

# Economic Trends

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## In Brief

### Articles

This month we feature one article.

Craig Richardson of ONS introduces Revisions to GDP: a time profile. This article presents the new format of ONS revision articles and describes on a consistent basis how constant price GDP quarterly growth estimates change from the first estimate to the final official growth estimate. The article attempts to distinguish between revisions due to new data, which are unbiased in early stages and revisions mainly due to methodological changes, which we would expect to be positive. Initial results are presented for the period 1993 to 1998. However, it is acknowledged that a more detailed breakdown will require a longer data series.

### Addendum

We are including an addendum to the article "Measuring productivity change in the provision of public services" by Alwyn Pritchard of ONS that was published in the May 2002 edition.

### Recent economic publications

#### Quarterly

*Consumer Trends*: 2002 quarter 1. Available for downloading from the National Statistics website [www.statistics.gov.uk/products/p242.asp](http://www.statistics.gov.uk/products/p242.asp)

*United Kingdom Economic Accounts*: 2002 quarter 1. TSO, ISBN 0 11 621545 3. Price £26. Also available for downloading from the National Statistics website [www.statistics.gov.uk/products/p1904.asp](http://www.statistics.gov.uk/products/p1904.asp)

*UK Trade in Goods analysed in terms of industries (MQ10)*: 2002 quarter 1. Available for downloading from the National Statistics website [www.statistics.gov.uk/products/p731.asp](http://www.statistics.gov.uk/products/p731.asp)

#### Monthly

*Financial Statistics*: June 2002. TSO, ISBN 0 11 621499 6. Price £23.50.

*Focus on Consumer Price Indices*: May 2002. Available for downloading from the National Statistics website [www.statistics.gov.uk/products/p867.asp](http://www.statistics.gov.uk/products/p867.asp)

*Monthly Review of External Trade Statistics (MM24)*: April 2002. Available for downloading from the National Statistics website [www.statistics.gov.uk/products/p613.asp](http://www.statistics.gov.uk/products/p613.asp)

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### UK National Accounts, UK Balance of Payments and UK Input Output Analyses 2002

The 2002 editions of *United Kingdom National Accounts* (The Blue Book), *United Kingdom Balance of Payments* (The Pink Book) and *United Kingdom Input Output Analyses* are to be released on the National Statistics website on 26<sup>th</sup> July. They can be downloaded from the following addresses:

*UK National Accounts*: [www.statistics.gov.uk/products/p1143.asp](http://www.statistics.gov.uk/products/p1143.asp)

*UK Balance of Payments*: [www.statistics.gov.uk/products/p1140.asp](http://www.statistics.gov.uk/products/p1140.asp)

*UK Input Output Analyses*: [www.statistics.gov.uk/products/p7640.asp](http://www.statistics.gov.uk/products/p7640.asp)

Paper copies of *UK National Accounts* and *UK Balance of Payments* will be available from the TSO addresses above from 20<sup>th</sup> August.

# Economic Update - July 2002

Geoff Tily, Macroeconomic Assessment - Office for National Statistics

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## Overview

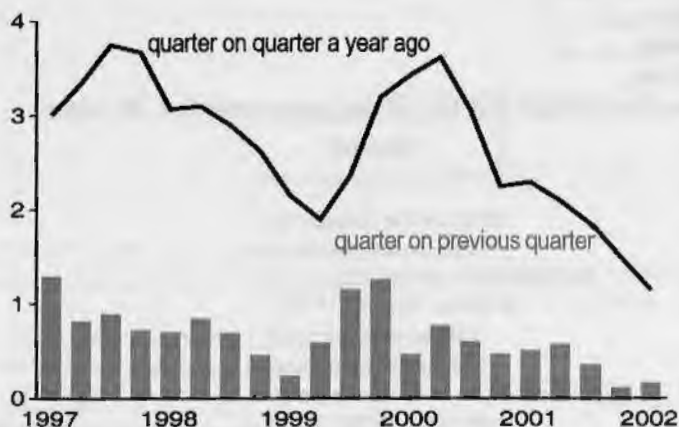
GDP has shown only slight growth in the latest two quarters, despite some optimism as to global conditions. The weakness was driven by the recession in the manufacturing sector and weaker growth in the service sector. However the declines in the manufacturing sector have now eased a little, with external figures supporting an increase in output. Construction output is also very strong. Household demand weakened in the first quarter of 2002, but overall remains fairly robust with indebtedness remaining high. Investment demand is falling, set against a background of weak revenues and concerns again about the indebtedness of the corporate sector. Figures now show a substantial acceleration in Government demand. Exports and imports show very large falls on the year, but some moderation of declines for exports and import growth into 2002. Headline labour market figures remain flat, with manufacturing jobs a in decline, private sector service jobs growth weakening but public sector jobs accelerating. Figures also show increases to redundancies. Earnings growth has slowed. Producer price data show deflation coming into the factory and only slight inflation coming out. RPIX remains close to target.

## GDP activity

ONS estimates of GDP now show quarterly growth of 0.1 per cent in both the fourth quarter of 2001 and the first quarter of 2002. Growth comparing the first quarter of 2002 with the same quarter a year ago was 1.1 per cent, the lowest figure since the economy emerged from the 1990-91 recession (figure 1).

The composition of both output and demand are mixed. On the output side the weaker GDP has been driven by manufacturing sector, which has been in recession throughout 2001, and in more recent quarters by weaker growth in the services sector, set against very strong growth in the construction sector. From the expenditure perspective, low GDP has been driven by falling investment and falling trade set against reasonably robust household demand and an acceleration in the pace of government demand.

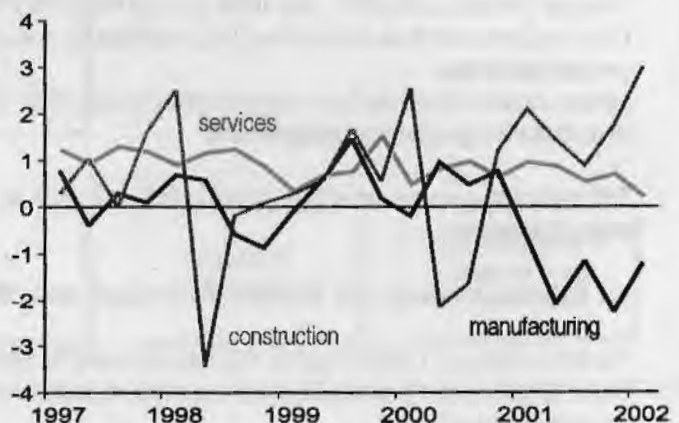
**Figure 1**  
Gross Domestic Product  
growth



The UK slowdown in 2001 came alongside a deteriorating global

environment. In the third and fourth quarters GDP declined or was weak in the world's three largest economies, Japan, the United States and Germany. However flat quarterly growth in the UK for the first quarter of 2002 contrasted with an upturn in quarterly growth in some of the UK's major competitors. In contrast, stock exchanges around the world have shown resumed falls.

**Figure 2**  
Services, manufacturing & construction output  
growth, quarter on previous quarter

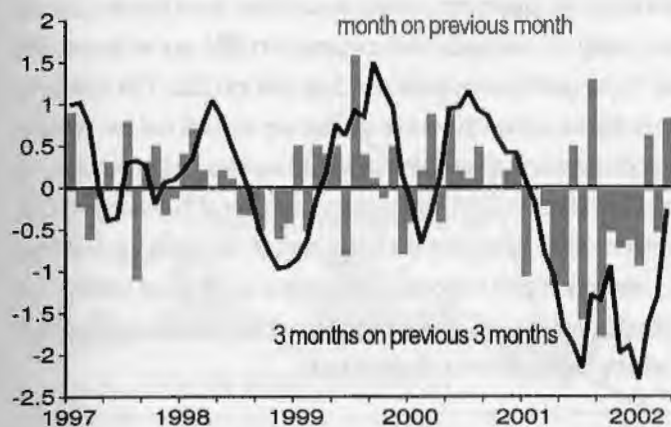


UK GDP growth has for some time been supported by robust growth in the service sector, but latest figures show this appears to have weakened in the second half of 2001 and into 2002. In the first quarter of 2002 services output grew by 0.2 per cent compared with the previous quarter, down from growth of 0.7 per cent in the fourth quarter (figure 2); growth compared with the same period a year ago was 2.4 per cent, the weakest figure since the fourth quarter of 1995. A broad industrial breakdown shows that the more general slowdown in the service sector over the previous year has been driven by a sharp slowdown to post and telecommunications, and declines in transport and storage and hotels and restaurants. These were to some extent offset by stronger growth in distribution and business services. In the particular case of the first quarter,



weakness is dominated by changes in the hitherto strongly growing sectors, with wholesaling, retailing and business services growth weak.

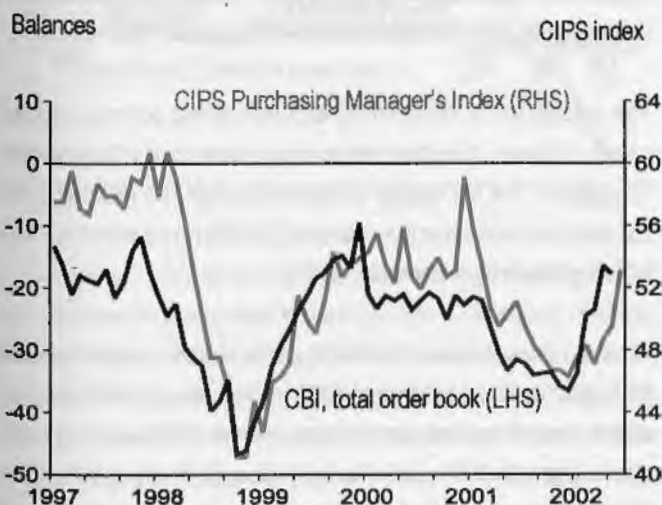
**Figure 3**  
**Manufacturing**  
growth



The manufacturing sector continued to decline in the first quarter, but the rate of decline slowed (the effect is now more marked with revisions in the latest data); the quarterly decline was 1.1 per cent, down from a decline of 2.3 per cent in the fourth quarter of 2001. Comparing with the same quarter a year ago the annual decline was 6.5 per cent, the largest decline since the 1980-81 recession. However monthly data into April showed further improvements, with a month-on-month increase in output and the decline in the three months to April at only 0.3 per cent (figure 3). Furthermore, the lesser deterioration has been seen in most industries.

Supporting GDP growth in the economy is very robust growth in construction output. Here figures show growth of 7.3 per cent in the year to 2002 quarter one (figure 2).

**Figure 4**  
**External manufacturing**



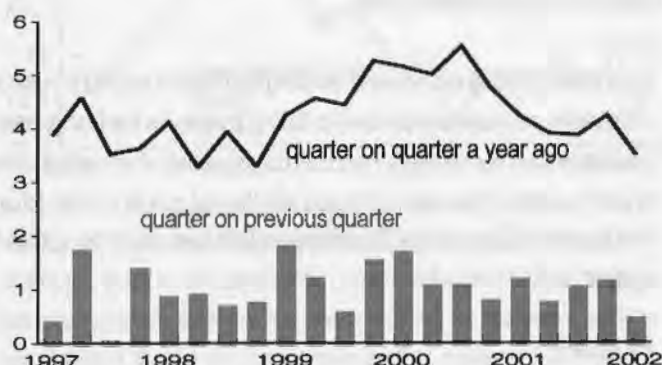
In general external sources are suggesting a stronger recovery than the arresting of the decline seen in the official figures. Figure 4 shows the Chartered Institute of Purchasing and Supply (CIPS) and Confederation of British Industry indicators for manufacturing continuing to improve into the latest months. Service indicators also show improvements, although for example on the CIPS service data these are set against falls in quarter four.

### Domestic demand

GDP growth was supported by vigorous household demand throughout 2001, however, figures for the first quarter of 2002 show a slight slowdown.

National Accounts figures for household final consumption expenditure in the first quarter of 2002 show quarterly growth of 0.5 per cent, down on 1.2 per cent in the fourth quarter; growth in the year to the first quarter was 3.5 per cent (figure 5). This slowdown was driven primarily by weaker consumption of durable goods, in particular of cars.

**Figure 5**  
**Household expenditure**  
growth

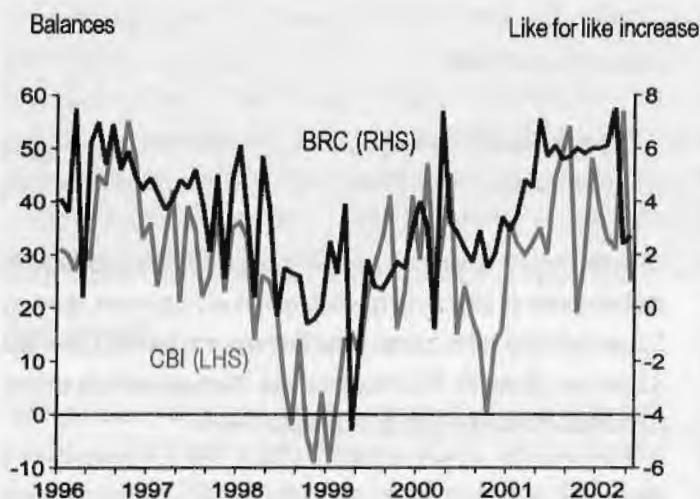


However weaker growth in the first quarter may be followed by a more robust second quarter. Retail sales figures in the three months to May showed quarterly growth sharply up at 1.9 per cent, compared with growth of 1.0 per cent into the first quarter. On the other hand external indices of retailing have showed some slowdown in the latest months with the BRC figures slowing into both April and May and the CBI figures slowing into May alone (figure 6). Consumer credit figures show continued high growth in the pace of gross borrowing continuing into April.

More generally ongoing growth in consumer credit shows that the present levels of consumer demand are supported by continued addition to the stock of household debt. The Bank of England has recently emphasised how the stock of household debt through bank lending is at an unprecedented level, and has questioned whether households have become too indebted. For example, credit debt figures are close to double

the share of disposable income that they were in 1994. From this perspective household demand is at least partly dependent on both bank and building societies' willingness to lend and on households continuing to be able to meet the interest payments on previous and new borrowing.

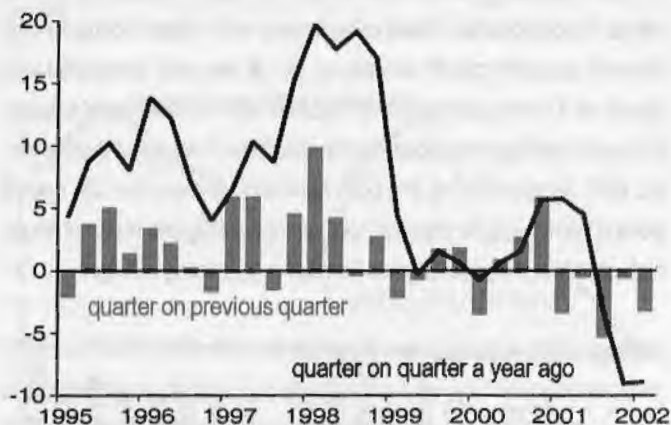
**Figure 6**  
**External retailing**



Many emphasise that with interest rates low, these debt servicing costs continue to remain relatively low.

In contrast to household demand, echoing the position around the world, UK business investment demand is falling sharply. In the first quarter, business investment fell by 3.1 per cent compared with the fourth quarter of 2001, and by 8.9 per cent compared with the first quarter of 2001 (chart 7). Last time business investment fell to this extent was in the 1990-91 recession.

**Figure 7**  
**Business investment**  
**growth**



External indices echo the general weakness in 2001, with BCC manufacturing and services figures showing investment intentions slowing

quite rapidly and deteriorating further into the fourth quarter and CBI manufacturing figures with a similar story. On the other hand, but in a similar way to external output measures, external investment indicators showed a slight increase in the first quarter of 2002.

The weakening investment comes as profits of companies have been subdued, with private non-financial corporations' gross operating surplus (excluding UK continental shelf companies) in 2001 as a whole declining by 1.6 per cent following growth of 0.5 per cent into 2000. This weakening in profits set alongside weaker oil revenues and still high net property income payments returned the sector to more substantial net borrowing of £11.0 billion in 2001, following the recovery of borrowing, at £3.8 billion in 2000. However in the first quarter of 2001 there was a degree of recovery in both corporate profits and a return to net lending; it is possible that this improvement has been driven by restructuring within industry, cutting off non-profitable outputs.

More generally the net borrowing over the past few years has added to the overall indebtedness of the private non-financial corporate sector (PNFC), where gross debt liabilities as a share of corporate profits are at a historic high. It may be that investment is faltering as borrowing conditions become more stringent, and companies, as well as financial organisations, review the sustainability of overall indebtedness. Potentially echoing these more stringent conditions are bank and building society figures (so-called M4 lending) that show sharply reduced growth of lending to non-financial and financial companies (although the two are set against robust growth in lending to individuals which echoes broader trends in the household demand story).

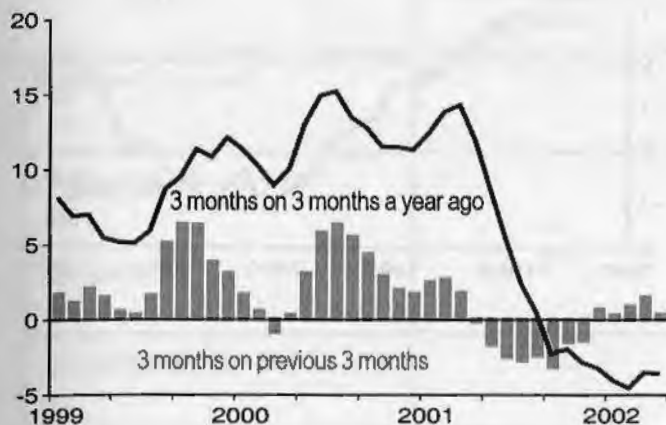
Set against the reasonably robust household demand and falling business demand, there has now been a substantial acceleration in Government demand. Compared with the previous quarter, constant price Government expenditure grew by 2.0 per cent in the first quarter of 2001, following growth of 1.9 per cent in the fourth quarter. In cash expenditure terms Government expenditure has grown by 11.0 per cent in the year to the first quarter of 2002, the highest rate of growth since 1990.

The acceleration in Government expenditure has come as revenue growth is slowing, potentially reflecting the slowdown in the economy. The effect is that the central Government sector has returned to net borrowing for two consecutive quarters (£3.8 billion in quarter one 2002), following thirteen quarters of net lending.

Finally on domestic demand, following earlier declines, imports began to grow again in the first quarter of 2002, with quarterly growth of 0.9 per cent, up from 0.3 per cent in the fourth quarter. This growth in the first quarter was seen in all market sectors, although more generally in line with the weakness of investment demand, imports of capital and intermediate

goods remain well below their levels a year ago. Monthly data to April however showed a fall back in imports and the associated quarterly growth (figure 8).

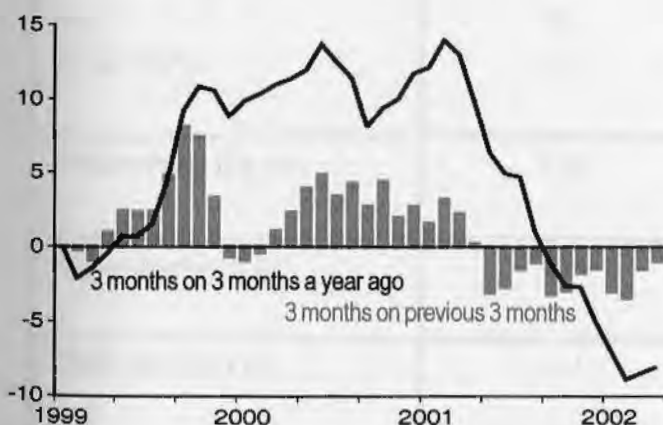
**Figure 8**  
Goods imports, excluding oil & erratics growth



### Overseas Demand

In line with the global deterioration throughout 2001, UK export growth declined sharply throughout 2001. The decline continued into the first quarter of 2002 but at a slightly slower pace.

**Figure 9**  
Goods exports, excluding oil & erratics growth



In the year to the first quarter of 2001 total exports declined by 7.2 per cent; this was the largest decline since the 1980-81 recession. However, figure 9 showing three-monthly figures for goods exports, shows a moderation in the rate of decline at the end of the quarter and into April. The improvement comes as exports of household goods rose and the decline in exports of intermediate goods moderated, although echoing the widespread nature of the investment downturn, exports of capital

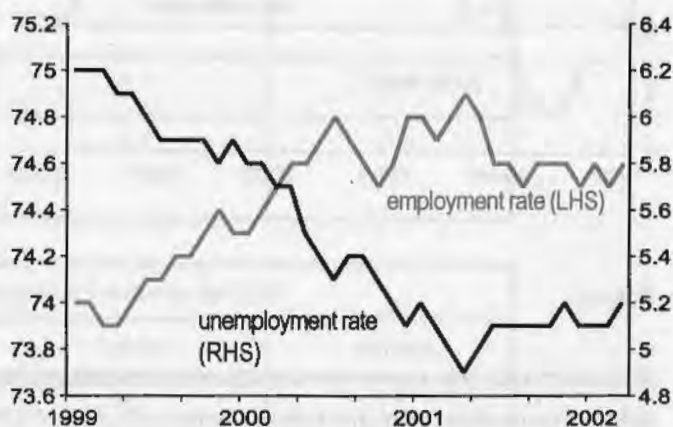
goods remain in steep decline.

### Labour Market

The latest headline data continues to show the labour market as 'flat', but with mixed messages in the detail.

On employment, the Labour Force Survey (LFS) figures show that the employment rate rose slightly to 74.6 per cent between Feb-Apr 2002 from 74.5 per cent between Nov-Jan 2002. Conversely the unemployment rate also rose, to 5.2 per cent from 5.1 per cent over the same period. Despite these movements, figure 10 showing a monthly time series really illustrates the flat picture.

**Figure 10**  
Labour Force Survey



Looking at the industrial dis-aggregation of employment however, shows weakness outside the public sector and the construction industry. Manufacturing employment has been declining for four years, and the annual rate of decline of 4.1 per cent in the first quarter of 2002 was the highest rate of decline since 1993. On the other hand construction employment grew by 4.5 per cent in the year to 2002, down from 7.0 per cent in the fourth quarter, which was the highest rate since the late 1980s. Within the service sector employment growth is largely being driven by public sector jobs. Figure 11 shows the slowing annual growth in private services that echoes weakening private sector output, set against an acceleration of public sector jobs.

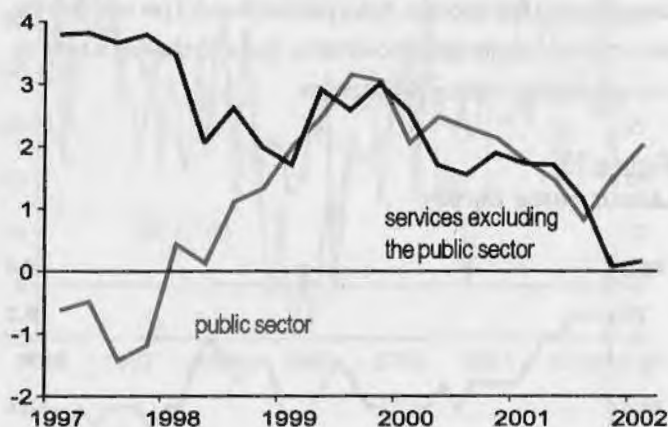
Overall however, the net effect of these movements is that the economy continues to create jobs: an increase of 32,000 between the first and second quarters according to workforce jobs, and of 88,000 between the two latest three month periods according to the Labour Force Survey. On the other hand Labour Force Survey data also shows the sixth successive quarterly increase in redundancies.

The average earnings index continues to echo the more subdued labour



market. Over the past year the headline rate has slowed to 3.3 per cent in April 2002 from 5.0 per cent in April 2001. However this slowdown has been dominated by falling bonuses in the financial sector. The corresponding figures excluding bonuses show earnings growth weakening, but less markedly so, with growth in the year to April 2002 at 4.0 per cent, down on 5.4 per cent a year ago.

**Figure 11**  
**Employment**  
growth, quarter on quarter a year ago



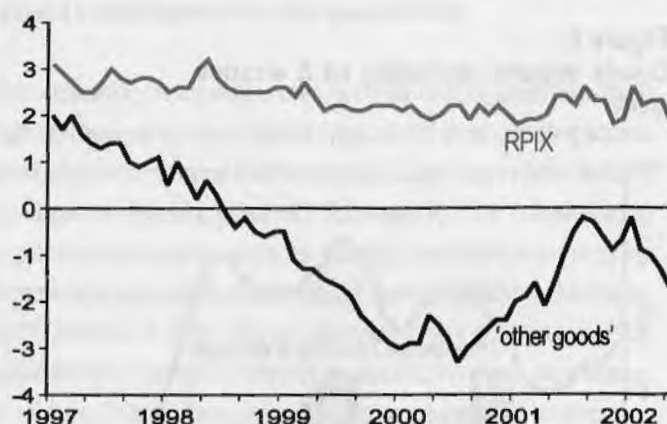
## Prices

At the factory gate, output prices show very little inflation and input prices, deflation: the headline output price index shows a rise of 0.1 per cent in the year to May and the input price index measure a fall of 6.2 per cent over the same period. Both figures continue to be influenced by recent movements to the price of oil, but underlying measures across recent months continue to confirm the same overall story, albeit with slight increases in the latest two months. The weak producer price inflation may follow from the deteriorating global conditions in 2001, with over-supply becoming a significant phenomenon.

In May 2002 RPIX inflation was 1.8 per cent, down fairly sharply from 2.3 per cent in April and comfortably below the Monetary Policy Committee's target. Figure 12 also shows that despite the prolonged spell of robust consumer demand 'other goods' inflation, the series perhaps most susceptible to consumer demand pressures (including, for example, cars, consumer durables, clothing and DIY goods), has shown a resumed acceleration in the rate of deflation (figure 12).

Overall, by historical standards earnings, consumer and producer price pressures continue to remain very subdued.

**Figure 12**  
**Consumer prices**  
growth, month on a year ago





# Forecasts for the UK Economy

## A comparison of independent forecasts, June 2002

The tables below are extracted from HM Treasury's "FORECASTS FOR THE UK ECONOMY" and summarise the average and range of independent forecasts for 2002 and 2003, updated monthly.

	Independent Forecasts for 2002		
	Average	Lowest	Highest
GDP growth (per cent)	1.7	0.4	2.4
Inflation rate (Q4: per cent)			
- RPI	2.4	1.0	3.3
- RPI excl MIPs	2.3	1.9	2.8
Unemployment (Q4, mn)	1.00	0.90	1.20
Current Account (£ bn)	-22.0	-29.2	-16.0
PSNB * (2002-03, £ bn)	11.6	-6.0	17.6

	Independent Forecasts for 2003		
	Average	Lowest	Highest
GDP growth (per cent)	2.8	-0.1	3.5
Inflation rate (Q4: per cent)			
- RPI	2.8	2.0	4.4
- RPI excl MIPs	2.4	1.9	3.3
Unemployment (Q4, mn)	0.98	0.72	1.35
Current Account (£ bn)	-23.8	-37.0	-13.0
PSNB* (2003-04, £ bn)	14.7	-9.2	22.0

NOTE: "FORECASTS FOR THE UK ECONOMY" gives more detailed forecasts, covering 27 variables and is published monthly by HM Treasury, available on annual subscription, price £75. Subscription enquiries should be addressed to Miss B K Phamber, Public Enquiry Unit, HM Treasury, Room 88/2, Parliament Street, London SW1P 3AG (Tel: 020-7270 4558). It is also available at the Treasury's internet site: <http://www.hm-treasury.gov.uk>.

\* PSNB: Public Sector Net Borrowing.

# International Economic Indicators - July 2002

## Gladys Asogbon, Macroeconomic Assessment - National Statistics

Address: D4/20, 1 Drummond Gate, London, SW1V 2QQ, tel: 020 7533 5925, E-mail: gladys.asogbon@ONS.gov.uk

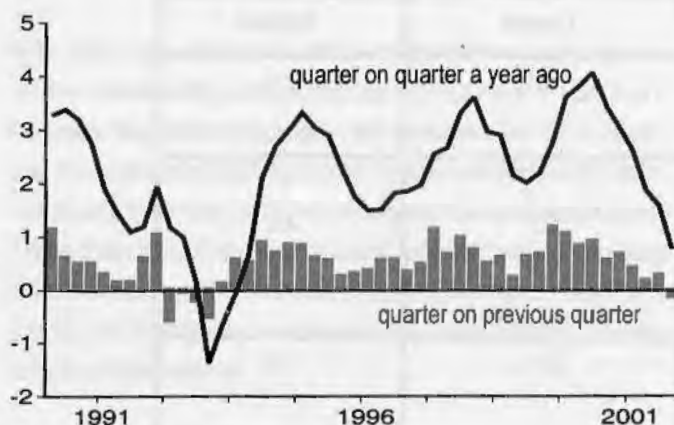
### Overview

GDP remains subdued around the world, although some improvement can be seen in some countries, notably Germany, Italy and USA in 2002 quarter one. Industrial production is showing some signs of recovery across most countries, however, investment, which is the main driver of the slowdown continues to fall, most notably in Japan. Household demand is generally weak, again with the exception of Japan. Trade seems to be showing some signs of improvement, but is still far from the levels seen in 2000. Consumer prices remain broadly stable, while prices at the factory gate continue to fall in all the main economies.

### EU15

The latest revised data shows that the EU economy contracted by 0.1 per cent in 2001 quarter four (figure 1). GDP growth for the previous quarter was 0.3 per cent, while overall growth for 2001 was 1.7 per cent, compared with 3.6 per cent growth in 2000.

**Figure 1**  
**GDP: EU15**  
growth



A closer look at the components of GDP change in 2001 quarter four shows that declining investments, declining exports and falling stocks drove the slowdown, offset by declining imports and robust government and household demand. Government and households made positive contributions to quarterly GDP growth of 0.1 percentage points and 0.2 percentage points respectively. The other components of GDP made either negative or zero contributions to GDP. Investment has made no contribution for the past two quarters and none in the year as a whole. Changes in stock also made a negative contribution (0.3 percentage points) to changes in GDP growth in 2001 quarter four. Exports made a negative contribution of 0.4 percentage points in the same period.

Index of Production data show the main source of the slowdown from the output perspective, with the fourth quarter of 2001 showing a contraction of 1.6 per cent in the index from a revised fall of 0.3 per cent in the third quarter. Comparing 2001 quarter four with the same quarter a year ago shows the index falling by 3.5 per cent accelerating from a fall of 0.9 per cent in 2001 quarter three. Overall the IOP for 2001 fell by 0.1 per cent, a sharp contrast with growth of 4.7 per cent in 2000. However, the latest figures for 2002 show the index improving considerably with monthly IOP changes of 0.2 per cent for February and 0.5 per cent for March, leading to 2002 quarter one growth of 0.4 per cent. This improvement is echoed in most countries.

The PPI for 2002 quarter one shows producer prices continuing to fall at the factory gate with a fall of 0.7 per cent compared to a year ago, although this figure is an improvement over 2001 quarter four when the annual index fell by 1.2 per cent. Growth in the index of consumer prices increased from 2.0 per cent in the year to the fourth quarter of 2001 to 2.2 per cent in the year to the first quarter of 2002 but overall, the index remains above the ECB ceiling of 2.0 per cent.

EU employment figures continue to show growth, although at a declining rate. Annual growth for 2001 was 1.1 per cent, down from 1.8 per cent in the previous year. Annual growth in the year to the fourth quarter was 0.8 per cent, down from 1.0 per cent in 2001 quarter three. The EU unemployment rate in April 2002 was 7.6 per cent, a slight rise.

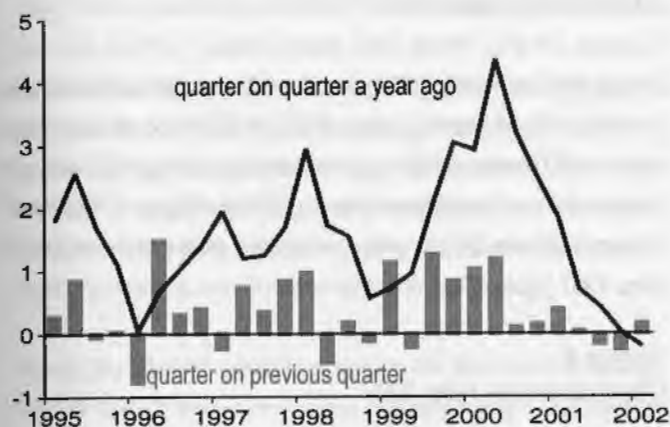
Annual earnings growth slowed to 2.5 per cent in the year to 2001 quarter four, having previously held up at 3.4 per cent for both quarters two and three.

### Germany

The latest data for Germany shows quarterly GDP growth rebounding

from two consecutive quarters of contraction to post positive growth of 0.2 per cent in 2002 quarter one (figure 2).

**Figure 2**  
**GDP: Germany**  
growth



This improvement in the performance of the German economy is due mainly to a strong increase in exports, which contributed 0.7 percentage points to GDP, compared to a negative contribution of 0.4 percentage points in the previous quarter. Government also made a positive contribution to quarterly GDP of 0.1 percentage points, although this contribution is less than the 0.2 percentage points made in the previous quarter. This positive position was also facilitated by a large decline in imports in 2002 quarter one. On the other hand, households made a negative contribution to GDP of 0.1 percentage points (also echoed in the retail sales figures where the first quarter saw a contraction of 2.8 per cent in spending, accelerating from 0.5 per cent in 2001 quarter four). Investment, the main driver of the previous slowdown, continued to contract, by 0.2 percentage points in the latest quarter. Changes in stock, which may in part have supported the increase in exports also made a large negative contribution to quarterly GDP of 1.2 percentage points compared with a positive contribution in the previous quarter of 0.4 percentage points.

As with GDP, the index of production has also shown a substantial recovery, from a contraction of 2.4 per cent in 2001 quarter four to positive growth of 0.2 per cent in 2002 quarter one. The month on previous month's changes in the index also show that with the exception of February, the index has shown growth in each month since December 2001.

The producer price index for 2002 quarter one show prices falling at the factory gate by 0.2 per cent compared with a year ago. This is the first time producer prices growth has been negative since 1999 quarter three. Growth in consumer prices on the other hand shows a slight acceleration to 1.9 per cent in the year to 2002 quarter one from 1.8 per cent in the year to the previous quarter, although monthly data shows the figures

weakening into April.

The unemployment rate has remained at 8.1 per cent of the workforce since January 2002, although previously, there had been a gradual increase in the unemployment rate from the recent trough of 7.7 per cent in the fourth quarter of 2000. However, employment growth contracted in the first quarter of 2002, with annual growth figures for the quarter showing negative growth of 0.4 per cent, accelerating from negative growth of 0.2 per cent in the previous quarter.

In line with a deteriorating labour market, annual earnings growth weakened further, growing by just 1.1 per cent in the third and fourth quarters of 2001, which, after accounting for inflation in the quarter, implies a fall in real earnings.

## France

The latest figures for France show negative GDP quarterly growth. The French economy contracted by a revised 0.3 per cent in 2001 quarter four from a positive 0.5 per cent in the previous quarter.

2001 quarter four saw firms reducing both investment and stocks, which made zero and negative contribution (of 0.7 percentage points) to GDP respectively. However, the main driver of the weakness in the French economy in quarter four is the substantial slowing in household spending, which contributed 0.1 percentage points to GDP growth compared with a 0.5 percentage points contribution in the previous quarter. The fall in trade flows in France also accelerated in the fourth quarter, although overall trade still made a positive contribution of 0.3 percentage points to GDP. In 2001 as a whole, it was weaker investment and substantial de-stocking which slowed GDP growth.

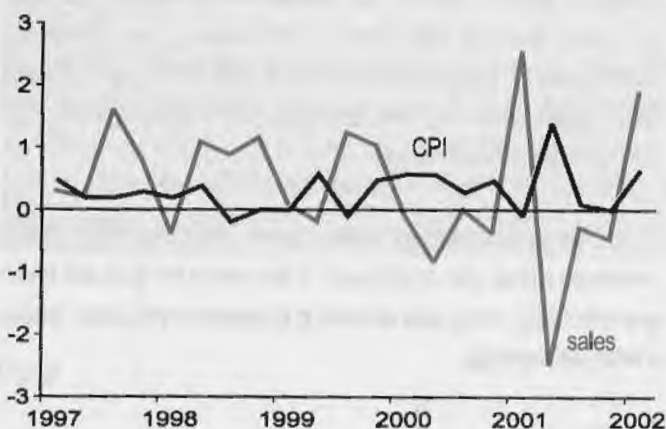
However, as with other countries, the latest index of production data show positive quarterly growth of 0.6 per cent for 2002 quarter one which is a considerable improvement on the previous quarter's growth, which showed production falling by 1.7 per cent. The month on month changes in the index have been positive since January 2002, increasing by 0.5 percentage points in each month. Consumer demand too, reflected by retail sales, improved substantially in the first quarter, with quarterly growth of 1.9 per cent following three consecutive quarterly declines (figure 3). April however, saw a very sharp monthly fall of 3.2 per cent.

Consumer prices increased by 1.9 per cent in the year to April 2002 compared to an increase of 2.1 per cent in the previous month. This is the lowest annual inflation in France since December 2001. Producer prices growth was negative for the third consecutive month in the year to April 2002 with a contraction in prices of 0.2 per cent. The last time producer prices growth was negative in France was in 1999 quarter



three.

**Figure 3**  
**Retail sales & CPI: France**  
growth, quarter on previous quarter



The weaker economic activity also appears to be feeding through to the unemployment figures. Unemployment rose again in April 2002 to 9.2 per cent of the workforce, from 9.1 per cent in the previous month and up from the recent trough of 8.6 per cent throughout the first three quarters of 2001. Employment growth also continued its slowdown in the fourth quarter of 2001, with an annual rate of 1.2 per cent, well down on growth of 2.3 per cent at the start of 2001.

Reflecting the general slowdown, annual earnings growth continued to ease, slowing slightly from 4.2 per cent in the third quarter to 4.1 in the fourth.

## Italy

Recent data for the Italian economy show that after a quarter of contraction in 2001 quarter four, the economy grew by 0.2 percent in 2002 quarter one. The breakdown of the contribution to changes in GDP is not available with this dataset and therefore an analysis of what has led to this improved performance cannot be undertaken. However, following from improved global conditions, trade may be a likely factor influencing this turnaround. Another factor likely to have influenced the positive GDP is a rebound in retail sales. Retail sales in 2002 quarter grew by 3.6 per cent compared with 0.3 per cent in the fourth quarter. This gives an indication that households may have made a positive contribution to changes in quarterly GDP, although it should be noted that the whole of this increase came in January.

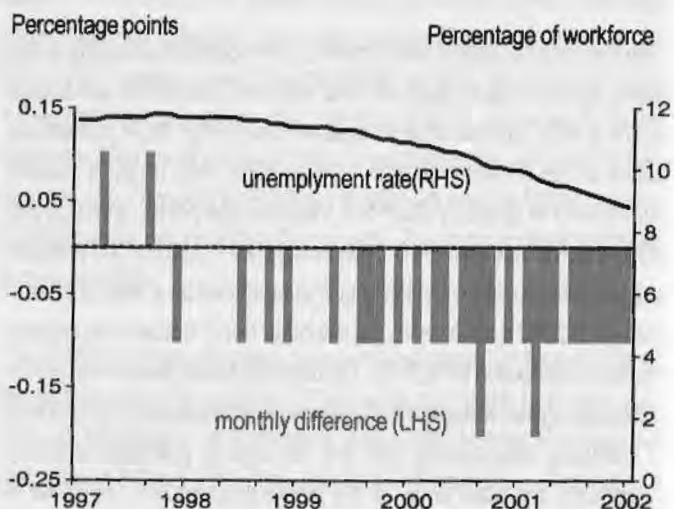
Similarly, on the output side, the index of production data shows a substantial improvement, with 2002 quarter one data showing growth of 0.3 per cent, up from a decline of 1.8 per cent in the previous quarter. This is the first time quarterly IOP growth has been positive since 2000 quarter four.

Monthly figures however record a return to decline in March.

CPI figures show a slight easing in the year to April 2002 from 2.5 per cent in the previous month to 2.4 per cent although remaining above the ECB ceiling of 2.0 per cent. Price growth at the factory gate is still negative, falling by 1.2 per cent (in the year to April), slowing slightly from a fall of 1.3 per cent in the previous month.

Despite the overall weak GDP figures, the Italian labour market continues to improve. Employment growth was 1.8 per cent in the year to the first quarter of 2001 and recently updated unemployment figures show slight reductions in the unemployment rate since October (figure 4). The rate in January 2002 was 8.8 per cent, continuing a steady downward trend since 1997 (figure 4).

**Figure 4**  
**Unemployment rate: Italy**



Annual earnings growth has picked up slightly, and grew in the year to April by 3.1 per cent. Annual growth in the first quarter of 2002 was 2.2 per cent, the third successive quarter of slightly rising earnings growth.

## USA

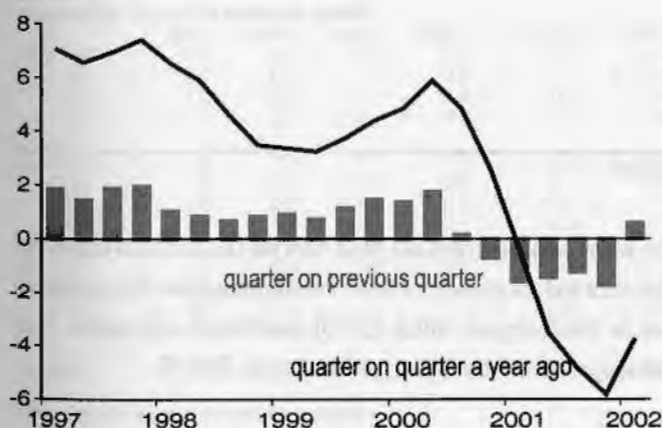
The US economy's GDP has risen substantially in the first quarter of 2002 with growth of 1.4 per cent up from 0.4 per cent in the last quarter of 2001 and rebounding strongly from the contraction of 0.3 per cent in 2001 quarter three.

All components in GDP posted positive contributions to the quarterly GDP growth. However, in the first quarter, the main contribution is from changes in stock (where de-stocking of the previous six quarters has been reversed), which made a positive contribution of 1.0 percentage points to

quarterly GDP. When compared to a 2001 quarter four negative contribution of 0.6 percentage points, this increase is substantial. Both exports and imports have also rebounded, although net trade continued to make a net negative contribution (of 0.4 percentage points) to quarterly GDP. On the other hand household spending decreased in the latest period, making a contribution of 0.6 percentage points to quarterly GDP down from the very strong contribution of 1.0 percentage points in the previous quarter. Quarterly retail sales growth echo this easing in consumer spending, with negative quarterly growth of 0.1 per cent in 2002 quarter one. This is a large change compared to the previous quarter's figure, which saw retail sales grow by 4.3 per cent. Government contribution to quarterly GDP growth remained stable at 0.2 per cent. Investment, which has been a main driver of the downturn, showed a slight improvement, but still added nothing to GDP.

Echoing the rebound, industrial production has also recovered strongly with the index of production showing quarterly growth in 2002 quarter one of 0.6 per cent (figure 5). This is the first growth for five consecutive quarters; with figures for 2001 as a whole showing industrial production contracted by 3.6 per cent. Monthly figures also reinforce the quarterly data with the index posting positive month on previous month changes since January 2002.

**Figure 5**  
IOP: USA  
growth



In spite of the recent spurt of consumer spending in the last quarter of 2001, inflationary pressures continue to remain subdued. Annual consumer prices growth slowed from 1.8 per cent in 2001 quarter four to 1.2 per cent in 2002 quarter one. Producer prices continued to fall, with annual figures showing the PPI annual decline accelerating from 1.7 per cent in 2001 quarter four to 1.8 per cent in 2002 quarter one.

Having previously shown signs of improvement in 2001 and in contrast to the apparent pick up in the economy, unemployment figures are again increasing, with the unemployment rate in April 2002 at 6.0 percent of the

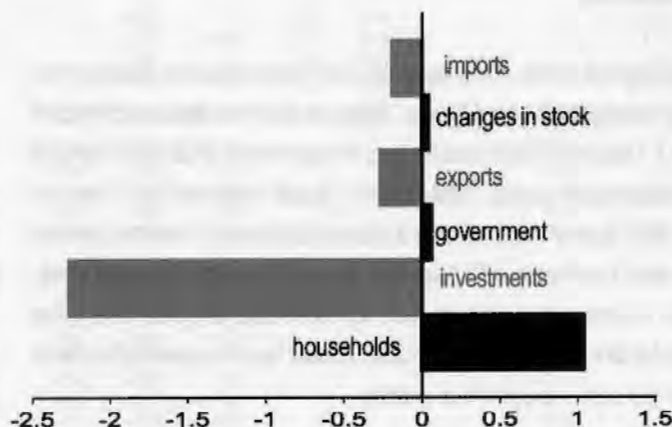
workforce. This is a 0.3 percentage points increase over March's figure and the highest figure since August 1994.

Having grown more strongly in January, February and March 2002 by 4.2 per cent, annual earnings have returned to growth of 3.4 per cent in April 2002, the rate for the seven months before January 2002.

## Japan

GDP data for 2001 quarter four data shows the Japanese economy contracting by 1.2 per cent. This is the third consecutive quarterly contraction of the economy. Analysis of the contributors to change in GDP show that a significant rise in private consumption of 1.0 percentage points was overshadowed by a huge fall of 2.3 percentage points in the contribution of investment (figure 6). Investment has not made an equivalent negative contribution to GDP since 1974 quarter one. Government contributed 0.1 percentage points to GDP, while changes in stock made a zero contribution to GDP. Net trade made a negative contribution to quarterly GDP of 0.1 percentage points.

**Figure 6**  
GDP: Japan  
contributions to change



Japanese industrial production remains in decline, although 2002 quarter one data shows the rate of decline somewhat slower. The quarterly figures show that the decline eased from a contraction of 2.4 per cent in 2001 quarter four to contraction of 0.1 per cent in 2002 quarter one. Month on previous month changes also show increases in the IOP, with the index positive in every month between February 2002 and April 2002.

Consumer and producer price falls continue the deflation that began in mid-1998. Annual growth figures for 2002 quarter one show that consumer and producer prices declined by 1.4 per cent and 1.5 per cent respectively.

The weakened economy, reflected mainly by deteriorating industrial

production, persistent price deflation and substantial declines in business investment and trade has led to severe job losses. Although there was a marginal reduction in the unemployment rate in March 2002 at 5.2 per cent of the workforce, the rate of employment is very high by historical standards (unprecedented since at least before 1960 when OECD records began).

Subsequently, earnings growth also contracted considerably with negative annual growth in 2002 quarter one of 1.5 per cent, significantly worse than 2001 quarter four's negative growth of 0.6 per cent.

## World Trade

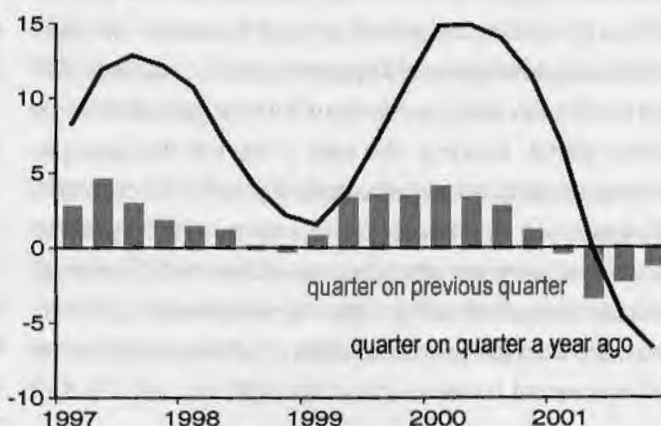
With national figures yet to show lasting recovery, trade figures are showing a contraction in global trade, albeit with a lag due to later production of these figures. The latest figures show OECD data going up to 2001 quarter four while non-OECD data only goes up to quarter three, except for exports of manufactures. Total trade in manufactures for 2001 quarter three contracted by 2.0 per cent and total trade in goods contracted by 1.6 per cent in the same period. Although total trade is still in decline, the rate of decline has slowed in the latest period, as the equivalent figures for the previous quarters showed falls of 2.7 per cent and 2.2 per cent respectively.

An analysis of the make up of the total trade data also shows some improvement in the latest figures. Total exports of manufactures contracted by 1.1 per cent in 2001 quarter four, compared with a fall of 2.2 per cent in the previous quarter. Total exports of goods contracted by 1.6 per cent in 2002 quarter three, which is a substantial decrease over the previous quarter's contraction of 2.8 per cent. Regarding export of manufactures, the largest improvements were in non-OECD exports, where the contraction was 0.2 per cent in 2001 quarter four compared with a fall of 2.6 per cent in the previous quarter.

Total imports of manufactures in 2001 quarter three contracted by 1.9 per cent while total imports of goods contracted by 1.7 per cent in the same period. 2001 quarter four saw significant improvement in OECD imports of manufactures, where the contraction slowed from 1.7 per cent in 2001 quarter three to 0.7 per cent in quarter four. On the goods imports side, OECD figures improved considerably, to a contraction of 0.5 per cent in 2001 quarter four compared with a fall of 1.5 per cent in the previous quarter.

The decelerating pace of contraction for the latest quarter four data relating to OECD economies could imply a slight easing in the deterioration of world trade activity. This could be partly as a result of the US economy posting positive growth in 2001 quarter four and 2002 quarter one.

**Figure 7**  
**World exports of manufactures**  
growth



## Notes

The series presented here are taken from the OECD's Main Economic Indicators and are shown for each of the G7 (except the UK) economies and for the European Union (EU15) countries in aggregate. The definitions and methodologies used conform to SNA 93.

Comparisons of indicators over the same period should be treated with caution, as the length and timing of the economic cycles varies across countries. For world trade, goods includes manufactures, along with food, beverages and tobacco, basic materials and fuels.

Data for EU15, France, Germany, Italy, the USA and Japan are all available on an SNA93 basis. Cross country comparisons are now more valid.

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## Contribution to change in GDP

	GDP	PFC	GFC	GFCF	ChgStk <sup>1</sup>	Exports	Imports <sup>less</sup>	IoP	Sales	CPI	PPI	Earnings	Empl	Unempl
<b>Percentage change on a year earlier</b>														
	ILGB	HUDS	HUDT	HUDU	HUDV	HUDW	HUDX	ILGV	ILHP	HYAB	ILAI	ILAR	ILIJ	GADR
1996	1.7	1.2	0.3	0.4	-0.5	1.5	1.2	0.6	0.7	2.5	0.7	3.5	0.5	10.3
1997	2.6	1.3	0.2	0.7	0.1	3.1	2.7	3.8	1.3	2.0	0.9	3.1	1.0	10.1
1998	2.9	1.9	0.3	1.3	0.4	2.1	3.0	3.8	2.9	1.8	-0.4	2.8	1.8	9.5
1999	2.6	2.0	0.4	1.1	-0.2	1.8	2.4	1.8	2.1	1.2	0.1	2.7	1.7	8.7
2000	3.6	1.7	0.4	1.1	-	4.2	3.8	4.7	2.2	2.5	4.7	3.3	1.8	7.9
2001	1.7	1.2	0.4	-	-0.4	0.9	0.4	-0.1	1.8	2.5	1.2	3.0	1.1	7.4
1999 Q1	2.0	2.1	0.5	1.0	-0.3	0.7	1.9	0.5	2.3	1.2	-1.8	2.8	1.9	9.0
Q2	2.2	1.9	0.4	1.0	-0.2	1.1	1.9	0.6	1.5	1.1	-0.9	1.8	1.7	8.9
Q3	2.8	2.0	0.4	1.2	-0.3	2.1	2.6	2.1	1.9	1.2	0.5	3.6	1.9	8.7
Q4	3.6	2.0	0.4	1.2	-	3.3	3.3	4.2	2.8	1.6	2.4	2.7	1.7	8.4
2000 Q1	3.8	1.8	0.4	1.2	-0.2	4.2	3.6	4.2	2.4	2.1	4.1	3.6	1.7	8.2
Q2	4.1	2.1	0.5	1.2	0.1	4.3	4.0	5.6	2.8	2.3	4.8	3.6	1.7	7.9
Q3	3.4	1.7	0.4	1.0	-	4.2	4.0	4.9	2.1	2.7	5.1	2.6	1.7	7.8
Q4	3.0	1.4	0.4	0.9	-0.1	4.1	3.7	4.3	1.2	2.8	5.1	3.5	1.9	7.6
2001 Q1	2.6	1.3	0.5	0.5	-0.1	2.9	2.4	3.8	2.5	2.7	3.3	2.6	1.6	7.4
Q2	1.9	1.2	0.4	0.1	-0.3	1.5	1.2	0.3	1.8	2.9	2.4	3.4	1.2	7.4
Q3	1.6	1.2	0.4	-0.2	-0.4	0.1	-0.4	-0.9	1.8	2.5	0.7	3.4	1.0	7.4
Q4	0.8	1.2	0.4	-0.3	-0.9	-1.0	-1.4	-3.5	1.5	2.0	-1.2	2.5	0.8	7.4
2002 Q1	..	..	..	..	..	..	..	-3.1	0.3	2.2	-0.7	..	..	7.5
2001 Apr	..	..	..	..	..	..	..	0.7	1.8	2.8	2.9	..	..	7.4
May	..	..	..	..	..	..	..	-0.5	0.9	3.2	2.4	..	..	7.4
Jun	..	..	..	..	..	..	..	0.8	2.8	2.9	1.9	..	..	7.4
Jul	..	..	..	..	..	..	..	-1.3	1.8	2.7	1.1	..	..	7.4
Aug	..	..	..	..	..	..	..	-0.3	1.8	2.7	0.8	..	..	7.4
Sep	..	..	..	..	..	..	..	-1.1	1.8	2.3	-	..	..	7.4
Oct	..	..	..	..	..	..	..	-2.5	0.9	2.2	-0.8	..	..	7.4
Nov	..	..	..	..	..	..	..	-3.9	2.7	1.9	-1.4	..	..	7.4
Dec	..	..	..	..	..	..	..	-4.1	0.9	1.9	-1.2	..	..	7.4
2002 Jan	..	..	..	..	..	..	..	-3.2	-	2.3	-0.7	..	..	7.5
Feb	..	..	..	..	..	..	..	-3.5	0.9	2.0	-0.8	..	..	7.5
Mar	..	..	..	..	..	..	..	-2.6	-	2.2	-0.6	..	..	7.5
Apr	..	..	..	..	..	..	..	..	..	2.2	-0.4	..	..	7.6
<b>Percentage change on previous quarter</b>														
	ILGL	HUDY	HUDZ	HUEA	HUEB	HUEC	HUED	ILHF	ILHZ					ILIT
1999 Q1	0.6	0.7	0.1	0.3	-0.2	0.3	0.6	0.3	0.7					-0.3
Q2	0.7	0.2	-	0.2	-	0.9	0.6	0.6	-0.4					1.2
Q3	1.2	0.6	0.1	0.4	-0.1	1.1	1.0	1.6	1.3					0.8
Q4	1.1	0.5	0.1	0.2	0.4	0.9	1.1	1.5	1.2					0.1
2000 Q1	0.8	0.5	0.1	0.3	-0.4	1.1	0.8	0.4	0.3					-0.3
Q2	0.9	0.4	0.1	0.2	0.2	1.0	1.1	1.9	-					1.1
Q3	0.6	0.2	0.1	0.3	-0.2	1.1	0.9	1.0	0.6					0.7
Q4	0.7	0.2	0.1	0.1	0.2	0.8	0.8	0.9	0.3					0.3
2001 Q1	0.4	0.4	0.2	-0.2	-0.4	-0.1	-0.4	-0.1	1.5					-0.6
Q2	0.2	0.3	0.1	-0.1	-	-0.3	-0.1	-1.4	-0.6					0.7
Q3	0.3	0.2	-	-	-0.2	-0.3	-0.6	-0.3	0.6					0.6
Q4	-0.1	0.2	0.1	-	-0.3	-0.4	-0.3	-1.6	-					0.1
2002 Q1	..	..	..	..	..	..	..	0.4	0.3					..
<b>Percentage change on previous month</b>														
								ILKF	ILKP					
2001 Apr								-1.4	-0.9					
May								-0.3	-					
Jun								0.5	0.9					
Jul								-1.1	-					
Aug								1.3	-					
Sep								-0.9	-					
Oct								-1.3	-0.9					
Nov								-0.5	1.8					
Dec								0.6	-0.9					
2002 Jan								-0.2	-					
Feb								0.2	0.9					
Mar								0.5	-0.9					
Apr								..	..					

GDP = Gross Domestic Product at constant market prices  
PFC = Private Final Consumption at constant market prices  
GFC = Government Final Consumption at constant market prices  
GFCF = Gross Fixed Capital Formation at constant market prices  
ChgStk = Change in Stocks at constant market prices  
Exports = Exports of goods and services  
Imports = Imports of goods and services  
IoP = Industrial Production

Sales = Retail Sales Volume  
CPI = Consumer Prices, measurement not uniform among countries  
PPI = Producer Prices (manufacturing)  
Earnings = Average Wage Earnings (manufacturing), definitions of coverage and treatment vary among countries  
Empl = Total Employment not seasonally adjusted  
Unempl = Standardised Unemployment rates: percentage of total labour force  
Source: OECD - SNA93

## Contribution to change in GDP

	GDP	PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI	Earnings	Empl <sup>1</sup>	Unempl
<b>Percentage change on a year earlier</b>														
	ILFY	HUBW	HUBX	HUBY	HUBZ	HUCA	HUCB	ILGS	ILHM	HVLL	ILAF	ILAO	ILIG	GABD
1996	0.8	0.5	0.4	-0.1	-0.4	1.3	0.8	0.7	-1.1	1.4	-1.2	3.5	-0.4	8.9
1997	1.5	0.4	0.1	0.2	-	2.9	2.0	3.7	-1.7	1.9	1.1	1.5	-0.3	9.9
1998	1.7	0.9	0.2	0.5	0.5	1.7	2.2	4.2	1.0	1.0	-0.4	1.8	1.5	9.3
1999	1.7	1.7	0.3	0.8	-0.4	1.5	2.3	1.5	0.3	0.6	-1.0	2.6	0.8	8.6
2000	3.2	0.9	0.2	0.7	0.3	4.2	3.1	6.2	1.3	1.9	3.4	2.7	0.6	7.9
2001	0.7	0.7	0.3	-1.0	-0.9	1.7	0.1	0.5	0.9	2.5	2.9	1.5	-	7.9
1999 Q1	0.7	1.8	0.4	0.3	-0.4	0.1	1.6	-0.6	1.4	0.3	-2.4	2.5	1.1	8.8
Q2	1.0	1.7	0.2	0.7	-0.5	0.7	1.9	0.5	-0.6	0.5	-1.7	2.4	0.3	8.7
Q3	2.1	1.7	0.3	1.0	-0.5	2.0	2.5	2.0	-0.3	0.7	-0.7	2.7	1.4	8.6
Q4	3.0	1.5	0.4	1.2	-0.3	3.3	3.0	4.2	0.7	1.0	0.6	3.0	0.7	8.4
2000 Q1	2.9	0.6	0.3	0.9	-0.5	4.3	2.6	5.3	-	1.7	2.3	2.8	0.5	8.1
Q2	4.4	1.7	0.4	0.8	0.3	4.0	2.8	6.6	4.1	1.6	2.6	2.4	0.7	7.9
Q3	3.2	1.1	0.1	0.6	0.4	4.2	3.1	7.1	1.4	2.0	3.7	3.3	0.3	7.8
Q4	2.5	0.4	0.2	0.4	1.1	4.5	4.1	5.9	-0.2	2.4	4.5	2.4	0.5	7.7
2001 Q1	1.8	0.9	0.3	-0.5	-0.2	3.1	1.8	5.9	1.3	2.5	4.8	2.0	0.3	7.7
Q2	0.7	0.7	0.3	-0.8	-0.7	2.4	1.2	1.5	0.8	3.2	4.7	2.0	0.1	7.8
Q3	0.4	0.7	0.3	-1.4	-1.0	1.5	-0.3	-1.3	1.1	2.5	2.6	1.1	0.1	7.9
Q4	-	0.6	0.3	-1.3	-1.5	-	-2.0	-3.8	0.3	1.8	0.3	1.1	-0.2	8.0
2002 Q1	-0.2	-0.2	0.2	-1.0	-0.9	0.6	-1.1	-4.6	-3.8	1.9	-0.2	..	-0.4	8.1
2001 Apr	..	..	..	..	..	..	..	1.5	0.8	2.9	5.0	..	..	7.8
May	..	..	..	..	..	..	..	0.4	0.5	3.5	4.6	..	..	7.8
Jun	..	..	..	..	..	..	..	2.3	1.2	3.1	4.3	..	..	7.9
Jul	..	..	..	..	..	..	..	-1.9	1.0	2.6	3.1	..	..	7.9
Aug	..	..	..	..	..	..	..	-0.2	1.2	2.6	2.7	..	..	7.9
Sep	..	..	..	..	..	..	..	-1.6	1.2	2.1	1.9	..	..	7.9
Oct	..	..	..	..	..	..	..	-3.0	-0.9	2.0	0.6	..	..	8.0
Nov	..	..	..	..	..	..	..	-3.8	2.3	1.7	0.1	..	..	8.0
Dec	..	..	..	..	..	..	..	-4.4	-0.6	1.7	0.1	..	..	8.0
2002 Jan	..	..	..	..	..	..	..	-4.8	-4.3	2.1	-0.1	..	..	8.1
Feb	..	..	..	..	..	..	..	-5.4	-2.7	1.7	-0.3	..	..	8.1
Mar	..	..	..	..	..	..	..	-3.8	-4.3	1.8	-0.2	..	..	8.1
Apr	..	..	..	..	..	..	..	..	..	1.6	-0.8	..	..	8.1
<b>Percentage change on previous quarter</b>														
	ILGI	HUCC	HUCD	HUCE	HUCF	HUCG	HUCH	ILHC	ILHW					ILIQ
1999 Q1	1.1	1.1	0.2	0.7	-0.3	0.4	0.8	-	0.5					-1.5
Q2	-0.2	-0.5	-0.1	0.1	-	1.1	0.8	1.1	-3.1					0.7
Q3	1.3	0.6	0.2	0.5	-0.2	0.9	0.7	1.6	1.4					1.0
Q4	0.8	0.4	0.1	-0.1	0.2	0.8	0.7	1.3	1.9					0.5
2000 Q1	1.0	0.1	0.1	0.3	-0.5	1.4	0.4	1.1	-0.2					-1.7
Q2	1.2	0.6	-	-	0.8	0.8	0.9	2.4	0.9					0.9
Q3	0.1	-0.1	-0.1	0.3	-0.2	1.1	0.9	2.1	-1.2					0.6
Q4	0.2	-0.2	0.2	-0.3	1.0	1.1	1.7	0.2	0.3					0.7
2001 Q1	0.4	0.6	0.2	-0.5	-1.8	-	-1.8	1.1	1.3					-1.8
Q2	-	0.4	-	-0.3	0.2	0.1	0.4	-1.9	0.4					0.7
Q3	-0.2	-0.1	-0.1	-0.3	-0.4	0.2	-0.5	-0.6	-0.9					0.6
Q4	-0.3	-0.3	0.2	-0.2	0.4	-0.4	-	-2.4	-0.5					0.4
2002 Q1	0.2	-0.1	0.1	-0.2	-1.2	0.7	-0.9	0.2	-2.8					-2.0
<b>Percentage change on previous month</b>														
								ILKC	ILKM					
2001 Apr								-1.2	-0.4					
May								-	0.7					
Jun								0.2	-1.0					
Jul								-1.4	-0.5					
Aug								1.7	0.4					
Sep								-1.3	-0.7					
Oct								-1.5	-1.6					
Nov								-0.8	3.1					
Dec								0.1	-2.0					
2002 Jan								0.5	-3.0					
Feb								-0.4	0.9					
Mar								0.3	-0.3					
Apr								..	..					

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Exports = Exports of goods and services  
Imports = Imports of goods and services  
IoP = Industrial Production

Sales = Retail Sales volume  
CPI = Consumer Prices measurement not uniform among countries  
PPI = Producer Prices (manufacturing)  
Earnings = Average Earnings (manufacturing), definitions of coverage and treatment vary among countries  
Empl = Total Employment not seasonally adjusted  
Unempl = Standardised Unemployment rates: percentage of total workforce  
Source: OECD - SNA93

## Contribution to change in GDP

	GDP	PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI <sup>1</sup>	Earnings	Empl <sup>2</sup>	Unempl
<b>Percentage change on a year earlier</b>														
	ILFZ	HUBK	HUBL	HUBM	HUBN	HUBO	HUBP	ILGT	ILHN	HXAA	ILAG	ILAP	ILIH	GABC
1996	1.1	0.7	0.5	—	-0.5	0.7	0.4	0.9	-0.3	2.0	-2.7	2.6	0.3	11.9
1997	1.8	0.1	0.5	—	0.1	2.8	1.5	3.9	1.1	1.2	-0.6	2.6	0.7	11.8
1998	3.5	1.9	—	1.3	0.7	2.1	2.6	5.2	2.6	0.8	-0.9	2.2	1.9	11.4
1999	3.2	1.9	0.3	1.6	-0.3	1.1	1.5	2.0	2.4	0.5	-1.6	2.5	2.3	10.7
2000	4.1	1.5	0.7	1.6	0.4	3.6	3.7	3.5	0.5	1.7	2.1	5.2	2.7	9.3
2001	1.9	1.5	0.5	0.6	-0.9	0.2	—	0.7	-0.1	1.7	1.5	4.2	1.7	8.7
1999 Q1	2.7	2.0	0.2	1.5	—	0.1	1.1	1.0	3.2	0.2	-2.7	2.0	2.4	11.2
Q2	2.7	1.8	0.3	1.5	-0.3	0.4	1.0	0.5	1.9	0.4	-2.3	2.0	2.0	11.0
Q3	3.2	2.0	0.3	1.6	-0.7	1.5	1.4	2.3	2.3	0.5	-1.6	2.7	2.2	10.6
Q4	4.1	2.0	0.6	1.6	—	2.4	2.4	4.4	2.2	1.0	—	3.4	2.5	10.2
2000 Q1	4.5	2.0	0.5	1.7	0.1	3.3	3.2	4.1	2.0	1.5	1.2	5.2	2.6	9.8
Q2	4.5	1.6	0.7	1.5	0.3	4.0	3.6	3.9	1.3	1.5	2.1	5.4	2.8	9.4
Q3	3.9	1.4	0.7	1.6	0.9	3.5	4.2	3.5	0.1	1.9	2.7	5.2	2.7	9.1
Q4	3.7	1.2	0.7	1.7	0.3	3.8	3.9	2.4	-1.3	1.9	2.4	5.0	2.6	8.8
2001 Q1	3.0	1.4	0.6	1.1	-0.5	2.7	2.3	2.3	1.3	1.2	2.5	4.3	2.3	8.6
Q2	2.0	1.4	0.5	0.8	-0.4	0.6	0.8	1.2	-0.4	2.1	1.8	4.2	1.9	8.6
Q3	2.0	1.7	0.6	0.4	-0.8	-0.4	-0.6	1.1	-0.7	1.9	1.1	4.2	1.3	8.6
Q4	0.5	1.5	0.4	—	-1.7	-2.0	-2.4	-1.7	-0.8	1.4	0.6	4.1	1.2	8.8
2002 Q1	..	..	..	..	..	..	..	-0.9	-1.4	2.2	-0.2	..	..	9.0
2001 Apr	..	..	..	..	..	..	..	0.9	-0.2	1.8	2.0	..	..	8.6
May	..	..	..	..	..	..	..	1.4	-2.5	2.3	1.8	..	..	8.6
Jun	..	..	..	..	..	..	..	1.5	1.5	2.1	1.7	..	..	8.6
Jul	..	..	..	..	..	..	..	1.3	-0.8	2.1	1.3	..	..	8.6
Aug	..	..	..	..	..	..	..	1.3	—	1.9	1.1	..	..	8.6
Sep	..	..	..	..	..	..	..	0.8	-1.1	1.5	0.8	..	..	8.6
Oct	..	..	..	..	..	..	..	-1.3	-0.9	1.8	0.6	..	..	8.7
Nov	..	..	..	..	..	..	..	-1.6	-0.6	1.2	0.6	..	..	8.8
Dec	..	..	..	..	..	..	..	-2.1	-0.6	1.4	0.4	..	..	8.9
2002 Jan	..	..	..	..	..	..	..	-1.4	-3.5	2.3	—	..	..	8.9
Feb	..	..	..	..	..	..	..	-0.8	-0.6	2.1	-0.4	..	..	9.0
Mar	..	..	..	..	..	..	..	-0.4	-0.3	2.1	-0.3	..	..	9.1
Apr	..	..	..	..	..	..	..	..	-0.6	1.9	-0.2	..	..	9.2
<b>Percentage change on previous quarter</b>														
	ILGJ	HUBQ	HUBR	HUBS	HUBT	HUBU	HUBV	ILHD	ILHX				ILIR	
1999 Q1	0.7	0.3	0.2	0.5	-0.1	0.1	0.3	0.2	0.1				0.7	
Q2	1.0	0.6	0.1	0.5	-0.2	0.5	0.5	0.7	-0.2				0.5	
Q3	1.0	0.5	0.1	0.4	-0.5	1.2	0.5	1.3	1.2				0.7	
Q4	1.3	0.5	0.3	0.3	0.9	0.5	1.0	2.1	1.0				0.7	
2000 Q1	1.0	0.4	0.1	0.6	—	1.0	1.1	-0.1	-0.1				0.8	
Q2	1.0	0.3	0.2	0.3	—	1.2	0.9	0.5	-0.8				0.7	
Q3	0.5	0.2	0.1	0.4	0.1	0.7	1.1	0.9	—				0.6	
Q4	1.2	0.3	0.2	0.4	0.2	0.8	0.8	1.1	-0.4				0.6	
2001 Q1	0.4	0.6	0.1	—	-0.8	—	-0.5	-0.3	2.6				0.5	
Q2	—	0.2	0.1	-0.1	—	-0.8	-0.5	-0.5	-2.5				0.2	
Q3	0.5	0.5	0.2	—	-0.3	-0.3	-0.3	0.8	-0.3				0.1	
Q4	-0.3	0.1	—	—	-0.7	-0.8	-1.1	-1.7	-0.5				0.5	
2002 Q1	..	..	..	..	..	..	..	0.6	1.9				..	
<b>Percentage change on previous month</b>														
								ILKD	ILKN					
2001 Apr								-0.8	-2.9					
May								0.3	-0.5					
Jun								0.2	2.0					
Jul								0.8	-1.4					
Aug								—	0.7					
Sep								-0.7	-1.4					
Oct								-1.1	-0.3					
Nov								0.2	1.0					
Dec								-0.8	-0.1					
2002 Jan								0.5	-0.2					
Feb								0.5	2.3					
Mar								0.5	0.7					
Apr								..	-3.2					

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## Contribution to change in GDP

	GDP	PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI	Earnings	Empl	Unempl
<b>Percentage change on a year earlier</b>														
	ILGA	HUCI	HUCJ	HUCK	HUCL	HUCM	HUCN	ILGU	ILHO	HYAA	ILAH	ILAQ	ILII	GABE
1996	1.1	0.7	0.2	0.7	-0.7	0.2	-0.1	-1.6	1.2	4.0	1.9	3.1	0.5	11.5
1997	2.0	1.9	-	0.4	0.3	1.7	2.3	3.8	0.9	2.0	1.3	3.9	0.4	11.7
1998	1.8	1.9	-	0.7	0.3	1.0	2.2	1.4	1.0	2.0	0.1	3.0	1.2	11.6
1999	1.6	1.5	0.2	1.1	0.1	0.1	1.4	-	1.0	1.7	-0.2	1.8	1.2	11.2
2000	2.9	1.6	0.3	1.3	-1.1	3.3	2.5	4.1	-0.5	2.5	6.0	2.0	1.9	10.5
2001	1.8	0.7	0.4	0.5	-	0.2	-	-1.0	-1.4	2.7	1.9	1.9	2.0	9.4
1999 Q1	0.9	2.0	0.2	0.6	-	-1.2	0.7	-1.2	1.0	1.4	-1.8	2.5	1.2	11.4
Q2	1.1	1.3	0.2	0.9	0.7	-0.9	1.1	-2.4	0.3	1.4	-1.4	1.4	1.3	11.3
Q3	1.5	1.4	0.2	1.2	-0.2	0.2	1.4	0.4	0.6	1.7	-	1.9	1.2	11.2
Q4	2.9	1.1	0.2	1.7	-	2.2	2.3	3.1	2.3	2.1	2.2	1.5	1.4	11.0
2000 Q1	3.2	1.4	0.2	1.5	-0.6	3.9	3.0	3.4	-0.3	2.4	4.7	1.6	1.2	10.8
Q2	3.0	1.9	0.2	1.5	-0.7	2.9	2.8	5.7	-0.3	2.6	6.2	2.6	1.5	10.6
Q3	2.7	1.7	0.3	1.4	-1.7	3.7	2.8	3.5	-	2.6	6.7	1.9	2.1	10.4
Q4	2.6	1.5	0.4	0.8	-1.4	2.6	1.5	3.6	-1.3	2.6	6.5	1.8	2.8	10.1
2001 Q1	2.5	1.1	0.4	0.8	-0.2	1.1	0.7	2.5	-0.6	2.9	4.8	2.2	3.1	9.9
Q2	2.3	0.8	0.4	0.6	-0.4	1.5	0.6	-0.8	-1.0	3.0	3.2	1.3	2.1	9.5
Q3	1.7	0.5	0.4	0.3	1.1	-0.8	-0.3	-1.2	-2.2	2.8	0.9	2.0	1.8	9.3
Q4	0.7	0.4	0.3	0.4	-0.3	-0.9	-0.8	-4.4	-1.9	2.5	-1.0	2.1	1.1	9.0
2002 Q1	0.1	..	..	..	..	..	..	-3.5	2.9	2.5	-1.3	2.2	1.8	..
2001 Apr	..	..	..	..	..	..	..	-	-1.0	3.1	4.3	1.7	..	9.6
May	..	..	..	..	..	..	..	-1.7	-1.0	3.0	2.9	1.1	..	9.5
Jun	..	..	..	..	..	..	..	-0.6	-1.0	3.0	2.4	1.1	..	9.5
Jul	..	..	..	..	..	..	..	-0.7	-2.9	2.9	1.3	2.1	..	9.4
Aug	..	..	..	..	..	..	..	-1.0	-1.0	2.8	1.2	2.0	..	9.3
Sep	..	..	..	..	..	..	..	-2.1	-2.9	2.6	0.4	2.0	..	9.2
Oct	..	..	..	..	..	..	..	-1.6	-1.9	2.5	-0.6	2.0	..	9.1
Nov	..	..	..	..	..	..	..	-5.8	-1.9	2.4	-1.3	2.1	..	9.0
Dec	..	..	..	..	..	..	..	-5.7	-1.9	2.4	-1.3	2.1	..	8.9
2002 Jan	..	..	..	..	..	..	..	-3.3	2.9	2.4	-1.2	1.9	..	8.8
Feb	..	..	..	..	..	..	..	-3.0	2.9	2.5	-1.4	1.6	..	..
Mar	..	..	..	..	..	..	..	-4.3	2.9	2.5	-1.3	2.8	..	..
Apr	..	..	..	..	..	..	..	..	..	2.4	-1.2	3.1	..	..
<b>Percentage change on previous quarter</b>														
	ILGK	HUCO	HUCP	HUCQ	HUCR	HUCS	HUCT	ILHE	ILHY				ILIS	
1999 Q1	0.4	0.5	0.1	0.5	-0.1	-0.3	0.2	0.2	0.6				-1.0	
Q2	0.6	-0.1	-	0.3	0.2	0.6	0.4	-0.5	0.3				1.2	
Q3	0.9	0.3	0.1	0.4	-0.5	0.8	0.2	2.1	-				1.3	
Q4	1.0	0.3	0.1	0.5	0.5	1.1	1.4	1.3	1.3				-0.1	
2000 Q1	0.8	0.7	0.1	0.2	-0.7	1.4	0.9	0.5	-1.9				-1.2	
Q2	0.3	0.5	-	0.3	0.1	-0.4	0.3	1.7	0.3				1.5	
Q3	0.6	0.1	0.1	0.4	-1.5	1.5	0.1	-0.1	0.3				1.9	
Q4	0.8	0.2	0.1	-0.1	0.7	0.1	0.2	1.5	-				0.6	
2001 Q1	0.8	0.2	0.1	0.3	0.4	-0.1	0.1	-0.6	-1.3				-0.8	
Q2	-	0.2	0.1	-	-0.1	-	0.2	-1.6	-				0.5	
Q3	0.1	-0.2	0.1	0.1	-	-0.7	-0.8	-0.5	-1.0				1.6	
Q4	-0.2	0.2	-	-	-0.7	-	-0.3	-1.8	0.3				-0.1	
2002 Q1	0.2	..	..	..	..	..	..	0.3	3.6				-0.2	
<b>Percentage change on previous month</b>														
								ILKE	ILKO					
2001 Apr								-2.2	-					
May								0.4	-					
Jun								0.1	-					
Jul								-0.7	-1.0					
Aug								0.6	-					
Sep								-0.9	-					
Oct								-0.2	-					
Nov								-2.5	1.0					
Dec								1.6	-1.0					
2002 Jan								0.3	3.9					
Feb								-	-					
Mar								-0.7	-					
Apr								..	..					

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Source: OECD - SNA93

## Contribution to change in GDP

	GDP	PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI	Earnings	Empl <sup>1</sup>	Unempl
<b>Percentage change on a year earlier</b>														
	ILGC	HUDG	HUDH	HUDI	HUDJ	HUDK	HUDL	ILGW	ILHQ	ILAA	ILAJ	ILAS	ILIK	GADO
1996	3.6	2.1	0.1	1.5	-	0.9	1.0	4.6	5.6	2.9	2.3	3.3	1.4	5.4
1997	4.4	2.4	0.3	1.6	0.4	1.4	1.7	7.0	4.9	2.3	0.3	3.2	2.3	4.9
1998	4.3	3.2	0.2	2.0	0.2	0.3	1.6	5.1	7.1	1.6	-1.1	2.5	1.5	4.5
1999	4.1	3.3	0.3	1.6	-0.2	0.4	1.5	3.7	9.0	2.1	1.8	2.9	1.5	4.2
2000	4.1	3.3	0.4	1.4	-0.1	1.1	2.0	4.5	6.5	3.4	4.1	3.6	1.3	4.0
2001	1.2	2.1	0.4	-0.2	-1.2	-0.6	-0.5	-3.6	4.5	2.8	0.7	3.2	-0.2	4.8
1999 Q1	4.0	3.3	0.4	1.8	-0.3	0.1	1.3	3.4	9.6	1.7	-	1.8	1.7	4.3
Q2	3.9	3.3	0.1	1.6	-0.1	0.3	1.4	3.2	8.2	2.2	1.1	2.4	1.4	4.3
Q3	4.0	3.4	0.3	1.6	-0.4	0.6	1.7	3.7	9.7	2.4	2.4	3.7	1.4	4.2
Q4	4.4	3.4	0.4	1.4	0.1	0.5	1.7	4.4	8.5	2.6	3.2	3.6	1.5	4.1
2000 Q1	4.2	3.6	0.3	1.6	-0.6	1.0	2.0	4.8	8.6	3.2	4.6	4.2	1.6	4.0
Q2	5.2	3.3	0.6	1.6	0.5	1.3	2.2	5.9	7.0	3.3	4.4	3.6	1.6	4.0
Q3	4.4	3.3	0.4	1.4	0.1	1.3	2.2	4.8	6.3	3.5	3.9	2.9	1.1	4.1
Q4	2.8	2.8	0.2	1.1	-0.5	0.8	1.8	2.6	4.2	3.4	3.4	3.5	1.0	4.0
2001 Q1	2.5	2.4	0.4	0.6	-0.6	0.5	0.9	-0.4	2.7	3.4	2.1	2.6	0.7	4.2
Q2	1.2	2.2	0.3	-	-1.3	-0.2	-0.1	-3.5	4.0	3.4	2.1	3.2	-0.1	4.5
Q3	0.5	1.6	0.4	-0.5	-1.2	-1.2	-1.2	-4.8	3.4	2.7	0.6	3.4	-0.2	4.8
Q4	0.5	2.1	0.6	-0.8	-1.7	-1.3	-1.4	-5.8	7.7	1.8	-1.7	3.4	-1.0	5.6
2002 Q1	1.5	2.2	0.6	-1.0	-	-1.2	-0.7	-3.7	6.3	1.2	-1.8	4.2	-1.4	5.6
2001 Apr	..	..	..	..	..	..	..	-2.4	4.4	3.3	2.3	2.6	-0.1	4.5
May	..	..	..	..	..	..	..	-3.4	3.7	3.6	2.6	3.5	0.1	4.4
Jun	..	..	..	..	..	..	..	-4.7	3.9	3.3	1.2	3.4	-0.2	4.6
Jul	..	..	..	..	..	..	..	-4.1	4.3	2.7	0.4	3.4	0.2	4.6
Aug	..	..	..	..	..	..	..	-4.6	4.5	2.7	0.9	3.4	-0.6	4.9
Sep	..	..	..	..	..	..	..	-5.7	1.4	2.6	0.7	3.4	-0.1	5.0
Oct	..	..	..	..	..	..	..	-5.9	9.1	2.1	-1.0	3.4	-0.6	5.4
Nov	..	..	..	..	..	..	..	-5.9	6.9	1.8	-1.6	3.4	-1.0	5.6
Dec	..	..	..	..	..	..	..	-5.8	7.1	1.6	-2.2	3.4	-1.4	5.8
2002 Jan	..	..	..	..	..	..	..	-4.4	5.9	1.1	-2.3	4.2	-1.8	5.6
Feb	..	..	..	..	..	..	..	-3.8	6.6	1.1	-2.0	4.2	-1.0	5.5
Mar	..	..	..	..	..	..	..	-3.0	6.4	1.5	-1.2	4.2	-1.4	5.7
Apr	..	..	..	..	..	..	..	-2.0	5.7	1.6	-1.4	3.4	-1.0	6.0
<b>Percentage change on previous quarter</b>														
	ILGM	HUDM	HUDN	HUDO	HUDP	HUDQ	HUDR	ILHG	ILIA				ILIU	
1999 Q4	2.0	0.9	0.2	0.3	0.6	0.3	0.4	1.5	2.1				0.3	
2000 Q1	0.6	1.0	-0.1	0.6	-0.7	0.3	0.6	1.4	2.6				-0.5	
Q2	1.4	0.6	0.3	0.3	0.5	0.4	0.6	1.7	0.1				1.2	
Q3	0.3	0.7	-0.1	0.1	-0.3	0.3	0.5	0.2	1.3				0.1	
Q4	0.5	0.5	0.1	0.1	-0.1	-0.1	-	-0.7	0.1				0.2	
2001 Q1	0.3	0.5	0.2	0.2	-0.8	-	-0.2	-1.6	1.2				-0.7	
Q2	0.1	0.4	0.1	-0.3	-0.1	-0.4	-0.4	-1.4	1.4				0.4	
Q3	-0.3	0.2	0.1	-0.4	-0.3	-0.6	-0.6	-1.2	0.6				-	
Q4	0.4	1.0	0.2	-0.3	-0.6	-0.3	-0.3	-1.7	4.3				-0.6	
2002 Q1	1.4	0.6	0.2	-	1.0	0.1	0.5	0.6	-0.1				-1.1	
<b>Percentage change on previous month</b>														
								ILKG	ILKQ				ILLA	
2001 Apr								-0.6	1.4				-0.1	
May								-0.3	-				-	
Jun								-0.9	0.1				0.6	
Jul								0.1	1.0				0.4	
Aug								-0.3	0.7				-1.1	
Sep								-1.1	-2.6				-	
Oct								-0.6	7.7				-	
Nov								-0.3	-2.6				-0.4	
Dec								-0.4	0.4				-0.1	
2002 Jan								0.7	0.2				-1.6	
Feb								0.3	0.7				0.9	
Mar								0.4	-0.3				-	
Apr								0.4	0.7				0.3	

GDP = Gross Domestic Product at constant market prices  
PFC = Private Final Consumption at constant market prices  
GFC = Government Final Consumption at constant market prices  
GFCF = Gross Fixed Capital Formation at constant market prices  
ChgStk = Change in Stocks at constant market prices  
Exports = Exports of goods and services  
Imports = Imports of goods and services  
IoP = Industrial Production

Sales = Retail Sales volume  
CPI = Consumer Prices, measurement not uniform among countries  
PPI = Producer Prices (manufacturing)  
Earnings = Average Earnings (manufacturing), definitions of coverage and treatment vary among countries  
Empl = Total Employment not seasonally adjusted  
Unempl = Standardised Unemployment rates: percentage of total workforce

Source: OECD - SNA93

## Contribution to change in GDP

	GDP	PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP <sup>1</sup>	Sales	CPI	PPI	Earnings <sup>2</sup>	Empl	Unempl
<b>Percentage change on a year earlier</b>														
	ILGD	HUCU	HUCV	HUCW	HUCX	HUCY	HUCZ	ILGX	ILHR	ILAB	ILAK	ILAT	ILIL	GADP
1996	3.6	1.3	0.4	2.0	0.3	0.6	1.0	2.2	0.6	0.1	-1.7	2.6	0.5	3.4
1997	1.8	0.5	0.2	0.2	-	1.1	0.1	4.0	-2.1	1.7	0.6	2.8	1.0	3.4
1998	-1.0	0.1	0.3	-1.2	-0.6	-0.2	-0.6	-6.7	-6.0	0.7	-1.3	-0.9	-0.6	4.1
1999	0.7	0.6	0.7	-0.2	-0.3	0.1	0.2	1.0	-2.6	-0.3	-1.4	-0.7	-0.8	4.7
2000	2.2	0.2	0.7	0.9	-0.1	1.3	0.8	5.2	-1.1	-0.7	0.1	1.6	-0.3	4.7
2001	-0.4	0.3	0.5	-0.5	-	-0.7	-0.1	-7.0	-1.2	-0.7	-0.9	0.1	-0.5	5.0
1999 Q1	-1.2	-0.4	0.4	-0.7	-0.6	-0.3	-0.3	-3.7	-4.6	-0.1	-2.2	-0.8	-1.2	4.6
Q2	1.3	1.3	0.8	-0.3	-0.3	-0.1	0.2	0.3	-2.5	-0.3	-1.7	-1.3	-1.1	4.7
Q3	2.1	1.6	0.8	0.1	-0.3	0.3	0.3	2.7	-2.2	-	-1.3	-0.3	-0.7	4.7
Q4	0.6	-	0.7	0.1	-0.2	0.7	0.8	5.1	-1.1	-1.0	-0.5	-0.3	-0.2	4.7
2000 Q1	3.6	1.7	0.8	0.6	-0.1	1.3	0.7	4.3	-2.2	-0.6	0.1	1.9	-0.5	4.8
Q2	2.3	0.3	0.8	0.7	-0.1	1.4	0.8	6.6	-1.5	-0.7	0.3	2.2	-0.4	4.7
Q3	0.7	-1.4	0.7	0.9	-	1.2	0.7	5.3	-0.4	-0.6	0.2	1.6	-0.4	4.7
Q4	2.3	0.2	0.7	1.3	0.1	1.0	0.9	4.4	-0.4	-0.8	-0.1	1.1	0.2	4.8
2001 Q1	1.4	0.8	0.6	0.4	-	0.2	0.7	0.6	2.3	-0.5	-0.4	0.4	0.5	4.7
Q2	-0.6	-	0.5	-0.2	-	-0.7	0.2	-5.2	-1.1	-0.7	-0.6	0.6	-0.4	4.9
Q3	-0.5	-0.2	0.4	0.2	-0.1	-1.1	-0.3	-10.4	-2.6	-0.8	-1.0	-0.2	-0.8	5.1
Q4	-1.9	0.5	0.4	-2.3	-0.1	-1.3	-0.8	-12.8	-3.4	-1.0	-1.6	-0.6	-1.3	5.4
2002 Q1	-	-	-	-	-	-	-	-10.1	-4.4	-1.4	-1.5	-1.5	-1.5	5.3
2001 Apr	-	-	-	-	-	-	-	-3.9	-	-0.7	-0.6	-0.1	-0.2	4.8
May	-	-	-	-	-	-	-	-4.8	-1.1	-0.7	-0.6	-0.3	-0.4	4.9
Jun	-	-	-	-	-	-	-	-6.9	-2.2	-0.8	-0.7	2.0	-0.6	4.9
Jul	-	-	-	-	-	-	-	-8.6	-2.2	-0.8	-0.8	1.1	-0.6	5.0
Aug	-	-	-	-	-	-	-	-11.3	-3.3	-0.7	-1.0	-1.1	-0.6	5.0
Sep	-	-	-	-	-	-	-	-11.1	-2.2	-0.8	-1.0	-0.6	-1.3	5.3
Oct	-	-	-	-	-	-	-	-12.2	-3.4	-0.8	-1.5	-0.4	-1.6	5.4
Nov	-	-	-	-	-	-	-	-13.1	-2.2	-1.0	-1.6	0.5	-1.1	5.4
Dec	-	-	-	-	-	-	-	-13.1	-4.5	-1.2	-1.8	-1.7	-1.2	5.5
2002 Jan	-	-	-	-	-	-	-	-11.1	-4.4	-1.4	-1.7	-2.7	-1.4	5.3
Feb	-	-	-	-	-	-	-	-10.8	-4.4	-1.6	-1.5	-0.8	-1.6	5.3
Mar	-	-	-	-	-	-	-	-8.5	-4.4	-1.2	-1.5	-1.0	-1.3	5.2
Apr	-	-	-	-	-	-	-	-6.4	-3.4	-1.1	-1.3	-	-1.4	5.2
<b>Percentage change on previous quarter</b>														
	ILGN	HUDA	HUDB	HUDC	HUDD	HUDE	HUDD	ILHH	ILIB			ILIV		
1999 Q1	-1.0	-1.3	0.1	0.4	-0.1	-	0.2	1.4	0.4			-1.8		
Q2	2.1	1.6	0.4	-	0.1	0.1	0.2	-0.3	-0.4			2.2		
Q3	0.8	1.0	0.1	-0.2	-0.2	0.3	0.2	2.7	-0.4			-		
Q4	-1.3	-1.3	0.1	-	-0.1	0.2	0.2	1.2	-0.7			-0.6		
2000 Q1	2.0	0.4	0.2	0.8	0.1	0.7	0.1	0.6	-0.7			-2.1		
Q2	0.8	0.2	0.4	0.1	-	0.3	0.3	1.9	0.4			2.3		
Q3	-0.7	-0.7	-	-	-0.1	0.1	0.1	1.5	0.8			-		
Q4	0.3	0.3	-	0.3	-	-	0.4	0.3	-0.7			-		
2001 Q1	1.0	1.0	0.2	-	-	-0.2	-	-3.1	1.9			-1.8		
Q2	-1.2	-0.6	0.3	-0.5	-	-0.5	-0.2	-4.0	-2.9			1.4		
Q3	-0.5	-1.0	-	0.5	-0.1	-0.3	-0.4	-4.0	-0.8			-0.4		
Q4	-1.2	1.0	0.1	-2.3	-	-0.3	-0.2	-2.4	-1.5			-0.5		
2002 Q1	-	-	-	-	-	-	-	-0.1	0.8			-2.0		
<b>Percentage change on previous month</b>														
								ILKH	ILKR			ILLB		
2001 Apr								-2.0	-2.2			0.7		
May								-1.0	-			0.8		
Jun								-0.7	-			-0.2		
Jul								-2.3	-			-0.2		
Aug								0.3	-1.1			-0.1		
Sep								-3.3	-			-0.7		
Oct								0.1	-1.1			0.1		
Nov								-1.5	1.2			0.4		
Dec								1.7	-2.3			-1.1		
2002 Jan								-1.5	2.4			-1.4		
Feb								0.9	-			-0.3		
Mar								0.5	-1.1			0.7		
Apr								0.3	-1.2			0.6		

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Empl = Total Employment not seasonally adjusted  
Unempl = Standardised Unemployment rates: percentage of total workforce  
IoP = Index of Production



# 7 World trade in goods<sup>1</sup>

	Export of manufactures			Import of manufactures			Export of goods			Import of goods			Total trade	
	Total	OECD	Other	Total	OECD	Other	Total	OECD	Other	Total	OECD	Other	manufactures	goods
<b>Percentage change on a year earlier</b>														
	ILIZ	ILJA	ILJB	ILJC	ILJD	ILJE	ILJF	ILJG	ILJH	ILJI	ILJJ	ILJK	ILJL	ILJM
1992	4.3	3.3	8.6	5.3	4.3	8.3	4.3	3.7	5.9	5.1	4.2	7.8	4.8	4.7
1993	4.8	2.2	15.3	4.0	1.0	12.5	3.9	2.2	9.1	3.2	0.8	10.3	4.4	3.6
1994	12.0	9.9	19.9	11.9	12.3	11.0	10.6	9.4	14.0	10.9	11.0	10.8	12.0	10.8
1995	9.6	10.0	8.6	11.0	10.4	12.4	9.0	9.4	7.8	9.9	9.0	12.2	10.3	9.4
1996	6.5	6.4	6.5	7.0	7.9	4.6	6.6	6.4	7.2	6.0	7.0	3.5	6.7	6.3
1997	11.3	11.9	9.4	10.8	11.4	9.5	10.4	11.1	8.9	9.5	9.7	8.9	11.1	10.0
1998	6.0	6.4	4.8	6.8	9.5	-0.4	5.4	5.8	4.3	6.1	8.3	0.3	6.4	5.8
1999	5.9	6.1	5.6	7.9	10.4	0.8	5.4	5.7	4.7	6.3	8.9	-0.9	6.9	5.9
2000	13.8	12.6	18.3	14.5	13.9	16.6	12.6	12.1	13.8	12.9	12.1	15.9	14.2	12.8
2001	-1.1	-1.5	0.3	..	-1.3	..	..	-0.7	..	..	-0.7	..	..	..
1996 Q1	5.6	5.6	5.7	6.9	7.3	5.8	5.5	5.1	6.6	6.0	6.2	5.7	6.2	5.8
Q2	5.8	5.2	7.6	5.9	6.6	4.1	5.7	4.9	7.8	5.0	5.8	3.1	5.8	5.4
Q3	6.7	6.8	6.2	6.9	8.7	2.5	7.0	7.0	7.2	5.9	7.7	1.1	6.8	6.4
Q4	7.8	8.1	6.5	8.1	9.0	5.8	8.4	8.8	7.3	7.1	8.3	4.0	7.9	7.7
1997 Q1	8.2	8.0	9.0	8.2	8.2	8.3	7.9	7.6	8.7	7.2	7.2	7.1	8.2	7.5
Q2	11.9	13.1	7.8	11.5	12.4	9.3	11.3	12.5	8.2	10.2	10.6	9.2	11.7	10.8
Q3	12.9	14.0	9.0	12.1	12.5	11.2	11.8	13.0	8.7	10.7	10.6	10.8	12.5	11.2
Q4	12.2	12.4	11.6	11.4	12.3	9.1	10.8	11.2	9.8	9.9	10.4	8.7	11.8	10.4
1998 Q1	10.7	11.4	8.5	10.5	13.2	3.7	10.0	11.0	7.4	9.6	11.4	4.7	10.6	9.8
Q2	7.1	6.8	8.3	7.8	9.5	3.2	6.3	6.3	6.5	7.0	8.3	3.4	7.5	6.6
Q3	4.1	4.2	4.0	4.9	7.8	-2.9	3.4	3.4	3.5	4.4	6.9	-2.3	4.5	3.9
Q4	2.2	3.3	-1.6	4.1	7.6	-5.4	1.9	2.5	..	3.5	6.4	-4.6	3.1	2.7
1999 Q1	1.6	2.6	-2.2	4.5	7.3	-3.5	1.4	1.8	0.3	3.6	6.3	-4.1	3.0	2.5
Q2	3.7	4.0	2.8	6.1	9.0	-2.2	3.6	3.7	3.5	4.7	7.7	-3.6	4.9	4.2
Q3	7.3	7.3	7.3	9.0	11.3	2.3	6.7	7.2	5.3	7.1	9.5	..	8.2	6.9
Q4	11.2	10.4	14.3	12.0	13.8	6.6	9.9	10.0	9.6	9.9	11.9	4.1	11.6	9.9
2000 Q1	14.9	13.9	18.5	14.2	14.7	12.6	13.3	13.6	12.7	12.2	12.7	10.9	14.5	12.8
Q2	14.9	14.0	18.1	15.4	15.1	16.2	13.3	13.3	13.5	13.7	13.1	15.6	15.1	13.5
Q3	14.0	12.5	19.6	15.5	14.4	19.1	12.9	11.9	15.7	14.2	12.7	19.0	14.8	13.5
Q4	11.5	10.0	16.8	13.0	11.3	18.6	10.7	9.8	13.4	11.6	9.7	17.9	12.3	11.2
2001 Q1	6.9	6.0	9.9	7.5	5.8	13.0	6.7	5.9	9.0	7.2	5.4	13.0	7.2	7.0
Q2	0.1	-0.4	1.8	1.1	-0.2	5.1	0.7	0.2	2.0	1.5	0.3	5.3	0.6	1.1
Q3	-4.6	-4.8	-4.2	-3.8	-4.6	-1.4	-3.3	-3.5	-2.7	-3.0	-3.7	-0.8	-4.2	-3.1
Q4	-6.7	-6.9	-6.1	..	-6.4	..	..	-5.6	..	..	-4.9	..	..	..
2002 Q1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>Percentage change on previous quarter</b>														
	ILJN	ILJO	ILJP	ILJQ	ILJR	ILJS	ILJT	ILJU	ILJV	ILJW	ILJX	ILJY	ILJZ	ILKA
1996 Q1	2.2	2.2	2.3	2.0	2.7	0.3	2.3	2.3	2.1	1.6	2.3	-0.3	2.1	1.9
Q2	1.0	0.7	2.2	1.0	1.0	1.0	1.1	0.7	2.0	1.0	1.3	0.5	1.0	1.1
Q3	2.0	2.3	0.7	2.4	2.8	1.2	2.3	2.5	1.6	2.2	2.5	1.2	2.2	2.2
Q4	2.3	2.7	1.1	2.4	2.2	3.0	2.5	2.9	1.4	2.1	1.9	2.7	2.4	2.3
1997 Q1	2.7	2.0	4.7	2.2	2.0	2.8	1.8	1.2	3.4	1.6	1.3	2.6	2.4	1.7
Q2	4.5	5.5	1.1	4.1	4.9	1.9	4.3	5.3	1.5	4.0	4.5	2.5	4.3	4.1
Q3	2.9	3.1	1.9	3.0	2.9	3.1	2.7	3.0	2.1	2.6	2.5	2.7	2.9	2.6
Q4	1.7	1.2	3.5	1.7	2.0	1.1	1.6	1.3	2.5	1.5	1.8	0.7	1.7	1.5
1998 Q1	1.3	1.2	1.8	1.4	2.8	-2.4	1.1	1.1	1.1	1.3	2.2	-1.2	1.3	1.2
Q2	1.1	1.1	0.8	1.5	1.6	1.5	0.8	0.8	0.7	1.5	1.6	1.2	1.3	1.1
Q3	..	0.6	-2.1	0.2	1.4	-3.1	-0.1	0.2	-0.8	0.1	1.1	-3.0	0.1	..
Q4	-0.2	0.3	-2.1	0.9	1.7	-1.5	0.1	0.4	-0.9	0.6	1.3	-1.7	0.4	0.3
1999 Q1	0.7	0.5	1.2	1.7	2.4	-0.4	0.7	0.4	1.4	1.4	2.1	-0.7	1.2	1.0
Q2	3.2	2.5	5.9	3.1	3.2	2.9	3.0	2.6	3.9	2.6	2.9	1.7	3.2	2.8
Q3	3.5	3.8	2.2	3.0	3.5	1.4	2.9	3.6	0.9	2.4	2.9	0.6	3.2	2.6
Q4	3.4	3.1	4.3	3.7	4.0	2.7	3.0	3.0	3.0	3.2	3.5	2.3	3.5	3.1
2000 Q1	4.0	3.7	5.0	3.7	3.3	5.2	3.8	3.6	4.3	3.5	2.8	5.8	3.9	3.7
Q2	3.3	2.6	5.6	4.1	3.5	6.1	3.0	2.4	4.7	3.9	3.2	6.1	3.7	3.5
Q3	2.7	2.5	3.4	3.1	2.9	3.9	2.5	2.4	2.8	2.8	2.6	3.6	2.9	2.7
Q4	1.1	0.9	1.9	1.4	1.2	2.3	1.0	1.0	1.0	0.9	0.7	1.4	1.3	1.0
2001 Q1	-0.3	..	-1.2	-1.3	-1.7	0.2	0.1	..	0.2	-0.6	-1.2	1.4	-0.8	-0.3
Q2	-3.3	-3.6	-2.2	-2.1	-2.4	-1.3	-2.8	-3.1	-2.0	-1.8	-1.7	-1.2	-2.7	-2.2
Q3	-2.2	-2.0	-2.6	-1.9	-1.7	-2.6	-1.6	-1.4	-1.9	-1.7	-1.5	-2.4	-2.0	-1.6
Q4	-1.1	-1.4	-0.2	..	-0.7	..	..	-1.1	..	..	-0.5	..	..	..
2002 Q1	..	..	..	..	..	..	..	..	..	..	..	..	..	..

<sup>1</sup> Data used in the World and OECD aggregates refer to Germany after unification

Source: OECD - SNA93

## Addendum

### Measuring productivity change in the provision of public services (article published in Economic Trends No. 583 May 2002)

In response to requests for clarification from a number of readers, an additional column has been added to Table 8. The new table is reproduced below:

**Table 8 Measuring health services output**

Year	Hospital & Community Health Services (Department of Health Index)	All health *
1995	100.0	100.0
1996	102.5	103.1
1997	104.9	105.4
1998	107.6	108.2
1999	109.3	112.5
2000		115.3

\* covers both Family Health Services and Hospital and Community Health Services; compiled by ONS to give UK coverage.

In addition, the following amendment should be made on page 29 in the section Comparing outputs with inputs, under the reference in bold to health:

Replace the reference to (Table 5) by (Table 8).

# Revisions to GDP: a time profile

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## Summary

This article presents the new format of ONS revision articles and describes on a consistent basis how constant price GDP quarterly growth estimates change from the first estimate to the final official growth estimate. The article attempts to distinguish between revisions due to new data, which are unbiased in early stages, and revisions mainly due to methodological changes, which we would expect to be positive. Initial results are presented for the period 1993 to 1998. However, it is acknowledged that a more detailed breakdown will require a longer data series.

## Introduction

The main measure of economic performance of a country is usually taken to be Gross Domestic Product (GDP). However, compilation of a quarterly GDP estimate does not end after the first publication. As is common in other countries, GDP estimates are revised, and the production of the estimate runs for a number of years after the initial publication, reflecting more available data and improvements in measurement methods. In trying to identify the main reason for revisions the question is: when in the production process do the majority of revisions occur? This article explores this issue using data on the profile of revisions over time, between the first, or month one, estimate and later estimates.

The profile illuminates two key reasons for revisions to growth estimates: data sources and methodologies. Broadly speaking, revisions can result from more data replacing earlier estimates directly, or in striking a balance in the accounting framework through confronting different data sources. A second major cause is changing methodology, which can cause revisions back over many years.

## Definitions

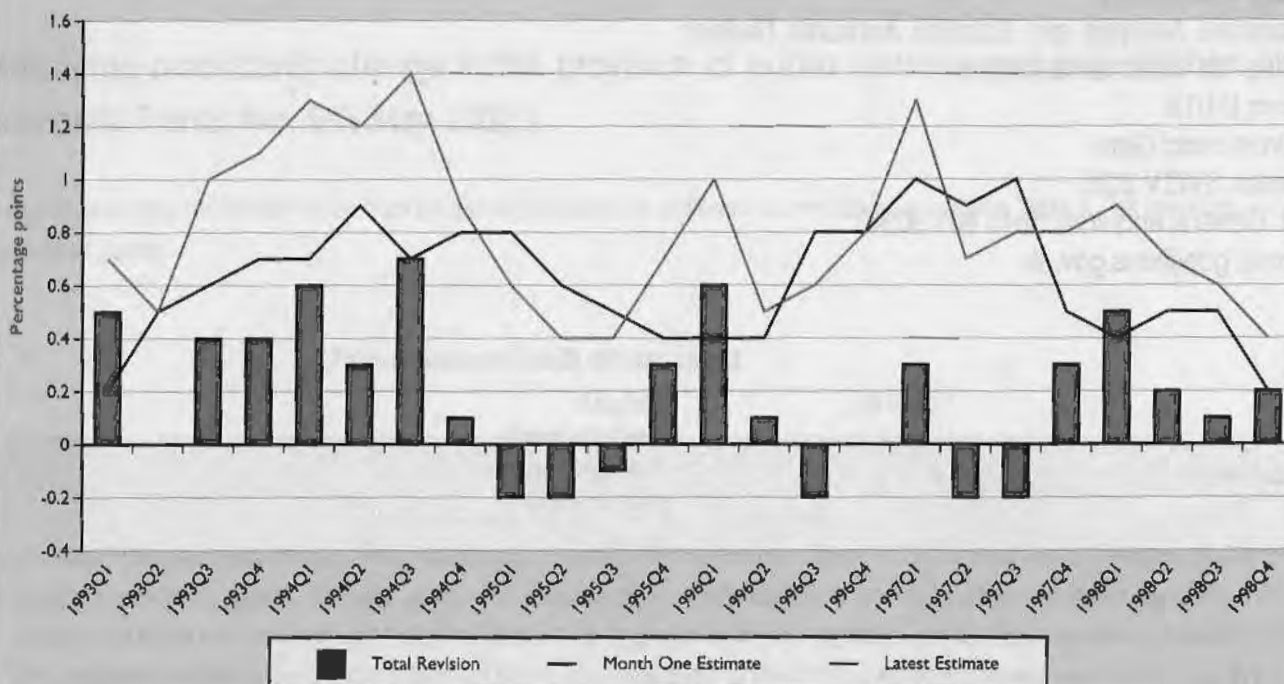
Figure 1 shows the revision to the initial estimate of quarterly constant price GDP growth between publication of the preliminary (month one) estimate and the 'latest' (*Blue Book* 2001 dataset) published estimate of GDP growth between 1993 and 1998. Revisions analysis is, by its nature, very dependent on the period being analysed. The period used here is 1993 Q1 to 1998 Q4. The first 1993 Q1 growth estimate was published in April 1993, the first 'preliminary month one estimate'. About this time, the major methodological change – more widespread use of the input-output balancing process – began to feed into the accounts. Restricting the sample to finish at the end of 1998 ensures that all of the data has had a chance to mature (i.e. all data have been in at least three *Blue Books*).

The average revision between publication of the preliminary estimate of quarterly constant price GDP growth and the 'latest' estimate of GDP growth is positive: 0.19 percentage points. This is consistent with earlier ONS work, such as Barklem (2000) and Symons (2001).



Figure 1

# Total Revision



The departure from this earlier work is the analysis of this revision by stage of the production process, in terms of mean revision, variance, and cycle. The stages have been selected on the basis that quite distinct techniques are used at each stage to calculate the estimate of GDP. The five stages are:

- Preliminary Estimate – month one (when the estimate is prepared on the basis of a small proportion of survey data from short-term indicator surveys on the output side);
- Quarterly National Accounts – month three (when fuller survey data for components of each of the expenditure, output and income measures are available from short-term indicator and other surveys, although output remains the main source);
- *Blue Book One* (the first time the estimate appears in the *Blue Book*, typically after new and more comprehensive annual data sources have become available, around three to twelve months after publication of the corresponding one month estimate);
- *Blue Book Two* (the stage at which input-output balancing is applied to the estimate for the first time, around 12–18 months after it is first published); and
- Post *Blue Book Two* (the input-output balance is run for a second time and longer run methodological changes may be introduced to the current data and back series).

It is worth considering how revisions may arise between the stages:

1. Month one to month three – essentially this represents (i) more complete output data and (ii) newly received data for the expenditure and income measures, adding detail and replacing imputation.
2. Month three to first *Blue Book* – Further data sources become available
3. *Blue Book one* to *Blue Book Two* – All annual data now available, including Annual Business Inquiry results. Current Price data goes through the Input-Output balancing procedure for the first time
4. *Blue Book Two* to latest figures – A number of factors affect the data after the initial Input-Output balancing. The input-output process is repeated, taking on the very latest data. Methodological changes are made, such as rebasing of the accounts every five years, and the adoption of the European System of Accounts in *Blue Book 1998*. Finally, data and methodology revisions in “closed years” where revisions were not allowed are often buffered (i.e. delayed) feed into the *Blue Book* revisions in open years.

Ideally we would like to include another stage, *Blue Book Three*, to give more precision in pin-pointing the sources of revisions. However, this would effectively reduce our sample period to 1993 to 1997; too small to give robust results.

From the stages we can obtain a set of prior hypotheses that can be tested using the data. Of the four possible sources of revisions, we believe that the first three should have a mean revision of zero. This belief assumes that revisions to growth (assuming what is being measured remains unchanged conceptually), should not be predictable or biased.

For the post *Blue Book Two* stage it seems plausible however that the mean revision will be positive, due to the nature of and reason for some of the methodological changes implemented. Generally, changes are designed to improve our measurement of growth and our coverage of fast growing industries. These changes are then taken back into the history of GDP growth to preserve consistency of the time-series.

Buffered revisions may be positive overall, for similar reasons to the other methodological changes. There is no *a priori* assumption about the nature of revisions arising from the second running of the input-output system, but it seems likely that overall, this stage will see positive revisions.

## Mean Revisions

Table 1 apportions the total revision of 0.19 percentage points at each stage of the evolution of the GDP estimate between its initial estimate and latest estimate.

**Table 1: Revisions at each stage of the evolution of the quarterly constant price GDP growth estimate**

1993Q1 – 1998 Q4	Mean
Month three less month one	0.008
First edition of <i>Blue Book</i> (BB(1)) less month three	0.063
Second edition of <i>Blue Book</i> (BB(2)) less BB(1)	0.029
Revisions after BB(2)	0.088
<b>Sum</b>	<b>0.188</b>

It is clear from Table 1 that the bulk of the upward revision to the month one or preliminary estimate occurs after the first three monthly releases. In particular they support our initial prior that a large proportion would arise in the final, post *Blue Book two* stage, although a considerable proportion also arises at the initial *Blue Book* stage.

It is important to remember though that the figures presented in Table 1 are simply average revisions, which give no indication of the pattern of revisions through time. Figures 2 and 3 illustrate the revision at each stage of the production process over time.

**Figure 2**  
Revisions by Stage

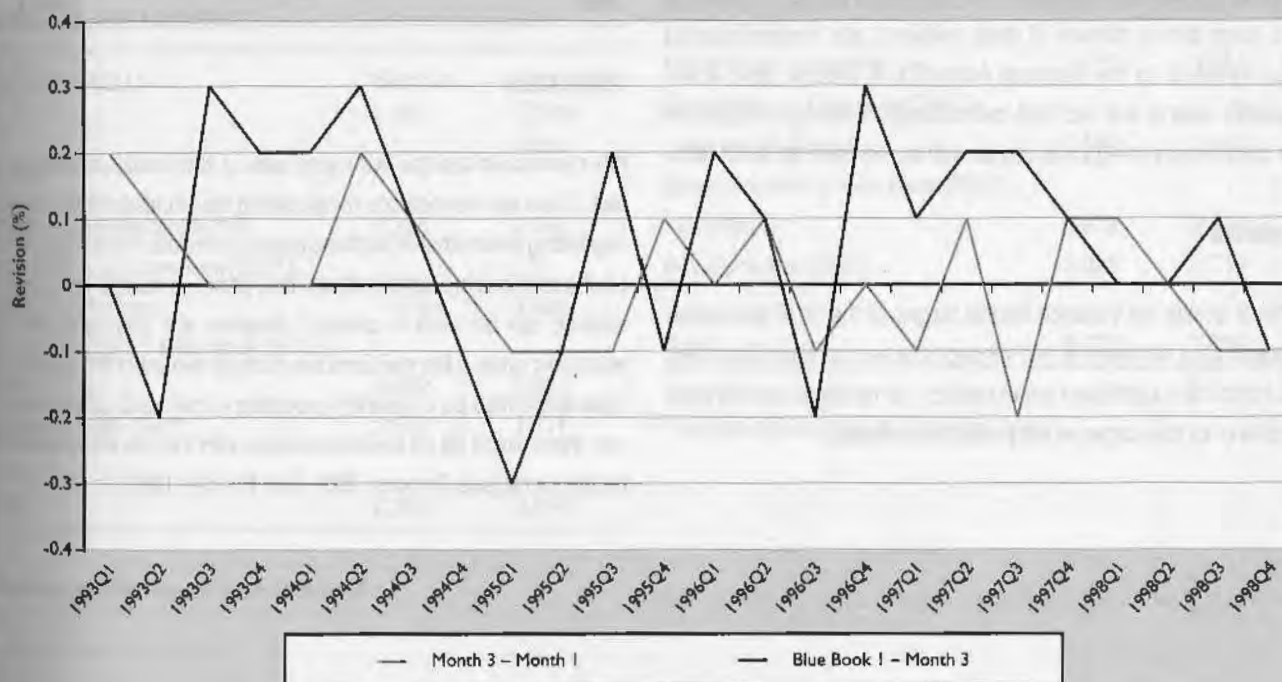
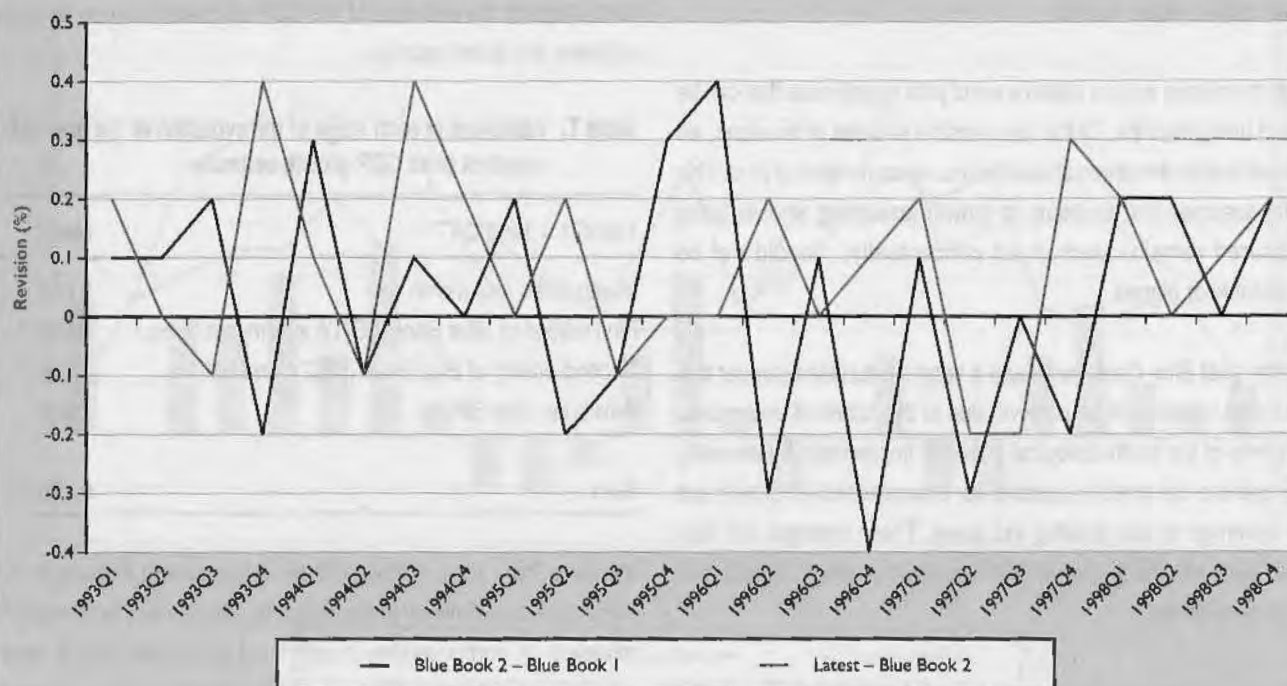


Figure 3

## Revisions by Stage



Of course, the results presented in Table 1 do not suggest that it is the initial estimate of GDP growth that is 'too low' or that it is the later estimate of GDP growth that is 'too high'. Neither do the results tell us anything especially new: revisions articles in *Economic Trends* have highlighted a bias in longer term estimates of GDP since the article by Kenny and Rizki (1992). However, this analysis suggests that there may be a positive aspect to revisions, as the largest contributor to the overall mean revision is the post-*Blue Book* two stage of the production process. As mentioned above, revisions at this stage are a mixture of data revisions and methodological improvements to the National Accounts. A precise split is not available, due to the fact that methodological changes impact on the current data being balanced as well as the back series of data.

### Variance

Table 2 shows the variance for the stages of the GDP production process. One comment is that although the second *Blue Book* does not introduce a significant mean revision, its revisions are the most volatile of all the stages of the production process.

Table 2: Variances by stage

1993Q1–1998 Q4	Variance
Month three less month one	0.0112
First edition of <i>Blue Book</i> (BB(1)) less month three	0.0294
Second edition of <i>Blue Book</i> (BB(2)) less BB(1)	0.0456
Revisions after BB(2)	0.0281
<b>Total</b>	<b>0.0811</b>

### t-statistics

It is common to test the null hypothesis of zero revisions using a t-test. There are two methods of calculating the t-statistic for the mean, depending on whether or not there is serial correlation in the revisions, i.e. the revisions are correlated with their previous values. The second statistic can be used to check if revisions are correlated to the economic cycle. If the revisions are strongly related to the economic cycle there may be a case for expecting some serial correlation. If not, there would be no serial correlation and the two measures will be the same (see Symons, 2001, and Priestly, 1981).



Given our above priors on the possible sign of the mean revision, the test for the first three revision stages should be a two-tailed test, as follows:

$$H_0: \mu = 0$$

$$H_1: \mu \neq 0$$

But for the post-*Blue Book* two stage our prior is that the mean revision will be positive. Hence our test is a one-tailed test, effectively:

$$H_0: \mu = 0$$

$$H_1: \mu > 0$$

This only really alters the critical value of the significance test. For the overall revision we have no prior belief, since hypothetically positive revisions in the post-*Blue Book* two stage could simply be cancelling out negative revisions in the earlier stages, although this seems unlikely.

#### Sample t-stat

The test statistic is given by:

$$T = \frac{\bar{X} - m}{s / \sqrt{n}}$$

Where  $m$  is the hypothesised value of the mean, in this case zero,  $s$  is the sample standard deviation, and  $n$  is the number of observations. Assuming the population this sample is drawn from is normal, this test statistic has a  $t$  distribution with  $n-1$  degrees of freedom. Results are shown in Table 3.

**Table 3: Sample t-statistics**

1993Q1–1998 Q4	Sample t-stat	5 per cent Critical Value
Month three less month one	0.385	2.064
First edition of <i>Blue Book</i> (BB(1)) less month three	1.786	2.064
Second edition of <i>Blue Book</i> (BB(2)) less BB(1)	0.669	2.064
Revisions after BB(2)	2.557*	1.711
<b>Total</b>	<b>3.225*</b>	<b>2.064</b>

\* Implies significance at 5 per cent level

We see from Table 3 that the post BB(2) stage is the only revision which is significant at the 5 per cent (and also at the 2.5 per cent level). The significance of the first *Blue Book* stage depends on the significance level chosen: it is significant at the 10 per cent level for example, but not the 5 per cent level shown. The overall revision is also significant, indicating the presence of bias.

#### Adjusted t-Stat

Again, we are testing the hypothesis that the mean is zero. Priestly (1981) suggests that in the presence of serial correlation we can adjust the variance of the mean by:

$$\sigma_{\bar{x}}^2 = \sigma^2 \left[ \frac{1 + \alpha}{n(1 - \alpha^2)} \right]$$

Where  $\sigma^2$  is the original variance,  $n$  is the number of observations and  $\alpha$  is the first order serial correlation of the revisions. The degrees of freedom are then given by:

$$n^* = \frac{n(1 - \alpha^2)}{(1 + \alpha^2)}$$

Once more we conduct a two tailed test for the first three stages and the overall revision, and a one-tailed test for the post-*Blue Book* Two stage. Results are given in Table 4.

**Table 4: Adjusted t-Statistics**

1993Q1 - 1998 Q4	Adjusted T-stat	5 per cent Critical Value
Month three less month one	0.372	2.064
First edition of <i>Blue Book</i> (BB(1)) less month three	1.643	2.064
Second edition of <i>Blue Book</i> (BB(2)) less BB(1)	0.910	2.086
Revisions after BB(2)	3.021*	1.714
<b>Total</b>	<b>2.377*</b>	<b>2.086</b>

\* Implies significance at 5 per cent level

For the later stages in the production process we see evidence of serial correlation, and although not a significant level of serial correlation, it is enough to alter the t-statistics. However, the finding that post-*Blue Book* two revisions are significant, as are total revisions, remains the same.

## Economic Cycle

The final area of interest is the link between the economic cycle and revisions. Theoretically it is possible that later revisions are positively correlated with the cycle. For example, if the growth in the economy is driven mainly by small, fast growing start-up firms, the likelihood is that they will not be included initially on the ONS surveys, and their contribution to the growth of the economy will only be discovered later on with the subsequent annual benchmarks. Methodological improvements may also be cyclical, as there is some lag between structural changes in the economy that occur with the cycle and the development of statistical tools to measure the change. However, formal measures of cyclicity, such as the correlation coefficient, are extremely dependent on the sample period chosen. The period in question, 1993Q1 to 1998Q4 only covers the expansion phase of the economic cycle, the trough of the last recession being the second quarter of 1991. To get a better picture of the cyclicity we must study a longer run of data that includes a recession.

To do this we expand our range of interest to 1988 to 1998, calculating correlation coefficients against annual growth as a better proxy for

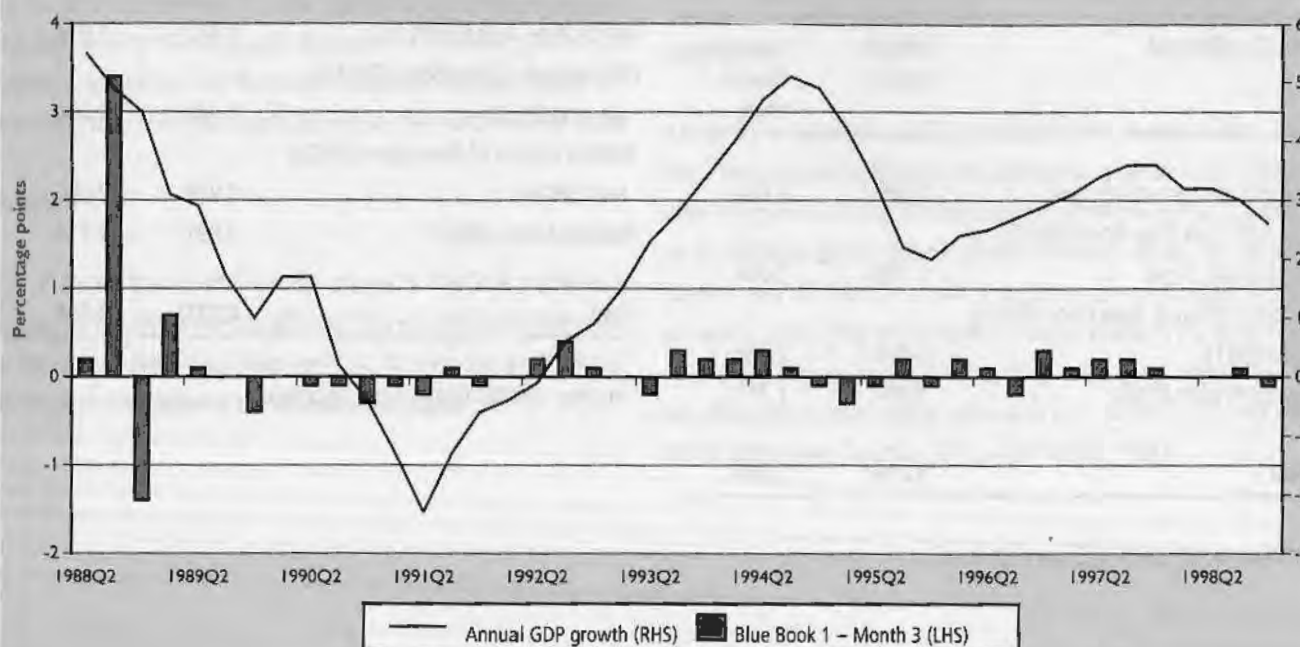
the economic cycle. Since the month one estimate was first published in 1993, we only have three stages here. The correlation coefficients reveal that of the three stages, the highest correlation is the *Blue Book* 1 to Month 3 stage, with a correlation coefficient of 0.216. However, this figure is driven primarily by major revisions at the start of the sample, as is shown by Figure 4. The figure picks up the introduction of the wider use of balancing of the three measures of GDP adopted in the early 1990s, with an unusually large revision in 1988Q3.

When we calculate the coefficients for our standard period, 1993–1998, we get higher coefficients for the *Blue Book* two and post *Blue Book* two stages than when we calculate them for the longer period. This suggests that by simply focusing on the expansionary period of time, we may be exaggerating the cyclicity of our revisions. Also the assumption that the cyclical relationship between revisions and the estimate is symmetric should be questioned. It may be the case that positive revisions during a period of high growth are more strongly correlated with the cycle than negative revisions during a recession. However, initial studies by the ONS suggest that assuming a symmetric relationship is statistically valid.

## An Annual Perspective

Thus far the article has concentrated purely on quarterly growth rate, since that is the primary role of the quarterly indicator. However, many of the previous analyses have concentrated on the four-quarter

**Figure 4**  
Blue Book one — Month 3



growth rate of the quarterly constant price GDP series. Table 5 presents comparable figures for the period of 1993Q1 to 1998Q4, based on these four-quarter growth rates.

**Table 5: Results for 4-quarter Growth rates**

1993Q1–1998 Q4	Mean	Variance	Correlation
Month three <i>less</i> month one	0.046	0.085	0.175
First edition of <i>Blue Book</i> (BB(1)) <i>less</i> month three	0.054	0.147	0.124
Second edition of <i>Blue Book</i> (BB(2)) <i>less</i> BB(1)	0.196	0.073	-0.277
Revisions after BB(2)	0.263	0.120	0.618
<b>Total</b>	<b>0.558</b>	<b>0.231</b>	<b>0.495</b>

We see from Table 5 that a sizeable proportion of the overall revision to four-quarter growth arises from the post-*Blue Book* two stage of the production process. The post-*Blue Book* two stage also looks to be significantly correlated with the final measure of annual growth. But once again we have the problem of not having a recession in the period used for the calculations. Table 6 presents the correlation coefficients for the revisions to four-quarter growth rates over a longer run of data.

**Table 6: Correlations including the recession**

Correlation with Qtr on 4-Qtr GDP Growth	1989Q1–1998 Q4
First edition of <i>Blue Book</i> (BB(1)) <i>less</i> month three	-0.003
Second edition of <i>Blue Book</i> (BB(2)) <i>less</i> BB(1)	0.045
Revisions after BB(2)	-0.111

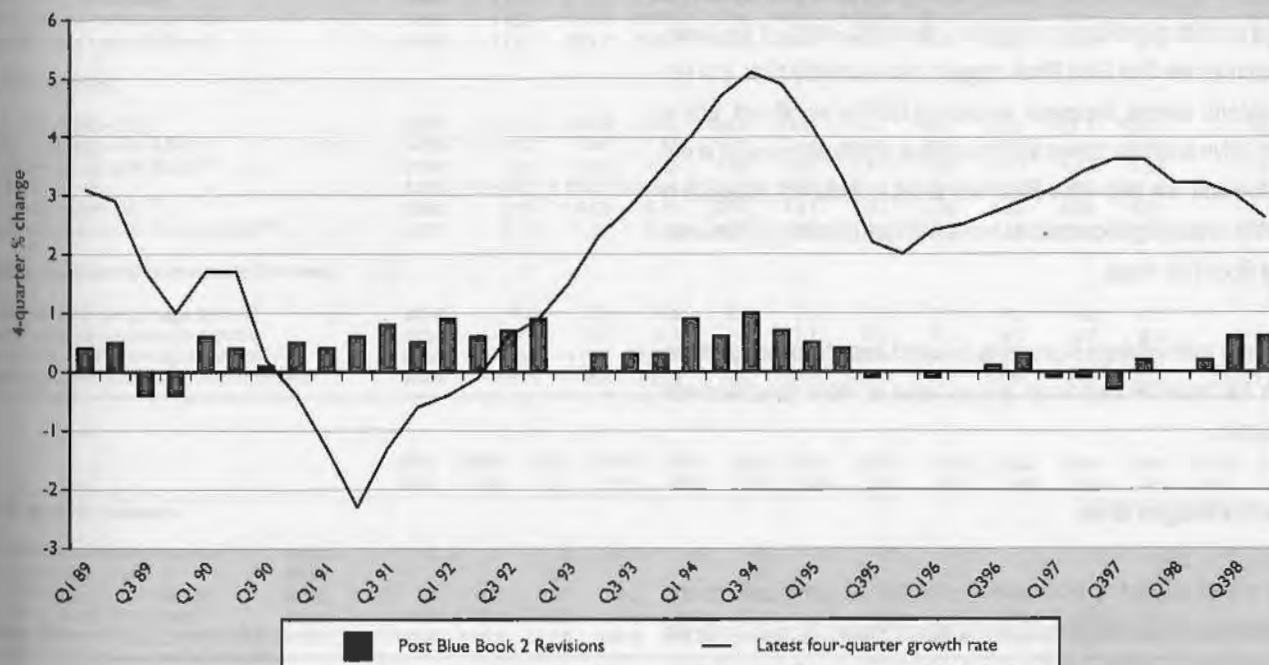
Once again, the correlation becomes insignificant once the recessionary period is included in the data. The reason behind this can be seen in Figure 5. Although revisions in the earlier period were higher they were counter cyclical.

### Comparison with previous findings

As mentioned in the introduction, the majority of previous ONS studies have concentrated on annual growth rates. However, Barklem (2000) did look at revisions to quarterly GDP growth between month one and three and between month three and six. Results are summarised in Table 7.

**Figure 5**

Post Blue Book two Revisions — 4 Quarter Growth Rates





**Table 7: Barklem (2000) results**

	Sample	Mean revision	Absolute Mean Revision	Variance
Month one to three	1993–1998	0.02	0.09	0.012
	1995–1998	0.01	0.10	0.012
Month three to six	1993–1998	0.06	0.16	0.032
	1995–1998	-0.01	0.13	0.023

The month three to six category encapsulates some of the month three to *Blue Book* one revisions, but not all. The small difference between the findings in Table 1 and Table 7 in the 1993–1998 result for month one to three can be explained by differences in the sample period. Table 7 actually finishes at quarter two 1998; removing the last two quarters from the analysis in Table 1 yields a mean revision of 0.018. The sample also explains the minor difference in variance.

Barklem (2000) also examines the longer run path of revisions to the quarterly series, but does so in an annual growth framework that is not easily comparable with the structure of this work.

## Conclusions

The initial results presented here show that the priors stated at the start of the paper have been confirmed. Revisions in the early stages of the production process are insignificantly different from zero at the 5 per cent significance level, and only the post-*Blue Book* Two stage exhibits significant and positive revisions. Although the mean revision for the first *Blue Book* stage is also relatively high, it is not significant. Overall the mean revision to GDP is significant, and a cumulative analysis shows that the critical significance value is not passed until the post-*Blue Book* two stage is included, suggesting that the overall significance/bias result is driven primarily by the post-*Blue Book* two stage.

The new methodology represents a useful analytical tool, and the work will be developed on an annual basis as more data becomes available.

## Acknowledgements

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