the coverage of indicators has increased over time to present broader pictures of local areas. The NeSS community wellbeing/ social environment indicators do not appear to have been much studied or analysed, either as a set or in combination with other small area indicators. Taken together with the Scottish[19] and Northern Ireland small area statistics, there is in effect a UK data set that could be used as one way of reporting on societal wellbeing.

Social Trends draws together economic and social statistics from a wide range of government departments and other organisations to paint a broad picture of our society today, and how it has been changing.[20] Much of what ONS publishes in *Social Trends* and elsewhere is used in measuring and debating wellbeing in specific contexts, such as health and social care. However, commentators noted that, although the latest edition of *Social Trends* produced some 'arresting statistics', it is not clear how to interpret the meaning of these statistics for wider wellbeing or the overall direction of progress of the country.[21]

Life satisfaction

The 2007 edition of the UK Government Sustainable Development Indicators contains for the first time an indicator section on wellbeing.[22] This follows research looking at how wellbeing can fit into policy making and what measures can inform

these policies. The wellbeing measures that have been identified include the following:

- selected existing sustainable development indicators
- some related measures to support the relevant existing sustainable development indicator
- new survey results on life satisfaction, which in due course may be developed into measures of wellbeing, and for which a number of summary charts are presented showing, for example, the distribution of life satisfaction scores overall and by social grade
- measures of participation in sport and culture, and a measure of positive mental wellbeing

According to the Defra survey reported there, the average overall life satisfaction rating for England was 7.3 out of 10. This is supported by provisional results from the 2007 European Social Survey using the same question, which gave an average for Great Britain of around 7 out of 10. The majority of people rate themselves in the upper half of life satisfaction scores and 49 per cent of people rated their overall life satisfaction as 7 or 8 out of 10. There are interesting echoes here with experimental psychology findings on how people rate themselves against others (see Fine 2006).

Concluding remarks

The Istanbul Declaration, issued by the OECD and other international organisations in 2007,[3] urged:

statistical offices, public and private organisations, and academic experts to work alongside representatives of their communities to produce high-quality, facts-based information that can be used by all of society to form a shared view of societal wellbeing and its evolution over time.

This article is an initial contribution to that debate. It is aimed primarily at learning more about the needs for information on wellbeing and progress, and how information would be used. Is the requirement to take regular stock of the state of the UK, counting human, social and cultural capital as well as economic capital, or to measure the amount of societal wellbeing generated over a given period? ONS has signalled that measuring societal wellbeing is a priority analytical area. It is developing a plan for this in the light of user requirements. In gathering requirements,

ONS is also taking account of views of societal wellbeing such as those seen through the lens of equality, fairness and freedom.

Given that wellbeing is multifaceted, does it need to be summarised as a single number? Although this is done in a number of approaches, it is done simplistically and essentially by assuming equal importance to each component. Perhaps a phased approach would be more helpful, firstly to identify and agree the various areas of life that contribute to overall life satisfaction, welfare or wellbeing. There is much to debate here, but also some shared understanding of major components, including health, income, the environment, education and equalities. Choices of components and associated indicator sets – and what is left out – would have to be justified against some sound framework. Better ways of presenting multidimensional data also need to be found. Then, having measured the components or dimensions, it may be appropriate to find ways of judging their relative importance. Can a utility function be defined and measured, based on population values?

The measurement of societal wellbeing may need to be undertaken at different geographical levels. There may well be a need to assess wellbeing for the UK as a whole, including for comparison with other EU member states or other members of the OECD, as well as to feed into the evaluation of policy options. But there will also be needs for measures for parts of the UK, including again for comparisons, both within the UK and between, for example, European regions. If GDP per head (strictly, ONS estimates gross value added per head) is different between two parts of the UK, are there compensating factors that rebalance wellbeing in the two regions? Meeting local and community level needs may only be possible with different indicators from those that might be most useful at national level.

Another dimension to measuring wellbeing would be to compare different social groups, for example by age or life-cycle stage, income or cultural identity. More generally, the distributional question is central to work on wellbeing having real meaning. Data will be needed to assess the (relative) wellbeing of subgroups, the distribution of wellbeing outcomes, and to understand how different policy instruments might impact in different ways.

Although this has been by no means a comprehensive review of existing work, it is clear that there is a large amount of data already collected that could be analysed further, to provide some insight to societal

wellbeing and progress, beyond GDP, in all the categories of products that have been suggested as ways of measuring wellbeing. There are also a number of challenges in making sense of what is already available and presenting this in a clear and structured way.

ONS might also particularly contribute to the debate by exploring the need for satellite accounts and, with appropriate resources, developing them by building on national accounts expertise. Whether or not these might eventually add up to a system of national wellbeing accounts is another matter. A first step here could be to explore policy and other needs for particular accounts, for example to measure social care, as well as building links between existing satellite accounts and other measures of societal wellbeing. This would be one way of providing structure to the understanding of wellbeing. It should usefully draw on reviewing how existing satellite accounts are used.

Notes

1   See ONS News Release on statistical priorities for 2007–08, 27 March 2007.
2   See www.sd-research.org.uk/ well-being/documents/SDRNwell- beingpaper-Final_000.pdf
3   Measuring and fostering the progress of societies was the theme of an OECD world forum in June 2007, see www. oecd.org/document/51/0,2340,en_2157 1361_31938349_37115187_1_1_1_1,00. html
4   See, for example, *The Economist* 23 December 2006 cover story *Happiness (and how to measure it)*.
5   See www.hm-treasury.gov.uk/about/ about_index.cfm
6   See www.culf.org.uk and www. neweconomics.org
7   See www.iariw.org
8   See www.oecd.org/dataoecd/

9   See, for example, www. worlddatabaseofhappiness.eur.nl
10 Paper DLESA/ELSA/WD/SEM(2006)2 is available at www.oecd.org/els/ workingpapers
11 Based on observations by Dennis Trewin, a former Australian National Statistician, at an OECD conference on measuring societal progress and well being (Milan, June 2006).
12 See www.statistics.gov.uk/about/data/ methodology/specific/PublicSector/ Atkinson/final_report.asp
13 See www.neweconomics.org/gen/ european_happy_planet_index_160707. aspx
14 Details are available at www.statistics. gov.uk/cci/nugget.asp?id=143
15 See www.statistics.gov.uk/hhsa/hhsa/ index.html
16 See www.statistics.gov.uk/articles/ nojournal/ukcemga_strategy_paper.pdf
17 See www.sustainable-development.gov. uk/progress/data-resources/sdiyp.htm
18 See, for example, the data sets for Gosport local authority by entering relevant details at www.neighbourhood. statistics.gov.uk/dissemination
19 See, for example, the data sets for the Scottish Borders area by entering relevant details at www.neighbourhood. statistics.gov.uk/dissemination
20 See www.statistics.gov.uk/statbase/ product.asp?vlnk=13675
21 See *Financial Times*, 14 April 2007, page 8.
22 See www.sustainable-development.gov. uk/progress/national/68.htm

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FEATURE

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Services producer price index (experimental) – second quarter 2007

SUMMARY

The experimental services producer price index (SPPI) measures movements in prices charged for services supplied by businesses to other businesses, local and national government. This article shows the effects some industries are having on the top-level SPPI. It continues the quarterly feature previously published in Economic Trends. The data produced are used internally by the Office for National Statistics as a deflator for the index of services and the quarterly measurement of gross domestic product. The index is also used by HM Treasury and the Bank of England to help monitor inflation in the economy.

Prices of business-to-business services rose by 2.5 per cent in the year to the second quarter of 2007. This is based on a comparison of the change in the top-level services producer price index (SPPI) on the net sector basis.

Figure 1 shows how the percentage change for the top-level SPPI (net sector) compares with the retail prices index (RPI) all services

sector, and the producer price index (PPI) for all manufactured goods (net sector).

The top-level results, on both gross and net sector bases, are shown in **Table 1**. In 2007 Q2, the top-level SPPI (net sector) rose by 1.2 per cent compared with the previous quarter.

Figure 2 depicts the SPPI annual growths for both the net and gross sector time series.

Figure 1

Experimental top-level SPPI compared with the RPI and PPI

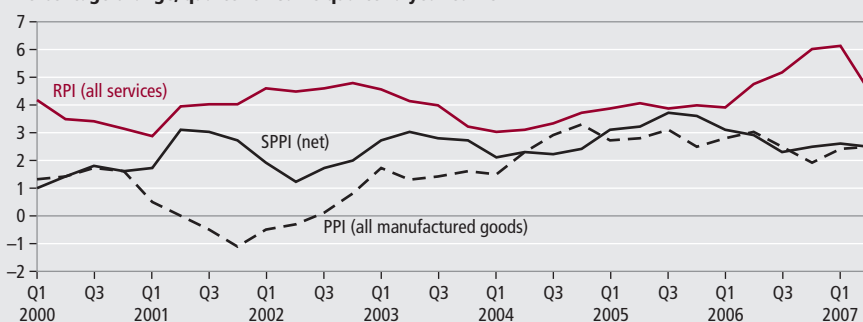**Percentage change, quarter on same quarter a year earlier**

Figure 2

Experimental top-level SPPI

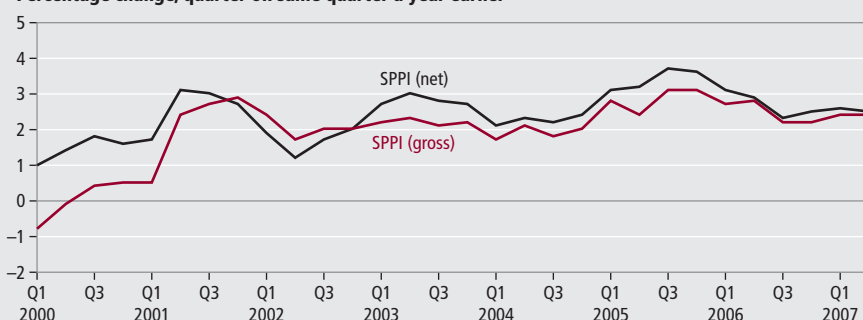**Percentage change, quarter on same quarter a year earlier**

Table 1
Top-level SPPI results

	SPPI quarterly index values, 2000=100		Percentage change, quarter on same quarter a year earlier	
	Gross sector	**Net sector**	**Gross sector**	**Net sector**
2000 Q1	100.1	99.7	−0.8	1.0
2000 Q2	99.9	99.8	−0.1	1.4
2000 Q3	99.9	100.1	0.4	1.8
2000 Q4	100.1	100.5	0.5	1.6
2001 Q1	100.6	101.3	0.5	1.7
2001 Q2	102.3	102.9	2.4	3.1
2001 Q3	102.7	103.1	2.7	3.0
2001 Q4	102.9	103.2	2.9	2.7
2002 Q1	103.1	103.2	2.4	1.9
2002 Q2	104.1	104.2	1.7	1.2
2002 Q3	104.8	104.8	2.0	1.7
2002 Q4	105.0	105.3	2.0	2.0
2003 Q1	105.3	106.0	2.2	2.7
2003 Q2	106.5	107.3	2.3	3.0
2003 Q3	106.9	107.8	2.1	2.8
2003 Q4	107.3	108.2	2.2	2.7
2004 Q1	107.1	108.2	1.7	2.1
2004 Q2	108.7	109.8	2.1	2.3
2004 Q3	108.9	110.1	1.8	2.2
2004 Q4	109.4	110.8	2.0	2.4
2005 Q1	110.1	111.6	2.8	3.1
2005 Q2	111.3	113.3	2.4	3.2
2005 Q3	112.2	114.3	3.1	3.7
2005 Q4	112.8	114.8	3.1	3.6
2006 Q1	113.1	115.1	2.7	3.1
2006 Q2	114.4	116.6	2.8	2.9
2006 Q3	114.7	116.9	2.2	2.3
2006 Q4	115.3	117.6	2.2	2.5
2007 Q1	115.8	118.1	2.4	2.6
2007 Q2	117.2	119.5	2.4	2.5

The annual growth for the SPPI net sector fell to 2.5 per cent in 2007 Q2, down from 2.6 per cent in 2007 Q1. The gross SPPI growth at 2.4 per cent in 2007 Q2 remained unchanged compared with the previous quarter. The difference in the annual growth between the gross and net sector SPPI is 0.1 per cent this quarter.

Industry-specific indices

Tables available on the National Statistics website contain the data for the 33 industries for which indices of services producer prices are currently available. The weights for each industry index are shown at both gross and net sector levels. Comparing Q2 2007 with Q2 2006, some key points to note are:

- property rentals rose 5.0 per cent, due to sustained growth within the sector as reported by the Investment Property Databank
- sewerage services prices rose by 6.5 per cent, following rises reported by OFWAT; these are updated on an annual basis in Q2

- freight transport by road rose by 1.2 per cent, due to annual increases taking into account the rising costs of overheads, for example, cost of fuel
- real estate agency activities rose by 9.7 per cent, due to upward price movements reported across the whole of their sector

Next results

The next set of SPPI results will be issued on 28 November 2007 on the National Statistics website at: www.statistics.gov.uk/sppi

Further information

All SPPI tables and articles on the methodology and impact of rebasing the SPPI and the redevelopment of an index for business telecommunications (together with more general information on the SPPI) are available at: www.statistics.gov.uk/sppi

A summary quality report for the SPPI can be found at:
www.statistics.gov.uk/about/data/methodology/quality/information_business_statistics.asp

TECHNICAL NOTE

1   The experimental services producer price index (SPPI) replaces the former corporate services price index (CSPI). It measures movements in prices charged for services supplied by businesses to other businesses, local and national government. It is not classified as a National Statistic.

2   Unless otherwise stated, index numbers shown in the main text are on a net sector basis. These relate only to transactions between the corporate services sector and other sectors. Detailed tables available on the National Statistics website also contain gross sector indices which include transactions within the corporate services sector.

3   Indices relate to average prices per quarter. The full effect of a price change occurring within a quarter will only be reflected in the index for the following quarter. All index numbers exclude VAT and are not seasonally adjusted.

4   SPPI inflation is the percentage change in the net sector index for the latest quarter compared with the corresponding quarter in the previous year.

5   Grants from the European Commission helped ONS to begin developing the SPPI. Funding of approximately 600,000 euros was awarded between 2002 and 2005. This has now ceased.

6   A number of external data sources are currently used in the compilation of the SPPI, as follows:
Investment Property Database (IPD) – property rental payments
Office of Communications (Ofcom) – business telecommunications
Office of Water Services (OFWAT) – sewerage services
Parcelforce – national post parcels
Office of Rail Regulation (ORR) – business rail fares
Yew Tree – maintenance and repair of motor vehicles

7   As announced in last quarter's release, the banking SPPI has been withdrawn from publication this quarter pending further work by ONS to include the effects of new data from the Bank of England. The top-level SPPIs have been revised from 1998 to exclude the banking SPPI. There are also revisions to the price data for business telecommunications from 2002 to reflect improved data on revenues.

Key time series

National accounts aggregates

Last updated: 26/09/07

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
2001	1,003,297	889,063	89.7	89.5	93.7	95.3	95.6	94.1	93.6
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	104.3	105.2	105.2	104.9	104.9
2006	1,301,914	1,157,136	116.4	116.5	106.5	108.2	108.2	107.7	107.6
2001 Q1	247,905	219,532	88.7	88.4	93.1	94.9	95.3	93.5	92.7
2001 Q2	249,597	220,901	89.3	88.9	93.4	95.0	95.3	94.0	93.3
2001 Q3	251,028	222,536	89.8	89.6	94.4	95.6	95.8	94.0	93.6
2001 Q4	254,767	226,094	91.1	91.0	94.1	95.9	96.0	95.0	94.9
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	104.1	104.4	104.4	104.2	104.1
2005 Q2	307,306	273,158	109.9	110.0	105.4	104.8	104.9	104.9	104.8
2005 Q3	308,515	273,676	110.4	110.2	103.5	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	318,171	283,047	113.8	114.0	105.2	106.9	107.0	106.4	106.5
2006 Q2	321,860	285,937	115.1	115.1	107.0	107.8	107.8	106.8	106.8
2006 Q3	329,009	292,359	117.7	117.7	107.1	108.5	108.6	108.5	108.4
2006 Q4	332,874	295,793	119.1	119.1	106.7	109.4	109.5	108.8	108.8
2007 Q1	337,877	299,867	120.9	120.7	108.9	110.3	110.4	109.6	109.4
2007 Q2	344,321	305,937	123.2	123.2	110.1	111.2	111.3	110.8	110.7

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

2001 Q1	5.0	5.3	5.1	5.4	3.3	2.9	2.9	2.1	2.2
2001 Q2	4.6	5.0	4.6	5.0	3.2	2.3	2.1	2.3	2.8
2001 Q3	4.1	4.5	4.2	4.6	3.1	2.4	1.9	1.8	2.6
2001 Q4	4.8	5.2	4.7	5.2	3.7	2.0	1.6	2.7	3.6
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	4.7	4.8	4.7	4.9	1.1	2.4	2.5	2.1	2.3
2006 Q2	4.7	4.7	4.7	4.6	1.5	2.9	2.8	1.8	1.9
2006 Q3	6.6	6.8	6.6	6.8	3.5	2.9	3.0	3.6	3.7
2006 Q4	6.0	5.7	6.0	5.8	2.5	3.1	3.1	2.6	2.5
2007 Q1	6.2	5.9	6.2	5.9	3.5	3.2	3.2	3.0	2.7
2007 Q2	7.0	7.0	7.0	7.0	2.9	3.2	3.2	3.7	3.7

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: 26/09/07

£ million, chained volume measures, reference year 2003, seasonally adjusted

	Domestic expenditure on goods and services at market prices											Gross domestic at product market prices
	Final consumption expenditure			Gross capital formation						less imports of goods and services	Statistical discrepancy (expenditure)	
	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			
	ABJR	HAYO	NMRY	NPQT	CAFU	NPJR	YBIM	IKBK	ABMG	IKBL	GIXS	ABMI
2001	653,326	27,155	217,359	178,203	5,577	342	1,082,333	277,694	1,360,205	294,449	0	1,066,217
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	746,358	29,875	251,724	217,085	1,236	66	1,246,344	357,110	1,603,454	394,860	793	1,209,387
2001 Q1	161,204	6,873	53,609	44,158	1,675	−26	267,565	71,295	339,027	73,841	0	265,267
2001 Q2	162,333	6,788	53,894	44,888	1,793	202	270,071	69,333	339,452	73,937	0	265,573
2001 Q3	164,239	6,762	54,600	45,017	1,726	30	272,481	67,921	340,353	73,327	0	267,163
2001 Q4	165,550	6,732	55,256	44,140	383	136	272,216	69,145	341,373	73,344	0	268,214
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	184,161	7,356	62,857	52,461	434	−128	307,140	93,587	400,727	102,053	225	298,899
2006 Q2	186,443	7,437	62,612	53,305	−196	233	309,834	96,083	405,917	104,796	202	301,323
2006 Q3	186,861	7,511	62,919	54,766	1,707	−29	313,735	83,629	397,364	94,220	186	303,330
2006 Q4	188,893	7,571	63,336	56,553	−709	−10	315,635	83,811	399,446	93,791	180	305,835
2007 Q1	190,133	7,629	63,631	57,170	272	73	318,908	83,998	402,905	94,848	203	308,260
2007 Q2	191,562	7,701	63,850	56,635	851	327	320,925	84,126	405,051	94,469	204	310,787

Percentage change, quarter on corresponding quarter of previous year

	Households	Non-profit institutions	General government	Gross fixed capital formation			Total	Exports of goods and services	Gross final expenditure	less imports of goods and services		Gross domestic at product market prices
2001 Q1	2.1	3.9	1.8	3.0			2.8	9.7	4.3	9.0		2.9
2001 Q2	2.9	0.6	1.6	5.5			3.2	3.0	3.1	6.1		2.3
2001 Q3	3.4	−1.6	2.8	3.7			3.0	1.0	2.6	3.6		2.3
2001 Q4	4.0	−3.0	3.3	−1.6			2.7	−1.6	1.7	0.7		2.1
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	6.2			1.9	23.2	6.2	18.8		2.4
2006 Q2	2.3	6.4	1.6	8.0			2.9	20.7	6.6	19.2		2.8
2006 Q3	2.0	6.7	1.7	8.1			3.4	1.5	3.0	3.0		3.0
2006 Q4	2.6	6.1	1.9	10.3			3.6	−2.4	2.3	−0.6		3.2
2007 Q1	3.2	3.7	1.2	9.0			3.8	−10.2	0.5	−7.1		3.1
2007 Q2	2.7	3.5	2.0	6.2			3.6	−12.4	−0.2	−9.9		3.1

Notes:

Source: Office for National Statistics

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

Labour market summary

Last updated: 12/09/07

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
May-Jul 2005	47,788	30,163	28,740	1,423	17,625	63.1	60.1	4.7	36.9
May-Jul 2006	48,162	30,666	28,964	1,702	17,496	63.7	60.1	5.5	36.3
Aug-Oct 2006	48,254	30,700	29,005	1,695	17,555	63.6	60.1	5.5	36.4
Nov-Jan 2007	48,347	30,715	29,022	1,692	17,633	63.5	60.0	5.5	36.5
Feb-Apr 2007	48,440	30,689	29,012	1,677	17,751	63.4	59.9	5.5	36.6
May-Jul 2007	48,533	30,745	29,096	1,649	17,788	63.3	60.0	5.4	36.7
Male	MGSM	MGSG	MGSA	MGSD	MGSJ	MGWH	MGSS	MGSY	YBTD
May-Jul 2005	23,165	16,325	15,487	838	6,840	70.5	66.9	5.1	29.5
May-Jul 2006	23,370	16,585	15,602	983	6,785	71.0	66.8	5.9	29.0
Aug-Oct 2006	23,422	16,631	15,652	979	6,791	71.0	66.8	5.9	29.0
Nov-Jan 2007	23,474	16,635	15,668	967	6,840	70.9	66.7	5.8	29.1
Feb-Apr 2007	23,527	16,651	15,684	967	6,876	70.8	66.7	5.8	29.2
May-Jul 2007	23,579	16,673	15,728	946	6,905	70.7	66.7	5.7	29.3
Female	MGSN	MGSH	MGSB	MGSE	MGSK	MGWI	MGST	MGSZ	YBTE
May-Jul 2005	24,623	13,838	13,254	584	10,785	56.2	53.8	4.2	43.8
May-Jul 2006	24,792	14,081	13,362	719	10,711	56.8	53.9	5.1	43.2
Aug-Oct 2006	24,833	14,068	13,352	716	10,764	56.7	53.8	5.1	43.3
Nov-Jan 2007	24,873	14,080	13,354	726	10,793	56.6	53.7	5.2	43.4
Feb-Apr 2007	24,913	14,038	13,328	711	10,875	56.3	53.5	5.1	43.7
May-Jul 2007	24,954	14,072	13,368	703	10,882	56.4	53.6	5.0	43.6

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
May-Jul 2005	37,007	29,079	27,676	1,404	7,928	78.6	74.8	4.8	21.4
May-Jul 2006	37,274	29,477	27,804	1,674	7,797	79.1	74.6	5.7	20.9
Aug-Oct 2006	37,323	29,488	27,820	1,668	7,835	79.0	74.5	5.7	21.0
Nov-Jan 2007	37,364	29,487	27,817	1,670	7,877	78.9	74.4	5.7	21.1
Feb-Apr 2007	37,405	29,451	27,799	1,652	7,954	78.7	74.3	5.6	21.3
May-Jul 2007	37,446	29,493	27,870	1,622	7,953	78.8	74.4	5.5	21.2
Male	YBTG	YBSL	YBSF	YBSI	YBSO	MGSP	MGSV	YBTJ	YBTM
May-Jul 2005	19,140	15,958	15,129	829	3,182	83.4	79.0	5.2	16.6
May-Jul 2006	19,308	16,187	15,216	971	3,121	83.8	78.8	6.0	16.2
Aug-Oct 2006	19,347	16,221	15,253	968	3,126	83.8	78.8	6.0	16.2
Nov-Jan 2007	19,385	16,225	15,266	959	3,160	83.7	78.8	5.9	16.3
Feb-Apr 2007	19,423	16,238	15,283	955	3,185	83.6	78.7	5.9	16.4
May-Jul 2007	19,461	16,246	15,311	935	3,215	83.5	78.7	5.8	16.5
Female	YBTH	YBSM	YBSG	YBSJ	YBSP	MGSQ	MGSW	YBTK	YBTN
May-Jul 2005	17,867	13,121	12,547	574	4,746	73.4	70.2	4.4	26.6
May-Jul 2006	17,966	13,290	12,587	703	4,676	74.0	70.1	5.3	26.0
Aug-Oct 2006	17,976	13,267	12,567	701	4,709	73.8	69.9	5.3	26.2
Nov-Jan 2007	17,979	13,262	12,551	711	4,717	73.8	69.8	5.4	26.2
Feb-Apr 2007	17,982	13,213	12,516	697	4,769	73.5	69.6	5.3	26.5
May-Jul 2007	17,984	13,246	12,559	687	4,738	73.7	69.8	5.2	26.3

Notes:

Relationship between columns: 1 = 2 + 5; 2 = 3 + 4; 6 = 2/1; 7 = 3/1; 8 = 4/2;
9 = 5/1; 10 = 11 + 14; 11 = 12 + 13; 15 = 11/10; 16 = 12/10; 17 = 13/11; 18 = 14/10
The Labour Force Survey is a survey of the population of private households, student halls of residence
and NHS accommodation.

Prices

	Consumer prices						Producer prices			
	Consumer prices index (CPI)			Retail prices index (RPI)			Output prices		Input prices	
	All items	CPI excluding indirect taxes (CPIY)[1]	CPI at constant tax rates (CPI-CT)	All items	All items excluding mortgage interest payments (RPIX)	All items excluding mortgage interest payments and indirect taxes (RPIY)[2]	All manufactured products	Excluding food, beverages, tobacco and petroleum products	Materials and fuels purchased by manufacturing industry	Excluding food, beverages, tobacco and petroleum products
	D7G7	EL2S	EAD6	CZBH	CDKQ	CBZX	PLLU[3]	PLLW[3]	RNPE[3]	RNPF[3]
2003 Jan	1.3			2.9	2.7	2.9	1.3	0.9	1.7	−2.2
2003 Feb	1.6			3.2	3.0	3.1	1.5	1.1	2.5	−2.0
2003 Mar	1.5			3.1	3.0	3.2	2.1	1.3	0.8	−1.5
2003 Apr	1.4			3.1	3.0	2.9	1.6	1.3	−1.3	−0.6
2003 May	1.3			3.0	2.9	2.7	1.1	1.2	−0.1	−0.2
2003 Jun	1.1			2.9	2.8	2.7	1.1	1.2	0.0	−1.2
2003 Jul	1.3			3.1	2.9	2.8	1.3	1.3	0.6	−0.5
2003 Aug	1.4			2.9	2.9	2.7	1.5	1.2	1.9	0.0
2003 Sep	1.4			2.8	2.8	2.7	1.4	1.4	1.3	1.0
2003 Oct	1.4			2.6	2.7	2.4	1.5	1.3	2.5	1.2
2003 Nov	1.3			2.5	2.5	2.1	1.7	1.4	4.6	1.7
2003 Dec	1.3	1.1	1.1	2.8	2.6	2.2	1.8	1.5	2.0	0.4
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	−1.3	−0.5
2004 Mar	1.1	1.1	1.0	2.6	2.1	1.7	1.4	1.5	0.9	−0.1
2004 Apr	1.1	1.1	1.0	2.5	2.0	1.8	1.8	1.3	2.9	−0.2
2004 May	1.5	1.4	1.3	2.8	2.3	2.2	2.5	1.4	5.6	0.7
2004 Jun	1.6	1.5	1.4	3.0	2.3	2.3	2.6	1.4	3.7	1.3
2004 Jul	1.4	1.4	1.2	3.0	2.2	2.0	2.6	1.7	3.7	1.4
2004 Aug	1.3	1.3	1.1	3.2	2.2	2.0	2.8	2.2	4.6	2.3
2004 Sep	1.1	1.0	0.9	3.1	1.9	1.7	3.1	2.3	8.1	3.8
2004 Oct	1.2	1.2	1.1	3.3	2.1	2.0	3.5	2.9	9.2	4.8
2004 Nov	1.5	1.4	1.4	3.4	2.2	2.2	3.5	2.9	6.7	4.6
2004 Dec	1.7	1.7	1.6	3.5	2.5	2.5	2.9	2.5	4.4	4.2
2005 Jan	1.6	1.7	1.5	3.2	2.1	2.0	2.6	2.5	9.6	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	10.0	7.0
2005 May	1.9	2.0	1.8	2.9	2.1	2.2	2.7	2.5	7.6	6.5
2005 Jun	2.0	2.2	1.9	2.9	2.2	2.2	2.5	2.3	12.0	7.4
2005 Jul	2.3	2.5	2.3	2.9	2.4	2.5	3.1	2.2	13.9	8.6
2005 Aug	2.4	2.6	2.3	2.8	2.3	2.3	3.0	1.9	12.8	7.5
2005 Sep	2.5	2.6	2.4	2.7	2.5	2.5	3.3	2.1	10.5	5.7
2005 Oct	2.3	2.5	2.3	2.5	2.4	2.4	2.6	1.4	8.9	7.0
2005 Nov	2.1	2.3	2.1	2.4	2.3	2.3	2.3	1.3	13.6	9.6
2005 Dec	1.9	2.1	1.8	2.2	2.0	2.0	2.4	1.7	17.9	12.1
2006 Jan	1.9	2.1	1.9	2.4	2.3	2.3	2.9	1.8	15.8	10.3
2006 Feb	2.0	2.1	2.0	2.4	2.3	2.3	2.9	1.8	15.4	10.7
2006 Mar	1.8	1.9	1.7	2.4	2.1	2.2	2.5	1.9	12.9	10.1
2006 Apr	2.0	2.1	2.0	2.6	2.4	2.3	2.5	2.2	15.2	10.1
2006 May	2.2	2.3	2.2	3.0	2.9	2.8	3.1	2.4	13.5	8.9
2006 Jun	2.5	2.6	2.4	3.3	3.1	3.2	3.4	2.8	10.9	8.8
2006 Jul	2.4	2.4	2.3	3.3	3.1	3.2	2.9	2.5	10.6	8.9
2006 Aug	2.5	2.6	2.4	3.4	3.3	3.4	2.7	2.3	8.1	8.0
2006 Sep	2.4	2.6	2.3	3.6	3.2	3.3	1.9	2.1	5.1	7.0
2006 Oct	2.4	2.7	2.3	3.7	3.2	3.3	1.6	2.6	4.7	6.1
2006 Nov	2.7	3.0	2.6	3.9	3.4	3.6	1.8	2.6	3.3	4.7
2006 Dec	3.0	3.2	2.9	4.4	3.8	3.9	2.2	2.5	2.1	2.8
2007 Jan	2.7	2.9	2.6	4.2	3.5	3.7	2.2	2.5	−2.1	1.7
2007 Feb	2.8	2.9	2.6	4.6	3.7	3.9	2.3	2.6	−0.8	1.4
2007 Mar	3.1	3.1	2.9	4.8	3.9	4.0	2.7	2.7	0.8	2.4
2007 Apr	2.8	2.9	2.6	4.5	3.6	3.7	2.4	2.4	−0.7	2.0
2007 May	2.5	2.6	2.3	4.3	3.3	3.4	2.4	2.3	1.1	3.4
2007 Jun	2.4	2.5	2.2	4.4	3.3	3.3	2.5	2.1	2.1	3.1
2007 Jul	1.9	2.0	1.7	3.8	2.7	2.6	2.5	2.2	−0.3	1.2
2007 Aug	1.8	1.9	1.6	4.1	2.7	2.6	2.5	2.4	0.7	1.8

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/10_07/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/10_07/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	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/10_07/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

Recorded announcement of latest RPI
☎ 020 7533 5866
✉ rpi@ons.gsi.gov.uk

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

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

For statistical information on

Average Earnings Index (monthly)
☎ 01633 819024

Claimant count
☎ 01633 456901

Consumer Prices Index
☎ 020 7533 5874

Earnings
Annual Survey of Hours and Earnings
☎ 01633 819024

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

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

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

Employee jobs by industry
☎ 01633 812318

Total workforce hours worked per week
☎ 01633 812766
✉ 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
☎ 01633 655732
✉ lfs.dataservice@ons.gsi.gov.uk

New Deal
☎ 0114 209 8228

Productivity and unit wage costs
☎ 01633 812766

Public sector employment
General enquiries
☎ 020 7533 6178

Source and methodology enquiries
☎ 01633 812362

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

Redundancy statistics
☎ 01633 456901

Retail Prices Index
☎ 020 7533 5874
✉ 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
☎ 020 7533 6130

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
☎ 020 7533 6114

Unemployment
☎ 01633 456901

Vacancies
Vacancy Survey:
total stocks of vacancies
☎ 020 7533 6162

ONS economic and labour market publications

ANNUAL

Financial Statistics Explanatory Handbook

2007 edition. Palgrave Macmillan, ISBN 1-4039-9783-7. Price £45.

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

Foreign Direct Investment (MA4)

2005 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)

2005 edition

www.statistics.gov.uk/statbase/product.asp?vlnk=165

Share Ownership

2006 edition

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 2

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

United Kingdom Economic Accounts

2007 quarter 2. Palgrave Macmillan, ISBN 978-0-230-52619-8. Price £32.

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

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

2007 quarter 2

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

September 2007. Palgrave Macmillan, ISBN 978-0-230-52592-4. Price £45.

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

Focus on Consumer Price Indices

August 2007

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

Monthly review of external trade statistics (MM24)

August 2007

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

Producer Price Indices (MM22)

August 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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List is provisional and subject to change.