Economic trends

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Introduction

Economic trends brings together all the main economic indicators. It contains three regular sections of tables and charts illustrating trends in the UK economy.

'Economic Update' is a feature giving an overview of the latest economic statistics. The content and presentation will vary from month to month depending on topicality and coverage of the published statistics. The accompanying table on main economic indicators is wider in coverage than the table on selected monthly indicators appearing in previous editions of *Economic trends*. Data included in this section may not be wholly consistent with other sections which will have gone to press earlier.

Articles on international economic indicators and the final expenditure prices index appear monthly and an article on regional economic indicators appears every January, April, July and October. Occasional articles comment on and analyse economic statistics and introduce new series, new analyses and new methodology.

Quarterly information on the national accounts and the balance of payments appears in *UK Economic Accounts* which is published every January, April, July and October by The Stationery Office.

The main section is based on information available to the ONS on the date printed in note 1 below and shows the movements of the key economic indicators. The indicators appear in tabular form on left hand pages with corresponding charts on facing right hand pages. Colour has been used to aid interpretation in some of the charts, for example by creating a background grid on those charts drawn to a logarithmic scale. Index numbers in some tables and charts are given on a common base year for convenience of comparison.

Economic trends is prepared monthly by the Office for National Statistics in collaboration with the statistics divisions of Government Departments and the Bank of England.

Notes on the tables

1. All data in the tables and accompanying charts is current, as far as possible, to 27 August 1998.

2. The four letter identification code at the top of each column of data (eg, DJDD) is ONS's own reference to this series of data on our database. Please quote the relevant code if you contact us requiring any further information about the data.

3. Some data, particularly for the latest time period, is provisional and may be subject to revisions in later issues.

4. The statistics relate mainly to the United Kingdom; where figures are for Great Britain only, this is shown on the table.

5. Almost all quarterly data are seasonally adjusted; those not seasonally adjusted are indicated by NSA.

6. Rounding may lead to inconsistencies between the sum of constituent parts and the total in some tables.

7. A line drawn across a column between two consecutive figures indicates that the figures above and below the line have been compiled on different bases and are not strictly comparable. In each case a footnote explains the difference.

8. 'Billion' denotes one thousand million.

9. There is no single correct definition of *money*. The most widely used aggregates are:

M0, the narrowest measure, consists of notes and coin in circulation outside the Bank of England and bankers' operational deposits at the Bank.

M4 comprises notes and coin in circulation with the public, together with all sterling deposits (including *certificates of deposit*) held with UK banks and building societies by the rest of the private sector.

The Bank of England also publish data for liquid assets outside M4.

10. Symbols used:
    .. not available
    - nil or less than half the final digit shown
    + alongside a heading indicates a series for which measures of variability are given in the table on page T79
    † indicates that the data has been revised since the last edition; the period marked is the earliest in the table to have been revised
    * average (or total) of five weeks.

If you have any comments or suggestions about *Economic trends*, please write to Uzair Rizki, ONS, Zone D4/19, 1 Drummond Gate, London, SW1V 2QQ or e-mail uzair.rizki@ons.gov.uk

Office for National Statistics
September 1998

Articles published in *Economic trends*

Regular articles

International economic indicators. Commentary, figures and charts are published monthly.

Final expenditure prices index. Commentary and figures are published monthly.

Regional economic indicators. Commentary, figures and charts are published every January, April, July and October.

United Kingdom national accounts and **balance of payments** quarterly figures are published in *UK Economic Accounts* every January, April, July and October.

Other Articles

1997

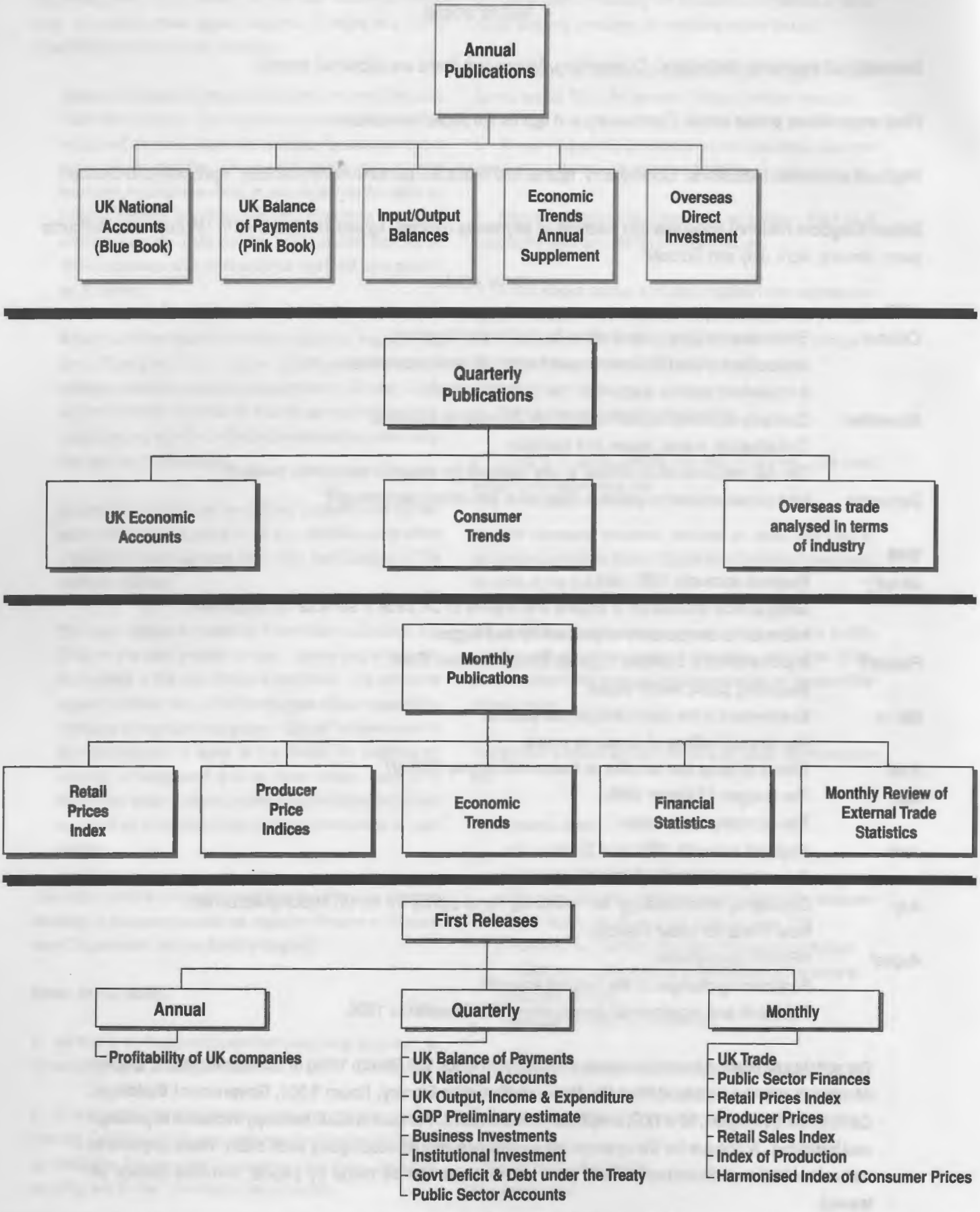
October	Environmental input-output tables for the United Kingdom.
	Implications of the US Boskin report for the UK retail prices index.
	A household satellite account for the United Kingdom.
November	Quarterly alignment adjustments in the UK national accounts.
	Globalisation: scope, issues and statistics.
	The ABI respondents database: a new resource for industrial economics research.
December	How should economic statistics respond to information technology?

1998

January	Regional accounts 1996: part 1.
	Geographical breakdown of exports and imports of UK trade in services by component.
	International comparisons of productivity and wages.
February	Improvements to business inquiries through the new IDBR.
	Measuring public sector output.
March	Employment in the public and private sectors.
	Harmonised indices of consumer prices.
April	Effects of taxes and benefits on household income 1996-97.
May	The Budget: 17 March 1998.
	The economy; an overview.
June	Regional accounts 1996: part 2.
	Rebasing the national accounts.
July	Developing a methodology for measuring illegal activity for the UK National Accounts.
	New format for public finances.
August	PPI/RPI comparisons.
	Forthcoming changes to the national accounts.
	Research and experimental development (R & D) statistics 1996.

For articles published in earlier issues see the list in issue 509 (March 1996) of *Economic trends*. Copies of articles may be obtained from the National Statistics Library, Room 1.001, Government Buildings, Cardiff Road, Newport, NP9 1XG, telephone 01633 812973. The cost is £5.00 per copy inclusive of postage and handling. A cheque for the appropriate remittance should accompany each order, made payable to 'Office for National Statistics'. Credit card transactions can be made by phone; invoices cannot be issued.

United Kingdom Macro-Economic Statistics Publications



Other publications: - Retail Prices 1914-1990 - Input/Output Tables - Labour Market Statistics - Family Spending - Sector Classification Guide - Share Ownership - Financial Statistics Explanatory Handbook

In brief

Articles

This month we feature two articles.

Hugh Skipper of National Statistics summarises the progress made so far in the development of the corporate services price index. This is part of the more comprehensive coverage of the service sector. The background to this index, data collection procedures and the various difficulties of price collection are all discussed *(page 25)*.

Simon Compton of National Statistics describes recent developments on estimating and presenting short-term trends for economic time series. The concept of a trend is discussed and standards for estimating and presenting trends in monthly economic time series are briefly explained. The article also includes a section summarising the research project that led to the standards used *(page 33)*.

Recent National Statistics economic publications

Economic Trends: Digest of Articles
National Statistics, ISBN 1 85774 271 0

Economic Trends occasional articles cover a wide range of technical and methodological issues relating to National Accounts and other key macro-economic statistics. In recognition of their long-term value, National Statistics has made available in one volume a collection of 22 articles, previously published in *Economic Trends* from March 1996 to January 1998. *Economic Trends: Digest of Articles* is priced at only £19.95 and provides a convenient means of storage and reference for this collection of articles.

To order your copy, contact ONS Direct on 01633 812078.

Consumer Trends: 1998 quarter 1. The Stationery Office, ISBN 0 11 620929 1, price £45.
Financial Statistics, August 1998. The Stationery Office, ISBN 0 11 621011 7, price £22.50.
Labour Market Trends, September 1998. The Stationery Office, ISBN 0 11 620998 4, price £7.50.
Retail Price Indices (Business Monitor MM23), June 1998. The Stationery Office, ISBN 0 11 537904 5, price £180 p.a.
Monthly Review of External Trade Statistics (Business Monitor MM24), May 1998. The Stationery Office, ISBN 0 11 537905 3, price £180 p.a.
UK Economic Accounts: 1998 quarter 1. The Stationery Office, ISBN 0 11 621018 4, price £25.

All of these publications are available from The Stationery Office Publications Centre, telephone 0171 873 9090 (orders), 0171 873 8499 (subscriptions) or fax 0171 873 8200.

ECONOMIC UPDATE - SEPTEMBER 1998

By Adrian Richards, Economic Assessment - Office for National Statistics
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Overview

According to the latest evidence the economy grew relatively slowly in the second quarter – only increased energy output, as a result of the quarter's unseasonable weather conditions, prevented the growth rate from falling below that set in the first quarter. Indications of a slowdown can be seen right across the economy: growth in the service sector was well down from its recent peak and average earnings growth returned to pre-bonus period (March to May) rates. The story from the labour market is generally consistent with weaker growth; the rate of fall in unemployment has slowed and employment growth has weakened. On the demand side, consumers' expenditure slowed slightly and investment fell sharply. The balance of trade remained in deficit but was not significantly changed from the first quarter. Money supply was the only indicator that did not reflect the recent downturn in growth: accelerated in July, after slowing in recent periods. Money supply, however, is not a good indicator in movements of the UK economy over short periods of time.

Indicators included	
UK Output, Income and Expenditure – Q2	*UK external trade – June/July*
Industrial Production - June	*Money supply, including sectoral breakdown - July*
CBI monthly trends - August	*Public sector borrowing requirement - July*
New Construction orders – June	*Producer prices – July*
Retail sales – July	*Retail prices – July*
Consumer confidence – August	*Labour market statistics – April-June*
New car registrations – July	

GDP Activity

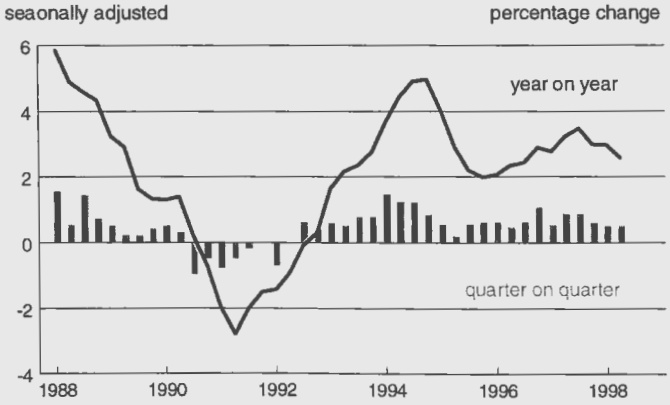
As Chart 1 shows, GDP is estimated to have grown by 0.5 per cent between the first and second quarters of 1998 and by 2.6 per cent compared with the same quarter of 1997. This estimate is less well-based than is normal, at this stage. A number of data sources were not utilised due to the substantial redesign of the national accounts, the result of which will be available next month. The output and expenditure figures shown in the second estimate were based primarily on published monthly surveys.

Output

The slowdown in underlying growth has spread to sectors other than manufacturing. As Chart 2 illustrates, quarter on quarter growth in the service sector slowed from 1.2 per cent in the final quarter of 1997 to 0.6 per cent in the second quarter of 1998.

Growth in *distribution, hotels, catering and repairs* and *government* and *other services* remained subdued while output in areas of strong recent growth – *transport, storage and communication* and *business services and finance* moderated.

Chart 1
GDP

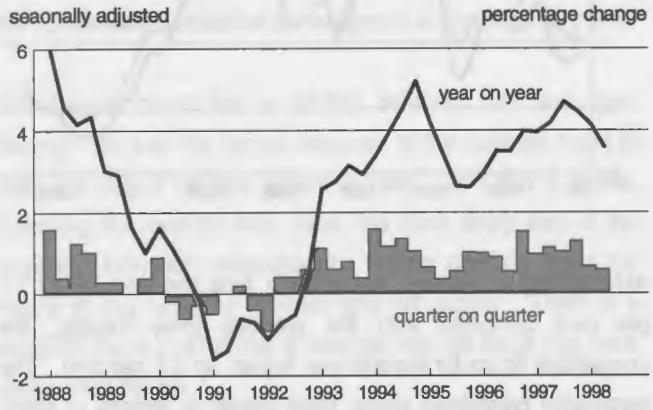


The weakening in some service industries was compounded by a sharp fall in construction output. Construction output tends to be volatile between quarters and the latest fall follows a sharp rise in the preceding quarter.

Production output was up strongly as weather conditions contributed to demand for energy.

Chart 2

Service sector output



The CBI Monthly Trends Enquiry for August shows that manufacturers anticipate deterioration in their trading position in the third quarter. Total order books and export order books indicate that, on average, employers expect a sharp fall in demand. This is expected to feed through to output over the four months from August.

Domestic demand

The second quarter estimates point to slower growth in consumer activity. Consumers' expenditure growth slowed from 0.9 per cent to 0.7 per cent between the first and second quarters - well down on the growth recorded in 1997, which averaged over 1 per cent. A detailed breakdown of consumers' expenditure components was not available given the limited data set published in August.

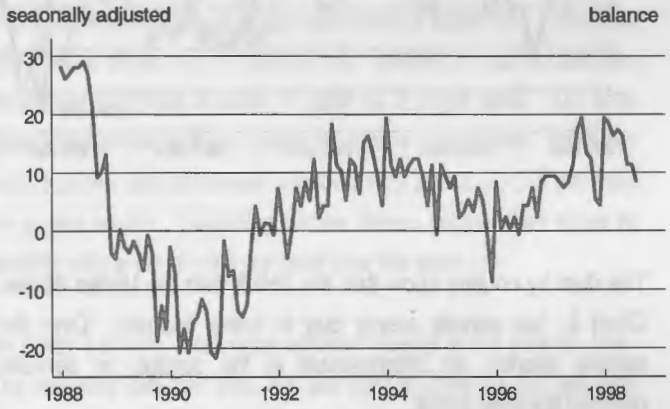
The latest monthly data indicates that the development of consumption's component series into the third quarter was not uniform. Retail sales increased by 0.9 per cent in July following a fall in June - this is difficult to interpret, as the series has been highly volatile from month to month. The three-month moving average of sales recovered to show growth of 1.1 per cent. Sales in non-specialised stores and textile, clothing footwear stores recovered following earlier falls.

New car registrations fell between June and July, but growth between May to July rebounded after a fall in the three months to June. In general, new car registrations have been increasing since March 1992 and are now only 4.8 per cent below their previous peak in August 1989.

Consumer confidence fell further in August, to a balance of -5 per cent. Although the balance is negative, it is above its long run average, indicating that while consumers' attitudes have weakened, they are still consistent with higher consumption. Attitudes to major purchases, see Chart 3, also turned less positive; the balance fell from 11 per cent in July to 8 per cent in August.

Chart 3

Attitudes to major purchases - EC/GFK



Following a period of strong growth in investment, gross fixed capital formation fell sharply in the second quarter. The impact of government consumption and a strong build up in stocks added to growth.

External demand and supply

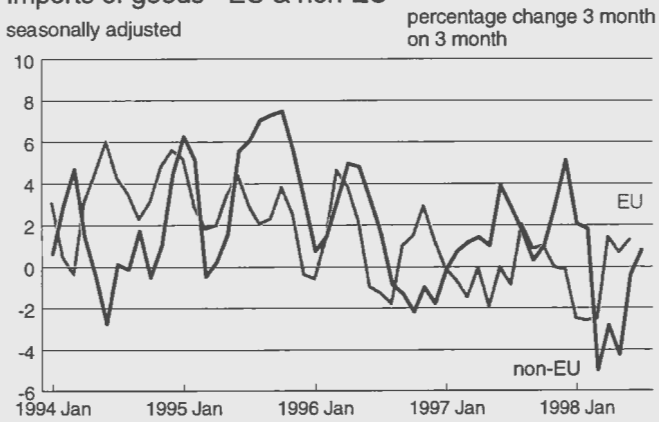
The UK's trade balance against the rest of the world improved in June: the deficit fell from £1.2 billion to £0.8 billion. This was due to an increase in the export of goods of 3.0 per cent on May and a slight fall in imports.

A significant feature of the improvement in net trade was the turnaround in the balance on erratic items; it moved from a deficit of -£0.5 billion to a surplus of £0.2 billion. Excluding oil and erratics, the deficit was fairly stable - widening by around £0.1 billion.

The split between EU and non-EU countries shows that export performance has been comparable between to the two trading zones. This has not been the case for imports: volumes from EU countries have increased sharply at the same time as volumes from non-EU trading partners have fallen. However, data for the three months to July, Chart 4 below, for non-EU countries shows a rebound in imports.

Chart 4

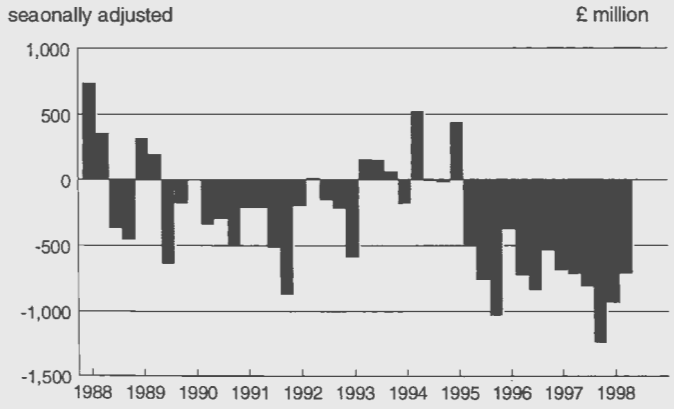
Imports of goods - EU & non-EU



The data by country show that the deficit with the United States, Chart 5, has shrunk mainly due to lower imports. Over the second quarter, an improvement in the surplus on services reduced the total deficit.

Chart 5

Trade in goods balance - North America

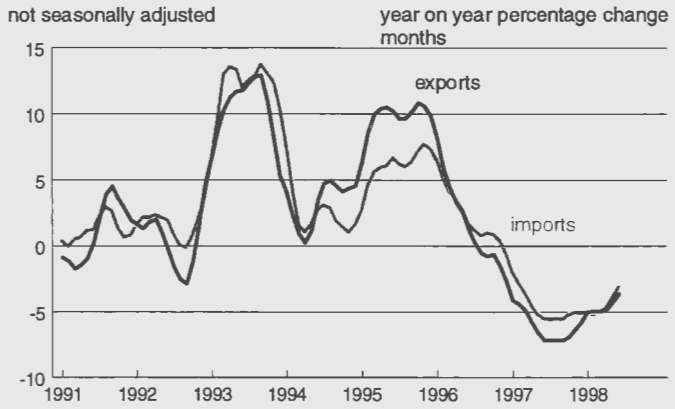


The volume/price split shows that trade prices have continued to fall and import volume growth has exceeded that of exports.

Compared with the same three months last year, exports and imports prices have fallen by 3.0 per cent and 3.6 per cent respectively - shown in Chart 6. Price deflation is still apparent when oil and erratics are removed from the comparison, although it is less pronounced.

Chart 6

Price indices for exports and imports



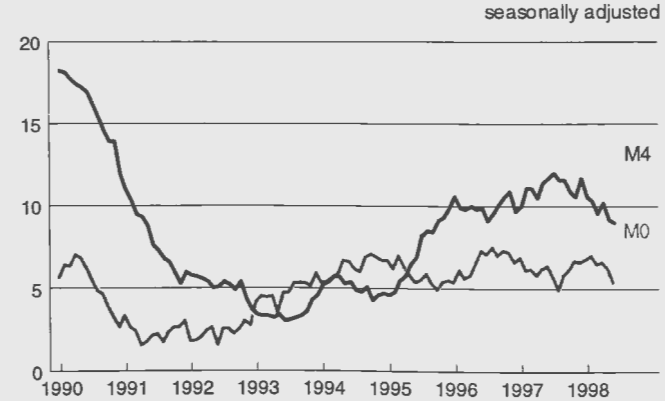
Although export volumes recovered in June and were up by 1.1 per cent compared with the previous three months, the comparable figure for imports was higher, up 2.2 per cent. The commodity breakdown shows rapid growth in imports of semi-manufactures and food, beverages and tobacco whereas exports have been relatively strong for finished manufactures.

Monetary & Sectoral indicators

Money supply growth (twelve-month comparison) rebounded in July after a gradual deceleration from its recent peak. As Chart 7 shows, this occurred at the end of 1997, in the case of broad money (M4), and the start of 1998, for narrow money (M0). Broad money growth accelerated from 9.1 per cent in June to 10.0 per cent in July, while narrow money growth was up 5.8 per cent.

Chart 7

Money supply



The public sector net borrowing (PSNB) and net cash requirements (PSNCR) both improved in the period April to July 1998-99 relative to the same period in 1997-98. The PSNB was £6.7 billion lower at £1.8 billion whereas the PSNCR was £4.5 billion lower at -£0.1 billion. Both measures were affected by quarterly payments of advance corporation tax and income tax under self -assessment.

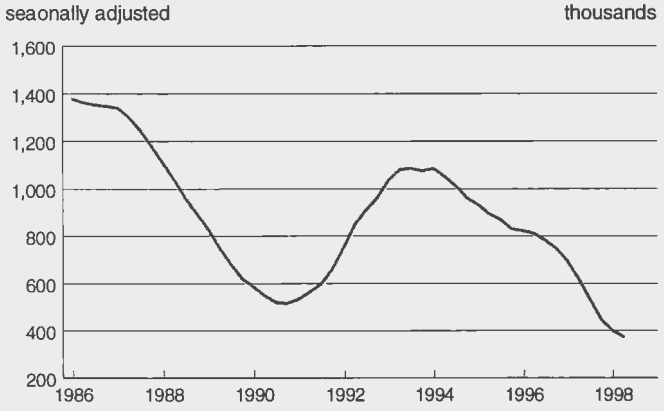
Labour Market

The labour market exhibited some signs of a slowdown in growth.

The claimant count fell by 26,000 between June and July. Although this was the largest decrease of the claimant count in 1998, the rate of fall has shrunk in 1998. As Chart 8 shows, underlying the monthly falls, there has been sharp falls in the number of long term unemployed. Inflows onto the count fell sharply in July whereas outflows only fell slightly. There is a possibility that a lower inflow of students onto the count may have exaggerated the fall.

Chart 8

Long-term unemployment - over 52 weeks



Unemployment for over a year or more has fallen from 531,000 in July 1997 to 369,800 in July 1998.

Average earnings growth fell back in the year to May 1998 to the level seen in February. The effect of bonuses has fallen out of the average earnings index. In the production industries, earnings growth has fallen slightly below that in February whereas growth was a little faster in the service sector. Average earnings growth in the public sector has accelerated, after a period of stable growth.

The LFS provides evidence of weakening economic growth with a slowdown in the expansion of employment. The rate of expansion slowed from 71,000 between 1997 Q3 and 1997 Q4, to 38,000 in 1998 Q1 and 21,000 in 1998 Q2. There appears to have been a net switch from ILO unemployment to inactivity. ILO unemployment fell by 62,000 in the latest period but this was more than matched by a rise of 80,000 in inactivity. Inactivity last fell at this point in 1997 and is now 237,000 above that level.

Prices

Producer prices showed few signs of inflationary pressure. Input prices fell by 8.8 per cent in the year to July. This was down slightly on previous months but was rapid when set in historical context.

Material prices showed a similar path with a larger fall. This was offset by a small rise in fuel prices. Growth in fuel prices has weakened following a peak in June of 2.1 per cent. Up until March fuel prices had also been down on a year earlier. Producer output prices also remained subdued with prices up 0.8 per cent on a year earlier. Excluding excise duties, prices were close to stability with a fall of –0.2 per cent over the year.

As Chart 9 shows, retail price inflation slowed in the year to July. The headline rate fell from 3.7 per cent in June to 3.5 per cent and excluding mortgage interest rates (RPIX) the rate fell from 2.8 per cent to 2.6 per cent. This was due to lower motoring costs and price reductions for clothing and footwear. Motoring costs were down as the increase in petrol duties in July 1997 dropped out of the comparison.

Chart 9

Inflation

There were the normal clothing and footwear price reductions as shops discounted in the summer sales. Although the RPI and RPIX measures of inflation fell, the underling rate of inflation excluding mortgage interest rates and indirect taxes edged higher to 2.1 per cent. The breakdown by category of the RPI shows a wide divergence between inflationary pressures with significant changes in relative prices. Mortgage interest payments and high excise duties on tobacco have caused prices rise more rapidly in these categories

Forecast for the UK Economy

A comparison of independent forecasts, August 1998

The tables below are extracted from HM Treasury's "FORECASTS FOR THE UK ECONOMY" and summarise the average and range of independent forecasts for 1998 and 1999, updated monthly.

	Independent Forecasts for 1998		
	Average	Lowest	Highest
GDP growth (per cent)	2.2	1.6	2.7
Inflation rate (Q4: per cent)			
- RPI	3.2	2.5	4.5
- RPI excl MIPs	2.7	2.1	3.8
Unemployment (Q4, mn)	1.36	1.26	1.50
Current Account (£ bn)	-8.9	-13.9	-2.9
PSNCR *(1998-99, £ bn)	-0.3	-9.3	7.0

	Independent Forecasts for 1999		
	Average	Lowest	Highest
GDP growth (per cent)	1.5	0.5	2.5
Inflation rate (Q4: per cent)			
- RPI	2.3	1.4	3.3
- RPI excl MIPs	2.6	2.0	3.2
Unemployment (Q4, mn)	1.51	1.12	1.75
Current Account (£ bn)	-9.7	-26.4	-1.6
PSNCR* (1999-00, £ bn)	1.3	-14.5	12.0

NOTE: "FORECASTS FOR THE UK ECONOMY" gives more detailed forecasts, covering 25 variables and is published monthly by HM Treasury, available on annual subscription, price £75. Subscription enquiries should be addressed to Miss C T Coast-Smith, Public Enquiry Unit, HM Treasury, Room 110/2, Parliament Street, London SW1P 3AG (Tel: 0171-270 4558). It is also available at the Treasury's internet site: http://www.hm-treasury.gov.uk.

* PSNCR: Public Sector Net Cash Requirement, was previously called PSBR.

International Economic Indicators - August 1998

by Dermot Rhatigan, Economic Assessment - Office for National Statistics

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Overview

Helped by an upsurge in Germany, GDP growth in the European Union stayed steady in the first quarter of 1998 while growth in the USA and Japan slipped back. Italy remains the weakest major European economy; GDP fell in the latest quarter.

Movements in net trade appear to be the biggest threat to the health of the USA's economy as the trade deficit widens.

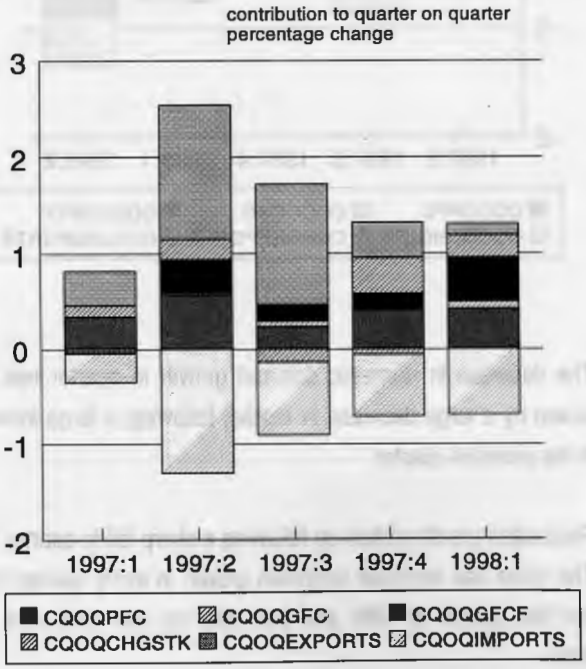
EU15

The first quarter of 1998 saw steady growth as changes in net trade emerged as the largest influence on changes in GDP. Domestic demand growth accelerated in the first quarter and imports growth outpaced that of exports.

Having boosted output between 1993 and 1997, changes in net trade retarded GDP growth in the latest two quarters as the size of the EU15's positive trade balance contracted. As shown below, the contribution of exports to GDP growth fell sharply in the last two quarters while the contribution of imports remained the same.

Chart 1

EU15 - contribution to GDP growth



The boost given to GDP by strong domestic demand growth, above 1 per cent in quarter one, allowed quarterly growth to remain steady despite the changes in net trade. Private consumption growth was stable during the first quarter while investment spending leapt by 2.3 per cent – the eighth increase in the last nine quarters. Price inflation was stable, around 2 per cent, between 1997 and quarter one 1998.

Germany

Germany's GDP, driven by an expansion in domestic demand and industrial production, grew by 1 per cent in the first quarter of 1998. The effect of net trade dampened growth.

The surge in German industrial production which began in 1996 represents the recovery of lost ground - the first five months of 1998 is the first period to see the production index surpass the levels it reached in the early months of 1992.

Consumer activity weakened again in May as retail sales volumes fell for the second month in succession. Tax changes in January and April make it difficult to discern a consistent pattern of consumer demand, but the strong growth recorded in quarter one looks to have been exceptional.

Consumer price inflation fell slightly between May and June. The inflation environment looks benign: producer price inflation is on a downward path, helped by commodities prices – particularly crude oil prices, and the labour market remains slack - although unemployment dipped below 10 per cent. The inflation figures from April were influenced by that month's increase in VAT.

France

French GDP growth slipped, for the third quarter in a row, to 0.6 per cent in quarter one. The contributions of net trade and private consumption fell while the change in stocks made a large positive contribution.

The sharp rebound in retail sales volumes in quarter two, more than offsetting the decrease recorded in the previous quarter, contributed to the largest annual growth rate between quarters of the 1990's - 3.5 per cent.

The increase in retail activity in 1997 was echoed by growth in production. Higher demand at home and abroad has helped to increase industrial production by over 10 per cent since the start of 1997 - virtually no growth was recorded in the previous six years - as Chart 2 illustrates. The rise in production may have helped to turn the tide of unemployment; it began to fall as industrial output picked-up.

Chart 2

Index of production - France

Price inflation stayed at 1.0 per cent in June, modest earnings growth and producer price deflation have helped to dampen the pressure generated by higher demand in 1997 and into 1998.

Italy

Italy's modest recovery faltered at the outset of 1998 as GDP fell slightly in the first quarter. The change in net trade was the largest contributor to the latest decrease in growth while private consumption remained flat.

Following downward movements in the preceding three months Italy's Index of Production leapt in May, however it remains below the levels recorded as far back as 1989.

In spite of the weakness of private consumption and the trend in producer prices quarter two saw consumer price inflation edge upwards for the third consecutive quarter.

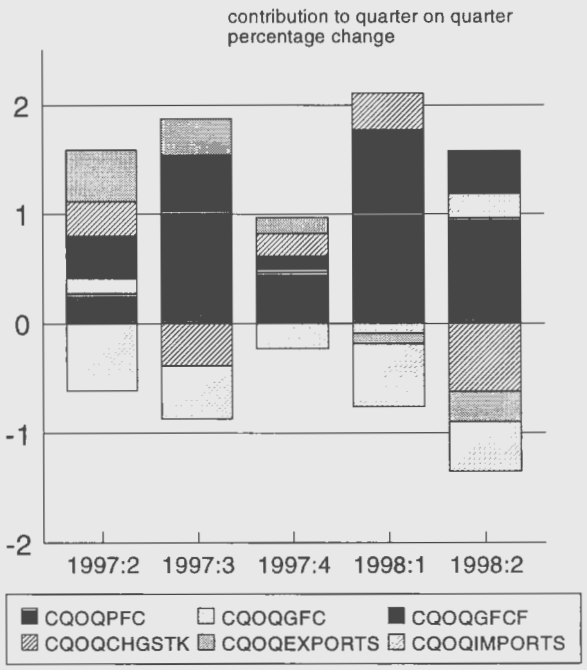
Unemployment has steadied around 12 per cent but has yet to establish a downward trend.

USA

The pattern of rapid growth established in 1997 and first quarter of 1998 was upset in the second quarter of 1998. GDP growth slowed sharply between the first and second quarters as demand at home and abroad weakened. As shown below, consumption spending continued to grow vigorously and make a sizeable contribution to growth.

Chart 3

USA - contribution to GDP growth



The decrease in domestic demand growth in quarter two was driven by a large decrease in stocks, following a large increase in the previous quarter.

Production growth picked-up following a sharp fall in quarter one. The Index has recorded unbroken growth in every quarter since the first quarter of 1991 and has risen by one third over that time.

The recent strength of consumption spending has supported rapid growth in imports. Imports continued to grow strongly in quarter two while exports fell for the second consecutive quarter, increasing the drag of net trade.

The June inflation figure was unchanged from the previous month. As in other countries the effect of strong demand on prices may be partially offset by downward pressure coming from producer prices and modest earnings growth.

Japan

After slowing sharply between 1996 and 1997, Japan's GDP fell in the first quarter of 1998. Consumption and investment spending continued the weakness of 1997 into 1998.

The present weakness in Japan's domestic economy has undermined confidence to the extent that investment spending has fallen by 10 per cent since the first quarter of 1996. The reduction in capital formation was the largest drag on Japanese growth in the first quarter.

After falls in the previous two quarters industrial production fell by almost 5 per cent between the first and second quarters. Falling retail sales volumes and higher unemployment echo this rapid decline.

The combination of shrinking demand and earnings and producer price deflation has virtually squeezed inflation from consumer prices – in the year to June prices rose by only 0.1 per cent.

Notes

The series presented here are taken from the OECD's Main Economic Indicators and are shown for each of the G7 economies and for the European Union (EU15) countries in aggregate.

Comparisons of indicators over the same period should be treated with caution, as the length and timing of the economic cycles varies across countries.

1 European Union 15

	GDP	Contribution to change in GDP: PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI	Earnings	Empl	Unempl
Percentage change on a year earlier														
	ILGB	HUDS	HUDT	HUDU	HUDV	HUDW	HUDX	ILGV	ILHP	HYAB	ILAI	ILAR	ILIJ	GADR
1990	3.0	1.7	0.4	0.8	–0.1	1.8	1.6	1.9	2.2	5.7	2.5	7.0	1.6	8.1
1991	3.0	2.7	1.0	0.7	–0.3	–	1.0	–0.2	1.6	5.2	2.2	6.8	0.1	8.4
1992	0.9	0.9	0.4	–0.2	–0.1	0.9	1.0	–1.3	0.1	4.4	1.3	5.8	–1.7	9.1
1993	–0.5	–0.1	0.2	–1.3	–0.5	0.4	–0.8	–3.2	–1.4	3.6	1.4	4.7	–2.0	10.8
1994	3.0	1.1	0.2	0.5	0.8	2.5	2.2	4.9	–0.5	3.0	2.2	3.8	–	11.1
1995	2.5	1.1	0.2	0.7	0.2	2.4	2.1	3.5	–0.1	3.2	4.5	3.7	0.6	10.7
1996	1.8	1.2	0.3	0.2	–0.3	1.6	1.3	0.3	0.4	2.5	0.7	3.7	0.5	10.8
1997	2.7	1.3	–	0.5	0.4	3.0	2.6	3.8	3.0	2.0	0.9	3.4	0.4	10.7
1996 Q1	1.6	1.4	0.3	–	0.2	1.3	1.6	–	–0.3	2.8	1.9	4.0	0.6	10.9
Q2	1.5	0.9	0.3	0.2	–0.2	1.1	0.8	–	0.4	2.6	0.6	4.0	0.6	10.9
Q3	1.8	1.2	0.3	0.3	–0.7	1.8	1.0	0.2	–	2.3	–0.1	3.1	0.5	10.8
Q4	2.1	1.3	0.2	0.4	–0.4	2.2	1.6	0.8	1.3	2.3	0.2	3.8	0.4	10.8
1997 Q1	1.8	0.9	0.1	0.5	–0.1	1.8	1.4	2.2	2.3	2.1	0.3	3.8	0.2	10.8
Q2	2.8	1.5	0.1	0.5	0.5	3.1	2.8	3.4	2.6	1.7	0.7	3.1	0.3	10.7
Q3	2.9	1.2	–	0.5	0.6	3.7	3.1	4.5	3.4	2.0	1.4	3.8	0.4	10.6
Q4	3.1	1.6	–	0.7	0.6	3.4	3.1	5.1	3.7	2.1	1.3	3.0	0.6	10.5
1998 Q1	3.3	1.6	0.1	1.2	0.7	3.2	3.5	5.0	3.4	1.8	1.0	..	1.1	10.3
Q2	..	..	..	..	..	..	..	..	..	2.0	0.4	..	..	..
1997 Jul	..	..	..	..	..	..	..	5.4	5.1	1.9	1.3	..	..	10.7
Aug	..	..	..	..	..	..	..	4.4	2.0	2.1	1.6	..	..	10.6
Sep	..	..	..	..	..	..	..	3.6	3.0	2.1	1.3	..	..	10.6
Oct	..	..	..	..	..	..	..	5.4	5.1	2.0	1.3	..	..	10.6
Nov	..	..	..	..	..	..	..	4.3	2.0	2.2	1.3	..	..	10.5
Dec	..	..	..	..	..	..	..	5.3	4.1	2.0	1.2	..	..	10.4
1998 Jan	..	..	..	..	..	..	..	5.4	2.9	1.7	1.1	..	..	10.3
Feb	..	..	..	..	..	..	..	5.2	4.0	1.8	1.0	..	..	10.3
Mar	..	..	..	..	..	..	..	4.6	3.0	1.8	1.0	..	..	10.2
Apr	..	..	..	..	..	..	..	3.6	1.0	2.0	0.7	..	..	10.2
May	..	..	..	..	..	..	..	4.8	..	2.0	0.4	..	..	10.2
Jun	..	..	..	..	..	..	..	..	..	1.9	0.2	..	..	..
Jul	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Percentage change on previous quarter														
	ILGL	HUDY	HUDZ	HUEA	HUEB	HUEC	HUED	ILHF	ILHZ				ILIT	
1996 Q1	0.7	0.7	–	–0.2	–0.2	0.8	0.6	–0.6	1.3				–0.8	
Q2	0.3	–	0.1	0.4	–0.4	0.1	–0.1	0.5	0.7				0.8	
Q3	0.7	0.4	0.1	0.1	–0.2	0.7	0.5	0.7	–0.4				0.5	
Q4	0.4	0.1	–	–	0.4	0.7	0.7	0.2	–0.3				–0.1	
1997 Q1	0.5	0.3	–	–	0.1	0.4	0.3	0.9	2.3				–1.0	
Q2	1.2	0.6	–	0.3	0.2	1.4	1.3	1.6	1.0				0.9	
Q3	0.8	0.2	0.1	0.2	–0.1	1.3	0.8	1.8	0.4				0.6	
Q4	0.6	0.4	–0.1	0.2	0.4	0.4	0.7	0.7	–				0.1	
1998 Q1	0.6	0.4	0.1	0.5	0.2	0.1	0.7	0.8	1.9				–0.5	
Q2	..	..	..	..	..	..	..	..	..				..	

Percentage change on previous month		
	ILKF	ILKP
1997 Jul	2.0	1.0
Aug	–0.9	–1.9
Sep	–0.5	–
Oct	1.2	2.0
Nov	–0.3	–1.9
Dec	1.0	–
1998 Jan	–	2.9
Feb	0.3	–
Mar	0.4	–1.0
Apr	–0.1	–
May	0.5	..
Jun	..	..
Jul	..	..

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, components and coverage 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

2 Germany

	GDP[1]	Contribution to change in GDP: PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP[1]	Sales	CPI[1]	PPI[1]	Earnings[2]	Empl[1,3]	Unempl[4]
Percentage change on a year earlier	ILFY	HUBW	HUBX	HUBY	HUBZ	HUCA	HUCB	ILGS	ILHM	HVLL	ILAF	ILAO	ILIG	GABD
1990	..	..	..	..	..	..	..	5.3	8.0	2.7	1.4	4.2	2.8	–
1991	..	..	..	..	..	..	..	3.2	5.8	3.7	2.2	6.6	2.0	–
1992	1.8	1.4	0.8	0.6	–0.4	–0.4	0.3	–2.6	–2.3	5.0	1.6	7.1	–1.4	–
1993	–1.2	0.2	–0.1	–1.3	–0.2	–1.2	–1.5	–7.5	–4.2	4.4	0.1	5.4	–1.1	7.9
1994	2.8	0.7	0.4	0.8	0.8	1.9	1.9	3.4	–1.3	2.7	0.8	2.9	–0.4	8.4
1995	1.9	1.1	0.4	0.2	0.4	1.7	1.9	1.0	1.1	1.9	2.1	3.3	0.1	8.2
1996	1.4	0.7	0.5	–0.2	–0.2	1.4	0.8	0.4	–0.2	1.5	0.2	5.2	–0.3	8.9
1997	2.3	0.2	–0.1	0.1	1.1	3.0	1.9	3.6	–0.2	1.7	0.7	..	–1.3	10.0
1996 Q1	0.4	1.1	0.6	–1.5	0.2	1.2	1.2	–0.9	–1.4	1.5	0.8	7.1	–0.1	8.7
Q2	1.1	0.3	0.6	–0.1	–0.1	0.6	0.1	–0.8	–0.3	1.5	0.1	6.7	0.3	8.8
Q3	1.8	0.8	0.7	0.1	–0.8	1.6	0.6	1.1	1.0	1.5	–0.2	4.3	–0.3	8.9
Q4	2.1	0.6	0.1	0.5	–0.1	2.2	1.3	2.6	–0.3	1.4	0.2	2.9	–1.0	9.2
1997 Q1	2.5	–	0.2	0.9	0.9	2.1	1.6	2.6	–	1.7	0.3	0.8	–1.4	9.7
Q2	2.1	0.7	0.1	–0.2	0.5	2.9	1.8	3.2	0.3	1.6	0.7	1.5	–1.5	9.9
Q3	2.3	–0.3	–0.3	–0.1	1.6	3.6	2.1	4.0	–1.3	1.9	1.0	1.6	–1.4	10.1
Q4	2.3	0.4	–0.4	–0.2	1.5	3.3	2.2	4.5	0.3	1.8	0.9	..	–0.9	10.3
1998 Q1	3.0	1.0	–	0.9	0.6	3.2	2.7	6.5	2.0	1.1	0.6	..	–0.6	10.1
Q2	..	..	..	..	..	..	..	..	..	1.3	0.2	..	..	..
1997 Jul	..	..	..	..	..	..	..	7.2	–	1.8	0.9	..	..	10.0
Aug	..	..	..	..	..	..	..	2.3	–3.0	2.0	1.2	..	..	10.1
Sep	..	..	..	..	..	..	..	2.4	–1.0	1.9	1.0	..	..	10.2
Oct	..	..	..	..	..	..	..	4.9	2.0	1.8	0.9	..	..	10.3
Nov	..	..	..	..	..	..	..	3.6	–1.0	1.9	1.0	..	..	10.3
Dec	..	..	..	..	..	..	..	5.0	–	1.7	0.8	..	..	10.3
1998 Jan	..	..	..	..	..	..	..	7.1	–2.0	1.2	0.6	..	..	10.1
Feb	..	..	..	..	..	..	..	6.0	–	1.1	0.6	..	..	10.1
Mar	..	..	..	..	..	..	..	6.3	8.3	1.1	0.6	..	..	10.0
Apr	..	..	..	..	..	..	..	4.8	–4.8	1.3	0.4	..	..	10.0
May	..	..	..	..	..	..	..	6.7	1.0	1.3	0.3	..	..	9.8
Jun	..	..	..	..	..	..	..	..	..	1.2	–	..	..	..
Jul	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Percentage change on previous quarter	ILGI	HUCC	HUCD	HUCE	HUCF	HUCG	HUCH	ILHC	ILHW	ILIQ
1996 Q1	–0.1	0.6	–	–0.9	–0.1	0.6	0.2	0.6	1.0	–1.7
Q2	1.4	–0.1	0.2	1.3	–0.1	0.1	0.1	0.8	1.7	0.8
Q3	0.5	0.5	0.2	–	–0.8	0.8	0.3	1.1	–0.7	0.2
Q4	0.3	–0.4	–0.3	0.1	0.9	0.7	0.7	–	–2.3	–0.3
1997 Q1	0.3	–	–	–0.5	0.8	0.5	0.5	0.6	1.3	–2.1
Q2	1.0	0.5	0.2	0.2	–0.5	1.0	0.4	1.4	2.0	0.7
Q3	0.7	–0.4	–0.3	0.1	0.4	1.4	0.5	1.9	–2.3	0.3
Q4	0.3	0.3	–0.3	–	0.7	0.4	0.8	0.5	–0.7	0.2
1998 Q1	1.0	0.6	0.3	0.6	–	0.4	0.9	2.5	3.1	–1.8
Q2	..	..	..	..	..	..	..	..	..	..

Percentage change on previous month	ILKC	ILKM
1997 Jul	3.2	–1.0
Aug	–3.6	–4.0
Sep	–0.3	2.1
Oct	1.8	2.0
Nov	–0.3	–3.0
Dec	1.2	–2.1
1998 Jan	1.5	3.2
Feb	–0.3	1.0
Mar	1.3	5.1
Apr	–1.0	–4.8
May	1.0	–2.0
Jun	..	..
Jul	..	..

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, components and coverage 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

1 Data available for unified Germany from 1991
2 Western Germany (Federal Republic of Germany before unification)
3 Excludes members of armed forces
4 Data available for unified Germany from January 1993

3 France

	GDP	Contribution to change in GDP: PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI[1]	Earnings	Empl[2]	Unempl
Percentage change on a year earlier														
	ILFZ	HUBK	HUBL	HUBM	HUBN	HUBO	HUBP	ILGT	ILHN	HXAA	ILAG	ILAP	ILIH	GABC
1990	2.5	1.6	0.4	0.6	0.2	1.3	1.6	1.5	0.7	3.5	–0.9	4.9	0.8	9.0
1991	0.8	0.8	0.5	–	–0.7	1.0	0.8	–1.2	–0.2	3.2	–1.2	4.7	0.1	9.5
1992	1.2	0.8	0.6	–0.6	–0.6	1.3	0.3	–1.2	0.3	2.4	–1.1	4.0	–0.6	10.4
1993	–1.3	0.1	0.6	–1.4	–1.5	–0.1	–1.0	–3.8	0.2	2.1	–2.1	2.5	–1.3	11.7
1994	2.8	0.8	0.2	0.3	1.7	1.6	1.8	3.9	–0.1	1.7	1.2	1.9	0.1	12.3
1995	2.1	1.0	–	0.5	0.3	1.8	1.4	2.0	–	1.7	5.2	2.4	1.0	11.7
1996	1.6	1.2	0.5	–0.1	–0.7	1.5	0.9	0.2	–0.4	2.1	–2.7	2.4	–	12.4
1997	2.3	0.5	0.2	0.1	0.1	3.7	2.3	3.8	1.1	1.1	–0.5	2.8	0.4	12.4
1996 Q1	1.3	2.1	0.4	–0.3	–0.9	0.8	0.7	–1.0	0.7	2.1	–0.8	2.3	0.4	12.3
Q2	1.0	0.5	0.5	–	–	0.2	0.3	–0.4	–0.8	2.4	–2.7	2.3	0.2	12.3
Q3	1.6	1.1	0.6	–0.1	–1.3	2.0	0.7	0.3	–2.3	1.8	–3.8	2.6	–0.1	12.4
Q4	2.3	1.1	0.5	–	–0.4	3.0	1.8	1.9	1.1	1.7	–3.1	2.6	–0.2	12.5
1997 Q1	1.2	–0.3	0.4	–0.1	0.3	1.9	0.9	0.6	–1.4	1.5	–2.3	3.0	–0.1	12.4
Q2	2.4	0.4	0.3	0.1	–0.2	4.3	2.5	3.5	0.8	0.9	–0.9	2.7	0.3	12.4
Q3	2.6	0.6	0.2	0.2	0.4	4.4	3.1	4.7	1.7	1.3	0.3	2.8	0.5	12.4
Q4	3.1	1.5	0.1	0.2	–0.2	4.1	2.7	6.3	3.0	1.1	0.7	2.8	0.7	12.3
1998 Q1	3.4	1.9	0.2	0.7	0.6	3.7	3.6	7.6	2.3	0.6	0.6	2.6	1.1	12.1
Q2	..	..	..	..	..	..	..	..	3.5	1.0	–0.3	2.4	..	..
1997 Jul	..	..	..	..	..	..	..	4.9	2.6	1.0	–	2.8	..	12.4
Aug	..	..	..	..	..	..	..	4.9	–0.9	1.5	0.4	..	..	12.4
Sep	..	..	..	..	..	..	..	4.2	3.5	1.3	0.5	..	..	12.4
Oct	..	..	..	..	..	..	..	6.7	4.4	1.0	0.7	2.8	..	12.4
Nov	..	..	..	..	..	..	..	4.9	–0.5	1.3	0.7	..	..	12.4
Dec	..	..	..	..	..	..	..	7.2	5.3	1.1	0.7	..	..	12.2
1998 Jan	..	..	..	..	..	..	..	6.7	5.7	0.5	0.6	2.6	..	12.1
Feb	..	..	..	..	..	..	..	6.9	2.0	0.7	0.5	..	..	12.1
Mar	..	..	..	..	..	..	..	9.0	–0.8	0.8	0.6	..	..	12.0
Apr	..	..	..	..	..	..	..	4.9	4.0	1.0	–	2.4	..	11.9
May	..	..	..	..	..	..	..	6.3	1.2	1.0	–0.3	..	..	11.9
Jun	..	..	..	..	..	..	..	..	5.2	1.0	–0.7	..	..	..
Jul	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Percentage change on previous quarter														
	ILGJ	HUBQ	HUBR	HUBS	HUBT	HUBU	HUBV	ILHD	ILHX				ILIR	
1996 Q1	1.3	1.5	0.2	–0.1	–0.9	1.5	0.9	1.4	2.5				–	
Q2	–0.1	–0.6	0.1	0.1	0.6	–0.6	–0.3	–	–1.7				–0.2	
Q3	0.8	0.6	0.1	–	–0.5	1.1	0.5	0.7	0.1				–0.1	
Q4	0.3	–0.4	0.1	–	0.4	0.9	0.7	–0.2	0.2				0.1	
1997 Q1	0.2	0.1	–	–0.2	–0.2	0.5	–	0.1	–				0.1	
Q2	1.1	0.2	–	0.3	0.1	1.8	1.3	2.9	0.5				0.2	
Q3	0.9	0.7	–	0.1	0.1	1.1	1.1	1.8	1.0				0.1	
Q4	0.8	0.6	–	–	–0.2	0.6	0.3	1.3	1.5				0.3	
1998 Q1	0.6	0.4	–	0.3	0.6	0.1	0.9	1.3	–0.7				0.5	
Q2	..	..	..	..	..	..	..	..	1.7				..	

Percentage change on previous month		
	ILKD	ILKN
1997 Jul	2.1	2.9
Aug	–	–0.7
Sep	–0.6	–0.6
Oct	2.2	3.6
Nov	–1.6	–3.5
Dec	1.8	2.8
1998 Jan	–0.6	2.7
Feb	0.8	–4.7
Mar	1.9	–2.7
Apr	–0.7	5.9
May	0.6	–1.6
Jun	..	1.5
Jul	..	..

GDP = Gross Domestic Product at constant market prices
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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, components and coverage 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 workforce

Source: OECD

1 Producer prices in intermediate goods
2 Excludes members of armed foces

4 Italy

	GDP	Contribution to change in GDP: PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI	Earnings	Empl	Unempl
Percentage change on a year earlier														
	ILGA	HUCI	HUCJ	HUCK	HUCL	HUCM	HUCN	ILGU	ILHO	HYAA	ILAH	ILAQ	ILII	GABE
1990	2.2	1.5	0.2	0.7	0.1	1.2	1.6	–0.5	–2.2	6.0	4.2	7.3	1.4	9.1
1991	1.1	1.6	0.3	0.2	–0.3	–0.1	0.5	–0.9	0.3	6.5	3.3	9.8	1.3	8.8
1992	0.6	0.7	0.2	–0.4	0.1	1.1	1.1	–1.3	1.8	5.3	1.9	5.4	–1.1	9.0
1993	–1.2	–1.5	0.1	–2.5	–0.6	1.7	–1.7	–2.1	–3.0	4.2	3.7	3.7	–4.2	10.3
1994	2.2	0.9	–0.1	0.1	0.6	2.2	1.6	6.3	–5.9	3.9	3.8	3.3	–1.6	11.4
1995	2.9	1.2	–0.2	1.2	–	2.7	1.9	6.1	–5.1	5.4	7.9	3.1	–0.6	11.9
1996	0.7	0.5	–	0.1	–0.3	–0.1	–0.4	–2.9	–2.4	3.8	1.9	1.8	0.4	12.0
1997	1.5	1.4	–0.1	0.1	1.0	1.6	2.5	2.8	6.9	1.8	1.3	3.7	–	12.1
1996 Q1	1.6	0.8	–	0.7	0.8	–0.2	0.6	–	–3.9	5.0	4.8	1.9	0.8	12.0
Q2	0.7	0.4	0.1	0.3	–0.2	–1.1	–1.2	–1.2	–3.4	4.2	1.6	2.1	0.3	12.0
Q3	0.5	0.2	0.1	–0.2	–0.9	0.1	–1.2	–4.6	–4.9	3.5	0.4	1.7	0.3	12.0
Q4	–0.2	0.6	–	–0.5	–1.1	1.0	0.1	–5.5	3.3	2.7	0.8	1.6	0.2	12.0
1997 Q1	–0.8	1.1	–0.2	–0.4	–1.3	–0.8	–0.6	0.1	3.8	2.4	0.9	4.0	–0.1	12.2
Q2	2.1	1.7	–0.2	–	2.3	1.7	3.3	2.4	6.6	1.6	1.2	3.8	0.1	12.1
Q3	2.1	1.8	–0.1	0.2	1.2	3.1	4.0	3.2	9.0	1.5	1.7	3.4	–	12.1
Q4	2.6	1.2	–	0.6	1.7	2.2	3.1	5.3	8.2	1.6	1.5	3.3	–	12.1
1998 Q1	2.5	0.6	0.1	0.8	2.2	3.0	4.3	3.3	..	1.7	1.1	2.0	0.6	..
Q2	..	..	..	..	..	..	..	..	..	1.8	0.6	..	0.1	..
1997 Jul	..	..	..	..	..	..	..	3.7	9.5	1.6	1.7	3.4	..	12.1
Aug	..	..	..	..	..	..	..	3.4	8.1	1.5	1.6	3.4	..	12.1
Sep	..	..	..	..	..	..	..	2.8	9.3	1.4	1.6	3.4	..	12.1
Oct	..	..	..	..	..	..	..	4.8	8.2	1.6	1.5	3.4	..	12.1
Nov	..	..	..	..	..	..	..	4.7	8.2	1.6	1.6	3.4	..	12.1
Dec	..	..	..	..	..	..	..	6.5	8.2	1.6	1.4	3.2	..	12.0
1998 Jan	..	..	..	..	..	..	..	6.5	..	1.6	1.3	1.6	..	12.0
Feb	..	..	..	..	..	..	..	2.4	..	1.8	1.3	1.7	..	..
Mar	..	..	..	..	..	..	..	1.3	..	1.7	0.9	2.8	..	..
Apr	..	..	..	..	..	..	..	0.7	..	1.8	0.9	3.1	..	..
May	..	..	..	..	..	..	..	2.9	..	1.7	0.6	..	..	..
Jun	..	..	..	..	..	..	..	..	..	1.9	0.4	..	..	..
Jul	..	..	..	..	..	..	..	..	..	1.9	..	..	..	..

Percentage change on previous quarter														
	ILGK	HUCO	HUCP	HUCQ	HUCR	HUCS	HUCT	ILHE	ILHY				ILIS	
1996 Q1	0.7	0.1	–	–0.1	0.2	0.5	–	–3.7	6.6				–1.3	
Q2	–1.0	–0.1	–	–0.1	–1.8	–0.4	–1.4	–0.5	–1.9				1.2	
Q3	0.4	0.1	–	–0.1	0.3	0.4	0.2	–0.3	–0.8				1.2	
Q4	–0.3	0.4	–0.1	–0.1	0.3	0.5	1.3	–1.0	–0.4				–0.8	
1997 Q1	0.1	0.7	–0.1	–	–0.1	–1.2	–0.8	1.9	7.1				–1.6	
Q2	1.9	0.5	–	0.2	1.8	2.1	2.6	1.8	0.8				1.4	
Q3	0.5	0.2	–	0.1	–0.8	1.7	0.9	0.6	1.4				1.1	
Q4	0.2	–0.1	–	0.2	0.8	–0.3	0.4	0.9	–1.1				–0.8	
1998 Q1	–0.1	–	0.1	0.2	0.4	–0.4	0.4	–	..				–1.0	
Q2	..	..	..	..	..	..	..	..	..				0.9	

Percentage change on previous month		
	ILKE	ILKO
1997 Jul	–0.4	–3.2
Aug	1.6	1.1
Sep	–1.5	1.1
Oct	1.2	–2.1
Nov	0.4	–
Dec	–0.1	–
1998 Jan	0.9	..
Feb	–1.0	..
Mar	–0.9	..
Apr	–0.2	..
May	2.5	..
Jun	..	..
Jul	..	..

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, components and coverage 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 not seasonally adjusted

Source: OECD

5 USA

	GDP	Contribution to change in GDP: PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP	Sales	CPI	PPI	Earnings	Empl[1]	Unempl
Percentage change on a year earlier														
	ILGC	HUDG	HUDH	HUDI	HUDJ	HUDK	HUDL	ILGW	ILHQ	ILAA	ILAJ	ILAS	ILIK	GADO
1990	1.2	1.1	0.4	–0.2	–0.4	0.7	0.4	–0.2	0.6	5.4	4.9	3.2	0.5	5.6
1991	–0.9	–0.4	0.2	–1.1	–0.2	0.6	–0.1	–2.0	–2.5	4.2	2.1	3.3	–0.9	6.9
1992	2.7	1.9	–	0.8	0.2	0.6	0.8	3.2	3.2	3.1	1.3	2.4	0.6	7.5
1993	2.3	2.0	–	0.8	0.2	0.3	1.0	3.6	4.5	3.0	1.3	2.4	1.5	6.9
1994	3.5	2.2	0.1	1.1	0.6	0.8	1.4	5.3	5.7	2.5	0.6	2.8	3.2	6.1
1995	2.3	1.8	–0.1	0.8	–0.5	1.2	1.1	5.0	2.6	2.8	2.0	2.7	1.4	5.6
1996	3.4	2.2	0.1	1.4	–	1.0	1.2	3.5	3.7	3.0	2.6	3.1	1.5	5.4
1997	3.9	2.3	0.2	1.3	0.5	1.6	1.9	5.0	4.0	2.3	0.4	3.1	2.2	5.0
1996 Q1	2.4	2.0	–0.1	0.9	–0.6	1.0	0.8	2.3	3.7	2.8	2.2	2.9	0.6	5.6
Q2	3.9	2.3	0.1	1.4	0.1	1.1	1.0	3.7	4.1	2.8	2.4	3.2	1.3	5.4
Q3	3.5	2.1	0.1	1.6	0.5	0.6	1.4	3.4	3.5	3.0	2.8	3.1	1.7	5.3
Q4	3.9	2.2	0.3	1.5	0.2	1.2	1.6	4.2	3.6	3.1	3.1	3.5	2.1	5.3
1997 Q1	4.1	2.3	0.3	1.3	0.6	1.4	1.8	5.1	4.4	2.9	2.0	3.4	2.5	5.3
Q2	3.6	1.8	0.2	1.2	0.7	1.7	2.0	4.3	2.9	2.3	0.4	2.8	2.4	4.9
Q3	4.1	2.5	0.2	1.4	–	2.0	2.0	5.0	4.6	2.2	–0.1	2.5	2.1	4.9
Q4	3.8	2.5	0.2	1.3	0.5	1.2	2.0	5.8	4.0	1.9	–0.8	3.4	2.0	4.7
1998 Q1	4.2	2.8	0.1	1.8	0.5	0.9	1.9	4.7	4.5	1.4	–1.7	3.1	1.9	4.7
Q2	3.5	3.5	0.2	1.8	–0.5	0.1	1.8	4.3	..	1.6	–0.9	2.5	1.5	4.4
1997 Jul	..	..	..	..	..	..	..	4.7	4.6	2.2	–0.1	2.5	2.2	4.9
Aug	..	..	..	..	..	..	..	5.1	5.1	2.2	–0.2	2.5	2.1	4.9
Sep	..	..	..	..	..	..	..	5.0	4.1	2.2	–	2.5	1.8	4.9
Oct	..	..	..	..	..	..	..	5.8	3.4	2.1	–0.4	4.2	1.7	4.8
Nov	..	..	..	..	..	..	..	5.7	4.2	1.8	–0.7	3.4	2.2	4.6
Dec	..	..	..	..	..	..	..	5.8	4.4	1.7	–1.3	2.5	2.2	4.7
1998 Jan	..	..	..	..	..	..	..	5.4	4.3	1.6	–1.8	3.3	2.0	4.7
Feb	..	..	..	..	..	..	..	4.3	4.2	1.4	–1.4	3.3	2.0	4.6
Mar	..	..	..	..	..	..	..	4.4	4.9	1.3	–1.9	2.5	1.6	4.7
Apr	..	..	..	..	..	..	..	4.4	6.6	1.5	–1.2	2.5	1.6	4.3
May	..	..	..	..	..	..	..	4.6	..	1.7	–0.9	2.5	1.5	4.3
Jun	..	..	..	..	..	..	..	3.7	..	1.7	–0.7	2.5	1.4	4.5
Jul	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Percentage change on previous quarter														
	ILGM	HUDM	HUDN	HUDO	HUDP	HUDQ	HUDR	ILHG	ILIA				ILIU	
1996 Q1	0.8	0.6	0.1	0.5	–0.1	0.1	0.4	0.4	1.4				–1.2	
Q2	1.5	0.8	0.3	0.5	0.2	0.2	0.4	1.9	1.0				2.0	
Q3	0.5	0.3	–	0.3	0.3	0.1	0.4	0.8	0.4				1.2	
Q4	1.0	0.5	–	0.2	–0.2	0.9	0.2	1.0	0.8				0.1	
1997 Q1	1.0	0.7	–	0.3	0.3	0.3	0.6	1.3	2.2				–0.8	
Q2	1.0	0.3	0.1	0.4	0.3	0.5	0.6	1.1	–0.5				1.9	
Q3	1.0	1.0	–	0.5	–0.4	0.3	0.5	1.5	2.0				0.9	
Q4	0.7	0.5	–	0.1	0.2	0.1	0.2	1.7	0.2				–	
1998 Q1	1.4	1.0	–0.1	0.8	0.3	–0.1	0.6	0.3	2.6				–1.0	
Q2	0.4	1.0	0.2	0.4	–0.6	–0.3	0.5	0.6	..				1.5	
Percentage change on previous month														
								ILKG	ILKQ				ILLA	
1997 Jul								0.8	1.2				0.7	
Aug								0.6	0.4				–0.4	
Sep								0.2	–0.4				–0.7	
Oct								0.8	–0.1				0.5	
Nov								0.8	0.3				0.3	
Dec								0.3	0.6				–0.2	
1998 Jan								–0.1	1.3				–1.4	
Feb								–0.4	1.1				0.5	
Mar								0.5	0.4				0.5	
Apr								0.5	0.7				0.5	
May								0.3	..				0.5	
Jun								–0.6	..				0.6	
Jul								..	..				..	

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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

1 Excludes members of armed forces

Source: OECD

6 Japan

	GDP	Contribution to change in GDP: PFC	GFC	GFCF	ChgStk	Exports	less Imports	IoP[1]	Sales	CPI	PPI	Earnings[2]	Empl	Unempl
Percentage change on a year earlier	ILGD	HUCU	HUCV	HUCW	HUCX	HUCY	HUCZ	ILGX	ILHR	ILAB	ILAK	ILAT	ILIL	GADP
1990	5.1	2.6	0.1	2.7	–0.2	0.7	0.8	4.3	5.3	3.1	1.6	5.1	1.9	2.1
1991	3.8	1.5	0.2	1.1	0.2	0.6	–0.3	1.9	2.1	3.2	1.1	3.5	1.9	2.1
1992	1.0	1.2	0.2	–0.5	–0.5	0.5	–0.1	–5.7	–1.1	1.7	–0.9	1.3	1.1	2.2
1993	0.3	0.7	0.2	–0.6	–0.1	0.2	–	–4.3	–3.2	1.2	–1.7	0.4	0.2	2.5
1994	0.7	1.1	0.2	–0.2	–0.2	0.5	0.8	1.2	0.3	0.8	–1.7	2.2	–	2.9
1995	1.4	1.2	0.3	0.4	0.2	0.6	1.4	3.3	–	–0.1	–0.7	3.0	0.1	3.1
1996	4.1	1.7	0.1	3.0	0.1	0.4	1.3	2.4	0.7	0.1	–1.8	2.6	0.5	3.3
1997	0.8	0.6	–	–1.2	–	1.3	–	3.5	–2.3	1.8	0.7	2.9	1.1	3.4
1996 Q1	5.7	3.0	0.2	3.5	0.3	0.3	1.7	1.6	2.3	–0.4	–1.7	1.7	0.1	3.3
Q2	4.2	1.5	0.1	4.0	0.2	–	1.5	0.4	0.3	0.1	–1.9	1.7	0.3	3.5
Q3	3.1	1.0	0.1	2.7	–	0.4	1.1	3.6	–0.6	0.2	–1.7	4.9	0.7	3.3
Q4	3.4	1.5	0.2	1.8	–0.2	1.0	0.8	3.9	1.0	0.5	–1.6	2.3	0.9	3.3
1997 Q1	2.8	2.7	–	–	–0.4	1.1	0.6	5.2	3.4	0.6	–0.9	5.1	1.6	3.3
Q2	–0.2	–0.2	–0.1	–1.7	–	1.8	–	5.8	–4.7	2.1	1.3	2.6	1.4	3.5
Q3	1.0	0.7	–	–1.2	0.2	1.3	–0.1	4.0	–3.5	2.1	1.3	2.6	0.7	3.4
Q4	–0.4	–0.5	–	–1.7	0.2	1.1	–0.5	–0.7	–4.7	2.1	1.1	1.6	0.7	3.4
1998 Q1	–3.7	–2.7	0.1	–2.3	0.2	0.4	–0.7	–3.5	–9.6	2.0	0.4	–0.2	–	3.6
Q2	..	..	..	..	..	..	..	–8.1	–2.6	0.4	–1.9	–0.8	–0.8	..
1997 Jul	..	..	..	..	..	..	..	3.8	–3.1	1.9	1.3	3.5	0.9	3.4
Aug	..	..	..	..	..	..	..	3.5	–3.1	2.1	1.3	3.1	0.7	3.4
Sep	..	..	..	..	..	..	..	4.4	–4.1	2.4	1.4	1.5	0.4	3.4
Oct	..	..	..	..	..	..	..	1.4	–3.1	2.5	1.3	1.5	0.9	3.4
Nov	..	..	..	..	..	..	..	–2.5	–6.0	2.1	1.1	1.8	0.5	3.5
Dec	..	..	..	..	..	..	..	–0.9	–5.1	1.8	0.9	1.5	0.8	3.4
1998 Jan	..	..	..	..	..	..	..	–2.3	–5.0	1.8	0.9	–0.5	0.6	3.5
Feb	..	..	..	..	..	..	..	–3.7	–7.9	1.9	0.4	0.2	–0.1	3.6
Mar	..	..	..	..	..	..	..	–4.7	–15.6	2.2	0.1	–0.2	–0.3	3.8
Apr	..	..	..	..	..	..	..	–6.2	–	0.5	–2.0	–0.3	–0.7	4.1
May	..	..	..	..	..	..	..	–10.5	–3.2	0.5	–1.9	–0.1	–0.5	4.3
Jun	..	..	..	..	..	..	..	–7.4	–4.3	0.1	–1.9	–2.0	–1.1	..
Jul	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Percentage change on previous quarter	ILGN	HUDA	HUDB	HUDC	HUDD	HUDE	HUDF	ILHH	ILIB				ILIV	
1996 Q1	2.7	1.1	0.1	1.5	0.2	–	0.3	0.5	2.3				–1.6	
Q2	0.1	–0.4	–	0.8	–0.1	–	0.3	–0.6	–2.0				3.1	
Q3	–0.4	0.1	–	–0.7	–0.1	0.3	–	1.8	–0.6				0.5	
Q4	1.1	0.6	0.1	0.2	–0.1	0.6	0.2	2.2	1.3				–1.0	
1997 Q1	2.0	2.3	–0.1	–0.3	–	0.2	0.1	1.8	4.7				–0.9	
Q2	–2.8	–3.2	–0.1	–0.8	0.3	0.7	–0.3	–0.1	–9.6				2.9	
Q3	0.8	1.0	0.1	–0.2	–	–0.2	–0.1	–	0.6				–0.3	
Q4	–0.4	–0.6	0.1	–0.3	–0.1	0.4	–0.2	–2.3	–				–1.0	
1998 Q1	–1.3	0.1	–	–1.0	–	–0.5	–0.2	–1.1	–0.6				–1.5	
Q2	..	..	..	..	..	..	..	–4.8	–2.6				2.1	
Percentage change on previous month								ILKH	ILKR				ILLB	
1997 Jul								0.7	–				–0.5	
Aug								–1.4	1.1				–0.9	
Sep								1.9	–1.1				0.1	
Oct								–0.9	1.1				0.1	
Nov								–4.3	–1.1				–1.0	
Dec								1.9	–				–0.4	
1998 Jan								2.2	2.1				–0.8	
Feb								–3.5	–3.1				–0.7	
Mar								–2.2	–1.1				0.9	
Apr								–1.5	–				1.0	
May								–1.7	–				1.1	
Jun								1.3	–2.2				0.1	
Jul								..	..				..	

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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

1 Not adjusted for unequal number of working days in a month
2 Figures monthly and seasonally adjusted

7 World trade in goods[1]

	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	manufact-ures	goods
Percentage change on a year earlier														
	ILIZ	ILJA	ILJB	ILJC	ILJD	ILJE	ILJF	ILJG	ILJH	ILJI	ILJJ	ILJK	ILJL	ILJM
1990	5.9	5.9	5.5	5.5	5.5	5.4	4.5	5.6	1.6	4.5	5.2	2.8	5.7	4.5
1991	3.8	2.5	9.6	5.2	3.5	10.0	4.0	3.5	5.2	4.5	3.2	8.1	4.5	4.2
1992	4.5	3.7	7.7	5.1	4.5	6.7	4.5	3.8	6.1	5.0	4.3	6.7	4.8	4.7
1993	4.2	1.9	13.1	3.3	1.1	9.3	4.2	2.5	8.5	3.7	1.4	9.6	3.8	3.9
1994	11.2	10.2	14.7	12.3	12.8	11.1	10.1	9.2	12.2	10.6	10.7	10.3	11.7	10.3
1995	9.9	9.8	10.2	9.8	9.3	11.2	8.7	8.7	8.8	8.3	7.3	10.7	9.9	8.5
1996	5.6	6.4	3.0	5.6	7.0	2.2	5.0	6.0	2.7	5.1	6.1	2.6	5.6	5.0
1997	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1995 Q1	12.9	13.0	12.5	13.0	13.4	12.2	11.5	11.8	10.8	10.9	10.8	11.2	13.0	11.2
Q2	10.3	10.0	11.2	11.0	10.2	13.0	9.1	8.8	9.7	9.5	8.3	12.4	10.6	9.3
Q3	9.1	8.9	9.9	8.9	8.0	11.3	7.9	7.7	8.4	7.7	6.4	10.9	9.1	7.8
Q4	7.0	7.0	6.9	6.2	5.4	8.2	6.0	5.9	6.1	5.0	3.8	8.2	6.6	5.5
1996 Q1	5.6	6.0	4.5	6.1	7.2	3.5	4.8	5.3	3.6	5.4	5.8	4.4	5.9	5.1
Q2	5.4	6.3	2.4	4.6	6.5	0.3	4.6	5.7	2.1	4.3	5.7	1.1	5.0	4.5
Q3	6.1	7.5	1.7	6.8	8.5	2.7	5.6	7.1	2.0	5.8	7.2	2.7	6.4	5.7
Q4	6.8	7.8	3.5	6.2	7.9	2.2	6.2	7.5	3.0	6.1	7.7	2.3	6.5	6.1
1997 Q1	7.4	7.8	6.2	7.4	7.5	7.3	6.6	6.8	6.3	6.7	6.5	7.1	7.4	6.7
Q2	10.8	11.9	7.1	10.7	11.9	7.6	9.7	10.9	6.6	9.1	10.0	6.9	10.8	9.4
Q3	12.2	12.3	11.7	..	..	..	10.3	10.7	9.4	9.8	10.7	7.6	..	..
Percentage change on previous quarter														
	ILJN	ILJO	ILJP	ILJQ	ILJR	ILJS	ILJT	ILJU	ILJV	ILJW	ILJX	ILJY	ILJZ	ILKA
1995 Q1	2.8	3.0	2.3	1.4	0.9	2.6	2.2	2.2	2.1	0.9	0.4	2.1	2.1	1.5
Q2	1.4	1.1	2.1	1.9	1.4	3.0	1.0	0.7	1.7	1.9	1.3	3.3	1.6	1.4
Q3	1.2	0.9	1.9	1.1	0.9	1.8	1.2	1.1	1.7	1.1	0.8	1.9	1.2	1.2
Q4	1.5	1.8	0.5	1.7	2.2	0.5	1.4	1.8	0.5	1.1	1.3	0.6	1.6	1.2
1996 Q1	1.5	1.9	–0.1	1.2	2.5	–1.8	1.1	1.7	–0.3	1.2	2.3	–1.5	1.4	1.2
Q2	1.1	1.4	–	0.5	0.8	–0.2	0.8	1.1	0.2	0.8	1.1	–	0.8	0.8
Q3	1.9	2.1	1.2	3.2	2.8	4.3	2.2	2.4	1.6	2.6	2.2	3.6	2.5	2.4
Q4	2.2	2.2	2.3	1.2	1.6	–	1.9	2.1	1.5	1.3	1.8	0.2	1.7	1.6
1997 Q1	2.0	1.9	2.5	2.4	2.1	3.1	1.5	1.0	2.9	1.8	1.2	3.2	2.2	1.7
Q2	4.3	5.3	0.9	3.5	4.9	0.1	3.7	5.0	0.5	3.1	4.4	–0.2	3.9	3.4
Q3	3.1	2.4	5.5	..	..	..	2.8	2.2	4.2	3.3	2.9	4.2	..	..

1 Data used in the World and OECD aggregates refer to Germany after unification

Source: OECD

Final Expenditure Prices Index (Experimental) - July 1998

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Note that further development work, including the adjustment of the Index of Government Prices for productivity change, is ongoing and the FEPI will be available only as an experimental index until this work has been completed.

Summary

The Final Expenditure Prices Index (FEPI) for July 1998 shows an annual rate of 1.9 per cent, down from 2.1 per cent in June. The annual rate of the FEPI reflects decreases in the annual rates of the Index of Consumer Prices (ICP) and the Index of Investment Prices (IIP) and an increase in the annual rate of the Index of Government Prices (IGP).

The FEPI annual percentage change

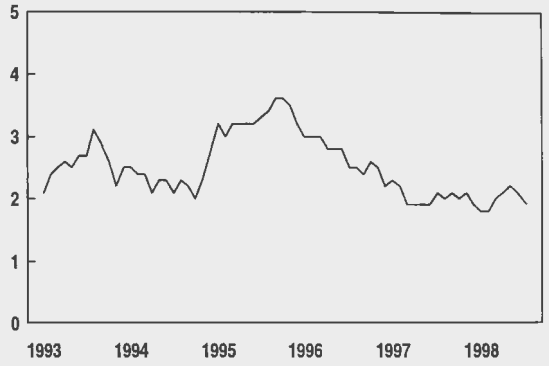


Table A

Final Expenditure Prices Index and components (January 1992=100 and annual percentage change)

		Index of Consumer Prices (ICP)		Index of Investment Prices (IIP)		Index of Government Prices (IGP)		Final Expenditure Prices Index (FEPI)	
		Index	Annual percentage change	Index	Annual percentage change	Index	Annual percentage change	Index	Annual percentage change
1998	Feb	118.3	2.2	111.3r	0.6r	115.9	1.8	116.3	1.8
	Mar	118.7	2.3	111.7	1.0	116.3	2.1	116.7	2.0
	Apr	119.3	2.3	112.0r	1.2r	116.3	1.9	117.2	2.1
	May	120.0	2.6	112.4r	1.4r	116.7r	1.7	117.7r	2.2r
	Jun	119.8	2.2	112.6r	1.6r	117.1	2.0	117.7r	2.1r
	Jul	119.2	2.1	112.7	1.4	117.0	2.1	117.3	1.9

The Index of Consumer Prices (ICP)

Consumer price inflation, as measured by the ICP, was 2.1 per cent over the 12 months to July, down from 2.2 per cent in June.

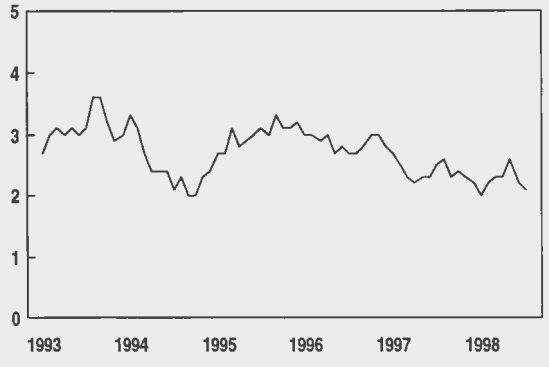
Downward pressure came mainly from prices for:

- Transport and communication, whose 12-month rate fell from 3.1 to 2.2 per cent;
- Clothing and footwear, whose 12-month rate fell from 0.3 to -1.0 per cent;
- Recreation, entertainment and education, whose 12-month rate fell from 0.2 to 0.1 per cent.

Some upward pressure came from:

- Household goods and services, whose 12-month rate rose from 1.2 to 1.6 per cent;
- Food, whose 12-month rate rose from 1.2 to 1.3 per cent.

The ICP annual percentage change



The Index of Investment Prices (IIP)

Investment price inflation, as measured by the IIP, was 1.4 per cent over the 12 months to July, down from 1.6 per cent in June.

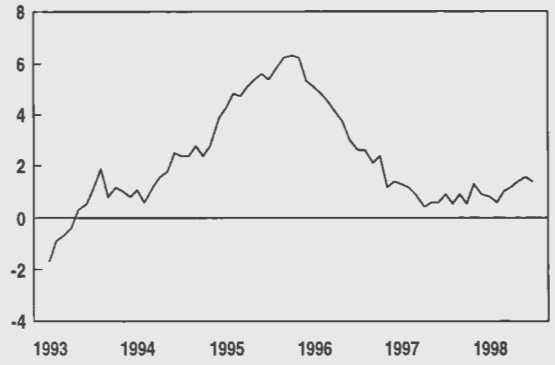
Downward pressure on the 12-month rate came mainly from:

- New buildings and works, whose 12-month rate fell from 5.3 per cent to 4.9 per cent in July;
- New dwellings, whose 12-month rate fell from 8.8 per cent to 8.1 per cent in July.

Some upward pressure came from:

- Vehicles, whose 12-month rate rose from 1.6 per cent to 2.2 per cent in July.
- Plant and Machinery whose 12-month rate rose from -5.3 per cent in June to -5.1 per cent in July. Note, the annual rate has been negative since June 1996, reflecting the impact of Sterling's strength on import prices.

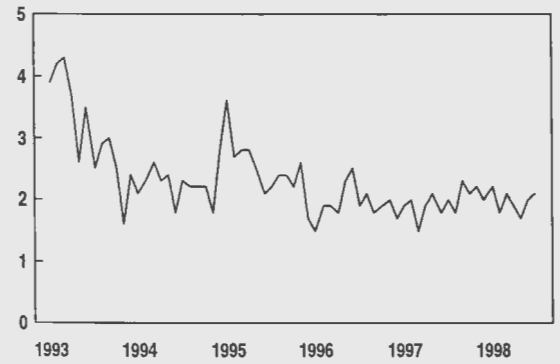
The IIP annual percentage change



The Index of Government Prices (IGP)

Inflation affecting Government expenditure, as measured by the IGP, was 2.1 per cent over the 12 months to July, up from 2.0 per cent in June. See note 6.

The IGP annual percentage change



Comparison between the FEPI and other inflation measures

Table B

Measures of Inflation (annual percentage changes)

		FEPI	RPIX	HICP	PPI
1998	Feb	1.8	2.6	1.5	0.7
	Mar	2.0	2.6	1.6	1.0
	Apr	2.1	3.0	1.9	0.9
	May	2.2	3.2	2.0	0.8
	Jun	2.1	2.8	1.7	1.0
	Jul	1.9	2.6	1.5	0.8

NOTES

1. The headline measure of inflation is the Retail Prices Index (RPI). The RPI should be used as the main indicator of inflation affecting average households.

2. The Final Expenditure Prices Index (FEPI) is a measure of the change in the prices paid by UK consumers, business and Government for final purchases of goods and services. Intermediate purchases by business are excluded. The FEPI is made up of three components:

   The Index of Consumer Prices (ICP)
   The Index of Investment Prices (IIP)
   The Index of Government Prices (IGP).

3. The ICP measures inflation affecting all consumers in the UK. The price indicators used in the ICP are taken mainly from the Retail Prices Index (RPI).

4. The IIP is a measure of the change in the prices paid for capital goods by business and by Government. It also covers new construction projects and dwellings built for consumers, business and government. The price indicators used are mainly Producer Price Indices (PPIs), Construction Output Price Indices and an average house price indicator.

5. The IGP measures inflation affecting Government. It covers expenditure by Central and Local Government on pay and on procurement. The price indicators used are mainly Average Earnings Indices (to reflect labour costs), PPIs and RPIs (to reflect the cost of goods consumed by Government).

6. Care should be taken when interpreting monthly movements in the IGP. This index is particularly volatile on a month-to-month basis, so a fall one month is often offset by a rise the next and vice-versa. The data are of greatest value if trends rather than individual monthly movements are observed.

7. An article describing the development and composition of the FEPI is included in *Economic Trends*, No 526, September 1997. Longer runs of the FEPI back to January 1992, are available in computer readable form from the ONS Sales Office (telephone 0171 533 5670) or on paper from David Wall.

1 Final Expenditure Prices Index (Experimental)

	Index of Consumer Prices ICP	Index of Investment Prices IIP	Index of Government Prices IGP	Final Expenditure Prices Index FEPI	Annual percentage changes ICP	IIP	IGP	FEPI
January 1992=100								
Weights								
1996	604	164	232	1000				
1997	605	165	230	1000				
1998	605	169	226	1000				
	CUSE	CUSK	CUSO	CUSP	CGAZ	CGBF	CGBJ	CGBK
1996 Jul	113.9	110.1	112.3	112.7	2.7	2.6	1.9	2.5
Aug	114.5	110.6	112.6	113.2	2.7	2.6	2.1	2.5
Sep	115.2	110.4	112.3	113.5	2.8	2.1	1.8	2.4
Oct	115.2	110.6	112.7	113.6	3.0	2.4	1.9	2.6
Nov	115.3	109.7	113.1	113.6	3.0	1.2	2.0	2.5
Dec	115.6	110.1	113.3	113.9	2.8	1.4	1.7	2.2
1997 Jan	115.3	110.4	113.7	113.9	2.7	1.3	1.9	2.3
Feb	115.7	110.6	113.8	114.2	2.5	1.2	2.0	2.2
Mar	116.0	110.6	113.9	114.4	2.3	0.9	1.5	1.9
Apr	116.6	110.7	114.1	114.8	2.2	0.4	1.9	1.9
May	117.0	110.8	114.7	115.2	2.3	0.6	2.1	1.9
Jun	117.2	110.8	114.8	115.3	2.3	0.6	1.8	1.9
Jul	116.7	111.1	114.6	115.1	2.5	0.9	2.0	2.1
Aug	117.5	111.2	114.6	115.5	2.6	0.5	1.8	2.0
Sep	117.9	111.4	114.9	115.9	2.3	0.9	2.3	2.1
Oct	118.0	111.2	115.1	115.9	2.4	0.5	2.1	2.0
Nov	117.9	111.1	115.6	116.0	2.3	1.3	2.2	2.1
Dec	118.1	111.1	115.6	116.1	2.2	0.9	2.0	1.9
1998 Jan	117.6	111.3r	116.2	116.0	2.0	0.8r	2.2	1.8
Feb	118.3	111.3r	115.9	116.3	2.2	0.6r	1.8	1.8
Mar	118.7	111.7	116.3	116.7	2.3	1.0	2.1	2.0
Apr	119.3	112.0r	116.3	117.2	2.3	1.2r	1.9	2.1
May	120.0	112.4r	116.7r	117.7r	2.6	1.4r	1.7	2.2r
Jun	119.8	112.6r	117.1	117.7r	2.2	1.6r	2.0	2.1r
Jul	119.2	112.7	117.0	117.3	2.1	1.4	2.1	1.9

The symbol r denotes revisions to previous months' data

2 FEPI - Index of Consumer Prices (Experimental)

	Food	Alcoholic Drink	Tobacco	Clothing and Footwear	Housing	Fuel and Power	Household Goods and Services	Transport and Communi-cation	Recreation, Entertain-ment and Education	Other Goods and Services	Index of Consumer Prices ICP
January 1992=100											
Weights											
1996	128	70	30	67	85	40	72	190	113	205	1000
1997	126	68	30	67	90	39	71	189	119	201	1000
1998	127	68	29	67	87	39	71	188	118	205	1000
	CURU	CURV	CURW	CURX	CURY	CURZ	CUSA	CUSB	CUSC	CUSD	CUSE
1996 Jul	110.7	118.4	139.6	99.2	121.9	105.9	108.8	114.3	108.9	118.9	113.9
Aug	111.8	118.3	139.8	100.5	122.0	105.7	110.1	115.1	109.2	119.4	114.5
Sep	110.8	118.5	140.1	105.4	122.1	105.8	110.8	116.3	109.6	119.9	115.2
Oct	110.1	118.8	140.2	105.5	122.2	105.6	110.4	116.4	109.8	120.3	115.2
Nov	109.7	118.6	140.0	106.6	122.4	105.0	111.4	116.0	110.1	120.4	115.3
Dec	109.7	118.0	142.8	106.6	122.5	104.8	112.3	116.7	110.1	120.7	115.6
1997 Jan	110.6	118.6	145.6	100.5	123.4	104.2	108.8	117.5	109.9	120.7	115.3
Feb	110.3	119.3	146.2	102.0	123.6	104.3	109.7	118.1	110.1	121.2	115.7
Mar	109.8	119.2	146.6	104.0	123.9	104.4	111.7	118.0	109.9	121.6	116.0
Apr	110.2	119.7	148.3	105.5	125.8	104.2	111.1	118.0	110.3	122.4	116.6
May	110.9	120.4	148.9	106.0	126.0	103.7	111.6	118.1	110.5	123.0	117.0
Jun	111.8	120.6	149.2	105.4	126.2	103.3	111.4	118.5	110.5	123.3	117.2
Jul	111.3	121.1	149.3	100.3	126.2	102.8	109.6	119.4	110.3	123.4	116.7
Aug	112.6	121.3	151.2	102.3	126.4	102.8	110.8	120.0	110.2	124.0	117.5
Sep	112.2	121.4	151.5	106.3	126.6	100.0	111.6	120.4	110.7	124.4	117.9
Oct	112.2	121.7	151.7	106.0	126.8	100.0	111.4	120.3	110.8	124.8	118.0
Nov	111.6	121.1	151.8	107.2	126.9	99.6	112.3	120.0	110.7	124.8	117.9
Dec	111.7	120.6	155.1	106.7	127.0	99.1	113.2	120.0	110.7	125.2	118.1
1998 Jan	111.7	122.1	159.3	99.7	127.3	98.4	109.8	120.6	110.3	125.4	117.6
Feb	111.7	123.1	159.5	102.0	127.4	98.7	111.5	120.8	110.5	126.4	118.3
Mar	111.5	123.5	159.5	104.1	127.6	98.9	113.1	120.8	110.4	126.9	118.7
Apr	111.8	123.6	162.1	105.0	129.9	98.9	112.1	122.1	110.8	127.6	119.3
May	113.5	124.5	162.6	106.0	130.1	98.3	113.3	122.3	111.1	128.1	120.0
Jun	113.1	124.4	162.8	105.7	130.2	97.6	112.7	122.2	110.7	128.4	119.8
Jul	112.8	124.9	163.0	99.3	130.4	97.3	111.4	122.0	110.4	128.6	119.2

Annual Percentage Changes

	Food	Alcoholic Drink	Tobacco	Clothing and Footwear	Housing	Fuel and Power	Household Goods and Services	Transport and Communi-cation	Recreation Entertain-ment and Education	Other Goods and Services	Index of Consumer Prices ICP
	CGAP	CGAQ	CGAR	CGAS	CGAT	CGAU	CGAV	CGAW	CGAX	CGAY	CGAZ
1996 Jul	3.9	2.9	6.5	–1.1	3.7	0.6	2.4	2.2	1.8	3.6	2.7
Aug	3.2	2.8	6.6	–1.3	3.4	0.4	2.4	3.0	1.9	3.6	2.7
Sep	2.1	2.7	6.9	–0.5	3.4	0.3	1.8	4.2	1.6	3.5	2.8
Oct	2.6	2.4	7.0	–0.2	3.6	0.2	1.9	5.0	1.8	3.8	3.0
Nov	2.0	2.9	6.9	0.3	3.6	–0.4	1.9	5.2	2.0	3.7	3.0
Dec	1.2	3.3	6.4	0.2	3.7	–0.7	1.7	4.4	1.7	3.5	2.8
1997 Jan	1.5	3.0	6.4	0.2	4.1	–1.3	1.6	4.2	1.6	3.4	2.7
Feb	0.2	2.8	6.4	0.7	4.2	–1.2	0.8	4.5	1.4	3.3	2.5
Mar	–1.2	2.5	6.6	1.3	4.4	–1.2	1.3	4.2	1.0	3.3	2.3
Apr	–0.9	2.5	6.9	1.2	4.1	–1.4	1.3	3.6	0.9	3.4	2.2
May	–1.1	2.7	6.7	1.5	4.1	–1.8	1.0	3.3	1.1	3.6	2.3
Jun	–0.3	2.4	6.7	1.1	4.0	–2.4	0.7	3.6	1.1	3.7	2.3
Jul	0.5	2.3	6.9	1.1	3.5	–2.9	0.7	4.5	1.3	3.8	2.5
Aug	0.7	2.5	8.2	1.8	3.6	–2.7	0.6	4.3	0.9	3.9	2.6
Sep	1.3	2.4	8.1	0.9	3.7	–5.5	0.7	3.5	1.0	3.8	2.3
Oct	1.9	2.4	8.2	0.5	3.8	–5.3	0.9	3.4	0.9	3.7	2.4
Nov	1.7	2.1	8.4	0.6	3.7	–5.1	0.8	3.4	0.5	3.7	2.3
Dec	1.8	2.2	8.6	0.1	3.7	–5.4	0.8	2.8	0.5	3.7	2.2
1998 Jan	1.0	3.0	9.4	–0.8	3.2	–5.6	0.9	2.6	0.4	3.9	2.0
Feb	1.3	3.2	9.1	–	3.1	–5.4	1.6	2.3	0.4	4.3	2.2
Mar	1.5	3.6	8.8	0.1	3.0	–5.3	1.3	2.4	0.5	4.4	2.3
Apr	1.5	3.3	9.3	–0.5	3.3	–5.1	0.9	3.5	0.5	4.2	2.3
May	2.3	3.4	9.2	–	3.3	–5.2	1.5	3.6	0.5	4.1	2.6
Jun	1.2	3.2	9.1	0.3	3.2	–5.5	1.2	3.1	0.2	4.1	2.2
Jul	1.3	3.1	9.2	–1.0	3.3	–5.4	1.6	2.2	0.1	4.2	2.1

The symbol r denotes revisions to previous months' data

3 FEPI - Index of Investment Prices (Experimental)

	Plant and Machinery	Vehicles, etc	New Buildings and Works	Transfer Costs of Land and Buildings	New Dwellings	Index of Investment Prices IIP
January 1992=100						
Weights						
1996	378	108	266	38	209	1000
1997	390	103	267	33	207	1000
1998	387	103	277	37	196	1000
	CUSG	CUSH	CUSF	CUSI	CUSJ	CUSK
1996 Jul	113.5	119.0	106.5	138.1	102.0	110.1
Aug	114.0	119.6	106.9	139.2	102.7	110.6
Sep	113.1	119.7	107.3	139.3	102.7	110.4
Oct	113.0	119.2	107.7	140.9	102.8	110.6
Nov	110.6	117.6	108.1	140.9	103.0	109.7
Dec	111.0	117.5	108.5	141.0	103.8	110.1
1997 Jan	111.1	118.2	108.8	139.3	104.3	110.4
Feb	111.2	118.7	109.1	141.8	104.4	110.6
Mar	110.1	118.9	109.4	142.2	105.6	110.6
Apr	109.8	118.5	109.5	142.8	106.9	110.7
May	109.4	118.5	109.4	144.8	107.6	110.8
Jun	108.8	118.3	109.4	144.9	108.6	110.8
Jul	108.0	118.1	110.2	150.8	109.8	111.1
Aug	107.2	118.4	111.1	151.9	110.5	111.2
Sep	107.1	118.6	111.5	153.4	110.6	111.4
Oct	106.6	118.4	112.0	152.2	110.4	111.2
Nov	105.9	118.1	112.4	153.1	110.5	111.1
Dec	105.8	118.5	112.8	152.2	110.5	111.1
1998 Jan	105.6	119.1	113.3	151.7r	110.6r	111.3r
Feb	105.0	118.8	113.8	153.6r	111.2r	111.3r
Mar	104.5	119.5r	114.3	154.9	113.1	111.7
Apr	103.7	119.3r	114.6	159.6r	115.0r	112.0r
May	103.8	120.5r	114.9	160.3r	115.9r	112.4r
Jun	103.0r	120.2r	115.2	160.9r	118.2r	112.6r
Jul	102.5	120.7	115.6	163.0	118.7	112.7

Annual Percentage Changes

	Plant and Machinery	Vehicles, etc	New Buildings and Works	Transfer Costs of Land and Buildings	New Dwellings	Index of Investment Prices IIP
	CGBB	CGBC	CGBA	CGBD	CGBE	CGBF
1996 Jul	–2.2	2.8	7.9	6.3	3.6	2.6
Aug	–2.0	2.2	7.1	7.1	4.4	2.6
Sep	–2.9	2.2	6.4	6.9	4.7	2.1
Oct	–2.3	1.8	6.0	8.6	5.0	2.4
Nov	–4.8	0.3	5.6	8.4	5.5	1.2
Dec	–4.5	–0.3	5.1	9.6	6.6	1.4
1997 Jan	–4.8	–0.3	4.9	9.6	7.0	1.3
Feb	–4.4	–	4.7	9.2	6.3	1.2
Mar	–5.1	0.1	4.4	9.0	6.3	0.9
Apr	–5.9	–0.6	4.1	5.2	6.8	0.4
May	–5.2	–0.5	3.5	6.6	7.1	0.6
Jun	–5.1	–0.5	3.1	6.9	7.4	0.6
Jul	–4.8	–0.8	3.5	9.2	7.6	0.9
Aug	–6.0	–1.0	3.9	9.1	7.6	0.5
Sep	–5.3	–0.9	3.9	10.1	7.7	0.9
Oct	–5.7	–0.7	4.0	8.0	7.4	0.5
Nov	–4.2	0.4	4.0	8.7	7.3	1.3
Dec	–4.7	0.9	4.0	7.9	6.5	0.9
1998 Jan	–5.0	0.8	4.1	8.9r	6.0r	0.8r
Feb	–5.6	0.1	4.3	8.3r	6.5r	0.6r
Mar	–5.1	0.5r	4.5	8.9	7.1	1.0
Apr	–5.6	0.7r	4.7	11.8r	7.6r	1.2r
May	–5.1	1.7r	5.0	10.7r	7.7r	1.4r
Jun	–5.3r	1.6r	5.3	11.0r	8.8r	1.6r
Jul	–5.1	2.2	4.9	8.1	8.1	1.4

The symbol r denotes revisions to previous months' data

4 FEPI - Index of Government Prices (Experimental)

	Local Government Total	Central Government Total	Education Grants	Index of Government Prices IGP	Local Government Total	Central Government Total	Education Grants	Index of Government Prices IGP
					Annual percentage changes			
January 1992=100								
Weights								
1996	344	597	59	1000				
1997	347	589	64	1000				
1998	342	591	67	1000				
	CUSL	CUSM	CUSN	CUSO	CGBG	CGBH	CGBI	CGBJ
1996 Jul	114.3	110.9	114.5	112.3	2.0	1.9	1.7	1.9
Aug	114.1	111.5	114.6	112.6	1.8	2.3	1.8	2.1
Sep	114.1	110.9	114.6	112.3	2.1	1.6	1.8	1.8
Oct	114.5	111.5	114.6	112.7	2.1	1.7	1.8	1.9
Nov	115.2	111.6	114.8	113.1	2.4	1.7	2.0	2.0
Dec	114.9	112.3	114.9	113.3	2.0	1.6	2.0	1.7
1997 Jan	115.4	112.6	115.5	113.7	2.4	1.6	1.9	1.9
Feb	115.5	112.7	115.5	113.8	2.4	1.7	1.9	2.0
Mar	116.0	112.6	115.5	113.9	2.7	0.9	1.9	1.5
Apr	115.7	112.9	115.5	114.1	2.6	1.3	1.9	1.9
May	117.0	113.2	116.5	114.7	2.4	2.0	1.9	2.1
Jun	117.6	112.9	116.5	114.8	2.4	1.3	1.9	1.8
Jul	117.0	112.7	118.5	114.6	2.4	1.6	3.5	2.0
Aug	117.2	112.7	118.5	114.6	2.7	1.1	3.4	1.8
Sep	117.2	113.2	118.6	114.9	2.7	2.1	3.5	2.3
Oct	117.5	113.4	118.6	115.1	2.6	1.7	3.5	2.1
Nov	118.4	113.6	118.6	115.6	2.8	1.8	3.3	2.2
Dec	117.8	113.9	118.7	115.6	2.5	1.4	3.3	2.0
1998 Jan	118.3	114.6	119.8	116.2	2.5	1.8	3.7	2.2
Feb	118.2	114.1	119.8	115.9	2.3	1.2	3.7	1.8
Mar	118.9	114.4	119.7	116.3	2.5	1.6	3.6	2.1
Apr	118.6r	114.7	119.8	116.3	2.5r	1.6	3.7	1.9
May	120.1	114.3r	120.7	116.7r	2.6	1.0r	3.6	1.7
Jun	120.7r	114.7r	120.6	117.1	2.6	1.6r	3.5	2.0
Jul	120.4	114.6	120.6	117.0	2.9	1.7	1.8	2.1

The symbol r denotes revisions to previous months' data

Development of the Corporate Services Price Index: A review of progress

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- Corporate Services Price Indices (CSPIs) are one of the Office for National Statistics' most important developments and fill one of the main gaps in the range of available economic statistics. This article summarises the progress so far.

- Collecting service prices of a kind suitable for statistical purposes is often inherently difficult. Although there has been good progress in developing suitable methodologies, work remains, particularly over the treatment of quality change and 'one-off' prices.

- The ONS now publishes twelve individual series and another eleven appear in the experimental quarterly summary of CSPI data.

- Under current (provisional) plans, published data should cover most of the sector by early 2001.

- A Corporate Services Price Index press release is planned- launch during 1999/2000 is a possibility.

Introduction

Users of economic statistics, both inside and outside government are pressing for more comprehensive coverage of the service sector, particularly in the area of prices. The expansion of the Corporate Services Price Index is, therefore, one of the Office for National Statistics' (ONS) most important development projects and the purpose of this article is to review the progress so far. It follows on from an article by Jonathan Price (*Economic Trends No. 513 July 1996*), which outlined the plans to develop the survey and explained the main theoretical and practical issues that need to be addressed.

The Corporate Services Price Index (CSPI): background

The Corporate Services Price Index (CSPI) mirrors the Producer Price Index for manufactures in that it measures the price movements in the services provided by UK companies to UK business and government customers, whereas the PPI measures the price movements for goods. These are listed in Table 1 and encompass a wide range of activities, from office cleaning to software consultancy and, along with services in general, they are of growing importance in the economy. At around 23% of GDP, corporate services on their own are almost as significant as the whole of manufacturing but, despite this, they are an area where statistical information, particularly in relation to prices, has traditionally been lacking. The ONS only started the collection of the relevant data in 1992 and this was, initially, on a very small scale.

Price data for corporate services are needed in 3 main applications:

- Deflation of service sector turnover figures i.e. adjustment for the effects of inflation in the measuring of service sector output growth

- Use in their own right as an indicator of the inflationary pressure in the economy

- Use by business and commerce in contract escalation and market analysis

Collecting service sector prices difficult

As the article by Price makes clear, the production of statistics on service sector prices is often inherently difficult. This is because of the nature of the activities concerned and because the supporting data needed for contributor selection and construction of sampling frames and weighting patterns are often weak. In

contrast with manufacturing, the ONS does not produce a figure on service sector sales at a detailed level so it is often necessary to supplement ONS data with other sources such as trade association lists. As table 1 shows this means random sampling is impractical in most cases, even though it is preferable from a statistical viewpoint. Lack of resources adds a further constraint; something which the UK shares with most other countries.

Data collection procedures

In view of the difficulties, the practice, in this country and elsewhere, is to adopt a flexible approach in the development of data collection methodology. A development team researches industries individually to draw up a sampling frame and sampling scheme and to establish a suitable format for price returns before the start of any data collection. This will normally involve liaison with the relevant trade association and visits to companies. Where a suitable source of price data already exists (as, for example, with contract car hire and property rental values), its use will be considered but, in the majority of cases, collection is done in-house. Currently, all in-house collection is from service suppliers, as opposed to customers. There is then a 'proving' period for new services (usually a year), following which series are included in the prototype quarterly summary of CSPI data that is circulated within government. After another year, they are normally released for general publication.

A variety of different approaches to price measurement is used but, in broad terms, the procedure is to ask the companies sampled to select a representative service and type of transaction under each sub-division of the activity being surveyed that is relevant to them. Quarterly price updates, most of which are returned via a Telephone Data Entry System, are then used as indicators of the company's price movements for the whole sub-division.

Nature of the difficulties of price collection

The goal of the CSPI is to show the inflationary trend underlying the prices that companies are charging, i.e. the price changes that apply, or would apply, to a fixed basket of services, sold to the same type of customer, under the same conditions, through time.

With many service industries, it is far from straightforward to achieve this in practice. The main causes of difficulty are:-

- **quality adjustment**. Making like-for-like price comparisons will often entail a 'quality adjustment', i.e. placing a value on any changes in the specification of the service being monitored, which is then offset against the price. The pace of technical change can sometimes make this very difficult, especially in computing.

- **discounts**. Contributors are often tempted to quote list prices or standard rates, both because that may be an easy option and because market discounts may be seen as confidential. In general, however, they are unsuitable as they can be a poor guide to the prices that companies actually charge in the marketplace. For example, in accountancy, discounts of around 15% are currently common and these tend to vary over the economic cycle.

- **one-off services**. An inherent feature of consulting-type industries, and others such as law and accountancy, is that it may be rare for companies to repeat precisely the same assignment or service. It can therefore be difficult to attempt to measure the underlying price trend and a balance may need to be struck between the theoretical ideal and what is practical for respondents.

- **capturing productivity changes**. In many of the industries where business tends to be in the form of one-off services (e.g. accountancy and law), it is common to charge clients an hourly fee. This can provide a convenient basis for price returns to the ONS but, on its own, fails to allow for the effect of productivity gains in reducing the number of man-hours needed to provide the same service. In particular, improved computer systems and software can have a significant impact.

- **large number of small businesses.** Small firms make up an important part of many service industries. In accountancy, for example, there are around 18,000 firms with fewer than ten employees and these contribute just under 20% of the industry's turnover in the corporate sector. This means that relatively large samples may be needed to achieve good industry coverage and gives added significance to the restrictions in the ONS Business Charter on data collection from small businesses.

- **constructing samples difficult.** The difficulties of sampling in service industries have already been mentioned and are also discussed in the article by Price.

Progress so far

Coverage achieved

The main activities included in the corporate services sector are listed in Table 1, together with details of their status as far as data collection and dissemination are concerned. Progress has been good- although a little slower than projected in Price's article since much of the work to expand coverage is of a developmental nature. To summarise, if banking services/financial intermediation are excluded, the series in the experimental quarterly summary (i.e. those for which data collection has been established for a year or more) cover just over 50% of the sector. Although, under the latest European System of Accounts (ESA), financial intermediation accounts for an estimated 28% of the sector, it has not previously been seen as contributing to national output in its own right and precise details of its treatment under the new ESA have not yet been finalised.

Under the current, provisional, schedule for expansion, data collection should cover around 80-85% of the sector (excluding financial intermediation) by the beginning of 1999, giving published series the same coverage by early 2001. Although the potential difficulties are recognised, the plan is eventually to include financial intermediation. It is considered impractical to attempt to cover remaining activities, such as research and development and 'Management activities of holding companies' because the costs are likely to be disproportionate.

As the table illustrates, samples are small in many industries. Industry coverage is often also low, although lack of information about service sector sales at a detailed level can make this difficult to estimate accurately. Nevertheless, in most cases, data quality in the published series and those included in the experimental quarterly summary, is good enough to be considered comparable with the much longer established Producer Price Indices for manufacturing.

Even where problems are more severe, as in industries such as accounting and consulting engineering, CSPIs usually represent a substantial improvement over alternative sources of information, both in the deflation of service sector output figures and in the analysis of inflationary trends. The alternatives are usually based either on general wage rates or business surveys of the direction (but not magnitude) of any average movement in prices/hourly fees. Neither attempts to make any allowance for changes in quality or productivity.

Users have, therefore, been keen for expansion to be as rapid as possible; where necessary, the aim is to carry out 'top-up' recruitment of additional contributors once the initial development of the sector starts to 'wind down'.

Dealing with the 'difficult' issues

Quality adjustment

As in the Producer Price Indices for manufacturing, quality adjustment normally relies on consultation with the contributor to estimate the value of the changes. In general, this gives good results but it is recognised that industries in which technological change is very rapid can present special difficulty. The main problem industry is computing, where it is common for specifications or service levels to improve whilst production costs and prices remain unchanged, or even fall. This adds to the difficulty in assigning a value to these improvements. For example, in the case of computer services, systems outsourcing contracts frequently specify an increasing level of service for a fixed cost over the life of the contract (which may be 5-10 years).

This issue has recently been the focus of much attention throughout the ONS. Improvements to procedures that are being introduced more generally will also be adopted by the CSPI. The aim is to ensure that, wherever possible, there is some assessment of the value of any change in specification. However, it needs to be recognised that, in the absence of sophisticated (and costly) techniques such as hedonic regression[1], this is not always practical. It is an area for further investigation and development, but it seems likely that the impact of quality improvements tends to be understated in the computing and IT sectors, and therefore, there is probably an upward bias in the CSPIs for these sectors.

Discounts

It is always made clear to contributors that the prices they report should show what is received after all discounts. For this reason, where applicable, they are encouraged to quote prices from actual transactions or contracts (details are given in Table 1). There may sometimes be a lag before current market conditions are reflected in contract prices, as Price points out, but they do offer contributors a convenient means of quoting discounted prices on a consistent basis without the need for estimation. They are also likely to be appropriate to indices' use as deflators.

[1] Hedonic regression is a method of quality adjustment through the use of regression models to relate individual characteristics of a product or service (e.g. speed or memory size) to the total price. In practice, its application is confined to rapidly-advancing industries such as IT and telecoms

The need to report discounted prices is also stressed where other approaches such as 'model' or estimated prices or hourly fee rates are used; it is a key consideration in any decision over the possible use of an external source of data.

Although the aim is for a more complete evaluation at a later date, the evidence is that, in most cases, the ONS is successful in obtaining information on actual market prices. In general, the office enjoys a high degree of trust and the fact that collection methods are developed in consultation with companies and/or trade associations also helps to ensure contributors' cooperation.

One-off services/productivity changes: 'model prices'

Along with quality adjustment, development of practical solutions to the treatment of one-off services is one of the most problematic issues in the collection of service prices. Useful progress has been made but work is still being done to refine the solutions adopted, particularly for accountancy, law and consulting engineering.

The 'standard' approach is to ask contributors to re-price a specific assignment, as if they were quoting for an actual customer. This may be either notional or one that was actually undertaken. In the more straightforward cases, such as secretarial services or translation, it is normally reasonably easy for respondents to use their knowledge of current costs and market conditions to provide realistic quotes in this way.

However, as Price's article explains, in industries such as consulting engineering and accountancy, where there is often less similarity between individual assignments and preparing accurate estimates is more time-consuming, this approach is generally seen as too burdensome. The experience in other countries, such as the USA, Canada and Australia, appears to have been similar and the usual solution is to use hourly fee income, adjusted for productivity changes if possible, to indicate the movements in the prices of actual services.

The approach initially developed by the ONS was to split an activity such as accountancy into its main subcategories (e.g. tax consultancy, insolvency work) and collect the actual hourly fee income achieved by contributors in each. This has enabled data collection in accountancy and consulting engineering to take place but as Price stated, it can involve averaging over different types of assignments and, in practice, this has proved a disadvantage. The resulting price indicators have often proved volatile, particularly at lower levels of aggregation. They also require supplementary information if productivity gains are to be taken into account.

A more promising alternative is for contributors to give a re-estimate for an actual or hypothetical job, using a simple model, based on the estimated market rates for the three or four main grades of personnel involved. This is combined with a request for contributors to assess whether there has been any change in the number of hours they would need to complete that type of assignment- perhaps because of better IT systems. Work to refine this approach further is currently under way and that will be followed by a fuller evaluation. In this, particular attention will be paid to the issue of attempting to monitor productivity change across each industry as a whole.

Small businesses: ONS Business Charter

As Table 1 shows, where there are good enough turnover data on individual industries, samples are stratified and companies weighted according to the significance of the sizeband they fall into, rather than their own turnover. This helps to ensure indices reflect the balance between small and large companies. However, given current resource levels, the inclusion of large numbers of small companies in the survey is not practical, despite their importance in the service sector. An important factor in this are the specific guarantees given in the ONS Business Charter to companies with fewer than ten employees. These can now only be selected for one ONS postal survey at a time and must be rotated out after a maximum of fifteen months. After that, they are given a three year exemption from all ONS postal surveys.

Introducing new contributors into the CSPI is a resource-intensive process. Close cooperation with contributors is often needed to ensure that they provide reliable data, especially in the early stages. The policy has, therefore, been to avoid sampling businesses with fewer than ten employees, unless there is strong evidence that their prices are likely to move differently from those of larger companies. This means that, currently, the only collection from these very small companies is in the initial sample for Translation Services (in SIC 74.83), where a small number have been included for evaluation. In the longer term, the aim is for further investigation into the need to include smaller companies and this should help to identify priority areas for any top-up recruitment of extra contributors.

CSPI outputs and their usage

Twelve series, identified in Table 1 are now released for general publication and appear in the ONS's business monitor *MM22: Producer Price Indices.* Five of these, namely: Bus and Coach Hire, Industrial Cleaning, Road Freight, Waste Disposal and Security Services are also used as deflators in the calculation of

gross domestic product (by the output method). The intention is that all relevant publishable CSPIs should be used as deflators in due course. Published series are currently based on 1990=100 and will be re-referenced onto 1995=100 in October 1998. Thereafter, five-yearly rebasing is likely for the foreseeable future.

As part of the process of developing the outputs of the survey, an experimental quarterly summary of CSPI data is also circulated within government for the purposes of quality assurance. In addition to the twelve published indices, this includes another eleven series not yet considered ready for general publication, plus a prototype top level 'All CSPI' index, produced by weighting all the individual series together. Recipients have commented that CSPIs will fill an important gap in the range of price statistics available to them. They also stress the importance of timeliness in the data they use and, in response, the ONS will be investigating the possibility of bringing forward the release of quarterly CSPI figures.

The value of more extensive data on service sector prices is underlined by the graphs in figures 1 and 2 below, which compare the prototype 'top level' CSPI with the equivalent index for manufactures, the 'All Manufacturing' Producer Price Index (PPI). As can be seen, the headline CSPI has followed a different path from the index for manufactures. Whilst the headline PPI is, rising at less than 1% over a twelve month period, the equivalent CSPI is showing a rise of over 2.5%, which is in line with the indications from other sources.

It is also clear that there is much demand in the private sector for an expanded range of CSPIs for use in contract adjustment. In particular, there are frequent requests for the publication of indices for the computer services industries. Companies often enter into long-term outsourcing contracts and, although there may be problems of quality adjustment, once they are developed, the relevant CSPIs promise to offer a widely recognised source that improves significantly on what is currently available.

Plans for the future

Enhancements to CSPI quality

For the future, the aim is for an increasing emphasis on enhancements to the quality of the data that are already produced, along with the continued expansion of the scope of the CSPI. A key element in this is a project that is being undertaken in cooperation with the ONS's Methods and Quality branch to review the methodology and procedures used in the production of the CSPI. Additional initiatives include the work to improve the approach to collecting prices of one-off services.

It is also intended that this will provide an evaluation of the quality integrity of the data produced, with estimates of standard errors where possible. This will be useful both in highlighting the areas where larger samples would be most beneficial and in helping to inform users about the reliability of individual series.

CSPI Press Release

The single most important new CSPI product that is currently planned is a published Press Release, to include a 'top level' CSPI. There is not yet a firm target date for the launch, but 1999/2000 seems the earliest year that is realistic.

Figure 1
Comparison of experimental 'top level' Corporate Services Price Index (CSPI) and headline Producer Price Index (PPI)*

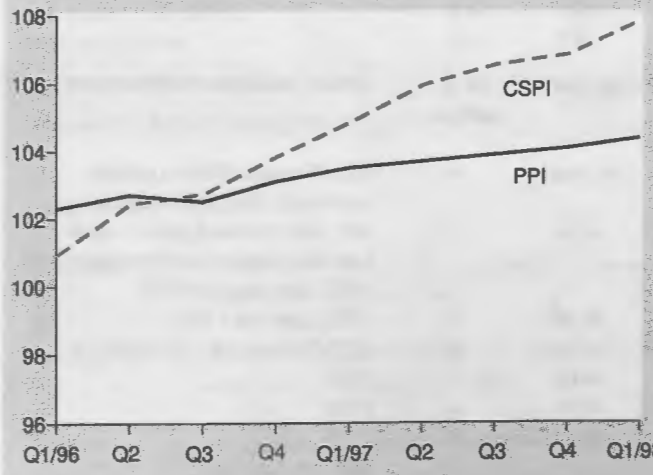
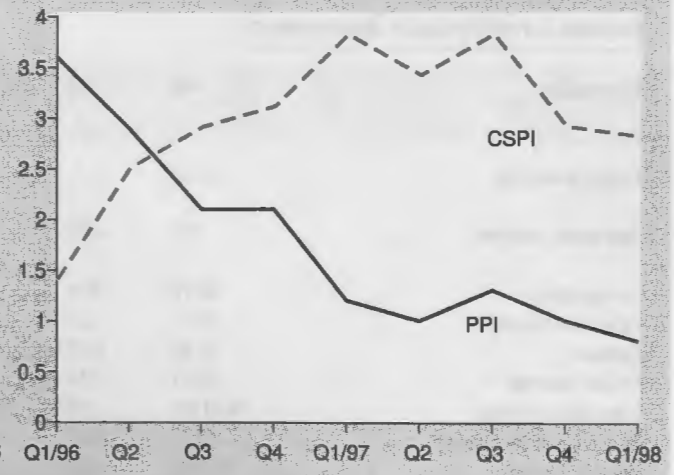


Figure 2
Comparison of experimental 'top level' CSPI and headline PPI, year-on-year % movements



* the series shown in Figure 1 and Figure 2 are calculated on a 'net sector' basis, so that transactions within the same sector (e.g. an accountant to an advertising company) are excluded. The object of this is to reflect better the impact of the sector on the rest of the economy. The 'top level' CSPI includes rent; the headline PPI includes food, drink and tobacco.

Table 1: Industries in CSPI, development and publication status

Published indices

Description	SIC	Wt*	Sample type	No.in sample	Comments
Bus and coach hire	60.23	0.18	IDBR str ran	55	Estimated coverage 30%
Freight transport by road	60.24	8.63	IDBR str ran	93	Estimated coverage 20%
Sea and coastal water freight	61.10/2	1.23	IDBR str ran	12	Estimated coverage 30%
Courier services	64.12	0.22	IDBR str ran	37	Estimated coverage 45%
Contract car hire	71.10	0.54	ref list	33	External supplier, > 50% coverage
Construction plant hire	71.32	2.05	ref list	-	From external supplier. 30 - 40% industry coverage
Security services	74.60	0.37	IDBR str ran	38	Estimated coverage 45%
Industrial cleaning	74.70	0.57	IDBR str ran	52	Estimated coverage 20%
Commercial film processing	74.81	0.23	ref list	10	Coverage close to 100%
Adult education	80.42	0.24	IDBR str ran	68	Estimated coverage 25%
Waste disposal	90.00/2	0.22	IDBR str ran	39	Estimated coverage 45%
Sewerage services	90.00/1	0.91	ref list	-	Data supplied by OFWAT, 100% coverage

Indices in experimental quarterly summary, not yet published

Description	SIC	Wt	Sample type	No.in sample	Earliest publication date/comments
Business air fares	62.10	0.64	ref list	4	Disclosive. Estimated coverage 70%
National post-parcels	64.11	0.83	-	-	Disclosive. Data provided by RPI
Property rental payments	70.20	9.32	ref list	-	2/99. From external supplier, 10% industry coverage
Consulting engineers	74.20 (pt)	1.73	str ran	45	6/99. Work in progress to improve treatment of one-off sales. Estimated coverage 10%
Accountancy	74.12	1.96	IDBR str ran	45	6/99. Work in progress to improve treatment of one-off sales. Estimated coverage 35%
Business and manage't consult'cy	74.14	0.83	IDBR str ran	-	6/99. 'Consultancy' component of accountancy used as proxy
Commercial vehicle ferries	61.10/1	0.08	ref list	13	Disclosive. Near 100% coverage
Maint'ce & repair of motor vehicles	50.20	1.24	ref list	33	2/99. External supplier, > 50% coverage
Business telecoms services	64.20	2.24	ref list	-	2/99. Data taken from published source. Coverage appx. 75%
Computer and related activities (pt)	72	1.11	ref list	18	2/99 (pt). Coverage low, expansion planned
Labour recruitment and prov'n of pers'l	74.50	1.59	ref list	67	2/99. Estimated coverage 10%

Indices currently under development

Description	SIC	Wt	Sample type	No. in sample	Earliest publication date/comments
Freight forwarding	63.40	1.74	stratified	44	8/99. Coverage difficult to estimate at this stage. Sample non-random
Real estate activities	70.3	4.53	ref list	30	8/99. Index combines property values from external source with commission rates
Taxi operation	60.22	0.06	-	-	11/99. Data supplied by RPI
Hotels and motels	55.11	1.35	ref list	19	11/99. Coverage > 60%
Canteens	55.51	0.88	ref list	26	11/99. Selection from 100 largest cos
Private hospitals	85.11	0.64	ref list	19	11/99.
Translation activities	74.83 (pt)	0.36	ref list	18	11/99.
Washing and dry cleaning	93.01	0.01	ref list	32	11/99.
Inter-city services	60.10/1	0.20	-	-	Data to be supplied by RPI

Secretarial services	74.83 (pt)	0.36	ref list	24	5/00.
Technical testing	74.30	0.50	ref list	21	5/00.
Market research	74.13	0.18	ref list	-	11/00.
Advertising	74.40	2.54	-	-	11/00.
Veterinary activities	85.20	0.1	ref list	-	11/00.
Insurance and pension funding	66.0	4.89	-	-	11/00. Only non-life ins. (which is the bulk of sector)being developed at this stage
Rail freight	60.10/9	1.00	ref list	-	2/01
Renting of agric mach'y and equip't	71.31	0.66	ref list	-	2/01
Renting of office mach'y and equip't	71.33	0.32	ref list	-	2/01. Stratified sampling difficult due to restrictions on collection from small business
Legal activities	74.11	1.91	ref list	13	2/01. Sample to be expanded following work to develop methodology
Packaging activities	74.82	0.10	-	-	2/01
Computing (outsourcing)	72 (pt)	0.32	ref list? Yet to be decided	-	5/01. Quality adjustment verydifficult

Development planned, yet to start

Description	SIC	Wt	Sample type	No. in sample	Earliest publication date/comments
Recreational, cultural activities	92	0.25	-	-	2/01. Practicality of collection under this heading to be reviewed
Architects	74.20 (pt)	2.59	-	-	5/01. One-off services a difficulty
Quantity surveyors	74.20 (pt)	2.59	-	-	5/01. One-off services a difficulty
Banks, financial intermediation	65.12	28.0	-	-	Treatment of financial intermediation in National Accounts needs clarification

Industries not planned for inclusion

Description	SIC	Wt
Other passenger land transport	60.23	0.03
Renting of other transport equipmentt	71.2 (pt)	0.18
Other accommodation	55.2	0.04
Cargo handling & storage	63.1	0.40
Other supporting land transport activities	63.21	0.14
Other supporting water transport activities	63.22	0.02
Other supporting air transport activities	63.23	0.10
Travel agents	63.3	0.67
Activities ancilliary to financial intermediation	67	0.43
Renting of personal & h'shold goods nec	71.4	0.46
Research and development	73	1.25
Manag't activities of holding companies	74.15	0.18
Other business activities nec	74.84	3.43
Social work activities	85.3	0.58

* denotes weight in corporate services sector, estimated on net sector basis

Key of sample types:-

IDBR str ran	stratified random sample, Inter-Departmental Business Register (IDBR) used as sampling frame
str ran	stratified random sample, sampling frame based on IDBR and/or other sources, e.g. trade associations
ref list	reference list - contributors selected from listing from IDBR and/or other sources, on the basis of turnover size

Estimating and Presenting Short-Term Trends

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Introduction

This article describes recent developments in the ONS on estimating and presenting short-term trends for economic time series. Comments on its content are invited.

An introduction to the concept of a trend is given, and standards for estimating and presenting trends in monthly economic time series are briefly explained. A summary of the research project that led to the recommendation of the standards is given in a separate section for interested readers. The standards were applied to employment and ILO unemployment series in the new style Labour Market Statistics First Release and the outcome of this is shown. A summary of international practices is also presented.

In the second part of the article further implementation of the standard methods is considered. We set technical criteria for determining which series it is appropriate to produce trends for. Key monthly economic time series are tested against these criteria and the results are shown in a table.

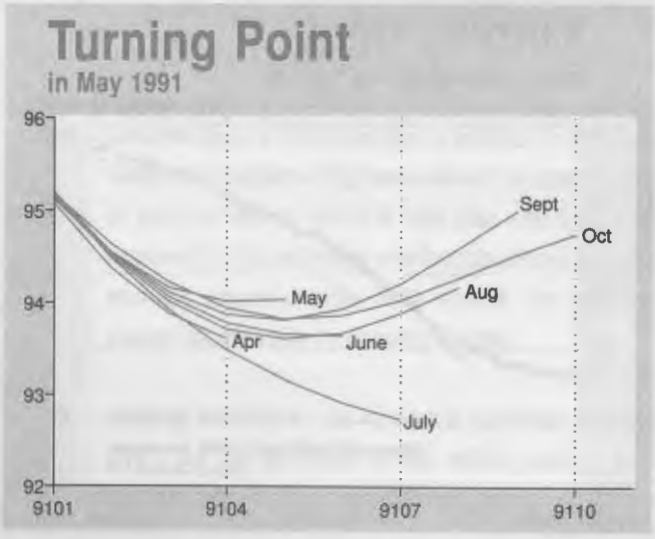
The views of users of economic statistics are requested on the way trends are presented and on the technical criteria for producing trends. Comments should be sent to Simon Compton at D2/12, ONS, 1 Drummond Gate, London SW1V 2QQ, (email simon.compton@ons.gov.uk, telephone 0171 - 533 6234, fax 0171 - 533 6238), preferably by the end of September.

Short-Term Trends

Most key monthly economic data are currently presented in a seasonally adjusted form in ONS First Releases and elsewhere. The main rationale for seasonal adjustment (which is defined as the removal of seasonal and calendar variation from a time series) is that it gives a clearer picture of the behaviour of the series. However, a seasonally adjusted series still contains irregular movements in the series. These can arise from temporary or unusual economic behaviour or events, but may also include measurement errors, such as those associated with sample surveys. For some users of the series the irregular variation has informational value, but for others it merely obscures the picture they are really interested in, which is the underlying behaviour of the series itself. It is this that we are attempting to capture in short-term trends.

It is difficult to describe further what we mean by a trend; there is no generally agreed definition. Indeed, this definitional ambiguity is a reason sometimes cited for not producing or publishing trends. In this article we consider short-term trends which are intended to give an indication of recent behaviour of the series, rather than the longer-term trend cycle which economists often refer to. The emphasis on the short-term accords with the role of monthly First Releases which are designed to provide frequent, timely economic measures. In more technical language, we refer to a short-term trend here as one which eliminates cycles of frequency less than 12 months, ie the final trend should contain no more than one peak and one trough in any given year.

A trend puts the most recent published figure for a series into the context of past values. It therefore dissuades users from placing too much emphasis on the latest published figure. This also means that at the end of a series trend estimates are less precise and are subject to revision as future data points become known. This is an important consideration when presenting trends and interpreting time series, particularly around turning points. The graph below illustrates this, showing how trend estimates evolve for the volume of imports series as new observations become known.

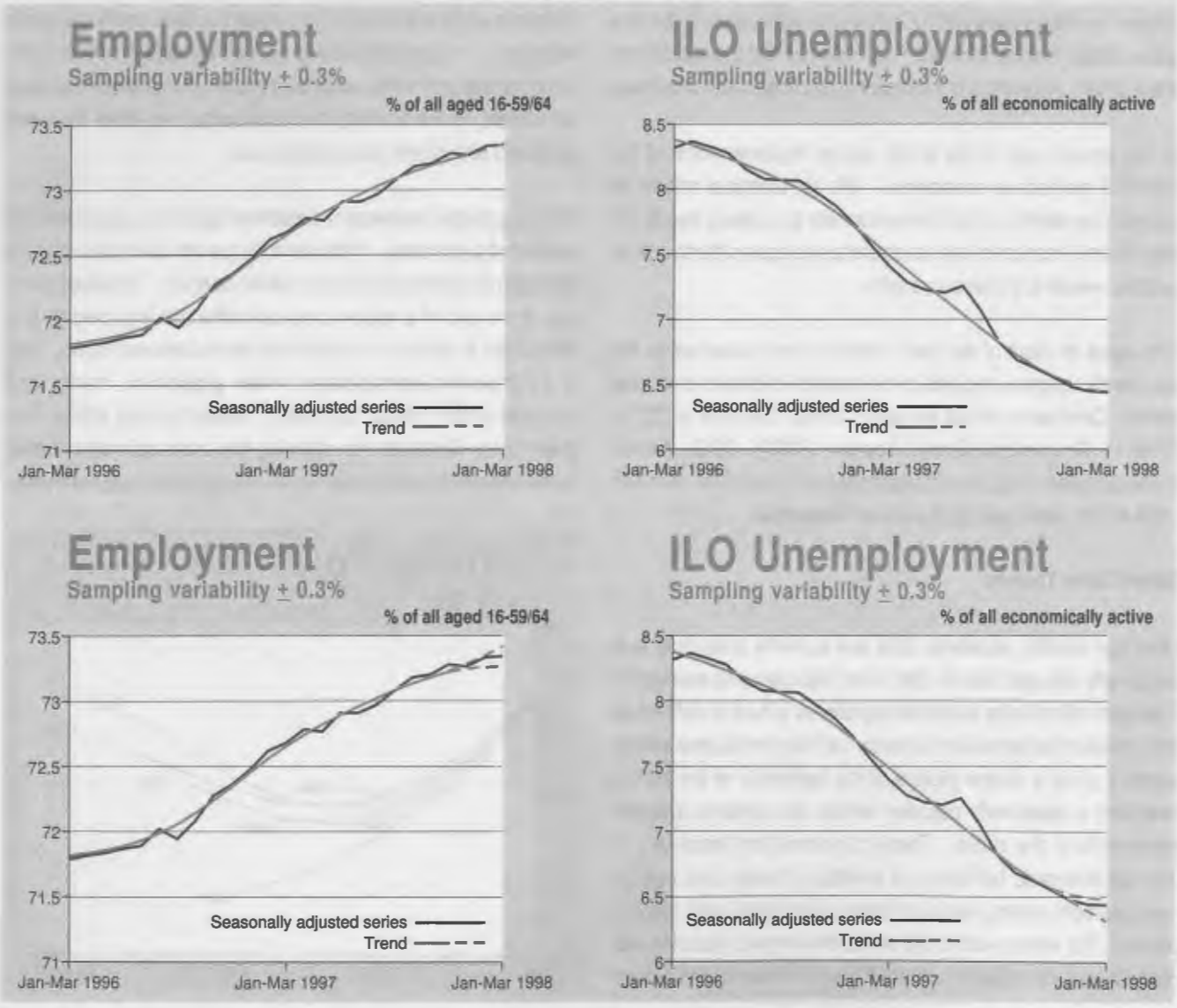


Following a research project, the ONS has defined a set of standards for estimating and presenting trends for monthly economic series published in First Releases. The key elements of these standards are as follows:

- two methods of estimating trends: one for relatively smooth series, and one for more irregular series. Both methods are based on applying moving averages to seasonally adjusted data and are later referred to as the 13 term method (for relatively smooth series) and the 23 term method (for more irregular series);
- trend estimates are always to be given less emphasis than seasonally adjusted series which will continue to be the headline figures. Trends should be presented in a graphical form on the front page of a First Release with numbers available on request;
- trend lines in graphs will be dotted for the most recent data points to indicate greater uncertainty of the estimates at the end of the series. A 'What-If' graph,giving an indication of the magnitude of this uncertainty, can optionally be shown in the Background Notes of a First Release.

Application of the standards to labour market statistics

The Labour Market Statistics First Release was the first to adopt the standard methods in the ONS. Trends are shown for employment and ILO unemployment rates on the front page of the release. What-If graphs are included in the Background Notes. The graphs from the front page of the Release are shown below. The seasonal adjusted series is shown as a thick line, while the trend is given less emphasis, presented as a thin line. The last month of the trend lines are dotted to represent greater uncertainty of the trend estimates at the ends of the series. Both these are relatively smooth and the trend estimation method appropriate for this type of series has been used.



The corresponding What-If graphs appearing in the Background Notes of the Release are shown below. Estimates of trends at the end of series are subject to revision as new data become available. The graphs give an indication of the likely extent of these revisions. They have been constructed by making statistical estimates of the range of values the next data point is likely to fall within. The resultant extended series have been used to calculate the corresponding likely range of revised trend estimates. This methodology is strictly limited in scope. The range does not take account of revisions which might arise from data revisions (there are no such revisions for the Labour Force Survey which is the source of employment and ILO unemployment data) or seasonal adjustment.

International practice

A survey of international practice was conducted as part of the short term trend estimation project. Questionnaire forms were sent to 23 national statistical institutes (NSIs) in late 1996 and 21 responses were received. Twelve of the 21 respondents currently produce trends. Of the 9 who do not produce trends, 4 are considering doing so. Reasons cited for not producing trends were lack of customer demand, lack of research resources and the difficulty in selecting an appropriate trend estimation method which is suitable for all users.

There are no universally accepted models for decomposing time series into seasonal, irregular and trend components and responses reflect that. The survey showed that several trend estimation procedures were used by NSIs: five used the trend calculated by X11/X11ARIMA (X11ARIMA is the standard computer software package for seasonally adjusting official statistics in the UK) as part of the seasonal adjustment process. Other methods included applying Henderson trends to seasonally adjusted series and using the trend output from the seasonal adjustment packages TRAMO-SEATS and BV4. Most NSI's were considering changing their current method.

Eleven of the 12 producers of trends published them. Most presented trends both graphically and as series of numbers in publications. In most cases, the graphs showed the trend as a solid line together with the seasonally adjusted series. The exceptions included a trend with the last few values shown as dots, the trend shown with successive revisions and the trend with the last point shown as missing. The Australian Bureau of Statistics also showed a What-If style graph.

A report based on the questionnaire responses from National Statistical Institutes in 21countries is available ('Trend Estimation Practices of National Statistical Institutes', Knowles,1997).

When should we produce trends?

The research project mentioned above concentrated on methods of estimation and presentation of trends; it did not attempt to assess which economic time series were suitable for presenting trends. In practice, it is a matter of judgment whether to present trends for a particular series in a First Release; decisions will be made on a case-by-case basis by the ONS business areas responsible for the Releases. This section provides some technical analyses to take into account.

The starting point is to review the list of evaluative criteria used in the research project. These criteria were originally chosen to enable different estimation procedures to be compared. The idea now, is to use the criteria to define thresholds, beyond which it would be wise to investigate further, before proceeding to publish trends. For example, in the project, speed of detection of turning points was compared for different trend estimation methods. This can now be restated as: if, on average, the trend estimated using the recommended method took more than four months to identify turning points for a particular series, then one might consider the trend to be less suitable for publication. The thresholds have been set by looking at the results of applying standard trend estimation methods to simulated series. Reader's views on their appropriateness are invited.

Applying the logic above, the following list of desirable characteristics has been drawn up:

- **speed of detection of turning points** - turning points should be detected, on average, in less than 4 months;
- **proportion of false turning points** - there should be no more than one false turning point (a turning point shown which subsequently gets revised away when more data becomes available) per year, on average (ie less than 9% of the time);
- **smoothness** - if the proportion of variation in the time series attributable to irregular movement as a proportion of variation due to trend is less than one then the seasonally adjusted series may be considered smooth enough already, with little scope for adding presentational value by showing trends;
- **minimal revisions** - no numerical guidance can be given, but the table later in this article provides the magnitudes of revisions at different lags;

- **bias** - revisions to trend estimates should not be biased (a t-test, corrected for first order serial correlation in the residuals is used for the table below - see the main project report or contact the author of this article for further details);

- **seasonally adjusted series published** - if seasonally adjusted series are not published for a particular series, then it is recommended that trend estimates are not either;

- **data revisions** - if source data for a series is subject to revision then trends will be revised when the underlying data is revised and will be less reliable. This might, but need not necessarily, mean that trends should not be presented. It does, however, mean that a What-If graph (an optional addition in the standards) could be considered misleading.

The trend estimation methods should be used to estimate the level of the trend and are less reliable for estimating changes in the trend. For series where there is a strong user demand for trend growth rates this is an important consideration.

Testing real economic time series against the criteria

In this section we test the criteria defined above against key series in ONS monthly economic First Releases. Results of the tests are presented in the table below, with those for particular attention highlighted in bold. Accompanying the table is a series of graphs showing recent data for each of the series with trends and seasonally adjusted series presented in the recommended way, as they would appear in a First Release.

It should be stressed that this testing is exploratory in nature and is not prescriptive in its conclusions. The period analysed for each series was short and all results should be treated with caution. For some series only a single turning point occurred during the period tested and so results relating to speed of detection of turning points are particularly problematic and should be given little weight. It should also be noted that while revisions were unbiased for each series over the whole test period, revisions were not always independent of phase of the economic cycle.

Comments on the results of the testing for each of the First Releases follow.

Labour Market Statistics

(Series tested: Employment; ILO Unemployment; Claimant Count; Average Earnings).

Trends are currently shown for Employment and ILO Unemployment rates and What-If graphs are shown in the Background Notes. The estimation method used is the standard one. The Labour Force Survey has only been quarterly since the end of 1991 and so the series is too short for testing.

It has been decided not to include trends for the claimant count series in the Release because the seasonally adjusted series is already very smooth. With the average earnings series, the key technical issue is the user focus on growth rates rather than trend levels.

UK Trade

(Series tested: Balance of Trade; Balance on Trade in Goods; Value of Exports of Goods; Value of Imports of Goods; Volume of Exports of Goods; Volume of Imports of Goods; Volume of Non-EU Exports of Goods; Volume of Non-EU Imports of Goods.)

Trends are currently shown in the First Release for each of the series listed. Trends are currently estimated using a non-standard method; applying a 13 term Henderson trend to the seasonally adjusted data. It has not been possible to test the headline overseas trade in goods and services balance because monthly data are only available from the beginning of 1993.

A notable result of the testing is that trend estimates lead to false turning points 11% of the time for the Balance of Trade in Goods series. This is because the series is volatile and contains a disproportionately high number of sudden, sustained shifts in level. A trend estimate for the most recent month is, on average, likely to be £100m different to the final estimate when all future values affecting its estimation become known. This estimate of the likely magnitude of revisions takes no account of data revisions or indeed revisions caused by a reassessment of the seasonal adjustments.

Index of Production

(Series tested: Index of Production; Index of Manufacturing.)

Trends for the Index of Production and the Index of Manufacturing are not currently shown in the First Release, although they form part of the oral briefing to the Press on their day of release. The method of estimation currently used is the non-standard one of applying a Kalman filter with fixed interval smoothing to a local linear trend model.

The 23 term method appeared to perform well for the Index of Production series. The Index of Manufacturing is a less volatile series, making the 13 term method the appropriate standard one to apply, although 7 false turning points over 6 years 4 months resulted. For both these series, a perceived user demand for monthly trend growth rates, which the standard method is not primarily designed to provide, is an issue that needs consideration.

Retail Sales

Trends are not currently presented in the First Release. There was only a single turning point in the period tested and it took 5 months for the estimation method to pick it up. While this is slow, it is insufficient evidence to draw the conclusion that the estimation method is inappropriate for the series.

Travel and Tourism

(Series tested: Overseas Residents' Visits to UK; UK Residents' Visits Abroad.)

Trends are not currently presented in the First Release. The 23-term method appeared to perform well; revisions were higher for UK residents' visits abroad, reflecting the greater volatility of the series.

Engineering Turnover

Trends are not currently presented in the First Release. The trend estimation method performed fairly well for this series.

Motor Vehicle Production

Trends are not currently presented in the First Release. The trend estimates performed well for this series. The underlying data for this series only gets revised by a small amount after it is first published; a What-If graph in the Background Notes of the Release is therefore particularly suitable.

Machine Tools

Trends are not currently presented in the First Release. The trend estimation method performed fairly well for this series.

Producer Prices

Trends are not currently presented in the First Release. This series is very smooth; the trend is little different from the seasonally adjusted series. The main user interest is also in growth rates rather than the level of the series. The technical evidence therefore suggests that trends would add little value to this First Release.

Public Sector Net Cash Requirement

Neither seasonally adjusted nor trends series are currently presented for the public sector net cash requirement (previously known as the PSBR) in the Public Sector Finances First Release. It is not proposed that trends should be presented for this series.

Retail Prices Index

Neither seasonally adjusted series nor trends are currently presented in the First Release. It is not proposed that trends should be presented for this series.

Conclusion

Trends are a useful accompaniment to seasonally adjusted data in the presentation of monthly economic time series. New ONS standards for estimating and presenting trends have been implemented in the Labour Market Statistics First Releases. This article has shown that there are other First Releases in which the methods could be implemented.

Research project

The Office for National Statistics has been producing and, for some series, publishing short-term trend estimates for some key economic time series for some years. However, no common standards existed for estimating and presenting these trends. The Times Series Analysis Branch in the ONS Methods and Quality Division therefore undertook a research project with the aim of evaluating different estimation methods. The project team assessed a number of methods using a set of criteria, which were agreed with interested parties. This section summarises the project and its findings. A full report of the project (An Investigation of Trend Estimation Methods, Knowles and Kenny, 1997) is available on request (Tel: 0171 - 533 6236).

The trend estimation methods evaluated in the project were mainly based on the non-parametric Henderson moving average family. This approach is consistent with the standard method of seasonal adjustment adopted by the Government Statistical Service, namely the X11ARIMA program. The X11ARIMA program produces a trend as one of the outputs of the time series decomposition it performs for seasonal adjustment. However, this trend is not normally available for key economic time series because seasonal adjustment is done at component level. The trend output of X11ARIMA is, in any case, the most suitable trend for seasonal adjustment rather than the best trend estimate for use in its own right. For both these reasons, the trend output of X11ARIMA was considered to be viable.

The project considered 13-term, 17-term and 23-term Henderson filters with and without ARIMA forecasting and with different levels of outlier identification. Model based Kalman filter methods were also considered, but these offered no improvement, in terms of the defined assessment criteria, over the equivalent Henderson methods and so were rejected. In all cases, the methods were applied to the seasonally adjusted series.

As mentioned above, the criteria for assessing the performance of the trend estimation methods were devised in consultation with interested parties. There were many different views, but the main desirable characteristics, which emerged, were that a trend should identify turning points at the ends of series accurately and quickly and that the number of false turning points identified should be kept at a minimum. The choice of estimation methods generally involves a trade off between these two. Also considered important were that: trends should be relatively smooth with few unwanted ripples; revisions should be minimal; and that revisions generated should be unbiased.

The main empirical research involved producing trends using nine variations of Henderson filters for four 'real' monthly data series: male claimant count; volume of imports of goods; retail sales index; and the change in the level of monetary aggregate, M4. The methods were tested over an 8 year period for each series, using 14 years worth of data. In addition, testing was conducted using simulated series.

The main conclusions of the of the study were that:

- extending the series using ARIMA modelling improved speed of detection of turning points and reduced the average size of revisions;
- the pronounced 9-10 month cycle introduced by applying a 13-term Henderson trend to seasonally adjusted data was significantly reduced when two levels of outlier modification were used;
- the 23-term Henderson did not suffer from the 9-10 month cycle problem and so no outlier modifications were necessary;
- the shorter the moving average used, the quicker the turning points were identified by the method;
- the longer the moving average used, the smoother the final trend.
- the shorter moving average methods identified turning points considerably faster than the 23-term, although the latter identified fewer false turning points.
- taking all evidence into account, the performance of the modified 13-term and the modified 17-term methods were very similar;
- for series for which the irregulars were small, the 13-term ARIMA(0 2 1)(0 0 1) method was twice as quick at identifying true turning points than the 23-term, with only a small number of false turning points identified;
- for highly irregular series, the 13-term ARIMA (0 2 1)(0 1 1) method was twice as quick at identifying true turning points, but picked up 3 times as many false turning points as the 23-term.

ONS standard methods

The standards, which the ONS has adopted as a result of the Short-Term Trends Project, are listed below.

For monthly economic time series, the ONS standard method of estimation for short-term trends is as follows:

For series where the movement attributable to the irregular part of the series as a ratio of movement attributable to the trend (I/C ratio) is less than 1.8, it is recommended that the 13-term Henderson moving average with two stages of outlier correction and an ARIMA (0 2 1)(0 0 1) model is applied to the seasonally adjusted series. If a more appropriate ARIMA model (with more parameters) can be found, it is recommended that it be used, providing it has two differences.

For series with an I/C ratio of more than 1.8, it is recommended that the 23-term Henderson moving average be applied to the seasonally adjusted series.

The standard presentation of short-term trends in ONS First Releases (subject to review in the light of experience) is as follows:

Trend estimates should not be quoted as headline figures; they should always be given less emphasis than seasonally adjusted series. They should be presented in a graphical form on the front page of a First Release and numbers should be made available on request.

The graph on the front page should show the last 15 months seasonally adjusted data and the trend. The trend should be represented by a solid line with a dashed end to reflect the relative uncertainty of the trend at the end of the series. The length of the dashed part of the line should be determined by the following:

For a Months for Cyclical Dominance (MCD - the number of months, on average before movements in the trend dominate irregular movements in the series) of:

- *1 - use a dashed line for the most recent month;*
- *2 - use a dashed line for the most recent two months;*
- *3+ - use a dashed line for the most recent three months.*

All commentary should be written in the past tense.

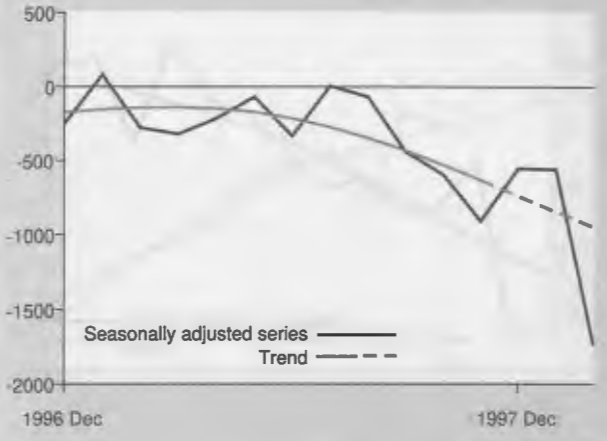
As an optional addition, 'What-If' graphs can be shown in the Background Notes of First Release. These give a clearer indication of the degree of uncertainty of trend estimates at the end of the series.

Testing time series against criteria for the appropriateness of producing trends

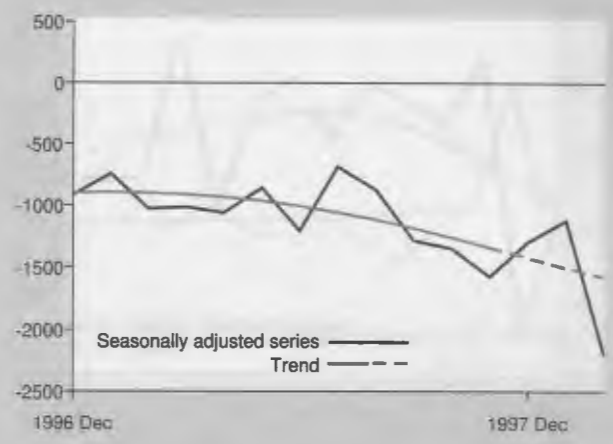
FIRST RELEASE SERIES	Months for cyclical dominance (MCD)	Smoothness (I/C Ratio)	Test[1] Length of series (months)	Average number of months to detect a turning point	Proportion of false turning points (%)	Average absolute difference between the final trend estimate and the following (units data consistent with graphs) 1st estimate	2nd estimate	3rd estimate	4th estimate	Biased?	Does the source data get revised?	Seasonally adjusted series published?
Labour Market Statistics												
ILO Employment	1	**0.48**	0	***	***	***	***	***	***	***	No	Yes
ILO Unemployment	1	**0.84**	0	***	***	***	***	***	***	***	No	Yes
Claimant Count	1	**0.19**	96	1.0	0	9.8	5.8	4.6	4.3	No	No	Yes
Average earnings index	1	**0.38**	96	0.0	0	0.16	0.1	0.07	0.05	No	YES	Yes
UK Trade												
Balance of trade	12	6.57	0	***	***	***	***	***	***	***	Yes	Yes
Balance of trade in goods	8	4.71	96	3.0	**11**	£108m	£73m	£44m	£23m	No	Yes	Yes
Value of Exports of goods	3	2.26	96	3.7	5	£88m	£56m	£32m	£18m	No	Yes	Yes
Value of Imports of goods	3	1.62	96	3.7	2	£109m	£72m	£42	£21	No	Yes	Yes
Volume of Exports of goods	4	2.53	96	**4.0**	6	0.64	0.43	0.27	0.16	No	Yes	Yes
Volume of imports of goods	3	2.07	96	**4.0**	3	0.72	0.48	0.27	0.14	No	Yes	Yes
Volume of Non-EU exports of goods	5	2.81	53	**5.0**	2	0.83	0.58	0.37	0.22	No	Yes	Yes
Volume of Non-EU imports of goods	4	2.06	53	3.0	0	1.37	0.88	0.50	0.22	No	Yes	Yes
Index of Production												
Index of Production	3	2.04	75	**4.0**	3	0.23	0.15	0.09	0.05	No	Yes	Yes
Index of Manufacturing	3	1.54	75	2.0	**9**	0.27	0.17	0.1	0.07	No	Yes	Yes
Retail Sales	3	1.59	75	5.0	1	0.29	0.2	0.13	0.09	No	Yes	Yes
Travel and Tourism												
Overseas residents' visits to UK	6	2.74	72	**4.3**	4	23	17	10	6	No	Yes	Yes
UK residents' visits abroad	5	3.34	72	**4.3**	3	48	31	18	9	No	Yes	Yes
Engineering Turnover	4	2.18	75	**4.2**	2	0.8	0.52	0.3	0.15	No	Yes	Yes
Motor Vehicle Production												
Total Car Production	5	2.88	96	3.7	7	2.5	1.7	1	0.5	No	Small	Yes
Machine Tools	5	3.21	75	3.7	7	1.2	0.81	0.5	0.27	No	Yes	Yes
Producer Prices	1	**0.45**	96	0.0	0	0.16	0.1	0.06	0.05	No	Yes	Yes
Retail Prices Index	***	***	0	***	***	***	***	***	***	***	No	No
Public Sector Finances												
Public Sectot Net Cash Requirement	***	***	0	***	***	***	***	***	***	***	No	No

1 Test period is in addition to 6 years of data

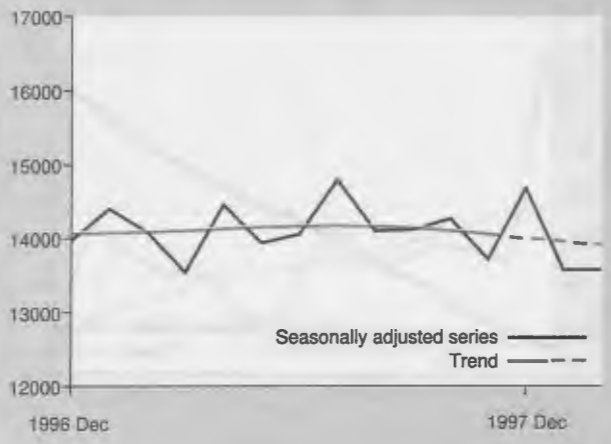
Balance of Trade (£m)



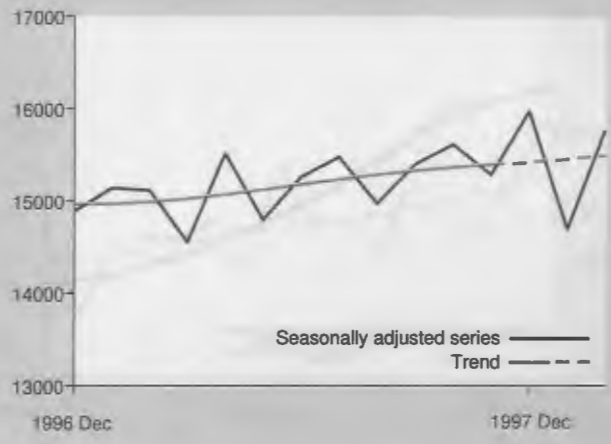
Balance of Trade in Goods (£m)



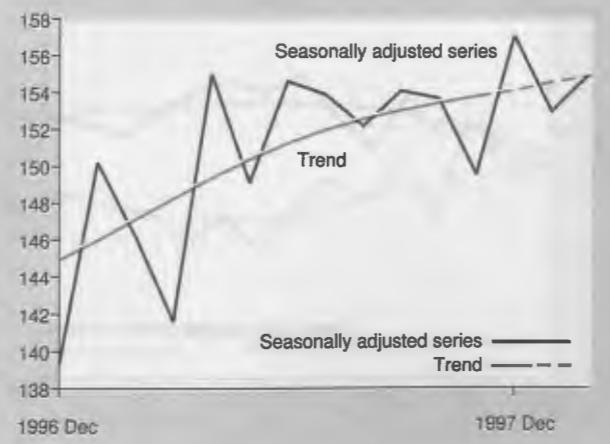
Value of Exports of Goods (£m)



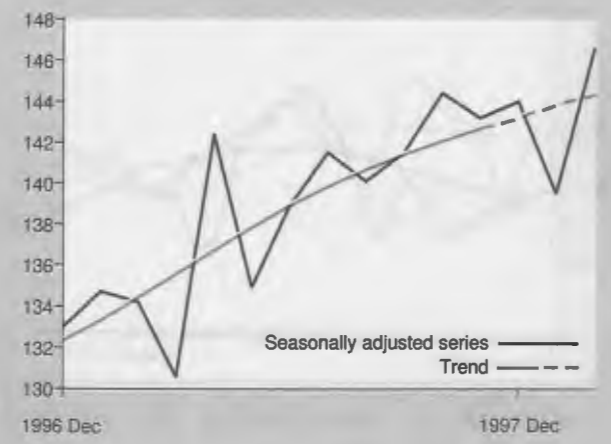
Value of Imports of Goods (£m)



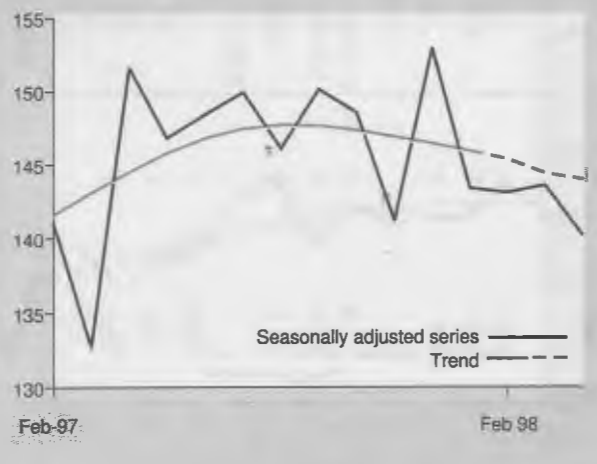
Volume of Export of Goods (1990=100)



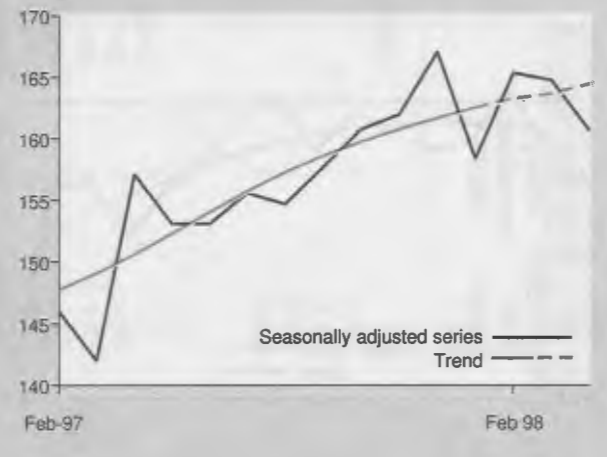
Volume of Import of Goods (1990=100)



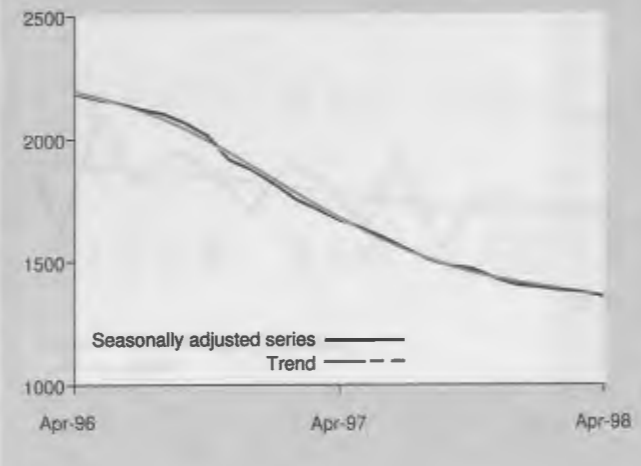
Volume of Non-EU Exports of Goods (1990=100)



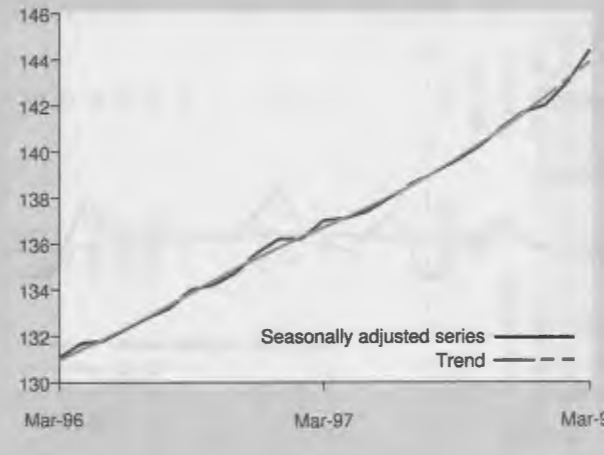
Volume of Non-EU Imports of Goods (1990=100)



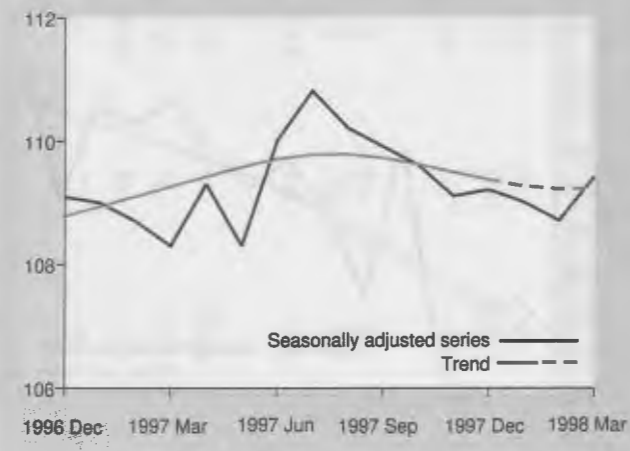
Claimant Count (000s)



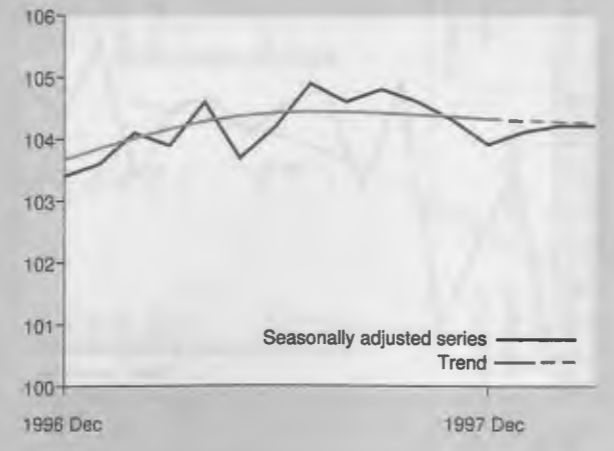
GB headline average earnings growth (1990=100)



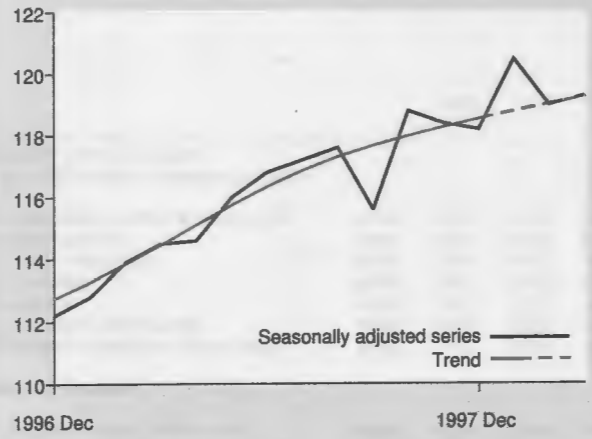
Index of Production (1990=100)



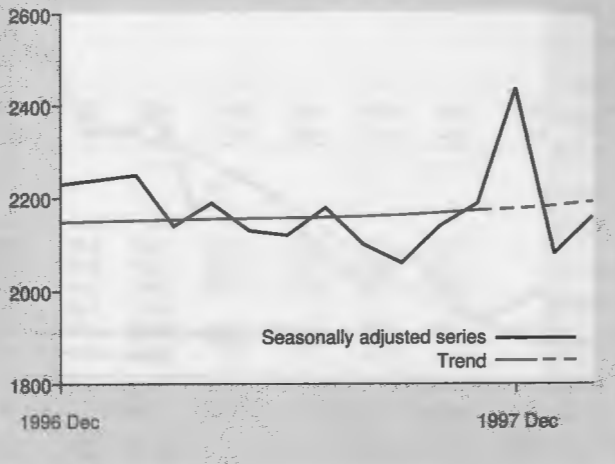
Index of Manufacturing (1990=100)



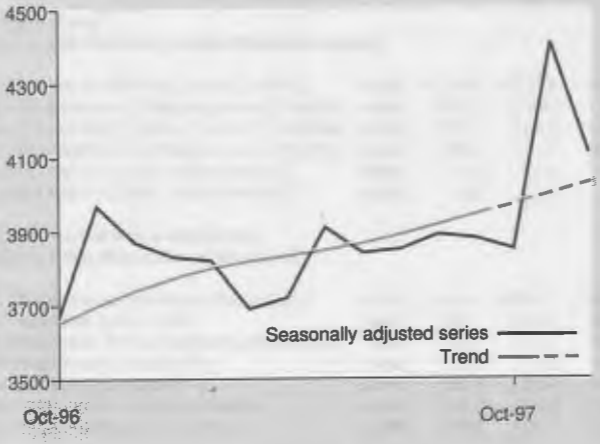
Volume of Retail Sales (1990=100)



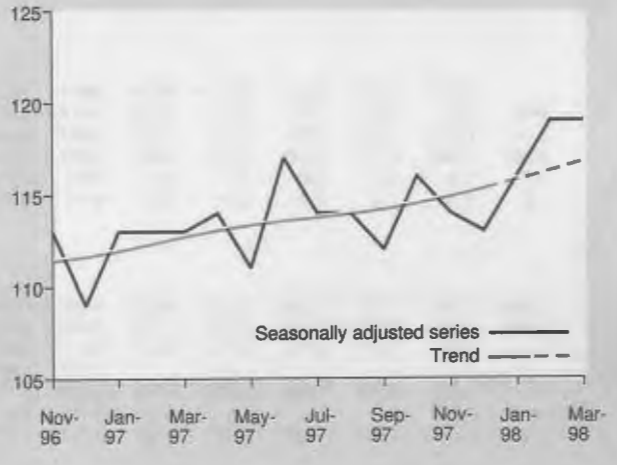
Overseas resident's visits to the UK (000s)



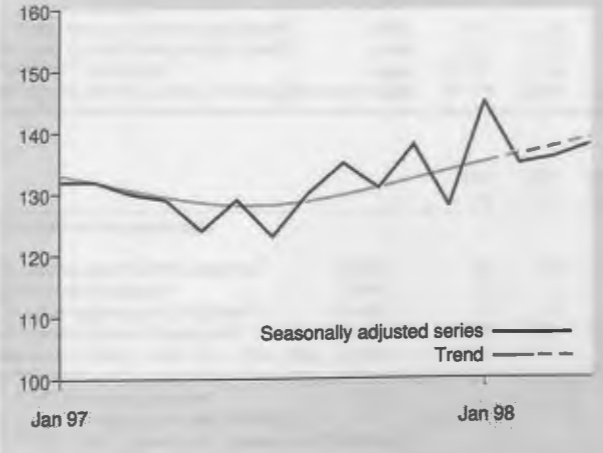
UK residents's visits abroad (000s)



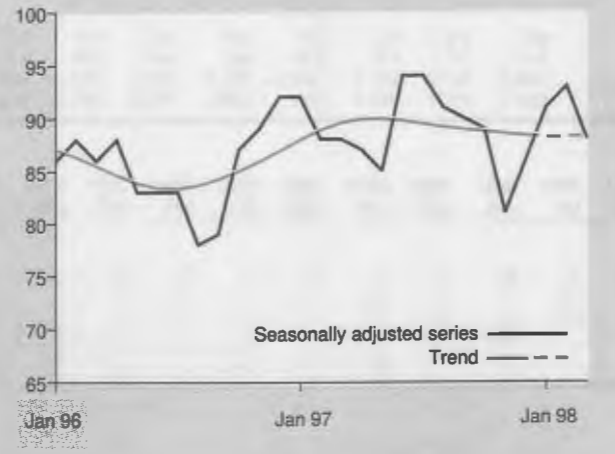
Engineering turnover at constant prices (1990=100)



Total car production (1990=100)



Machine tools (1990=100) Total turnover at constant prices)



Producer prices (1990=100)