Economic Trends

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Contents

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.

An article on international economic indicators appears monthly and an article on regional economic indicators appears every March, June, September and December. Occasional articles comment on and analyse economic statistics and introduce new series, new analyses and new methodology.

Quarterly articles on the national accounts and the balance of payments appear in a separate supplement to *Economic Trends* entitled *UK Economic Accounts* which is published every January, April, July and October.

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.

The section on cyclical indicators shows the movements of four composite indices over 20 years against a reference chronology of business cycles. The indices group together indicators which lead, coincide with and lag behind the business cycle, and a short note describes their most recent movements. The March, June, September and December issues carry further graphs showing separately the movements in all of the 27 indicators which make up the composite indices.

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 19 March 1996.

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

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

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

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

6. 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.

7. 'Billion' denotes one thousand million.

8. There is no single correct definition of *money*. Consequently, several definitions of money stock are widely used:

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

M2 comprises notes and coin in circulation with the public *plus* sterling retail deposits held by the UK private sector with UK banks and building societies.

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.

9. 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 T87
   † 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 Michael Byrne, Technical Editor, ONS, Room 131E/1, Government Buildings, Great George Street, London, SW1P 3AQ.

Marketing and Customer Service Branch
Office for National Statistics

19 March 1996

ONS Databank

The data in this publication can be obtained in computer readable form via the ONS Databank service which provides macro- economic time series data on disc. For more details about the availability of this and other datasets, prices or to place your order please telephone, write or fax: ONS Sales Desk, Room 131/4, Government Buildings, Great George Street, London, SW1P 3AQ. Telephone: 0171 270 6081 or fax 0171 270 4986. The ONS does not offer direct on-line access for these data but a list of host bureaux offering such a facility is available on request from the ONS.

A vision of the Office for National Statistics

This issue of Economic Trends looks just a little different from the last. For it carries the name and logo not of the Central Statistical Office, but of the Office for National Statistics. This new body was launched at the end of March when the CSO joined with the Office of Population Censuses and Surveys in a merger that marks the further centralisation of official statistics in the United Kingdom.

Dr Tim Holt, Director of the CSO, Registrar General and Head of the Government Statistical Service, explains the background to the merger and what it means for those who use official data.

The coming together of the Central Statistical Office and the Office of Population Censuses and Surveys to form the Office for National Statistics is a milestone for official statistics in the United Kingdom.

For the first time in this country, a single statistical agency spans economic and social statistics, including the Census, population and health. And an important objective of the new office is to meet a widely perceived need for greater coherence and compatibility in government statistics, for improved presentation, and for easier public access.

The newly created Office for National Statistics - ONS for short - is both an executive agency and a government department, responsible to the Chancellor of the Exchequer. But it will draw on data sources across government, and it will serve not only government but the public at large.

Among its most important government clients are HM Treasury, the Department of Trade & Industry, the Department of Health and the Department for Education & Employment. Outside government, its client groups include the City, business, academia, local authorities and the National Health Service. But this is hardly new, for these areas of interest have been served in the past by the two organisations that now come together to form the ONS.

WHAT'S NEW

So what will the Office for National Statistics do that CSO and OPCS have not done before?

In utilising government statistics, one current shortcoming is an inability to bring together data on a given subject in a coherent and meaningful way. For example, a data user may wish to focus on statistics about children. A great deal of information is readily available, but it is not so easy to make it compatible. Children may be divided into different age groups for different administrative purposes, while geographical definitions and time periods may vary too.

Of course government statisticians have had some success in dealing with these problems. In 1994, for example, the CSO published Focus on Children, which brought together in a single, user-friendly volume a mass of data on the younger generation. This was followed last year by Focus on Women, which was widely acclaimed by social commentators. Last year too, CSO pulled together a vast amount of

material on a single geographical region and published a pilot volume - Focus on the East Midlands.

But what I have in mind goes much further. For, in terms of output, the objective is user-determined output on user-determined issues. In other words the output will be issue-led and not source-led. It will be user-dominated and not product-dominated. A major ONS objective will be to create the mechanisms to make this possible.

The Focus publications are costly to produce in terms of staff time and other resources, and they appear only a couple of times a year. What is planned is a constant process.

BUILDING ON SUCCESS

But let me assure our customers - and indeed all those who over the years have helped shape the work and ethics of both OPCS and CSO - that we shall continue to provide the service you have come to expect. Those who depend on our economic data need not fear that the merger heralds some kind of down-grading. Let it be stated loud and clear that our aim is to build on success.

The ONS also is responsible for the system for the registration of births, marriages and deaths in England and Wales. This service, together with the maintenance and administration of the National Health Service Central Register, is a crucial part of our national life. And registration activities fit neatly with the statistical work of the office.

Traditionally, both CSO and OPCS - the former was founded 55 years ago during World War II, while the latter can trace its history back to 1837 - have worked in close cooperation with other parts of the Government Statistical Service (GSS). That will continue. Indeed, in working to make statistics more coherent and accessible, ONS statisticians will be crucially dependent upon the work of colleagues in other departments right across government.

My vision for ONS is that it will be recognised as a key supplier of authoritative, timely and high quality information and services, and that it will be recognised as an independent organisation that inspires confidence and trust.

Above all, ONS will be an open organisation that focuses on the needs of its customers. I would be delighted to hear from readers of Economic Trends how best we can serve your needs.

ECONOMIC UPDATE - MARCH 1996

(includes data up to 20 March 1996)

Overview

Latest estimates continue to show subdued output growth into 1996. Domestic demand , as shown by retail sales and personal borrowing, also reveals moderate demand. External demand also appears weak as the volume of exports are falling. However imports are falling faster leading to a positive contribution to growth from net exports. Latest employment and unemployment estimates are consistent with subdued growth; in particular the sharp fall in manufacturing employees - consistent with the slowdown in manufacturing output growth. Underlying cost pressure also remains weak with falling input prices and steady growth in underlying earnings.

Activity

The CSO's **coincident cyclical indicator** fell between November and January. Partial information suggest that the **shorter leading index** and the **longer leading index** have levelled off recently.

Output and expectations

2. The **index of industrial production**, seasonally adjusted, was unchanged between the three months to January compared with the previous three months. Within this, **manufacturing output** fell by 0.6%, **mining and quarrying output, including oil and gas** extraction rose by 1.2% and output of the **electricity, gas and water supply** industries rose by 3.9%. As chart 1 shows, the fall in manufacturing over the last three months was broadly spread across categories.

Chart 1

Output of the manufacturing industries: January 1996
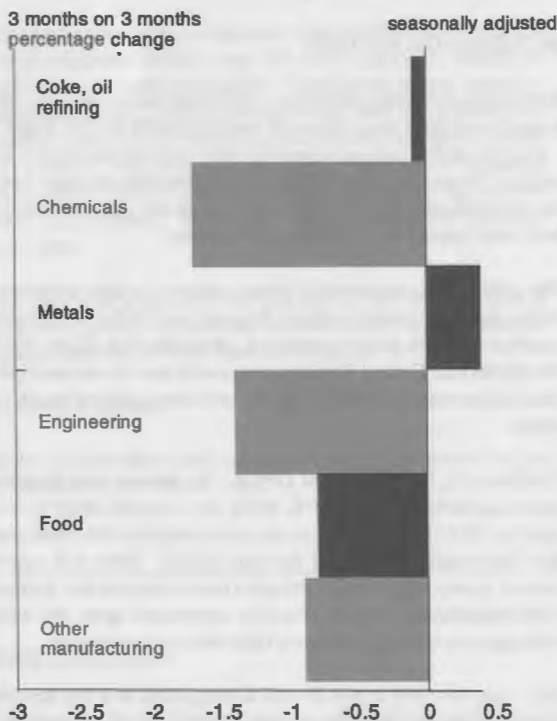
3. The **CBI Monthly Trends Enquiry in manufacturing** revealed that the **output expectations** balance in the next 4 months, seasonally adjusted, fell from 15% in January to 12% in February.

4. The volume of **output in the construction industry** in Great Britain, seasonally adjusted, rose by 1.0 % between 1995 Q3 and 1995 Q4. The volume of new **construction orders** in Great Britain, seasonally adjusted, rose by 16% in the three months to January compared with the three months to October 1995.

Indicators of domestic demand

5. In the three months to February, the **volume of retail sales** was 0.7% higher than in the previous three months and 1.9% up on a year earlier. Chart 2 shows latest movements in retail sales.

Chart 2
Volume of retail sales
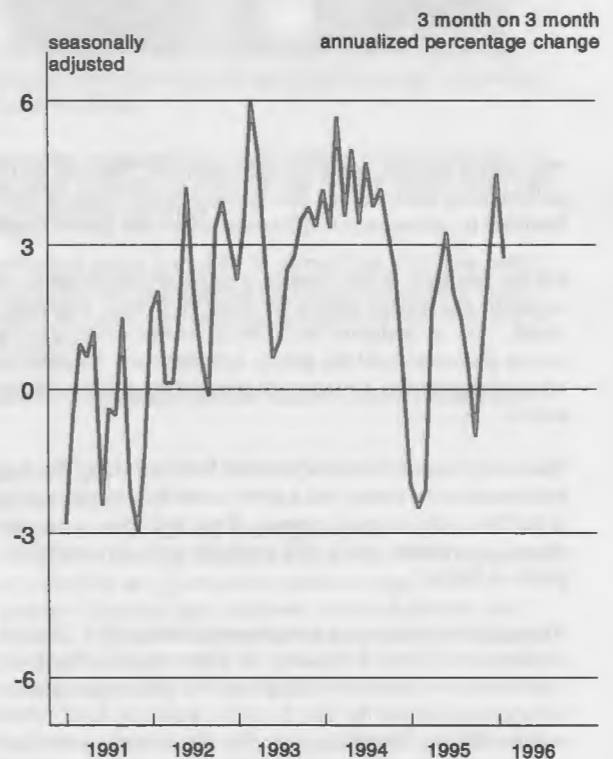
6. **Total net personal borrowing**, seasonally adjusted, rose from £5.7 billion in the three months to October to £5.8 billion in the three months to January. Over this period, **net borrowing secured on dwellings**, seasonally adjusted, rose from £3.6 billion to £3.8 billion while **net consumer credit**, seasonally adjusted, remained around £2.0 billion.

Prices and wages

7. Producer price data continued to show mixed signs of inflationary pressure. The three month on three month annualized percentage growth in the **output price index for manufactured products** (home sales), seasonally adjusted and excluding food, beverages, tobacco and petroleum, fell from 2.1% in January to 1.7% in February. Over the same period the annualized fall in **input prices** (all manufacturing), seasonally adjusted, fell from 0.6% to 0.8%. Chart 3 shows how the moderation exchange rate movements has partly resulted in slowing growth in input prices.

8. **Expectations of price increases** remained subdued in February. The CBI Monthly Trends Enquiry for manufacturing edged,

Chart 3
Producer prices and the sterling effective exchange rate

seasonally adjusted

3 month on 3 month annualized percentage change

| Excluding food, beverages, tobacco and petroleum

Chart 4
UK workforce in employment

seasonally adjusted   millions

Chart 5
Manufacturing - productivity and unit wage costs

seasonally adjusted

3 months on 3 months a year ago

seasonally adjusted by the CSO, higher to a balance of 10% expecting to raise prices in the next four months.

9. The annual rise in underlying **whole economy average earnings** for Great Britain remained at 3¼% in January - unchanged since July 1995. The rate of increase for sectors remained unchanged at 2¾ % for services, 3¾% for production and 4% for manufacturing.

Labour market and productivity

10. **UK claimant unemployment**, seasonally adjusted, rose in February by 6,800 to 2.214 million, or 7.9% of the workforce. In the three months to February the average monthly fall was 10,400 compared with an average fall of 15,800 in the three months to November.

11. The **UK workforce in employment**, seasonally adjusted, is estimated to have risen by 68,000 between 1995 Q3 and 1995 Q4 to 25.771 million. The main changes were in the service industries, up 52,000 and manufacturing industries up 27,000. Employment movements are shown in chart 4.

12. However latest information shows that **GB employment in manufacturing industries** fell by 27,000 between December 1995 and January 1996, but rose by 6,000 in the year to January 1996. The fall in January confirms the weakness in manufacturing shown by output throughout 1995. Employment in the rest of the production industries fell by 5,000 between December 1995 and January 1996, and by 18,000 in the year to January 1996.

13. In the three months to January, **productivity in manufacturing** was 0.3 % up on the three months to January 1995. **Unit wage costs in manufacturing** rose by 4.2 % over the same period. As chart 5 shows, both the fall in productivity and the increases unit wage costs slackened in January.
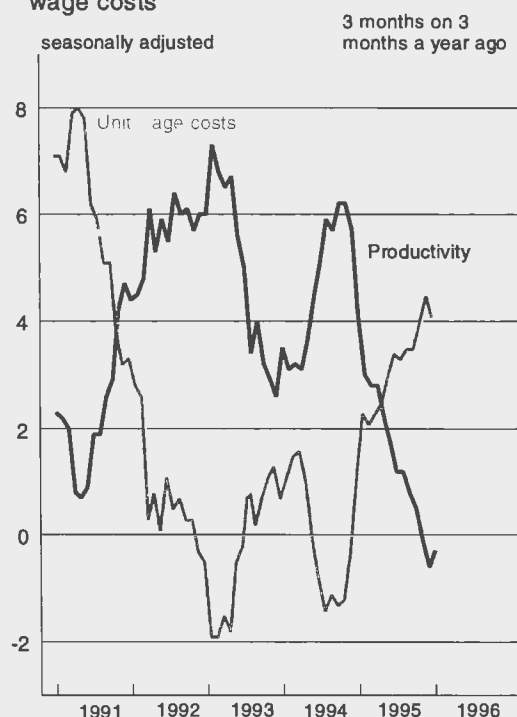
Monetary indicators

14. The annual growth of **narrow money (M0)**, seasonally adjusted, rose from 5.2% in January to 6.0% in February, outside the Government's monitoring range of 0-4 %. However, **annual growth of broad money (M4)**, seasonally adjusted, provisionally fell from 10.7% in January to 9.9% in February, but remained outside the monitoring range of 3-9 %.

3

Government finances

15. In February the **public sector borrowing requirement (PSBR)** was £3.0 billion. For the first eleven months of 1995-96 the PSBR was £22.6 billion compared with £25.8 billion in the same period last year. The budget forecast for this financial year is £29 billion. Excluding privatisation proceeds the figures were £25.0 billion and £30.4 billion respectively. Chart 6 shows the latest estimate of central government receipts and outlays.

Chart 6

Central government borrowing

11 month (April - Feb) percentage change on the equivalent 11 month a year earlier

Chart 7

Volume of exports and imports: December 1995

3 months on 3 months percentage change   seasonally adjusted
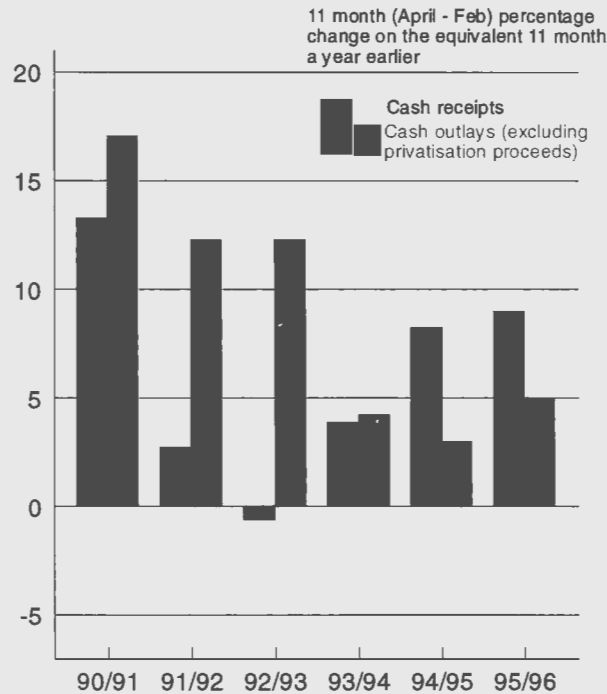
Balance of payments

16. The deficit on the **balance of UK visible trade** fell from £1.1 billion in the three months to September to £0.6 billion in the three months to December. Over this period the **volume of total exports, excluding oil and erratics**, fell by 1.5%. On the same basis **imports** fell by 2.0%. The latest estimate of trend, which is difficult to judge given the erratic nature of trade over the last few months, suggest that the whole world visible deficit is narrowing. Chart 7 shows the breakdown of latest movements in imports and exports.

17. More timely data on **trade with non-EC countries** shows that the deficit narrowed from £1.1 billion in the three months to October to £0.9 billion in the three months to February. In the three months to February, **export volumes, excluding oil and erratics** fell by 3.7% compared with the previous three months. On the same basis **imports** fell by 4.4%.

Forecast for the UK Economy
A comparison of independent forecasts, March 1996.

The tables below are extracted from HM Treasury's "FORECASTS FOR THE UK ECONOMY" and summarise the average and range of independent forecasts for 1996 and 1997, updated monthly.

	Independent Forecasts for 1996		
	Average	Lowest	Highest
GDP growth (per cent)	2.3	1.7	3.3
Inflation rate (Q4) - RPI - RPI excl MIPS	2.5 2.7	1.3 2.0	3.4 3.2
Unemployment (Q4, mn)	2.12	1.97	2.35
Current Account (£bn)	-4.9	-11.4	6.2
PSBR (1996-97, £bn)	24.7	19.3	28.4

	Independent Forecasts for 1997		
	Average	Lowest	Highest
GDP growth (per cent)	3.0	2.0	3.9
Inflation rate (Q4) - RPI - RPI excl MIPS	3.4 3.0	1.9 1.8	5.1 4.2
Unemployment (Q4, mn)	1.95	1.56	2.40
Current Account (£bn)	-6.4	-14.0	7.1
PSBR (1997-98, £bn)	20.4	13.0	30.7

NOTE: "FORECASTS FOR THE UK ECONOMY" gives more detailed forecasts, covering 24 variables and is published monthly by HM Treasury, available on annual subscription, price £75,. Subscription enquiries should be addressed to Miss Jehal, Publishing Unit, Room 53a, HM Treasury, Parliament Street, London SW1P 3AG (0171 270 5607).

INTERNATIONAL ECONOMIC INDICATORS

(includes data up to 20 March 1996)

INTRODUCTION

The series presented here are taken from the Organisation of Economic Co-operation and Development's (OECD) Main Economic Indicators, except for the United Kingdom where several of the series are those most recently published. The series shown are for each of the G7 economies (United Kingdom, Germany, France, Italy, United States, Japan and Canada) and for the European Communities (EC) and OECD countries in aggregate. As data on unified Germany becomes more readily available it is the intention of this article to commence the replacement of data referring to Western Germany.

2. The length and periodicity of the series have been chosen to show their movement over a number of years as well as the recent past. There is no attempt here to make cross country comparisons across cycles. Further, because the length and timing of these cycles varies across countries, comparisons of indicators over the same period should be treated with caution.

COMMENTARY

3. Latest estimates of **gross domestic product (GDP) at constant market prices** show that the United Kingdom economy grew, on a quarterly basis, from 0.4 per cent in 1995 Q3 to 0.5 per cent in 1995 Q4. In the same period, however, the French economy contracted by 0.3 per cent following a slight rise of 0.1 per cent in the previous quarter. A slowdown was also noticeable in Canada, where despite some revisions downwards to previous quarters the rate still fell from 0.4 per cent to 0.2 per cent.

4. **Consumer price inflation** fell across all the G7 economies reporting data in January 1996. The largest fall occurred in Japan where deflation, which predominated throughout most of 1995, reached 0.4 per cent. In France, inflation fell from 2.1 per cent to 2.0 per cent, while in the United States it fell back from 2.9 per cent to 2.7 per cent. In Canada the rate declined for the third successive month to 1.5 per cent falling by 0.9 percentage points since October 1995.

5. **Standardised unemployment rates** (ILO based) rose in January 1996 from 8.6 per cent to 8.4 per cent. Elsewhere, rises were recorded in France (11.8 per cent), the United States (5.7 per cent) and Canada (9.5 per cent).

1 Gross domestic product at constant market prices: index numbers

1990 = 100

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan[2]	Canada	Major 7	OECD
	FNAO	GABI	GABH	GABJ	GAEK	GAEH	GAEI	GAEG	GAEO	GAEJ
1980	76.8	79.9	79.2	80.3	79.0	77.1	66.8	75.1	75.9	76.2
1985	84.9	84.7	85.4	86.1	85.1	87.4	80.3	86.6	85.4	85.5
1986	88.6	86.7	87.6	88.6	87.5	89.9	82.1	89.5	87.8	87.8
1987	92.8	87.9	89.5	91.4	90.1	92.7	85.5	93.2	90.6	90.6
1988	97.5	91.1	93.6	95.1	93.8	96.4	90.8	97.8	94.7	94.5
1989	99.6	94.4	97.6	97.9	97.1	98.8	95.2	100.2	97.7	97.5
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	98.0	104.6	100.8	101.2	103.0	99.4	104.0	98.2	101.5	101.0
1992	97.5	105.8	102.1	101.9	104.0	101.7	105.1	98.8	103.1	102.5
1993	99.7	103.8	100.6	100.7	103.4	104.8	105.2	101.0	104.5	103.8
1994	103.6	107.4	103.5	102.9	106.4	109.1	105.7	105.5	107.7	106.8
1993 Q1	98.6	104.0	100.4	100.9	103.0	103.6	105.1	99.8	103.7	103.7
Q2	99.2	104.4	100.5	101.0	103.2	104.2	105.2	100.8	104.2	104.1
Q3	100.2	105.5	100.7	100.0	103.6	104.9	105.4	101.2	104.6	104.6
Q4	100.9	105.2	100.9	101.1	103.9	106.5	104.9	102.1	105.4	105.3
1994 Q1	102.0	105.8	101.6	101.3	104.8	107.4	105.3	103.2	106.3	106.0
Q2	103.3	106.8	103.1	102.4	106.0	108.5	105.8	105.1	107.3	107.1
Q3	104.3	107.9	104.2	104.0	107.0	109.6	106.5	106.6	108.4	108.0
Q4	105.0	108.7	105.2	104.0	107.8	111.0	105.3	107.8	109.0	108.7
1995 Q1	105.6	..	105.9	105.6	108.6	111.7	105.5	108.1	109.6	109.2
Q2	106.1	..	106.1	105.5	109.1	112.1	106.1	107.8	110.1	109.5
Q3	106.5	..	106.2	107.6	..	113.2	106.3	108.2	110.9	..
Q4	107.0	..	105.9	..	..	..	..	108.4	..	..

Percentage change, latest quarter on corresponding quarter of previous year

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan[2]	Canada	Major 7	OECD
1995 Q3	2.1	..	1.9	3.5	..	3.3	−0.2	1.5	2.3	..
Q4	1.9	..	0.7	..	..	..	..	0.6	..	..

Percentage change, latest quarter on previous quarter

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan[2]	Canada	Major 7	OECD
1995 Q3	0.4	..	0.1	2.0	..	1.0	0.2	0.4	0.7	..
Q4	0.5	..	−0.3	..	..	..	..	0.2	..	..

1 Western Germany (Federal Republic of Germany before unification)
2 GNP

2 Consumer prices[1]
Percentage change on year earlier

	United Kingdom	Germany[2]	France	Italy	EC	United States	Japan	Canada	Major 7	OECD[3]
1980	18.0	5.5	13.4	21.1	13.6	13.7	8.0	10.2	12.9	14.8
1985	6.1	2.2	5.9	8.6	6.2	3.5	2.1	4.0	4.0	7.1
1986	3.4	−0.1	2.7	6.2	3.7	1.9	−0.1	4.1	2.0	5.9
1987	4.2	0.2	3.1	4.6	3.3	3.7	0.1	4.4	2.9	7.7
1988	4.9	1.3	2.8	5.0	3.7	4.0	0.7	4.0	3.4	8.6
1989	7.8	2.8	3.5	6.6	5.2	4.9	2.2	5.0	4.5	6.2
1990	9.5	2.7	3.4	6.0	5.7	5.4	3.1	4.8	5.0	6.8
1991	5.9	3.5	3.2	6.5	5.1	4.2	3.3	5.6	4.3	6.1
1992	3.7	4.0	2.4	5.3	4.2	3.1	1.6	1.5	3.1	4.9
1993	1.6	4.2	2.1	4.2	3.4	3.0	1.3	1.9	2.6	4.1
1994	2.4	3.0	1.7	3.9	3.0	2.5	0.7	0.2	2.3	4.4
1995	3.5	1.8	1.8	..	..	2.9	−0.1	2.2	..	..
1994 Q4	2.6	1.9	1.7	3.8	2.9	2.6	0.8	0.0	2.2	4.8
1995 Q1	3.4	2.0	1.7	4.4	3.1	2.8	0.4	1.6	2.3	5.6
Q2	3.5	1.9	1.6	5.5	3.3	3.1	−0.2	2.7	2.6	6.3
Q3	3.7	1.7	1.8	5.8	3.1	2.7	0.1	2.4	2.4	6.7
Q4	3.2	1.6	1.9	..	..	2.8	−0.5	2.0	..	..
1995 Feb	3.4	2.0	1.7	4.3	3.1	2.8	0.7	1.8	2.3	5.6
Mar	3.5	1.9	1.8	5.0	3.3	2.8	−0.2	2.2	2.3	6.0
Apr	3.3	2.1	1.6	5.1	3.3	3.0	−0.4	2.5	2.5	6.2
May	3.4	1.8	1.6	5.5	3.3	3.2	−0.4	2.9	2.7	6.3
Jun	3.5	1.9	1.6	5.9	3.3	3.1	0.2	2.7	2.6	6.4
Jul	3.5	1.9	1.5	5.6	3.1	2.9	0.4	2.6	2.4	6.4
Aug	3.6	1.5	1.9	5.8	3.1	2.7	−0.2	2.3	2.3	6.6
Sep	3.9	1.7	2.0	5.8	3.2	2.6	−0.1	2.3	2.4	6.9
Oct	3.2	1.7	1.8	5.9	3.0	2.8	−0.8	2.4	2.3	7.1
Nov	3.1	1.6	1.9	5.9	3.1	2.7	−0.6	2.0	2.2	7.1
Dec	3.2	1.5	2.1	..	..	2.9	−0.1	1.7	..	..
1996 Jan	2.9	1.4	2.0	..	..	2.7	−0.4	1.5	..	..

1 Components and coverage not uniform across countries
2 Western Germany (Federal Republic of Germany before unification)
3 OECD data includes 'higher inflation' countries (Mexico and Turkey)

3 Standardised unemployment rates: percentage of total labour force[1]

	United Kingdom	Germany[2]	France	Italy	EC[3]	United States	Japan	Canada	Major 7	OECD
	GABF	GABD	GABC	GABE	GADR	GADO	GADP	GADN	GAEQ	GADQ
1980	6.4	2.9	6.3	7.5	6.4	7.1	2.0	7.4	5.5	5.8
1985	11.2	7.1	10.3	9.6	10.9	7.1	2.6	10.4	7.2	7.8
1986	11.2	6.4	10.4	10.5	10.8	6.9	2.8	9.5	7.1	7.7
1987	10.3	6.2	10.5	10.9	10.6	6.1	2.9	8.8	6.7	7.3
1988	8.6	6.2	10.0	11.0	9.9	5.4	2.5	7.7	6.1	6.7
1989	7.2	5.6	9.4	10.9	9.0	5.2	2.3	7.5	5.7	6.2
1990	6.8	4.8	8.9	10.3	8.4	5.4	2.1	8.0	5.6	6.1
1991	8.8	4.2	9.5	9.9	8.7	6.7	2.1	10.2	6.3	6.7
1992	10.1	4.6	10.4	10.5	9.3	7.3	2.2	11.3	6.8	7.4
1993	10.4	5.8	11.7	10.2	10.9	6.7	2.5	11.2	7.2	7.8
1994	9.5	6.8	12.3	11.8	11.4	6.0	2.9	10.3	7.0	7.8
1995	8.7	..	11.6	..	11.1	5.5	3.2	9.5	6.8	7.5
1995 Q2	8.8	..	11.6	12.2	11.0	5.6	3.1	9.5	6.8	7.4
Q3	8.7	..	11.5	12.1	11.0	5.6	3.2	9.5	6.8	7.5
Q4	8.6	..	11.6	..	11.1	5.5	3.3	9.4	6.8	7.6
1995 Feb	8.7	6.7	11.8	..	11.1	5.4	2.9	9.6	6.7	7.3
Mar	8.8	6.7	11.7	..	11.1	5.4	3.0	9.6	6.7	7.3
Apr	8.8	6.8	11.6	12.2	11.1	5.7	3.1	9.4	6.8	7.5
May	8.8	6.8	11.6	..	11.0	5.6	3.1	9.5	6.8	7.4
Jun	8.8	..	11.5	..	11.0	5.5	3.2	9.5	6.8	7.4
Jul	8.8	..	11.5	12.1	11.0	5.6	3.2	9.7	6.8	7.6
Aug	8.7	..	11.4	..	11.0	5.6	3.2	9.5	6.8	7.5
Sep	8.6	..	11.5	..	11.0	5.6	3.2	9.2	6.7	7.5
Oct	8.6	..	11.5	..	11.0	5.4	3.2	9.4	6.7	7.5
Nov	8.5	..	11.6	..	11.0	5.6	3.4	9.4	6.8	7.6
Dec	8.6	..	11.7	..	11.2	5.5	3.4	9.4	6.9	7.6
1996 Jan	8.4	..	11.8	..	..	5.7	..	9.5	..	..

1 Uses an ILO based measure of those without work, currently available for work, actively seeking work or waiting to start a job already obtained
2 Western Germany (Federal Republic of Germany before unification)
3 Excludes Denmark, Greece and Luxembourg

4 Balance of payments current account as percentage of GDP

	United Kingdom	Germany[1,2]	France	Italy	United States[1]	Japan[1]	Canada
1980	1.2	−1.7	−0.6	−2.3	0.1	−1.0	−0.6
1985	0.6	2.7	−0.1	−0.9	−3.1	3.6	−1.3
1986	−0.2	4.5	0.3	0.4	−3.5	4.3	−2.8
1987	−1.1	4.1	−0.6	−0.2	−3.7	3.6	−2.8
1988	−3.5	4.2	−0.5	−0.7	−2.6	2.7	−3.5
1989	−4.3	4.9	−0.5	−1.2	−2.0	2.0	−4.2
1990	−3.5	3.1	−0.8	−1.3	−1.7	1.2	−3.8
1991	−1.5	−1.2	−0.5	−2.1	−0.1	2.1	−4.1
1992	−1.6	−1.2	0.3	−2.3	−1.1	3.2	−3.9
1993	−1.8	−1.1	0.7	1.1	−1.6	3.1	−4.3
1994	−0.3	−0.9	0.7	1.5	−2.2	2.8	−3.3
1994 Q3	–	−0.6	0.2	0.5	−0.6	0.6	−0.5
Q4	−0.3	−0.3	0.2	0.5	−0.6	0.6	−0.5
1995 Q1	−0.5	..	0.5	0.2	−0.6	0.6	−0.8
Q2	−0.7	..	0.3	0.7	−0.6	0.6	−0.7
Q3	−0.9	..	..	0.5	..	0.5	−0.1

1 Balance as percentage of GNP
2 Western Germany (Federal Republic of Germany before unification)

5 Total industrial production: index numbers

1990 = 100

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan[2]	Canada[3]	Major 7	OECD[4]
	DVZI	HFGA	HFFZ	HFGB	GACY	HFGD	HFGC	HFFY	GAES	GACX
1980	81.5	97.3	88.0	87.9	83.8	79.3	67.3	81.4	78.7	78.9
1985	88.0	100.3	88.5	84.8	86.3	89.0	79.8	94.5	86.3	86.3
1986	90.1	102.3	89.5	87.9	88.1	89.9	79.6	93.8	87.3	87.2
1987	93.7	102.7	91.3	91.3	90.1	94.3	82.4	98.4	90.5	90.3
1988	98.2	106.3	95.0	96.8	94.1	98.5	90.7	103.6	95.6	95.3
1989	100.3	111.4	98.5	99.8	98.0	100.0	95.9	103.4	98.5	98.4
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	96.3	103.7	100.3	99.1	99.8	98.3	101.9	95.8	99.7	99.7
1992	96.2	100.9	100.2	98.9	98.6	101.5	96.1	96.8	99.5	99.4
1993	98.1	93.4	97.6	96.5	95.5	105.7	92.0	101.2	99.0	99.1
1994	103.1	97.1	101.3	101.5	100.3	111.3	93.1	107.8	103.4	103.7
1995	105.6	..	103.6	106.9	..	..	96.0	112.1	..	..
1994 Q4	104.3	99.9	102.9	105.5	102.7	113.8	95.2	111.4	105.7	106.1
1995 Q1	105.1	96.8	103.8	104.2	102.9	114.9	96.5	112.5	106.3	106.6
Q2	105.3	98.4	104.4	106.0	103.7	114.5	96.4	111.8	106.4	106.4
Q3	106.1	98.6	104.7	107.9	104.4	115.4	94.7	112.1	106.6	106.8
Q4	105.9	..	101.6	109.6	..	..	96.5	111.9	..	107.0
1995 Jan	104.4	96.5	103.9	102.2	102.4	114.9	94.7	113.2	105.7	106.2
Feb	104.9	97.4	102.6	104.4	102.4	114.8	96.8	112.6	106.3	106.5
Mar	105.9	96.5	104.8	105.9	103.9	115.0	97.9	111.8	106.9	107.0
Apr	105.3	98.6	103.2	107.5	103.0	114.5	97.0	112.0	106.5	106.1
May	105.5	98.6	105.1	105.4	104.3	114.4	96.5	112.2	106.6	106.5
Jun	105.1	98.0	104.9	105.2	103.9	114.5	95.7	111.2	106.2	106.5
Jul	105.8	100.6	105.4	107.8	104.4	114.6	93.5	111.8	106.2	106.3
Aug	105.9	97.6	105.4	108.5	105.1	115.7	96.6	112.2	107.2	107.6
Sep	106.5	97.5	103.3	107.4	103.6	115.9	94.0	112.3	106.5	106.6
Oct	105.5	95.4	101.5	106.7	102.3	115.5	95.3	111.9	106.1	106.3
Nov	105.9	95.4	102.0	106.1	..	115.8	96.7	112.2	..	107.0
Dec	106.3	..	101.3	116.0	..	..	97.6	111.5	..	107.7
1996 Jan	105.8	..	..	..	..	..	97.9	..	..	..

Percentage change: average of latest three months on that of corresponding period of previous year

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan[2]	Canada[3]	Major 7	OECD[4]
1995 Dec	1.5	..	−1.3	3.9	..	..	1.4	0.4	..	0.9
1996 Jan	1.7	..	..	..	..	..	2.0	..	..	..

Percentage change: average of latest three months on previous three months

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan[2]	Canada[3]	Major 7	OECD[4]
1995 Dec	−0.2	..	−3.0	1.6	..	..	1.9	−0.2	..	0.2
1996 Jan	0.0	..	..	..	..	..	2.2	..	..	..

1 Western Germany (Federal Republic of Germany before unification)
2 Not adjusted for unequal number of working days in a month
3 GDP in industry at factor cost and 1986 prices
4 Some countries excluded from area total

6 Producer prices (manufacturing)
Percentage change on a year earlier

	United Kingdom	Germany[1]	France[2]	Italy	EC	United States	Japan	Canada	Major 7	OECD[3]
1980	12.8	7.0	9.4	..	11.3	13.5	14.8	13.4	13.2	13.2
1985	5.3	2.1	4.4	7.7	4.9	0.8	-0.8	2.7	1.9	4.8
1986	4.2	-2.3	-2.8	0.1	-1.0	-1.4	-4.7	0.9	-1.5	1.5
1987	3.7	-0.5	0.7	3.1	1.2	2.1	-2.9	2.7	1.1	5.8
1988	4.3	1.6	5.1	3.5	3.4	2.5	-0.3	4.5	2.4	7.2
1989	4.7	3.4	5.4	5.8	4.8	5.2	2.1	1.8	4.4	5.8
1990	5.8	1.5	-1.2	4.2	2.5	4.9	1.6	0.3	3.3	4.7
1991	5.4	2.1	-1.3	3.3	2.2	2.1	1.1	-1.0	1.9	3.3
1992	3.5	1.7	-1.6	1.9	1.2	1.3	-1.0	0.5	0.8	2.2
1993	3.7	0.0	-2.8	3.7	1.2	1.3	-1.6	3.3	0.8	2.1
1994	2.5	-3.0	3.6	3.7	1.4	0.6	-1.7	5.6	0.5	3.1
1995	4.0	2.2	..	..	..	1.8	-0.7	8.1	..	..
1995 Q2	3.9	2.5	8.8	8.8	5.7	2.2	-0.5	9.0	3.2	8.5
Q3	4.2	2.4	7.7	8.9	5.4	1.8	-0.7	7.7	2.8	8.6
Q4	4.3	1.7	..	7.2	..	1.8	-0.7	5.8	..	..
1995 Mar	3.6	2.4	8.1	7.5	5.2	1.6	-0.5	9.8	2.9	8.9
Apr	3.9	2.5	8.8	8.2	5.5	2.1	-0.4	9.4	3.2	8.6
May	3.9	2.5	8.9	9.0	5.8	2.2	-0.5	8.9	3.3	8.5
Jun	3.9	2.6	8.5	9.2	5.7	2.2	-0.6	8.7	3.1	8.6
Jul	4.1	2.4	8.3	9.2	5.6	1.9	-0.7	8.3	2.9	8.6
Aug	4.2	2.3	7.8	9.0	5.4	1.3	-0.7	7.2	2.6	8.4
Sep	4.2	2.4	6.8	8.7	5.2	2.2	-0.6	7.7	2.9	8.9
Oct	4.4	2.1	5.0	7.9	4.5	1.8	-0.6	6.7	2.7	8.7
Nov	4.3	1.6	3.6	7.2	..	1.8	-0.6	5.5	..	..
Dec	4.3	1.4	..	6.5	..	1.9	-0.8	5.1	..	..
1996 Jan	3.9	..	..	..	..	2.6	-0.8	2.4	..	..
Feb	4.0	..	..	..	..	..	..	..	..	..

1 Western Germany (Federal Republic of Germany before unification).
2 Producer prices in intermediate goods
3 OECD includes 'higher inflation' countries (Mexico and Turkey)

7 Total employment: index numbers[1]

1990 = 100

	United Kingdom	Germany[2,3]	France[3]	Italy	EC	United States[3]	Japan	Canada[3]	Major 7	OECD
	DMBC	GAAR	GAAU	GAAS	GADW	GADT	GADU	GADS	GAEU	GADV
1980	93.5	95.3	96.6	97.0	100.0	842.3	885.8	84.3	..	..
1985	91.2	93.5	95.6	97.3	93.1	908.6	929.3	89.1	92.3	92.1
1986	91.4	94.4	96.1	97.9	93.8	93.0	93.7	91.9	93.6	93.4
1987	93.4	95.3	96.5	97.8	95.0	95.4	94.6	94.3	95.2	95.0
1988	96.7	96.3	97.5	99.0	96.8	97.5	96.2	97.4	97.1	97.0
1989	99.4	97.2	99.0	98.6	98.5	99.5	98.1	99.4	98.9	98.8
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	97.1	101.9	100.0	101.3	99.9	99.1	101.9	98.1	99.9	99.9
1992	94.6	102.8	99.4	100.7	98.7	99.7	103.0	97.5	100.1	99.7
1993	93.6	100.9	98.2	95.9	96.3	101.2	103.2	98.8	100.1	99.5
1994	94.2	99.3	98.4	94.0	..	104.4	103.2	101.0	..	..
1995	94.9	..	..	..	..	105.9	103.3	102.6	..	..
1994 Q1	93.9	100	97.8	94.0	95.3	102.1	101.3	96.9	99.7	99.0
Q2	94.0	99	98.9	94.6	96.0	104.1	104.5	101.1	101.6	100.8
Q3	94.3	99	99.3	95.3	96.5	105.4	104.0	104.1	102.2	101.5
Q4	94.7	99	98.8	93.9	96.1	105.8	103.2	101.8	102.1	101.3
1995 Q1	94.8	..	99.1	92.4	95.8	104.6	101.4	99.5	100.9	100.3
Q2	94.8	..	..	93.9	..	105.9	104.3	103.0	102.5	101.8
Q3	94.8	..	..	95.0	..	106.8	104.4	105.2	102.9	102.3
Q4	95.0	..	..	..	..	106.5	103.1	102.7	..	..
1995 Nov	..	..	..	..	..	106.5	103.0	102.4	..	..
Dec	..	..	..	..	..	106.1	102.4	102.0	..	..
1996 Jan	..	..	..	..	..	104.4	101.2	100.3	..	..

Percentage change, latest quarter on that of corresponding period of previous year

	United Kingdom	Germany[2,3]	France[3]	Italy	EC	United States[3]	Japan	Canada[3]	Major 7	OECD
1995 Q3	0.5	..	..	-0.3	..	1.3	0.4	1.1	0.7	0.8
Q4	0.3	..	..	..	..	0.7	-0.1	0.9	..	..

Percentage change latest quarter on previous quarter

	United Kingdom	Germany[2,3]	France[3]	Italy	EC	United States[3]	Japan	Canada[3]	Major 7	OECD
1995 Q3	0.0	..	..	1.2	..	0.8	0.1	2.1	0.4	0.5
Q4	0.2	..	..	..	..	-0.3	-1.2	-2.4	..	..

1 Not seasonally adjusted except for the United Kingdom
2 Western Germany (Federal Republic of Germany before unification)

8 Average wage earnings in manufacturing[1]
Percentage change on a year earlier

	United Kingdom[2]	Germany[3]	France	Italy	EC	United States	Japan	Canada	Major 7	OECD
1980	17.6	6.5	15.0	18.7	11.0	8.7	7.4	10.0	8.9	9.5
1985	9.0	4.2	5.7	11.2	7.1	3.8	3.1	3.8	3.8	5.1
1986	7.7	4.0	4.0	4.8	5.2	2.1	1.4	2.8	3.7	3.3
1987	8.1	3.8	3.1	6.5	5.4	1.8	1.7	3.3	2.4	3.5
1988	8.5	4.6	3.0	6.1	5.4	2.8	4.5	3.9	4.6	4.4
1989	8.8	3.5	3.8	6.0	5.9	2.9	5.8	5.4	4.4	4.9
1990	9.3	5.1	4.6	7.3	6.8	3.3	5.3	4.7	5.3	5.4
1991	8.2	5.7	4.3	9.8	7.1	3.3	3.5	4.8	5.0	5.0
1992	6.6	6.2	3.6	5.4	5.5	2.4	1.1	3.4	2.9	3.6
1993	4.5	-3.6	2.6	3.7	4.5	2.5	-7.0	2.0	2.8	2.8
1994	4.7	2.9	2.3	3.3	5.0	2.8	10.2	2.2	2.7	2.8
1995	..	..	..	3.1	..	2.4	3.1	1.5	..	..
1995 Q2	4.8	..	..	2.3	..	2.3	2.6	1.0	..	..
Q3	4.4	..	..	3.5	..	2.7	3.1	2.3	..	..
Q4	3.9	..	..	3.9	..	2.6	2.8	2.1	..	..
1995 Jan	4.6	1.9	2.1	2.8	-0.1	2.2	4.7	1.2	2.4	3.2
Feb	5.6	..	..	2.4	3.7	2.0	3.7	0.5	2.6	3.0
Mar	4.8	..	..	2.3	3.5	2.2	3.5	-0.3	2.5	2.9
Apr	5.2	1.3	2.4	2.3	3.7	2.3	3.5	0.7	2.6	..
May	4.5	..	..	2.3	..	2.3	3.5	1.2	2.6	..
Jun	4.4	..	..	2.2	..	2.3	0.8	0.9	..	..
Jul	4.9	..	..	3.5	..	2.8	6.5	1.1	..	..
Aug	4.2	..	..	3.4	..	2.8	0.4	3.3	..	..
Sep	3.9	..	..	3.9	..	2.6	2.4	2.6	..	..
Oct	4.0	..	..	3.9	..	2.6	3.0	2.4	..	..
Nov	3.7	..	..	3.9	..	2.5	1.2	1.7	..	..
Dec	3.9	..	..	3.9	..	2.7	4.4	2.3	..	..
1996 Jan	..	..	..	..	..	3.3	0.8	..	..	..

1 Definitions of coverage and treatment vary among countries
2 Figures for Great Britain refer to weekly earnings; others are hourly
3 Western Germany (Federal Republic of Germany before unification)

9 Retail Sales (volume): index numbers

1990 = 100

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan	Canada	Major 7	OECD
	EAPS	GADD	GADC	GADE	GADH	GADA	GADB	GACZ	GAEW	GADG
1980	..	83.5	91.5	72.6	80.2	72.2	103.2	74.8	76.7	77.5
1985	..	80.8	90.5	87.4	84.3	85.9	100.0	89.3	85.2	85.2
1986	87.0	83.6	92.6	93.3	88.0	90.7	101.5	93.4	89.1	89.0
1987	91.5	86.9	94.8	97.8	91.5	93.1	107.1	98.6	92.3	92.1
1988	97.3	89.8	98.2	95.7	94.0	96.7	91.5	102.4	95.4	95.2
1989	99.3	92.2	99.4	102.3	97.6	99.3	95.0	102.3	98.3	98.2
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	98.7	105.7	100.1	97.3	100.6	97.9	101.9	89.6	99.0	99.2
1992	99.4	103.6	100.3	102.2	100.8	101.1	99.1	90.8	100.4	100.3
1993	102.4	99.3	100.3	99.0	99.1	106.4	94.3	93.5	102.1	101.3
1994	106.2	97.5	100.8	94.4	98.3	113.0	92.8	101.1	105.1	104.0
1995 Q3	107.4	..	102.4	89.3	98	118.3	99.1	102.0	108	..
Q4	108.3	..	96.9	..	..	..	98.5	101.0	..	..
1995 May	107.1	..	102.5	89.5	98	116.8	97.8	101.1	107	..
Jun	107.5	..	100.2	89.5	98	118.0	98.6	101.6	107	..
Jul	107.9	..	101.6	91.0	98	117.6	98.5	101.4	107	..
Aug	107.1	..	103.0	99.0	100	118.7	99.7	102.6	109	..
Sep	107.3	..	102.5	77.8	97	118.7	99.0	101.9	107	..
Oct	107.3	..	94.1	82.4	..	118.1	97.7	101.2	..	..
Nov	108.6	..	99.9	80.0	..	119.0	99.4	100.8	..	..
Dec	108.8	..	96.8	..	..	..	98.4	101.0	..	..
1996 Jan	108.1	..	102.3	..	..	..	..	..	..	..

Percentage change average of latest three months on that of corresponding period of previous year

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan	Canada	Major 7	OECD
1995 Dec	1.2	..	-2.4	..	..	..	6.3	-2.3	..	..
1996 Jan	1.8	..	-1.4	..	..	..	..	..	..	..

Percentage change average of latest three months on previous three months

	United Kingdom	Germany[1]	France	Italy	EC	United States	Japan	Canada	Major 7	OECD
1995 Dec	0.8	..	-5.3	..	..	..	-0.6	-0.9	..	..
1996 Jan	1.2	..	-0.2	..	..	..	..	..	..	..

1 Western Germany (Federal Republic of Germany before unification) - series

10 World trade[1]

1990 = 100

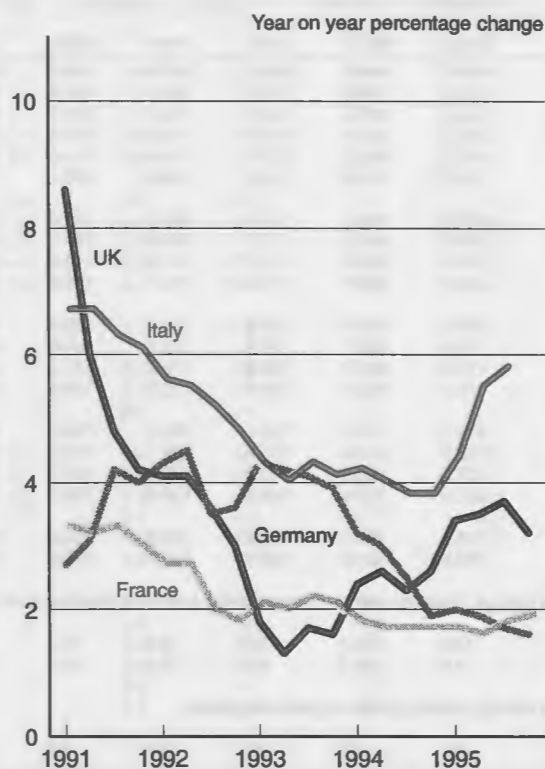|	Export of manufactures			Import of manufactures			Export of goods			Import of goods			World trade	
	World	OECD	Other	World	OECD	Other	World	OECD	Other	World	OECD	Other	manufact-ures	goods
	GAFE	GAFF	GAFG	GAFH	GAFI	GAFJ	GAFK	GAFL	GAFM	GAFN	GAFO	GAFP	GAFR	GAFQ
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	103.1	102.3	106.2	104.2	103.4	106.3	103.6	103.2	104.3	103.8	103.1	105.7	103.6	103.7
1992	107.8	107.1	110.7	110.6	109.8	113.0	109.7	108.5	106.8	108.2	109.3	111.3	109.2	108.9
1993	112.1	109.3	123.0	114.6	111.3	123.7	113.4	111.6	115.9	113.8	111.3	122.3	113.3	113.4
1994	125.5	121.6	140.5	128.3	125.4	136.0	124.8	122.5	129.1	125.6	122.9	133.0	126.9	124.9
1992 Q1	107.4	107.1	108.5	109.2	109.0	109.9	108.4	108.4	105.3	107.7	108.4	108.6	108.3	108.0
Q2	106.9	106.0	110.4	109.9	109.0	112.5	109.2	107.5	106.6	107.4	108.7	110.9	108.4	108.3
Q3	108.4	107.5	111.7	111.8	110.8	114.3	110.8	109.2	107.5	108.9	110.4	112.5	110.1	109.8
Q4	108.6	107.7	112.4	111.7	110.4	115.2	110.4	109.0	107.9	108.9	109.6	113.2	110.1	109.6
1993 Q1	109.3	107.1	117.9	111.9	109.2	119.3	110.5	109.1	112.2	111.2	108.7	118.2	110.6	110.6
Q2	110.5	108.1	119.9	112.7	109.6	121.1	111.9	110.4	113.5	112.6	110.0	119.8	111.6	111.9
Q3	113.0	109.7	125.4	115.6	111.7	126.1	114.6	112.3	118.0	115.5	112.2	124.7	114.3	114.6
Q4	115.6	112.3	128.6	118.2	114.5	128.3	116.5	114.5	119.8	116.1	114.1	126.4	116.9	116.6
1994 Q1	119.5	115.3	136.0	122.2	118.4	132.5	120.0	116.7	126.0	120.8	117.6	130.0	120.9	120.0
Q2	123.7	119.8	138.8	126.1	123.1	134.2	123.0	120.5	127.6	123.7	121.0	131.4	124.9	123.1
Q3	127.7	123.6	143.2	130.4	127.5	138.3	126.6	124.3	131.1	127.7	124.5	135.1	129.0	126.7
Q4	131.0	127.6	144.1	134.4	132.7	138.9	129.7	128.4	131.7	130.2	128.3	135.6	132.7	129.7
1995 Q1	134.2	130.1	150.0	138.3	134.0	150.1	132.9	130.4	141.9	133.8	129.1	147.0	136.2	133.0
Q2	135.6	131.9	150.0	139.7	135.8	150.1	133.9	131.5	141.9	134.9	130.7	147.0	137.6	134.0
Percentage change, latest quarter on corresponding quarter of previous year														
1995 Q1	12.3	12.8	10.3	13.2	13.2	13.3	10.7	11.7	12.6	10.8	9.8	13.1	12.7	10.8
Q2	9.6	10.1	8.1	10.8	10.3	11.8	8.9	9.1	11.2	9.1	8.0	11.9	10.2	8.9
Percentage change, latest quarter on previous quarter														
1995 Q1	2.4	2.0	4.1	2.9	1.0	8.1	2.5	1.6	7.7	2.8	0.6	8.4	2.6	2.5
Q2	1.0	1.4	0.0	1.0	1.3	0.0	0.8	0.8	0.0	0.8	1.2	0.0	1.0	0.8

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

Chart I: Gross domestic product

1990 = 100

USA

Germany

UK

Japan

80 82 84 86 88 90 92 94
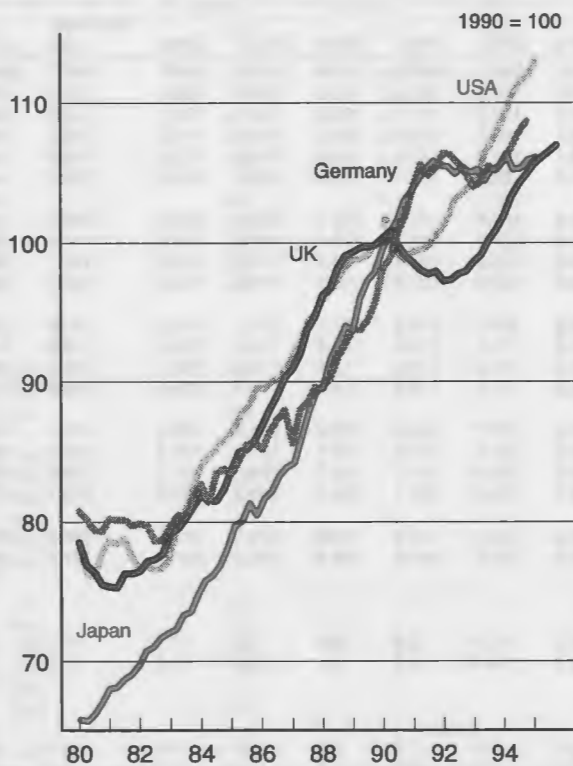
Chart II: Consumer price index

Year on year percentage change

UK

Italy

Germany

France

1991 1992 1993 1994 1995

Chart III: Standardised unemployment

Percent of total labour force: January1996 [1]

UK Ger France Italy USA Japan Canada
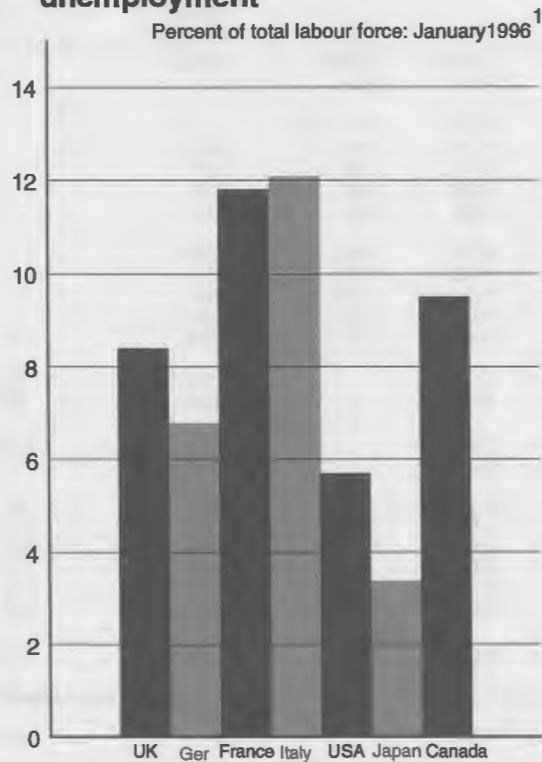
1. Germany refers to May 1995, while Italy refers to July.
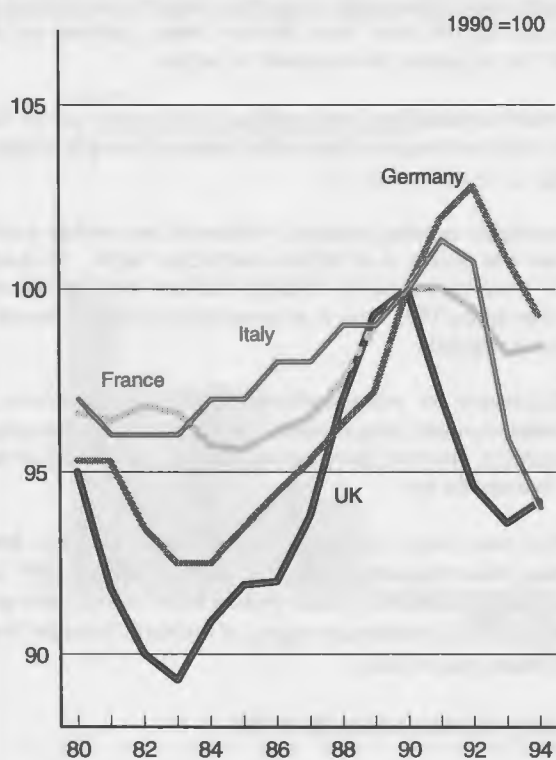Japan refers to November.

Chart IV: Current account balance

Percent of GDP at market prices

Germany

UK

Italy

France

80 82 84 86 88 90 92 94
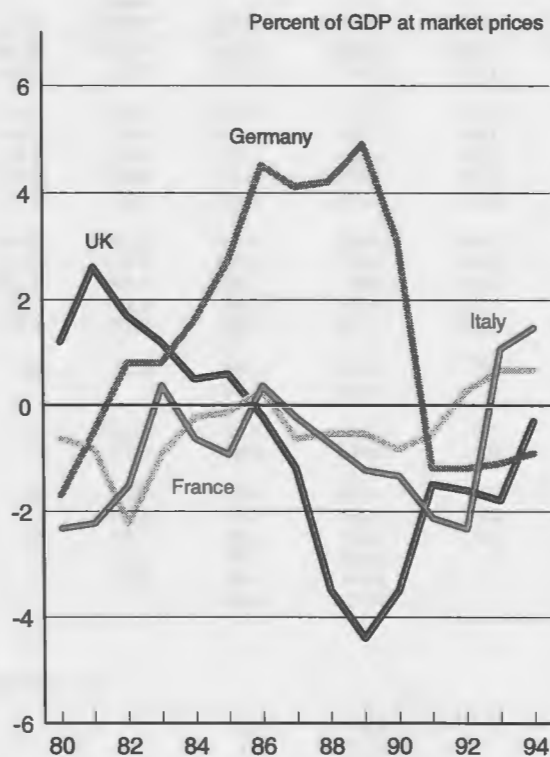
Chart V: Industrial Production

1990 =100

USA

Germany

UK

Japan

| | 80 | 82 | 84 | 86 | 88 | 90 | 92 | 94 |

Chart VI: Producer price inflation

Year on year percentage change

France

UK

Italy

Germany

| 1991 | 1992 | 1993 | 1994 | 1995 |

Chart VII: Employment

1990 =100

Germany

Italy

France

UK

| 80 | 82 | 84 | 86 | 88 | 90 | 92 | 94 |
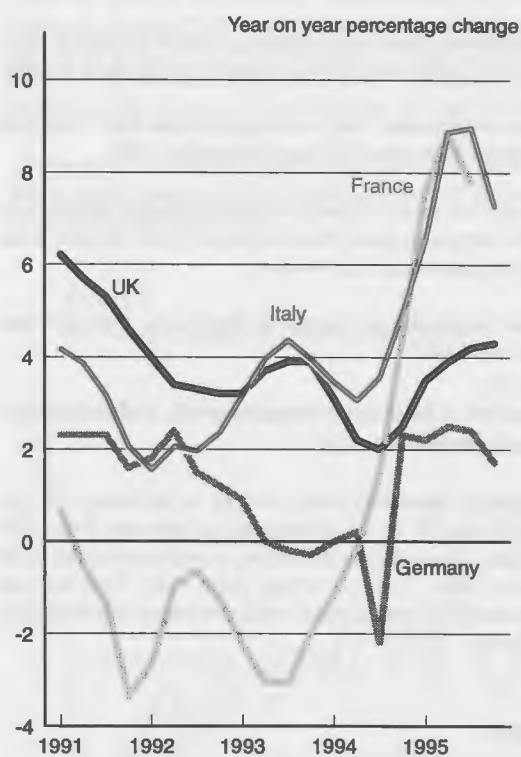
Chart VIII: Wage earnings (manufacturing)

Year on year percentage change

Italy

UK

Germany

France

| 1991 | 1992 | 1993 | 1994 | 1995 |

13
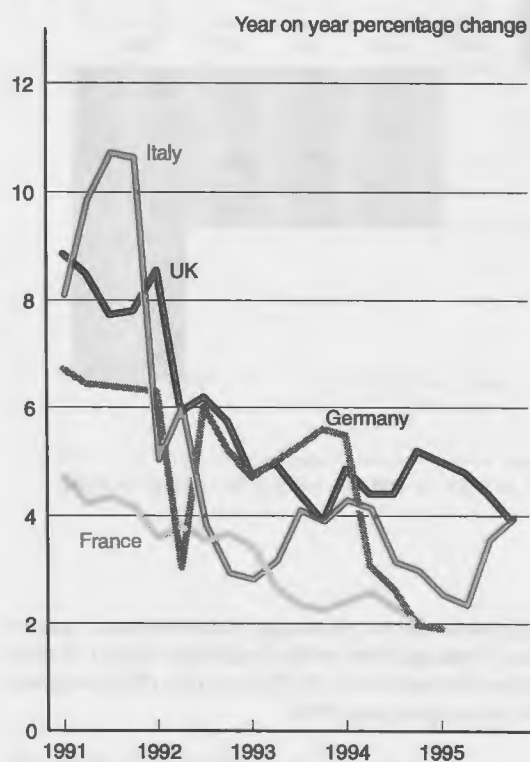
REGIONAL ECONOMIC INDICATORS

(includes data up to13 March 1996)

Summary

- The **unemployment** rate fell in all regions between November 1995 and February 1996 other than Wales, Scotland and Northern Ireland.

- **Employees in employment** rose in all regions other than Wales and Scotland between September 1995 and December 1995.

- CBI/BSL regional trends survey into manufacturing indicated in January 1996 **output expectations** for the next four months were positive in all regions except East Anglia.

- The **number of dwellings started** in England in 1995 Q4 was 23.8% below 1994 Q4.

Labour market (Claimant unemployment, redundancies, employment) (tables 8 to 11)

1. The **claimant unemployment** rate, as a percentage of the workforce, fell in the UK in the three months to February from 8.0% to 7.9%. As chart 1 illustrates, in this period, unemployment fell in all regions except Wales (0.1 percentage point rise), Scotland and Northern Ireland (both unchanged), with the largest fall being 0.2 percentage points.

Chart 1
Claimant Unemployment
as a % of total workforce

seasonally adjusted

3 month change
Nov 1995 to Feb 1996

W   SCO   NW M UK   GL   SW   ROSE
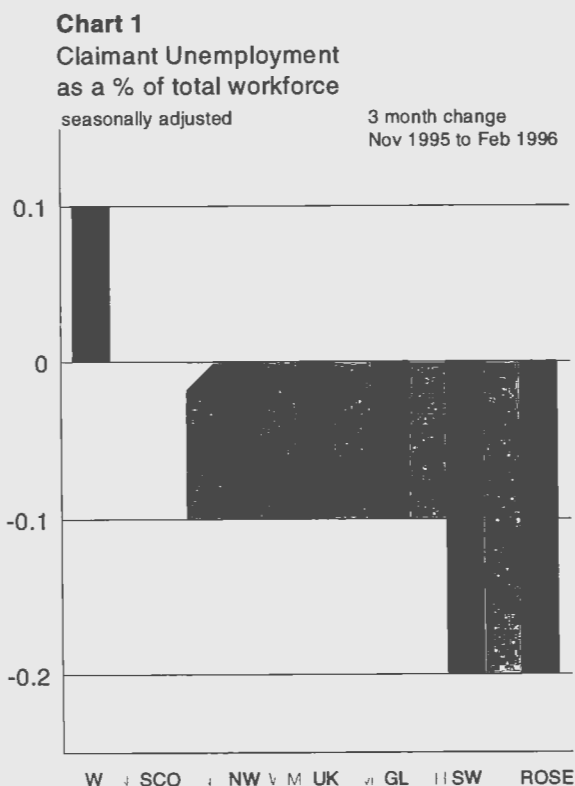
2. The **unemployment** rate as a percentage of the workforce, remains lowest in East Anglia and Rest of the South East (at 6.1 %) and highest in Northern Ireland (at 11.4 %). The rate of 6.1% is the lowest monthly rate in any region since 1991.

3. The **long-term unemployment** rate fell by 0.1% in Greater London, East Midlands, West Midlands and Northern Ireland between

October 1995 and January 1996; in all other regions, the rate remained constant. Northern Ireland continues to have the highest rate (at 6.2%).

4. **Employees in employment** rose in the UK by 0.6 % between September 1995 and December 1995. The largest rises were in the West Midlands (at 1.6 %), East Midlands and the North (both up 1.3 %). Employment fell slightly in Wales and Scotland (both by 0.2%). With the exception of the North West and Scotland, growth in employment accelerated in the last quarter of 1995 (in the case of Wales, employment fell by less). The West Midlands, the North and Yorkshire and Humberside recovered from falling employment experienced in the third quarter.

Index of industrial production (table 12)

5. Between 1995 Q2 and 1995 Q3, there was an acceleration of growth in **industrial production** to 0.7 % in the UK as a whole. Industrial production rose over the period: in Wales by 1.2 %, in Scotland by 0.9 %, and a there was a small increase of 0.1% in Northern Ireland. The latest available industrial production data for the UK shows that growth remained unchanged in 1995 Q4.

CBI/BSL regional trends in manufacturing (tables 13 to 17)

6. **Business Optimism** was positive in only four regions in January 1996 - Northern Ireland, East Anglia, Scotland and East Midlands. Optimism grew significantly in Northern Ireland, East Anglia and the North West.

7. In the four months to January 1996, **output** balances (firms reporting rises in output less those reporting falls) were positive in all regions, except East Anglia and Yorkshire and Humberside. The largest balances were in Northern Ireland and the South West. Compared with the four months to October, balances have fallen in all regions except the North West, Nothern Ireland, Scotland and the South West suggesting slower growth in output.

8. **Output expectations** were positive in all regions except East Anglia, with the strongest expectation of output growing in Northern Ireland.

9. The balance reporting increased **volumes of new orders** (next 4 months) was positive in all regions except East Anglia. As chart 2 shows, however, comparing January's balance with the reported balance in October 1995, there is no consensus of optimism regarding changes in demand.
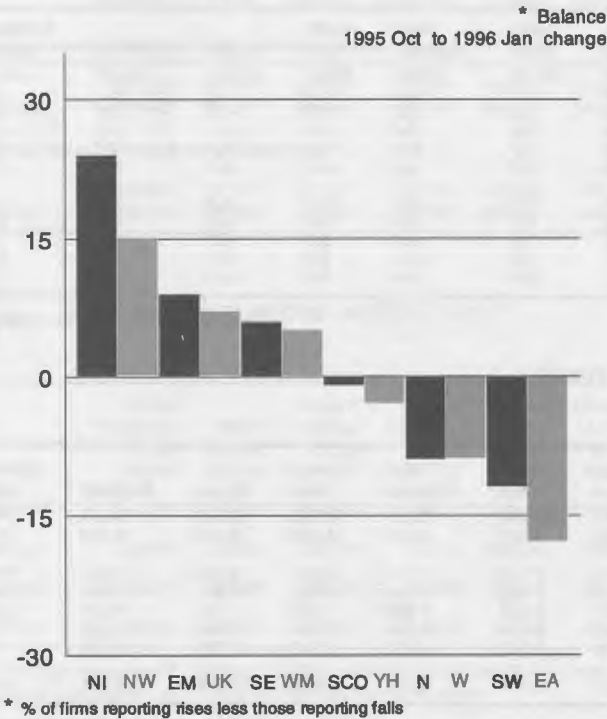
10. The balance for **volumes of new export orders** also shows an expectation of positive rising demand in all regions except East Anglia and the North. However, these expectations are not as strong as they were four months ago.

11. There was a rise of 3 percentage points in the number of **firms working below capacity** in the UK between October 1995 and January 1996. The number of firms working below capacity rose in all regions except in the proximate regions of the North West, the North and Scotland and in Wales.

Housing Market (tables 18 to 20)

12. The number of **dwellings started** in England in 1995 Q4 was 23.8 % below 1994 Q4. Dwellings started fell in all regions (not
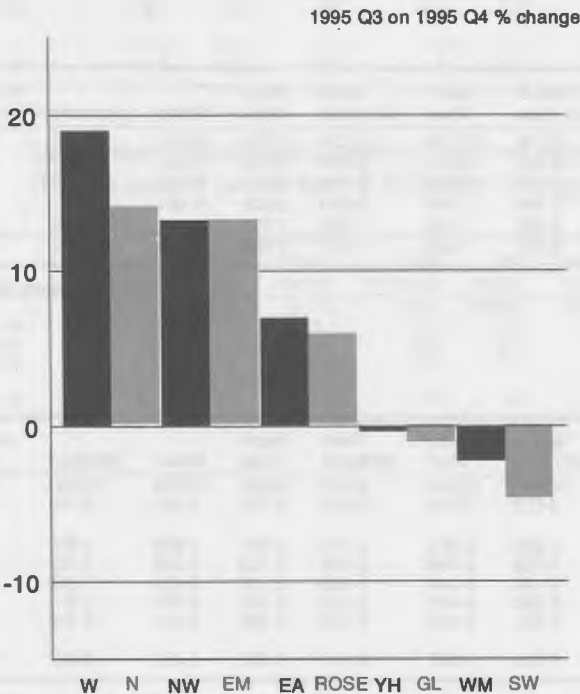
Chart 2

CBI - Manufacturing volume of new orders for next 4 months

* Balance
1995 Oct to 1996 Jan change

NI NW EM UK SE WM SCO YH N W SW EA

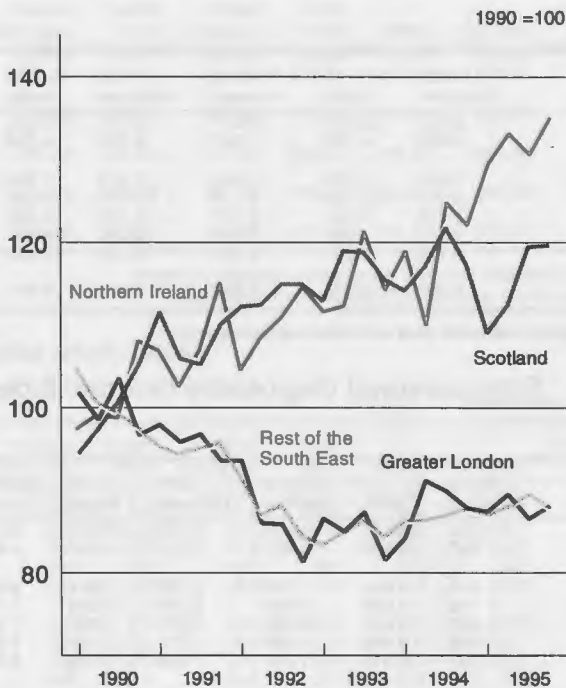* % of firms reporting rises less those reporting falls

all regions except the South West, West Midlands, Greater London and Yorkshire and Humberside, suggesting a possible pick up in demand in this part of the housing market.

14. The Department of the Environment's all dwellings **house prices** index for the UK fell by 0.3% between 1994 Q4 and 1995 Q4. However, prices in Northern Ireland rose over this period by 10.6%, and there were also rises of between 1% and 3% in East Anglia, Scotland, and the East Midlands. House prices fell most significantly in the North West (by 4.1%), the North (by 4%) and Wales (by 2.7%).

15. As chart 4 illustrates, house prices have risen most in Northern Ireland and Scotland and fallen most in the Rest of the South East and Greater London since 1990.

Chart 4

UK house prices in selected regions

1990 =100

Northern Ireland

Scotland

Rest of the South East   Greater London

1990 1991 1992 1993 1994 1995

including Scotland and Northern Ireland) for this period with Wales showing the largest decline of 36.2% and the North showing the smallest decline of 2.6%.

13. Between 1994 Q4 and 1995 Q4 the number of **dwellings completed** in both England and Wales fell by 6.0% and 7.6% respectively. Dwellings completed fell in all regions except Greater London, where they rose by 18.7% (638 dwellings). Chart 3 shows, that between 1995 Q3 to 1995 Q4, dwellings completed increased in

Chart 3

Permanent dwellings completed

1995 Q3 on 1995 Q4 % change

W N NW EM EA ROSE YH GL WM SW

15

1 Gross domestic product at factor cost: current prices

<div align="right">£ million and percentages</div>

	United Kingdom[1] (£m)	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
						Percentage of the UK[1]						
	DCIX	DCJF	DCJD	DCJC	DCIZ	LRAB	DCJA	DCJB	DCJE	DCJG	DCJH	DCJI
1985	289 912	5.1	8.2	6.8	3.5	34.9	7.5	8.4	10.6	4.2	8.7	2.2
1986	319 893	4.9	8.2	6.8	3.6	35.2	7.6	8.4	10.5	4.2	8.5	2.2
1987	351 198	4.9	8.0	6.8	3.5	35.4	7.6	8.4	10.4	4.3	8.5	2.1
1988	394 712	4.8	7.9	6.7	3.6	35.7	7.7	8.4	10.4	4.3	8.4	2.1
1989	435 325	4.8	7.9	6.9	3.6	35.8	7.7	8.4	10.2	4.3	8.3	2.1
1990	472 046	4.7	7.9	6.8	3.6	35.8	7.7	8.5	10.0	4.3	8.5	2.2
1991	489 905	4.8	7.9	6.8	3.6	35.6	7.7	8.5	9.9	4.3	8.6	2.3
1992	510 193	4.8	7.8	6.8	3.7	35.5	7.8	8.5	9.9	4.2	8.7	2.3
1993	539 013	4.7	7.7	6.8	3.6	35.7	7.8	8.5	9.9	4.1	8.7	2.3
1994	570 386	4.7	7.7	6.8	3.6	35.7	7.8	8.4	9.9	4.2	8.8	2.3

1 UK *less* continental shelf and statistical discrepancy.

<div align="right">Source: Office for National Statistics</div>

2 Gross domestic product at factor cost: £ per head

<div align="right">£</div>

	United Kingdom[1]	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCJJ	DCJR	DCJP	DCJO	DCJL	LRAC	DCJM	DCJN	DCJQ	DCJS	DCJT	DCJU
1984	4 619	4 284	4 332	4 586	4 740	5 285	4 367	4 206	4 373	3 954	4 426	3 709
1989	7 590	6 756	6 968	7 471	7 694	8 921	7 153	7 017	6 951	6 570	7 094	5 842
1990	8 201	7 183	7 472	7 973	8 347	9 639	7 763	7 661	7 411	7 041	7 856	6 409
1991	8 475	7 541	7 777	8 292	8 539	9 897	8 037	7 868	7 605	7 241	8 234	6 914
1992	8 795	7 880	7 984	8 550	9 001	10 230	8 414	8 213	7 904	7 360	8 692	7 156
1993	9 263	8 231	8 329	8 959	9 382	10 842	8 847	8 620	8 345	7 661	9 165	7 568
1994	9 768	8 645	8 733	9 394	9 880	11 407	9 301	9 057	8 827	8 274	9 754	8 027

1 UK *less* continental shelf and statistical discrepancy.

<div align="right">Source: Office for National Statistics</div>

3 Total personal disposable income: £ per head

<div align="right">£</div>

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCSD	DCSM	DCSK	DCSJ	DCSG	DCSF	DCWI	DCSH	DCSI	DCSL	DCSN	DCSO	DCSP
1983	3 647	3 406	3 421	3 515	3 542	4 457	3 891	3 640	3 343	3 437	3 234	3 547	3 144
1988	5 566	4 989	5 190	5 327	5 661	6 681	6 136	5 580	5 238	5 146	4 830	5 261	4 817
1989	6 166	5 535	5 801	6 013	6 285	7 416	6 721	6 178	5 803	5 724	5 357	5 776	5 356
1990	6 607	5 943	6 201	6 331	6 652	7 946	7 122	6 509	6 276	6 115	5 762	6 513	5 817
1991	7 074	6 469	6 680	6 712	7 117	8 531	7 451	6 958	6 741	6 551	6 357	7 051	6 472
1992	7 561	6 914	7 067	7 098	7 722	8 955	7 961	7 526	7 251	7 027	6 753	7 693	6 913
1993	7 942	7 246	7 437	7 477	8 055	9 348	8 288	7 967	7 622	7 454	7 189	8 065	7 413

<div align="right">Source: Office for National Statistics</div>

4 Household disposable income: £ per head

<div align="right">£</div>

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DEPZ	DEQA	DEQB	DEQC	DEQD	DEQE	DEQF	DEQG	DEQH	DEQI	DEQJ	DEQK	DEQL
1989	5 950	5 410	5 606	5 819	6 082	6 938	6 727	6 141	5 473	5 465	5 201	5 631	5 058
1990	6 658	6 068	6 300	6 443	6 788	7 716	7 425	6 777	6 191	6 159	6 038	6 515	5 620
1991	7 100	6 642	6 741	6 860	7 167	8 215	7 824	7 195	6 670	6 605	6 461	7 021	6 195
1992	7 525	7 055	7 115	7 218	7 746	8 556	8 203	7 678	7 056	7 070	6 921	7 585	6 536
1993	7 788	7 295	7 453	7 516	7 922	8 748	8 361	7 981	7 387	7 356	7 309	7 943	6 842

<div align="right">Source: Office for National Statistics</div>

5 Consumers' expenditure: £ per head

<div align="right">£</div>

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCVD	DCVM	DCVK	DCVJ	DCVG	DCVE	DCWD	DCVH	DCVI	DCVL	DCVN	DCVO	DCVP
1983	3 294	2 934	2 921	3 109	3 185	4 183	3 578	3 248	3 067	3 141	2 909	3 165	2 683
1988	5 247	4 522	4 663	4 707	5 204	6 710	5 857	5 372	4 775	4 987	4 538	4 872	4 298
1989	5 720	4 918	5 088	5 305	5 715	7 245	6 362	5 796	5 294	5 428	4 999	5 225	4 724
1990	6 053	5 192	5 300	5 753	6 042	7 541	6 695	6 204	5 602	5 726	5 411	5 608	5 130
1991	6 330	5 541	5 627	5 963	6 336	7 746	6 996	6 472	5 825	6 019	5 755	5 854	5 481
1992	6 591	5 885	6 042	6 110	6 615	7 999	7 356	6 610	5 926	6 226	5 981	6 146	5 740
1993	6 971	6 303	6 481	6 462	6 840	8 555	7 731	6 887	6 186	6 622	6 286	6 607	5 926

<div align="right">Source: Office for National Statistics</div>

6 Average weekly household disposable income and expenditure

£

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
Average weekly disposable household income													
	DCXQ	DCXR	DCXS	DCXT	DCXU	DCXV	DCXW	DCXX	DCXY	DCXZ	DCYA	DCYB	DCYC
1994-95	298.43	253.73	282.21	297.34	282.35	341.57	344.03	309.02	264.91	277.09	241.51	292.86	280.16
Average weekly household expenditure													
	DCYD	DCYE	DCYF	DCYG	DCYH	DCYI	DCYJ	DCYK	DCYL	DCYM	DCYN	DCYO	DCYP
1994-95	283.58	239.64	274.23	296.07	257.08	316.25	321.00	276.80	259.93	271.87	230.73	280.53	295.33

Source: Family Expenditure Survey, Office for National Statistics

7 Total average gross weekly pay[1]

£

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DEOG	DCQK	DCQI	DCQH	DCQE	DCPI	DEOH	DCQF	DCQG	DCQJ	DCQL	DCQM	DCQN
1991 Apr	283.80	258.00	257.90	261.30	268.90	361.10	295.30	265.60	261.10	267.10	252.20	265.30	245.90
1992 Apr	303.80	282.30	277.30	276.10	288.40	385.30	315.60	283.10	279.90	285.50	270.90	286.70	269.60
1993 Apr	316.00	288.60	287.40	285.70	292.20	408.00	328.70	298.40	291.90	298.80	281.20	296.80	282.40
1994 Apr	324.70	297.00	298.60	293.50	302.70	415.50	339.10	308.70	301.40	307.50	291.40	300.80	286.50
1995 Apr	335.30	299.10	305.00	305.50	308.60	439.50	346.40	313.80	311.00	317.50	301.30	313.40	300.20

1 Average gross weekly earnings of full-time employees on adult rates whose pay for the survey pay-period was not affected by absence.

Sources: New Earnings Survey, Office for National Statistics; Department of Economic Development, Northern Ireland

8 Claimant unemployment as a percentage of total workforce

Seasonally adjusted

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCKH	DCKP	DCKN	DCKM	DCKJ	DCRA	DEOB	DCKK	DCKL	DCKO	DCKQ	DCKR	DCPL
1991	8.0	10.3	8.7	7.2	5.8	8.0	5.9	6.9	8.4	9.3	9.0	8.8	13.2
1992	9.7	11.1	9.9	9.0	7.6	10.5	8.2	9.2	10.3	10.6	10.0	9.4	13.8
1993	10.3	11.9	10.2	9.5	8.1	11.6	9.0	9.5	10.8	10.7	10.3	9.7	13.8
1994	9.4	11.3	9.6	8.7	7.2	10.7	7.8	8.3	9.7	9.9	9.3	9.2	12.9
1995	8.2	10.4	8.8	7.6	6.4	9.7	6.6	7.2	8.3	8.6	8.3	8.0	11.7
1995 Mar	8.4	10.6	8.9	7.8	6.4	9.8	6.7	7.4	8.5	8.9	8.3	8.2	11.9
Apr	8.3	10.6	8.9	7.7	6.4	9.8	6.6	7.3	8.4	8.8	8.3	8.1	11.8
May	8.3	10.5	8.8	7.6	6.4	9.8	6.6	7.3	8.4	8.7	8.3	8.0	11.7
Jun	8.3	10.4	8.8	7.6	6.4	9.8	6.6	7.3	8.4	8.7	8.3	7.9	11.6
Jul	9.3	10.5	8.8	7.6	6.4	9.8	6.6	7.2	8.3	8.6	8.4	8.0	11.7
Aug	8.2	10.5	8.8	7.5	6.4	9.7	6.5	7.2	8.2	8.5	8.3	7.9	11.6
Sep	8.1	10.3	8.6	7.4	6.4	9.6	6.4	7.1	8.1	8.4	8.2	7.9	11.5
Oct	8.1	10.3	8.6	7.4	6.3	9.6	6.4	7.1	8.1	8.4	8.2	7.8	11.5
Nov	8.0	10.2	8.6	7.4	6.3	9.5	6.3	7.0	8.0	8.4	8.1	7.8	11.4
Dec	8.0	10.1	8.6	7.4	6.3	9.5	6.3	6.9	8.0	8.3	8.1	7.8	11.4
1996 Jan	7.9	10.0	8.5	7.3	6.1	9.4	6.1	6.8	7.8	8.2	8.1	7.8	11.4
Feb[1]	7.9	10.1	8.5	7.3	6.1	9.4	6.1	6.8	7.9	8.3	8.2	7.8	11.4

1 Provisional

Source: Office for National Statistics

9 Long-term claimant unemployed as a percentage of total workforce (those out of work for 12 months or more)

Percentages

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCKS	DCLA	DCKY	DCKX	DCKU	DCRB	DCKT	DCKV	DCKW	DCKZ	DCLB	DCLC	DCLD
1995 Apr	3.2	4.0	3.2	2.8	2.1	4.2	2.3	2.5	3.5	3.2	2.9	2.8	6.6
Jul	3.1	3.9	3.1	2.7	2.0	4.2	2.2	2.4	3.4	3.1	2.8	2.7	6.4
Oct	2.9	3.8	3.0	2.6	1.9	4.1	2.1	2.2	3.2	2.9	2.7	2.5	6.3
1996 Jan	2.9	3.8	3.0	2.5	1.9	4.0	2.1	2.2	3.1	2.9	2.7	2.5	6.2

Source: Office for National Statistics

10 Redundancies

	Great Britain	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland
	DCXD	DCXE	DCXF	DCXG	DCXH	DCXI	DCXJ	DCXK	DCXL	DCXM	DCXN	DCXO
Spring 1993	12.3	16.5	13.1	13.9	_2	11.2	11.2	12.5	13.9	12.4	11.4	11.3
Summer 1993	11.2	14.1	12.4	11.9	_2	12.6	10.1	10.7	11.3	10.6	15.6	8.5
Autumn 1993	9.6	13.8	9.1	8.3	_2	11.0	9.4	7.2	10.4	7.5	12.0	10.9
Winter 1993	10.6	13.1	11.2	11.1	14.1	10.2	8.3	11.5	10.6	11.2	12.1	10.7
Spring 1994	9.6	12.7	11.0	9.7	_2	9.3	9.1	8.8	10.7	8.9	10.8	9.5
Summer 1994	9.0	11.4	10.4	10.2	_2	7.7	8.9	7.9	7.9	9.6	_2	9.5
Autumn 1994	8.8	11.6	8.5	12.6	_2	8.0	7.2	7.9	8.3	9.7	_2	8.6
Winter 1994	5.5	_2	5.6	7.4	_2	4.6	6.7	_2	_2	5.4	_2	_2
Spring 1995	10.2	9.8	10.1	11.5	13.7	9.9	8.2	9.6	11.1	10.9	14.7	9.2
Summer 1995	9.7	15.4	9.2	11.6	_2	11.7	8.1	7.6	9.6	9.8	10.1	8.0
Autumn 1995	9.7	13.0	8.4	10.9	_2	9.5	10.2	7.7	9.6	9.0	11.2	10.0

1 Redundancies per 1,000 employees.
2 Sample size too small to provide a reliable estimate.

Source: Labour Force Survey, Office for National Statistics

11 Employees in employment (all industries)

June 1990 = 100

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCLE	DCLM	DCLK	DCLJ	DCLG	DCRC	DCLF	DCLH	DCLI	DCLL	DCLN	DCLO	DCLP
1994	97.0	95.6	95.5	96.7	99.3	90.5	92.9	96.8	92.8	94.4	97.5	98.2	104.0
1995	97.9	97.3	95.5	97.7	101.5	91.9	93.8	99.0	93.8	94.1	98.2	97.6	106.2
1995 Mar	97.1	96.1	94.7	96.9	100.2	91.4	92.8	96.9	94.1	93.6	97.4	97.0	104.9
Jun	97.9	97.5	96.3	97.2	101.4	91.4	94.2	99.4	93.3	93.8	98.8	97.8	106.1
Sep	98.0	97.2	95.2	97.7	101.9	91.9	93.9	99.7	93.1	94.4	98.4	97.9	106.3
Dec	98.6	98.5	95.9	99.0	102.5	92.8	94.2	100.1	94.6	94.5	98.2	97.7	107.4

Source: Office for National Statistics

12 Index of industrial production

Seasonally adjusted 1990 = 100

	United Kingdom	Wales	Scotland	Northern Ireland
	DVZI	DEOL	DEOM	DEPY
1986	90.1	92.3	90.2	86.0
1987	93.7	98.5	89.9	86.5
1988	98.2	104.8	95.3	91.8
1989	100.3	102.8	97.6	97.6
1990	100.0	100.0	100.0	100.0
1991	96.3	96.4	98.2	98.7
1992	96.2	98.1	98.5	99.5
1993	98.1	100.2	101.1	102.2
1994	103.1	104.0	106.0	108.9
1995	105.4	..	..	..
1994 Q4	104.2	106.1	107.1	111.7
1995 Q1	105.0	108.8	107.3	112.3
Q2	105.1	104.5	108.7	113.8
Q3	105.8	105.8	109.7	113.9
Q4	105.8	..	..	..

Sources: Office for National Statistics; Welsh Office;
The Scottish Office; Department of Economic Development, Northern Ireland

13 Manufacturing industry: optimism about business situation

Balance[1]

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCMO	DCMW	DCMU	DCMT	DCMQ	DCMP	DCMR	DCMS	DCMV	DCMX	DCMY	DCMZ
1995 Apr	13	−5	12	9	12	20	21	18	2	28	9	41
Jul	−3	−15	−8	−5	−4	−10	12	−4	−10	8	14	15
Oct	−11	1	−23	−2	−16	−6	7	−11	−31	−4	6	−27
1996 Jan	−6	−5	−21	8	9	−6	−3	−5	−7	−6	8	30

1 Balance in percentage of firms reporting rises *less* those reporting falls.   *Source: CBI/BSL Regional Trends Survey ISSN:0960 7781*

14 Manufacturing industry: volume of output

Balance[1]

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
Past 4 months												
	DCLQ	DCLY	DCLW	DCLV	DCLS	DCLR	DCLT	DCLU	DCLX	DCLZ	DCMA	DCMB
1995 Apr	26	−5	32	17	21	36	23	34	21	37	27	9
Jul	16	26	22	1	27	16	19	29	17	48	−1	32
Oct	7	16	5	33	11	14	11	17	−18	19	−8	4
1996 Jan	6	4	−3	16	−17	4	20	5	6	12	8	20
Next 4 months												
	DCMC	DCMK	DCMI	DCMH	DCME	DCMD	DCMF	DCMG	DCMJ	DCML	DCMM	DCMN
1996 Jan	16	23	8	25	−5	16	13	7	11	3	32	52

1 Balance in percentage of firms reporting rises *less* those reporting falls.   *Source: CBI/BSL Regional Trends Survey ISSN:0960 7781*

15 Manufacturing industry: volume of new orders

Balance[1]

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
Past 4 months												
	DCNA	DCNI	DCNG	DCNF	DCNC	DCNB	DCND	DCNE	DCNH	DCNJ	DCNK	DCNL
1995 Apr	27	1	40	35	20	34	46	39	15	45	27	19
Jul	12	25	21	–	–	17	23	29	10	33	–	20
Oct	4	30	−8	16	16	12	−4	14	2	14	9	9
1996 Jan	−1	−15	−16	13	−26	–	17	−3	–	14	17	9
Next 4 months												
	DCNM	DCNU	DCNS	DCNR	DCNO	DCNN	DCNP	DCNQ	DCNT	DCNV	DCNW	DCNX
1996 Jan	19	17	5	18	−12	14	11	15	20	19	26	33

1 Balance in percentage of firms reporting rises *less* those reporting falls.   *Source: CBI/BSL Regional Trends Survey ISSN:0960 7781*

16 Manufacturing industry: volume of new export orders

Balance[1]

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
Past 4 months												
	DCNY	DCOG	DCOE	DCOD	DCOA	DCNZ	DCOB	DCOC	DCOF	DCOH	DCOI	DCOJ
1995 Apr	34	7	35	55	31	36	40	35	20	38	−3	28
Jul	21	17	18	23	15	23	24	42	20	34	18	11
Oct	−11	10	−11	11	20	16	−5	24	6	17	8	3
1996 Jan	4	−11	−21	−3	−15	7	15	–	8	2	11	8
Next 4 months												
	DCOK	DCOS	DCOQ	DCOP	DCOM	DCOL	DCON	DCOO	DCOR	DCOT	DCOU	DCOV
1996 Jan	17	−2	12	12	−15	11	13	4	22	27	12	42

1 Balance in percentage of firms reporting rises *less* those reporting falls.   *Source: CBI/BSL Regional Trends Survey ISSN:0960 7781*

17 Manufacturing industry: firms working below capacity

Percentages

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCOW	DCPE	DCPC	DCPB	DCOY	DCOX	DCOZ	DCPA	DCPD	DCPF	DCPG	DCPH
1995 Apr	42	59	34	48	40	42	45	52	52	56	28	31
Jul	47	66	35	51	32	49	46	41	49	52	48	58
Oct	46	64	41	31	42	45	49	51	54	59	60	57
1996 Jan	49	54	44	50	48	51	52	54	47	59	38	68

Source: CBI/BSL Regional Trends Survey ISSN:0960 7781

18 Permanent dwellings started

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DEOI	DCRZ	DCRX	DCRW	DCRT	DCRR	DCWL	DCRU	DCRV	DCRY	BLIA	BLFA	BLGA
1994	209 504	9 645	15 700	16 523	9 925	16 954	40 690	18 304	17 254	19 793	10 589	24 440	9 687
1995	..	7 629	13 750	13 456	8 524	11 222	35 506	14 697	13 012	19 363	9 026[1]	..	..
1994 Q4	43 776	1 971	3 195	3 614	2 105	2 926	8 488	4 105	3 304	4 399	2 291	5 244	2 134
1995 Q1	47 636	1 997	3 592	3 326	1 988	3 113	8 881	4 148	3 748	5 367	2 213	7 032	2 231
Q2	51 905	2 267	3 803	4 308	2 720	3 169	10 772	4 383	4 087	5 640	2 751	4 992	3 013
Q3	..	1 858	3 470	3 119	2 119	2 925	9 657	3 518	2 642	4 551	2 271	..	2 465[1]
Q4	..	1 507	2 885	2 703	1 697	2 015	6 196	2 648	2 535	3 805	1 791[1]	..	..

1 Provisional

Sources: Department of the Environment; Welsh Office;
The Scottish Office; Department of the Environment, Northern Ireland

19 Permanent dwellings completed

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland[1]	Northern Ireland
	DEOJ	DCVZ	DCVX	DCVW	DCVT	DCVR	DCWM	DCVU	DCVV	DCVY	BLII	BLFI	BLGI
1994	189 084	8 439	14 346	16 261	9 750	15 255	38 320	15 996	15 955	18 660	9 947	19 178	6 977
1995	..	8 979	15 434	16 418	9 123	16 230	37 669	17 020	15 112	18 938	8 935[2]	..	..
1994 Q4	50 718	2 472	4 103	4 528	2 440	3 409	10 315	4 494	4 532	4 992	2 805	5 084	1 544
1995 Q1	47 649	2 427	3 651	4 211	2 342	3 935	9 426	4 116	4 230	4 690	2 092	4 945	1 584
Q2	..	2 411	4 008	4 443	2 260	4 150	9 838	4 212	3 611	5 024	2 071	6 452	..
Q3	..	1 934	3 895	3 641	2 184	4 098	8 940	4 453	3 677	4 324	2 179	..	..
Q4	..	2 207	3 880	4 123	2 337	4 047	9 465	4 239	3 594	4 900	2 593[2]	..	..

1 Figures for housing association completions are known to be incomplete. Revised figures will be included as soon as possible.
2 Provisional

Sources: Department of the Environment; Welsh Office;
The Scottish Office; Department of the Environment, Northern Ireland

20 House prices[1]

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCPQ	DCPY	DCPW	DCPV	DCPS	DCPJ	DCPR	DCPT	DCPU	DCPX	DCPZ	DCQA	DCQB
1994	93.9	110.3	100.1	93.6	88.4	88.7	86.5	89.0	96.3	100.5	99.2	117.7	118.0
1995	93.7	106.3	99.7	92.6	89.7	87.2	87.7	90.5	95.7	99.6	97.5	116.2	131.5
1994 Q4	94.1	112.0	100.0	93.4	88.0	87.9	87.4	90.3	95.4	102.6	94.2	117.3	121.4
1995 Q1	92.2	104.0	93.9	91.2	86.3	87.4	86.7	89.7	97.2	96.9	98.4	109.0	128.8
Q2	94.4	104.5	100.4	91.6	91.0	89.5	87.7	90.4	98.0	103.7	100.2	112.4	132.4
Q3	94.4	107.2	103.3	92.8	89.5	86.5	89.2	92.0	93.8	98.3	98.7	119.5	129.9
Q4	93.8	107.5	100.8	94.4	90.5	88.0	87.5	89.4	94.7	98.4	91.7	119.6	134.3

1 These indices adjust for the mix of dwellings (by size and type, whether new or second-hand) and exclude those bought at non-market prices.

Source: Department of the Environment

21 VAT registrations and deregistrations: net change[1]

	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCYQ	DCYS	DCYT	DCYU	DCYV	DEON	DEOK	DCYX	DCYY	DCYZ	DCZA	DCZB	DCZC
1991[2]	3.0	0.1	0.6	0.2	–	2.0	–1.2	–1.4	–	1.5	–0.4	0.9	0.6
1992	–39.0	–1.3	–2.6	–2.0	–1.8	..[4]	..[4]	–5.3	–3.0	–3.1	–2.0	–0.4	0.5
1993[3]	–22.0	–0.8	–1.2	–1.1	–0.8	..[4]	..[4]	–2.9	–2.6	–3.9	–1.7	–1.0	0.8
1994[3]	5.0	–0.3	–0.5	0.3	–0.3	..[4]	..[4]	–1.2	0.4	–0.4	–0.9	1.0	1.0

1 Registrations *less* deregistrations.
2 Includes adjustments to allow for the effects of changes introduced in the 1990 and 1991 budgets.
3 Includes adjustments to allow for the effects of changes introduced in the November 1993 budget.
4 Revised estimates not available. South East totals for years 1992-1994 are -18.1, -6.7 and 6.1 thousand respectively.

Source: Department of Trade and Industry

Managing the Nation's Economy
The conduct of Monetary and Fiscal Policy

Sir Terence Burns, Permanent Secretary, HM Treasury

Introduction

We have become used to an element of theatre in the conduct of economic policy in Britain. Budget day is one of the great events in our calendar and competes well for attention with the Cup Final, the Wimbledon final, and the last night of the Proms. I am fortunate to have been in the Official Box for 17 Budget Statements, rather more than the number of Cup Finals I have seen live at Wembley, although I am not complaining - I have seen more than my fair share.

Budget day and Cup Final day have many of the same characteristics. We see the endless pre-match speculation about the result as well as the concern about the fitness of the players. The exit from Downing Street with the Chancellor waving the Gladstone Budget box compares well with the walk from the tunnel at Wembley. The morning photographs in St James's Park, now discontinued, preceded the presence of cameras at the team's hotel and on the team coach.

The tension during the opening exchanges and the build up to the final whistle are all there along with the post match press conferences which form the basis for much of the press comment in the following days. Monthly monetary meetings are taking on some of the same characteristics. There was a time these meetings were irregular and arranged at very short notice, usually in response to unexpected events, with the Governor and Deputy Governor slipping unnoticed into the Treasury or 11 Downing Street. Now the meetings are regular, and signalled well in advance. As we arrive at the Treasury we are met with a battery of cameras waiting outside.

Reuters carry such immediate stories as "10.01 Meeting between Chancellor Clarke and Governor George begins". Every few months we have a photo opportunity around the Chancellor's table which forms the basis for library footage for subsequent news stories about interest rates. Again we see the speculation and pre-match build up in the days leading to the meeting. One difference, however, is that the result is often left in doubt even when the event is over and the edited highlights are only broadcast 6 weeks after the game. The obsessive interest with the Treasury of course goes even deeper. On many occasions our egos are boosted by being the centre of attention. On other occasions it is quite puzzling. For example a national quality broadsheet newspaper has carried two completely untrue Treasury stories on the front page in recent weeks; one that I had banned the use of Latin in the Treasury and encouraged my colleagues to write in the style of tabloid journalists. And another that we were having a crisis over the size of the portions of potatoes in the canteen. You can see that the battle for the political soul of the Daily Telegraph is alive and well.

I mention all of this out of fondness rather than resentment. The ritual of these major occasions probably leads to a greater involvement of a wider range of people than would be the case otherwise. And on balance, I think that it does lead to a greater understanding.

Outline

My purpose today is to examine these events in a little more detail. I will spend some time looking at what we are trying to achieve, how we go about it, some of the difficulties inherent in the process and the institutional arrangements we now have in place. The emphasis of this lecture is on the conduct of policy. I would like to explain why we do things in the way that we do them. I do not want to get into a debate, particularly a politically contentious debate, about the choice of policies.

I will concentrate on the process. Experience suggests that the successful conduct of policy requires clear, sensible, workable objectives; a careful assessment of the instruments capable of delivering the objectives; an organisation and procedure which delivers the correct setting of the instruments; and a feedback process that enables us to learn from mistakes and build on successes.

The Treasury

But first I will outline a pen picture of the Treasury to set the context. Although we only have 1150 people - and declining over time - the Treasury has a wide range of responsibilities. Inevitably the Treasury means different things to different people. To students of economics it is probably most closely identified with the conduct of economic policy and the occasional economic crisis. To public sector bodies it is seen as the institution which makes spending money so difficult; always a little mean, sometimes rather fussy and often inconvenient.

You will rarely hear a good word said for the Treasury. And yet it is widely recognised that in a system of government with a large number of powerful departments each with their own statutory responsibilities, it is vital to have a powerful voice at the centre that can look over the whole spectrum of economic policy issues together.

The Treasury's responsibilities include setting the framework of monetary policy, making forecasts of the economy, setting interest rates, and handling EMU matters. We also set the framework for fiscal policy, run the Budget, set taxes each year, approve public expenditure, and fund the borrowing requirement in financial markets. In addition we have a range of important financial regulatory functions.

Life in the Treasury is dominated by the "policy" aspects of work; in particular thinking and advising Ministers. In contrast we have few executive responsibilities. Markets are run by the Bank of England. Taxes are collected by the revenue departments. Supervision is done by the Bank of England, Building Societies Commission and the Securities and Investment Board. Expenditure is undertaken by departments.

Mission And Objectives

One of the important conclusions that came out of our Fundamental Expenditure Review was that we should be clear about our objectives. At one level this seems trite and sounds no more than modern management jargon. But in practice, as anybody who has been through a similar process will know, it is both difficult and illuminating. After discussion with Ministers, we decided that the overall aim of the Treasury was "to promote rising prosperity based on sustained economic growth". This is significant because it recognises at the outset that we are not just in business to control inflation and public expenditure. They are means to an end. The end is to make the UK a more prosperous economy.

This overall aim is then fleshed out in a three-part mission. The first part of this requires us to "maintain a stable macroeconomic environment". The second requires us to "help strengthen the long-term performance of the economy and the outlook for jobs, in strategic partnership with others". And the third is to maintain a professional, well motivated and outward-looking organisation, committed to continuous improvement. Our ambition has been to design a high level mission statement that would be relatively unchanging and avoid political differences. There is rather more scope for debate in the choice of specific objectives to meet this high level mission. In the current specification we break down the job of maintaining a stable macroeconomic environment into the objectives of low inflation, sound public finance, affordable public expenditure and an efficient and effective tax policy.

The second part of the mission, to "strengthen the long-term performance of the economy" is associated with a range of supply side policies including efficient public expenditure management, efficient markets, privatisation and the Private Finance Initiative. I suspect that we would all agree that a stable macroeconomic environment is important for its own sake. Predictability and stability both make for a higher reading on any "feel-good" index. In addition macroeconomic stability provides the best climate for successful economic activity. In reality, it is another supply side measure.

In the 1960s and early 1970s we had greater ambitions for macroeconomic policy. It was hoped that the maintenance of a high and stable level of demand, and with it full employment, would create the climate for higher investment, faster productivity growth and in turn contribute to a higher long term growth rate. Inflationary pressures and a balance of payments deficit were seen as constraints and a lot of the contemporary debate was about how to ease them. An active fiscal policy combined with currency depreciation and wage and price controls was often advanced as an approach that might square the circle. It was the combination of very high inflation, recession, industrial disputes, sterling crises and escalating budget deficits that brought this approach to an end. Since the latter part of the 1970s the ambitions for macroeconomic policy have been more modest. Macroeconomic policy has been targeted on stability; in particular low and stable inflation and stable public finances. The emphasis on promoting more rapid growth has shifted to so-called "supply side policies" and away from macroeconomic policy. I say "modest objectives" of low and stable inflation and stable public finances. No one who has lived through the past 25 years can suggest that achieving even this ambition is straightforward. In the remainder of this lecture I want to look in turn at the objectives of low and stable inflation and stable public finances. I will examine the specification of the objectives, the instruments available to achieve the objectives, the difficulties inherent in using the instruments, the institutional arrangements we now have in place to improve our chances of success and some of the problems that remain.

Delivering Permanently Low Inflation

Delivering permanently low inflation is a problem that has dogged us for the best part of 30 years. In principle it is not difficult. Essentially we need a reliable feedback system that tightens policy with the emergence of inflationary pressures and eases policy as inflationary pressures subside, both in a timely way. Experience suggests that inflation will be reasonably stable if we keep output growing in line with the supply potential of the economy. If the economy grows too fast inflation tends to rise, and to get it down again we have to be prepared to see the economy growing below trend for a while. Obviously there are other factors, in particular pressures on world commodity prices

which can complicate the story, but even they tend to be influenced by capacity pressures in the world at large. There is some evidence, although not very strong, that this may not be a symmetric process. It is possible that the benefits of higher levels of output while growth is above trend may be more than outweighed by the loss of output in getting any resulting inflation down again. If this is the case it is clearly better to keep inflation low and stable.

There is no dispute that we have to do everything we can to improve the trend growth rate of the economy, although in practice it can only change gradually. Once low and stable inflation has been achieved keeping it down requires the actual growth rate to be kept as closely in line as possible with its underlying trend. The clear consensus around the world now is that monetary policy is the most effective way of regulating inflationary pressures and that short term interest rates are the main instrument of monetary policy. Through the role of lender of last resort, the authorities have the ability to set very short term interest rates and changes can be made quickly and frequently. Although longer term interest rates can also be important, short term rates seem to have an unambiguous effect on spending even if the effect can be delayed at times. And higher interest rates tend to push up the exchange rate which has a direct effect on prices.

By contrast fiscal policy is a blunter weapon. It takes rather longer to implement fiscal decisions and the impact on spending can be unpredictable due to offsetting movements of the savings ratio and changes to long term interest rates. But, above all, experience suggests that fiscal policy has to be directed towards maintaining sound public finances. It cannot effectively do two jobs at the same time. If fiscal policy is also used actively to control the level of demand it is easy to be sucked into unsustainable budget deficits which are subsequently painful to correct.

Essentially we have two objectives, low inflation and stable public finances. We have two instruments, interest rates and fiscal policy. Both instruments can have an impact on inflation but only fiscal policy can ensure stable public finances on a sustained basis. Intuitively, therefore, it seems clear that monetary policy will bear the main burden of delivering low inflation with fiscal policy taking the burden of delivering sound public finances. Despite this, there are very few practitioners who would argue that fiscal policy has no role to play at all in influencing demand and delivering low inflation. Sustained budget deficits can put pressure on spending, requiring higher interest rates and a higher exchange rate than might otherwise be the case, and in turn making monetary policy more difficult to conduct. Furthermore, longer term interest rates are likely to be higher as a result which will not only affect the level of demand but might also have an impact on the supply performance of the economy through its effects on investment.

Although this tends to be the view of practitioners it is difficult to demonstrate because, in the real world, low budget deficits often coincide with high short term interest rates rather than low rates. The explanation for this paradox is the influence of the cycle on both interest rates and budget deficits. Periods of boom tend to mean low budget deficits for the reason I mentioned earlier. And they are usually met by high interest rates in an effort to return to more balanced demand. Some analysts claim to show that when corrected for the cycle, lower budget deficits mean higher lower interest rates; but there are too many other things changing for this to produce reliable estimates of trade-offs. My own view is that if there is a trade-off between budget deficits and interest rates it is much too complicated to try and use in an active way. Instead of trying to be too clever, by far the safest

course of action is to direct fiscal policy towards sound public finances and the support of monetary policy. For example, if we are going through a period of abnormally high interest rates it does help if we can ensure that fiscal policy is not the cause of additional strain.

To summarise, the main task of delivering low and stable inflation falls to monetary policy and in particular to the setting of short term interest rates. On the one hand this sounds rather easy; and yet we know from experience that, in practice, it is intensely difficult. Essentially there are two reasons why mistakes are made; time lags and conflicts of objectives. The time lag between changes in interest rates and any impact on output and the inflation rate is the most important explanation for mistakes. The first effects of interest rate changes are seen on output and only subsequently on inflation. The average time lag between interest rate changes and inflation is maybe two years which means that some of the effect stretches even further into the future. Interest rates therefore have to be set today in order to influence inflation on average two years on. Interpreted literally this means building a picture of what the economy will look like beyond the time horizon that we can typically see. The accumulated evidence demonstrates that despite all the collected effort, experience and research there are substantial margins of error around forecasts of inflation two years ahead.

One consequence of the frailty of forecasts is a tendency to be over-influenced by what is happening today - or rather what today's data are telling us happened a few months ago. To some degree we all suffer from this no matter how hard we try. In an ideal world interest rates would rise as output strengthens to forestall any potential increase in inflation; and they would fall as output weakens without waiting for inflation to fall first. But any casual examination of the data will show a disturbingly close correlation between interest rates and the path of the monthly inflation rate. But waiting until you see the "whites of the eyes" of the inflation rate, tempting as it is, almost always means acting too late. The result is greater volatility of output, inflation and interest rates.

Another problem with time lags is that inflation remains low in the early stages of a recovery and it is all too easy to put faster output growth down to an improved underlying improvement in the economy rather than the operation of variable time lags. The result has too often been a period of over-optimism about economic performance in the early stages of recovery and similarly a period of over-pessimism at the opposite point in the cycle. The period of over-optimism is particularly dangerous as it is a difficult environment in which to tighten monetary policy. The second source of error is when a significant conflict of objectives emerges. It can be difficult to give sole attention to inflation when other important factors are moving in a way that creates problems.

One common source of conflict over the past 20 years has been the behaviour of the exchange rate. On occasions the interest rates that seem necessary to deliver the inflation objective can mean an exchange rate that seems uncomfortably high or low. This can generate demands for action to prevent exchange rates rising above or falling below particular levels. All too easily this can mean a monetary policy tighter or easier than was necessary to deliver the inflation objective. Following these experiences it is tempting to argue that exchange rates are simply another price and should be left to find their own level. But there have been other occasions when exchange rate movements have themselves been an important indicator of the stance of monetary policy and have indicated the correct course of action. For every occasion when (with hindsight) too much attention was probably paid to

the exchange rate I can think of other occasions when movements in one direction have been ignored for too long. Another example of the conflict of objectives comes with the short-run trade-off between inflation and output. Periods of rising inflation almost without exception follow periods of rapid output growth; and inflation only falls after a period of slowdown. This can produce an a-symmetric response. In particular, once inflation has risen, it can be difficult to design a policy of bringing down inflation when it is bound to involve a period of slowdown. It raises the inevitable question of whether the slowdown is "a price worth paying". The response of course is that the slowdown is not so much the price of bringing inflation down as the price for the period of rapid growth that preceded the earlier pick up of inflation. But that does not necessarily cut much ice at the time. And finally, a conflict can arise because the main instrument of policy, short term interest rates, matters so much to many people. In particular it can be very discriminatory in its impact. It has a big impact on the housing market and the construction industry and, if the tightening of policy also leads to a higher exchange rate, exporters will be hit disproportionately hard. Meanwhile other parts of the economy might remain relatively untouched. This in turn leads to accusations of "one club golfers". This is a powerful reason for supporting monetary policy with a consistent fiscal policy but there is a limit as to how far this can ease the task of inflation control. And so in public debate there is a constant bias towards seeking lower interest rates. The political process, in its widest sense, is much more on its guard to spot possible dangers of overtightening policy than it ever is in warning of the danger of failing to tighten.

These problems of time lags and possible conflicts of objectives have prompted a repeated search for automatic or semi-automatic feedback systems that will avoid these traps. As a result, in common with other countries, we have been through a number of phases in the conduct of monetary policy. Monetary targets were seen as a way of creating a mechanism that would encourage adjustments in plenty of time whilst avoiding too much emphasis on doubtful forecasts. The emphasis on the importance of monetary control and the long and variable lags inherent in the operation of monetary policy were important insights. But this regime ran into trouble because the hoped for predictive power of money supply measures was seen to fail. In the event inflation was brought down despite missing the targets. The period of maximum emphasis on monetary targets coincided with a period of rapid financial liberalisation which changed the rate of monetary growth consistent with low inflation. In general the regime was widely seen to imply too little discretion to look at a range of indicators and to take account of unexpected developments.

This was followed by a period when the judgement about the overall tightness of monetary conditions was made by a reference to a range of monetary indicators, including the exchange rate. This was successful for a period but ran up against the opposite difficulty that it seemed to be too discretionary. And there was a long-running complication about the role of the exchange rate and whether or not there was a target, explicit or implicit. Nigel Lawson sets out in his book his skirmishes with a rising and falling exchange rate, apparently unrelated to the underlying position, and the way the experience led him to become attracted by the search for greater stability of sterling.

During the period of membership of the Exchange Rate Mechanism interest rates were directed towards maintaining the position of sterling within the mechanism. This was conceptually easier although in practice it turned out to be difficult to deliver without coming into conflict with the stance of domestic monetary policy.

Since the autumn of 1992, when we left the Exchange Rate Mechanism, we have seen major changes in the way we conduct monetary policy. The aim has been to build on the system that was in operation prior to our entry to the ERM, but to remedy some of the earlier weaknesses.

The starting point is an explicit target for inflation two years ahead. The Bank of England produce an independent Inflation Report designed to assess whether or not we are on track to meet this target. The Chancellor and Governor have a regular and pre-announced schedule of monetary meetings, with minutes published about six weeks after the event -including being available on the Internet. And the Bank of England have been delegated the task of determining the timing of interest rate changes. These innovations are intended to reduce the dangers that I mentioned earlier. The inflation target is designed to give a clear focus for monetary policy, and to put the emphasis on the prospect for inflation on a two year horizon, the period over which interest rate adjustments should make a significant difference. The process is designed to ensure that we systematically consider the implications of a wide range of information each month but without the temptation to play down uncomfortable indicators. It is open to scrutiny to give confidence and credibility in these procedures. And we hope that we have introduced a process that encourages all of the participants to learn from experience. It is very easy to remember successes and to blot out mistakes. This process makes for a less selective memory for all those concerned.

The timetable for the monthly monetary round is now quite intensive. Alan Budd chairs an internal meeting of Treasury officials about a week before the Chancellor-Governor meeting. This meeting goes through a systematic evaluation of the latest indicators and gives the officials working in the Inflation team an opportunity to express their views about the implications for policy. A similar meeting takes place in the Bank and as a result I receive a letter from them setting out the Bank's provisional views.

The next stage is a meeting of Treasury and Bank officials, which I chair, about two days before the Chancellor-Governor meeting. This is an opportunity for a range of senior officials at both institutions to comment on the balance of evidence and the minutes of this meeting form part of the documentation for the Chancellor-Governor meeting. Whilst there may be an atmosphere of theatre surrounding these occasions, I should emphasise that there is no hint of theatre within the meeting itself. The Governor makes a formal opening presentation which appears verbatim in the published minutes. The Chancellor gives his initial reaction and then we have a wider discussion of the issues. So far I would count the change to the process as a success. The standard of debate both internally and externally has improved. We have made some progress in shifting the time horizon for the conduct of policy and downplaying the influence of the most recent inflation figures. For example, interest rates were raised in September last year because of the inflation outlook two years ahead even though the latest figure for underlying inflation at the time was 2 per cent and falling. When there were increases in interest rates last year we had the opportunity to set the reasons out in detail. Interest rates were probably raised at an earlier stage in the cycle than would have happened under the previous arrangements. And when there was a disagreement earlier this year the case on both sides was properly aired. I believe that the publication of the minutes went some way to dispel some of the early suspicions that the reluctance to raise interest rates was based on political considerations rather than on a different reading of the economy. I would not like to give the impression that there is no scope for

further improvement, but I would argue that we have now seen a series of important innovations which need time to bed in. Inevitably there are criticisms and suggestions for improvement which I would like to touch on.

Some have argued that the relationship with the Bank of England is potentially unstable. In particular at the outset there was some worry that the system would not be able to withstand a disagreement between the Chancellor and Governor. The concern was that such a disagreement would either be a great embarrassment or it would effectively mean the Chancellor handing over the final decision to the Bank of England, which was not the intended outcome. I suspect that these concerns are being dispelled gradually. The possibility of publishing minutes was thought through over several months. We operated a pilot exercise in real time, to see how it might work. This included pulling out the earlier minutes on the day they would have been published to see how they would read. After several months the Chancellor decided that it was worth going live and that he was convinced that it would be possible to maintain the present decision making procedures. Of course we have not yet seen all the possible circumstances. In particular we have yet to experience a case where there is a disagreement and the Chancellor takes a decision that is seen after the event to be clearly wrong. The law of averages suggests that on occasions this will happen. But we hope that the openness of the decision making process will persuade observers over time that "wrong" decisions are genuine errors of judgement, made in good faith, rather than deliberate changes of policy.

Some argue that the inflation target is too tough and that there is a built-in deflationary bias implicit in the process. This is partly a matter of whether or not you believe there are any significant medium term benefits from a looser target. As far as the process is concerned, I would simply say that you will search hard to find any significant sustained period over the past 60 years when there has been a serious disinflationary bias in the stance of our monetary policy. If, exceptionally, we are living through such a phase this is something to beware of but I would hope that the arrangements we have established along with increased credibility would make it easier to respond to such a set of circumstances.

I accept that even for those who are fully signed up to the case for a low inflation target there is a technical difficulty in making proper allowance in the formulation of the target for the inevitable cyclical variation in inflation. Clearly there has to be some scope for variation although if the procedures are successful it should be less than the typical experience of the past 25 years. The danger with any range is that once it is fixed it is easy to drift to a position where the upper bound becomes the implicit target and there is no room left for handling surprises. This is also a recipe for a gradual loosening of the inflation ambition. The latest target seeks to cope with this danger by shifting the emphasis to keeping inflation below 2.5 per cent while acknowledging that some variation is inevitable. My own preference would be to move over time further from the idea of a range and to put more emphasis on the mid-point whilst making it clear that we become increasing uncomfortable as we move away from it. But I fear that the concept of the "target range" is too deeply embedded to do this very quickly.

Some commentators express concern that the inflation target puts too much weight on the forecasting process. I agree there is something in this. It is easy to be drawn into putting too much emphasis on black-box forecasting techniques. Ministers can find it difficult to question these forecasts at the time and can then feel slightly resentful afterwards if the forecasts are wrong. In

addition, the forecast errors for the months immediately ahead tend to get too much publicity. They can easily be used to discredit the process and distract attention from the two year horizon. On the other hand there is no way round this. The inflationary process has lags embedded within it and any control system will involve looking towards the future to some degree, whatever the method that is chosen.

Finally it is sometimes said that this approach means that it is too easy to slip into a language that implies that inflation control is synonymous with holding back growth whereas we have said that the Treasury's prime job is to promote growth of output and living standards. Again there is a danger here. The missing piece in the jigsaw, of course, is the unambiguous desire to improve the supply performance of the economy so that it is possible to have a faster growth of output without generating inflationary pressure. Although I am concentrating on macro-economic policy today I am in no doubt that it is much easier to conduct a successful macro-economic policy if the underlying supply performance of the economy is sound. Although good macro-economic policy has a part to play in improving supply performance it is also the case that good supply performance makes good macro-economic performance easier to deliver.

Maintaining Sound Public Finances

I have spent most of my time on the first macro-objective of delivering permanently low inflation. I plan to spend less time on the second, maintaining sound public finances, partly because I have already made some comments about the role of fiscal policy. I have already argued that the job of delivering sound public finances clearly falls to fiscal policy. By that I mean discretionary changes in taxes or government spending to influence the level of government borrowing over time. Conceptually this is fairly straightforward. We should set an appropriate path for government borrowing and indebtedness and make adjustments to the balance of taxation and spending to achieve them. In practice there are a number of obstacles to turning this general objective into operational targets.

The first challenge is that while it is possible to say within a reasonable margin what we mean by "stable prices" there can be no similar precision about what we mean by "sound public finances" There is no analytical device to answer the question "what is a safe level of government borrowing" any more than to imagine there is a unique answer to the question of how much it is safe for individuals or companies to borrow. There are no hard and fast rules apart from possibly containing debt service costs and the level of total debt outstanding in a way that avoids being caught in a debt trap where it is only possible to finance debt interest charges by higher levels of borrowing.

The second challenge is simply the scale of the fluctuations in government borrowing that can take place year by year. In practice budget deficits are typically influenced much more by cyclical developments, variations in effective rates of tax collection and inflation surprises than they are by the budget measures themselves.

Cyclical effects can be very large. On the tax side this mainly reflects the gearing of corporation tax collection to changes in profits. And on the spending side the biggest impact comes from variation in social security payments. We also see surprising changes in the effective rate of tax collection. It is easy to imagine that there is a simple arithmetic relationship between incomes, expenditure, tax rates and tax collection. In practice the existence of allowances, exemptions and differing tax rates on different components of spending means that there is a lot of uncertainty.

A third complication is inflation. Variations in the inflation rate affect the balance of tax and spending. Public expenditure planning and budgeting is now fixed in cash terms or set in relation to inflation indices for the previous September. But tax collection varies according to the level of incomes and prices. An unexpected reduction in inflation will push up the PSBR because in the short-term tax collection will fall much more than expenditure is likely to undershoot.

These factors also explain why the average errors for official PSBR forecasts are so big. Not surprisingly these forecasts come in for a lot of criticism. Without being too defensive I have to point out that over time the errors in outside forecasts of the PSBR are even bigger. Whereas outside forecasters can match the official record in forecasting output and inflation when it comes to the PSBR the official forecasts have the edge. These difficulties also go some way to explain some of the changes in emphasis and some of the swings in borrowing we have seen over the past 20 years.

In the late 1970s and early 1980s when the budget deficit was very high as a percentage of output there was no need to be precise about the objective. It could be expressed in general terms as the desire to get levels of public borrowing down.

By the mid-1980s following some success in reducing borrowing levels Nigel Lawson introduced the concept of the "modern version of the balanced budget". This was that we should aim for a PSBR of one per cent of GDP which was roughly the level of borrowing that, at the time, was thought to be consistent with a stable debt to GDP ratio at zero inflation.

The late 1980s saw a further unexpected success in improving public finances and a move to a PSDR or Public Sector Debt Repayment. This led to the conclusion that an objective of a "balanced budget" was easier to understand and "had a good historical pedigree". Looking back now we can see that a good deal of the move into surplus was caused by a very high tax collection relative to incomes that turned out to be temporary. Part seems to have been a shift of expenditure to more VATable goods and part reflected an enormous and unexpected inflow of corporation tax as the 1984 reforms fed through the system. The other important factor was the movement of output over that period. In hindsight, and after some statistical revisions, we can now see how far output had risen above trend during that period and the extent to which the debt repayment turned out to be "cyclical".

The move back into deficit was substantially the unwinding of these effects. The high rates of tax collection subsided, and public expenditure rose again as output fell both absolutely and even more relative to trend. In addition there were significant tax reductions in the late 1980s based in part on the high level of debt repayment. Since the return to a borrowing requirement the aim has been to bring the PSBR back towards balance over the medium term and subsequent Budgets have been directed to that end.

These experiences have influenced some of the substantial changes we have seen in the way fiscal policy is conducted.

The first major innovation was setting out in the Medium Term Financial Strategy a profile for borrowing for a three to five year period. Although not targets they provide a baseline against which subsequent movements of borrowing can be judged. And this is only one part of an enormous effort that has been made to be open about the background to the Budget. A huge volume of paper is published on Budget Day setting out the background to Budget decisions.

Second, over the years a lot of effort has gone into measuring and justifying the use of the concept of the "underlying budget deficit" to try to allow for some of the fluctuations we have seen. However, only limited progress has been made. In a world of large forecast errors the actual figures seem to possess a firmness that prospects and "underlying" calculations do not possess. But we continue to search for measures that will be convincing and contribute to the policy debate.

Third, there is a Panel of Forecasters, the so-called Wise-men, who provide an independent view for the Chancellor on economic prospects and policy. Their report provides a useful external input to the Budget discussions and typically offers a series of alternative and challenging views about monetary and fiscal developments and the appropriate policy implications. Some comment has been very critical of the team, suggesting that they should have come up with an agreed, alternative report. This is to miss the point. The strength of the Panel has been in their variety and the fact that they represent a wide range of views. Their contributions demonstrate the complexity of the problems and the reality that there is no simple, alternative approach out there that the official Treasury has foolishly chosen to ignore.

Fourth, we are engaged in a major exercise to introduce a full accruals-based accounting and budgeting into government which should go some way to correct for the lack of distinction between capital and current spending and the absence of balance sheet information. From time to time doubts are raised about using the PSBR as the indicator for the conduct of fiscal policy. We have looked at this many times with a critical eye ourselves and always concluded that none of the alternatives are better. The switch to resource accounting and budgeting will provide a workable alternative framework. Meanwhile we have given more emphasis to the need to ensure that when the economy is on trend government borrowing should not exceed the amount that is required to finance its net capital spending.

Fifth, we have seen some major changes on the public expenditure side since 1992. Before then, the annual Survey of our forward plans had been conducted largely in a series of bilateral negotiations between the Treasury and each spending department with little collective Cabinet involvement until the Treasury asked its approval for the outcome. This appeared to put the Treasury in a powerful position, but in practice it could degenerate into a series of haggles. This made it difficult to take a strategic decision either on the public spending totals or on the priorities within them. So in 1992 we asked Cabinet to set a firm upper limit on the totals and established a senior Cabinet Committee, EDX, to oversee the allocation to departments. While the process remains largely hidden from the public, it was an important step to transparency and rationality within Government.

Finally, the main institutional change has been the shift to the unified Budget; bringing tax and spending decisions together for the first time. The effect has been to reinforce the consideration of public expenditure along with the ambitions for tax rates. So far it has worked well although there is still more scope for bringing the two sides more genuinely together; there is still a tendency to run them in parallel.

Of course the move to a unified Budget has had a dramatic effect on our work schedule. It has meant moving both sides of the Budget to November so that there is time for public expenditure decisions to be translated into detailed budgets for departments. Although a unified Budget was always attractive in principle, I was quite nervous about the practical implications when Norman Lamont decided to make the move . The Budget now takes place at the end of a crowded three month period that includes the IMF meetings, the party conferences and the Queen's Speech debate. This puts tremendous pressure on Treasury Ministers and the timetable only works because of a lot of careful planning and attention to detail.

The process starts with a one-day meeting at Dorneywood in early June. At this meeting we have a first set of estimates of short-term prospects and projections of the PSBR on unchanged policy for the short term and medium term. We discuss the medium-term fiscal objectives and possible changes that may be required to achieve them. We also have a view of the current year's public spending outturn and the likely pressures for the following year and later years. We have some preliminary discussion of broad tax possibilities but the meeting's main purpose is to settle the Chancellor's advice to Cabinet on the public spending remit.

By the time we go to Chevening in late July we have published a Summer Economic Forecast and Cabinet have settled the expenditure remit. This is a two-day meeting and we have a further update of the economic prospects, including for the PSBR. We spend considerably more time on the prospects for the spending round and how we might meet the remit and consider the scope for tax cuts or the need for tax increases. It is also at this stage that we begin to get into the detail of possible tax measures and construct a first scorecard of possible Budget measures. And, of course, this is the occasion for the traditional snooker match between Ministers and Mandarins. The result is a closely guarded Budget secret itself - apart from the occasions when Ministers have emerged as winners.

In September we have the first of a series of Budget Overview meetings and EDX begins its serious work. We have a further one-day meeting at Dorneywood in mid-October. This meeting has another updated view on prospects for the economy and for the PSBR. We therefore have a close to final view of what the pre-Budget PSBR is likely to be. We are also close to having a final public expenditure scorecard and we have a semi-final discussion of the revenue possibilities.

From Dorneywood II onwards it is a matter of settling the details and embarking on the huge administrative task of finalising all the documentation. It is quite a job and keeps the Treasury buzzing until about mid-day on Budget morning.

The unified Budget is responsible for some other important changes. It has freed up the period from January through to July and enabled staff to work on longer term issues. The previous arrangements with two major exercises involving Parliamentary performances, published documents, and extensive briefing was a big overhead. And of course it has shifted the traditional Chevening week-end from January to July. We have swapped snow-swept scenes for glorious and colourful displays although so far without any great change of emotions. These changes are also very confusing for the media. The two additional visits to Dorneywood are one-day events and my golfing partners are sometimes surprised to see me on a Saturday morning in October when they have just heard on the news that we are locked up at Dorneywood for the week-end.

A Monthly Indicator of GDP

by Colin Yeend and Ashley Pottier, Office for National Statistics

INTRODUCTION

A method for estimating a monthly interpolation of GDP and its main components, which are fully constrained to the latest published quarterly estimates, has been developed for the Office for National Statistics (ONS). The models also enable an extrapolation of GDP for up to two months beyond the latest published quarter to be produced, as an indicator of the first preliminary GDP estimate.

The estimates are derived using a new regression model-based system for interpolating monthly national accounts. The work is the result of the first part of a research project originally carried out for the Central Statistical Office (CSO) by a team from the Department of Applied Economics (DAE), University of Cambridge, comprising Eduardo Salazar, Richard Smith, Martin Weale (now Director of NIESR) and Stephen Wright. The project ran from February 1994 to April 1995 and also included a second part on leading indicators of GDP which is discussed in an accompanying article in this edition of Economic Trends.

This article covers the construction of the monthly indicator of GDP (MIGDP), including a summary of the methodology adopted, and the results produced in simulation testing carried out by CSO. So far these tests have produced some interesting results indicating GDP growth on a monthly basis to be very close to quarterly GDP estimates published later. This has encouraged the ONS to continue using MIGDP to aid its assessment of the quarterly GDP estimates.

BACKGROUND

The history of the project goes back around five years, to when HM Treasury (HMT) began to look at the possibility of interpolating a monthly path for the quarterly series of GDP using monthly indicators in regression models. At this stage the earliest published estimate of GDP was seven and a half weeks after the

end of the quarter and, although there was a regular internal exercise by the Treasury forecasting team to estimate the latest GDP, HMT were looking for a more timely indicator.

The introduction of the preliminary estimate of quarterly GDP in 1993 was a big step forward by the CSO in producing a more timely estimate, three and a half weeks after the end of the quarter. However there is also a demand for monthly series for two reasons:

- when indicators such as the first estimates of Retail Sales and Index of Production (IoP) become available each month many economic analysts estimate GDP for the same period: in effect they construct an informal model to estimate GDP for the whole economy;

- a monthly picture would aid analysts in interpreting the latest developments in the economic cycle especially around the turning points. Thus the MIGDP could help in the assessment of future trends.

The ONS already publishes a monthly indicator representing the whole economy - the coincident cyclical indicator. This indicator has four drawbacks: (i) it does not quickly pick up changes in the economy; (ii) it comes out two months after the period to which it relates; (iii) it suffers from significant revisions to first estimates and (iv) the choice of indicators and the method of integrating them into one single composite measure is a simple weighting process which does not reflect a consistent theory of how the economy works which makes it difficult to interpret. The leading indicators published with the coincident one (as part of the ONS's cyclical indicator first release) also suffer to a varying degree from the last weakness.

The CSO has periodically reviewed the cyclical indicators, the last of which was presented in Economic Trends, July 1993[1]. However whilst it was taking place the limitations set out above suggested that a more fundamental review was required. A research project was set up to review the cyclical indicators and suggest further options.

CHART 1
MIGDP Levels 1975-1995
(Inset box shows comparison of MIGDP with simple interpolation of published quarterly GDP)
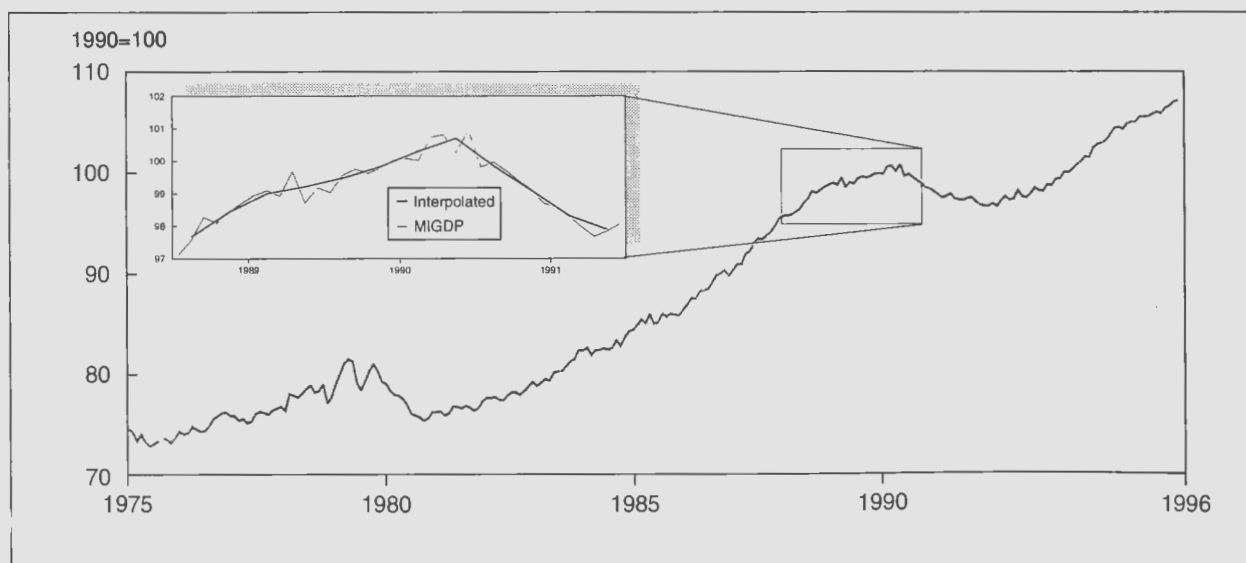
Proposals for the project split into two camps: a traditional approach using regression models, and a more radical approach of state-space models using Kalman filters. One of the criteria which the CSO felt was important was that the method adopted would need to be easily explained to the wider public, as well as interpretable within the CSO. After careful consideration of both options, the CSO and HMT awarded a research contract to the Cambridge team. The basis of their proposal was an innovative use of regression models.

The research has been extensively reviewed. CSO and HMT representatives formed a steering group to ensure that the work stayed on track. At the end of the project, the consultants' report was examined by a panel of academic experts convened by HMT. In addition a shortened version of the report was presented by Martin Weale to both the ESRC Macro-Modelling Conference at the University of Warwick in September 1994 and the Quarterly National Accounts Workshop[2] in Paris December 1994 organised by INSEE and Eurostat. More recently, a paper on MIGDP concentrating on its potential applications in short-term forecasting was presented by CSO at the twenty-second conference of the Centre for International Research on Economic Tendency Surveys[3].

THE COMPOSITION OF THE MONTHLY INDICATOR

The DAE work allows interpolated monthly estimates to be produced for:

- constant price output components of GDP;

- the expenditure components apart from stockbuilding which is estimated as the residual of GDP output measure less the other expenditure components;

- income from employment with the rest of the income measure (operating surplus) again taken as a residual with respect to GDP output; with

- models for deflators of the expenditure components and GDP at factor cost, allowing in principle current price estimates of these to be produced.

The CSO concentrated its development of the DAE work solely on the output components of GDP which it believes is the best measure for producing estimates of latest movements in GDP. Chart 1 shows the monthly estimates of GDP, produced from the output components, and the information it adds at a turning-point to a straight interpolation of the quarterly GDP output series. It is thought that the models for the expenditure and income components would be generally less reliable than the output models, at least until the quarterly series are available to constrain the monthly estimates but these have yet to be tested. Consequently this article does not consider the expenditure, income or deflator models.

The monthly indicator is at constant prices and is a combination of existing published monthly series (eg. IoP) and modelled series using either complex regressions or simple autoregressions. The choice of regression technique depends on the availability or otherwise of appropriate indicator series. Table 1 sets out the coverage of data for the GDP components of output as well as the monthly indicators used in the models produced.

The output components for which models are used are: agriculture, ownership of dwellings and public services output, where autoregressions are used (as no useful monthly data are available); construction, where a regression in levels, with cointegration[4], is estimated; and private services output where a regression in first differences is estimated.

The most important model in setting the overall growth of GDP is the one estimating output of private sector services, representing 40 per cent of GDP. No cointegrating equation (or long-run relationship) could be found linking potential explanatory series with private services output. This is not surprising given that many of them were not directly measuring activity within service industries. Hence a standard regression model, in first differences, has been produced which relates private services to manufacturing output, retail sales, imports of goods and heavy goods vehicle mileage. (Manufacturing output and retail sales are the most important indicators in the model.) The diagnostic tests were all satisfactory and the within sample fit is good: with an R^2 in terms of change in services output of 0.8 and a standard error of around 0.4 per cent. Given that there were no long-run relationships the out of sample forecast performance is also surprisingly good.

TABLE I
Components of Output GDP: Availability of Monthly Indicator Data

	Agriculture and Fisheries	Production Industries	Construction	Private Services	Public Services and Ownership of dwellings
Availability of indicator Data	Few	100% Data	Indicators Available	Strong Indicators Available	None
Percentage of GDP in 1990	1.9	28.1	7.2	40.8	22.0
Standard Deviation of Contribution t0 GDP Growth (%)	0.14	1.40	0.42	1.22	0.25
Type of model	Autoregression	N/A	Regression with Cointegration	Regression in First Differences	Autoregression
Indicators Used	N/A	N/A	Construction Orders Received, Output of Metalwork, Output of Concrete Goods	Retail Sales, Manufacturing Output, HGV Mileage, Imports of Goods (OTS Basis)	N/A

CHART 2
Revisions to MIGDP Levels: Comparison of a volatile month and a stable month

Legend:
- Volatile - July 1994
- Stable - August 1994
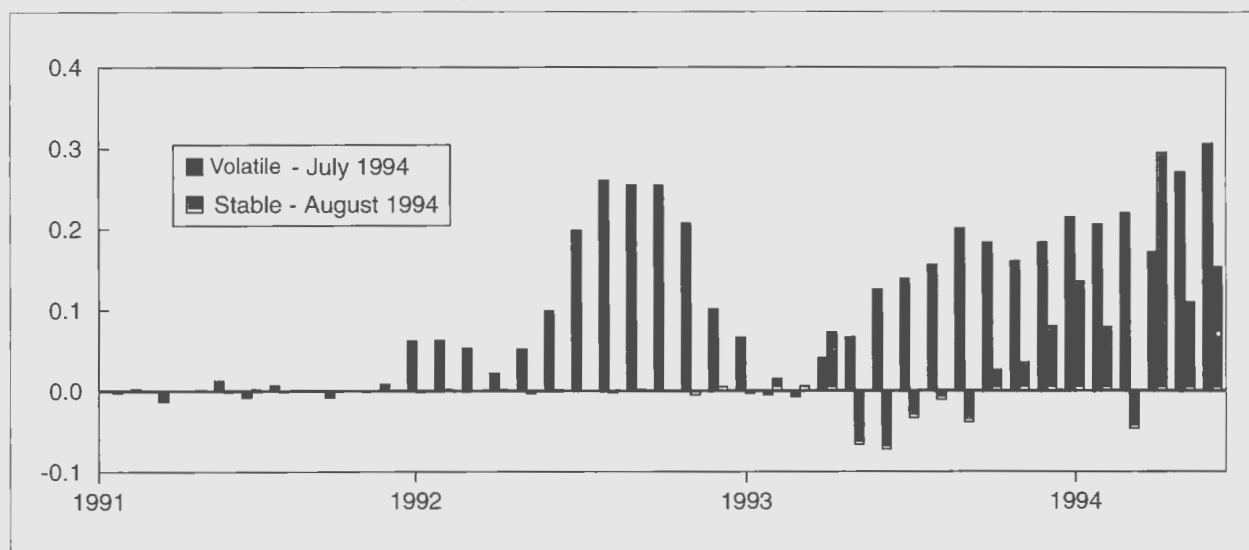
All of the models have been estimated using seasonally adjusted data, although in principle unadjusted data should be used since seasonal adjustment may induce moving average processes in the data. (Even 'clean' data would, at the very least, need to be adjusted for trading day and public holiday effects.) A full set of published indicator series in an unadjusted form could not be found, so the seasonally adjusted equivalents had to be used. However the models were estimated satisfactorily with lagged-terms. No significant serial correlation was found in the major GDP out models, especially the private services model, indicating that no moving average processes were present. (Only a model for estimating monthly construction output before 1983 showed signs of moving average processes.)

Since the CSO project was completed, the DAE team has also estimated the models using Maximum Likelihood Estimates (MLE) instead of using Generalised Least Squares (GLS) in the original system. MLE estimation is an alternative process which is generally preferred because it guarantees asymptotically unbiased estimates, although it takes more computer time to solve. The main distinction in practice is that the estimated standard errors on the coefficients of lagged dependent variables are slightly larger than the previous estimates had suggested. This in turn makes it easier to accept a model specified in first differences rather than a more general model including co-integrating relationships. It implies that the structure of the construction model might be simplified.

PERFORMANCE TESTING OF THE MODELS

When the research was originally completed by DAE in October 1994 they were only able to fit models using data up to the end of 1993. Therefore the first part of the testing work which CSO has completed was to run on these models using latest data. However it was also important to understand how the models would have performed on a month-by-month basis, so the results that the models would have shown over an 18 month period were replicated.

The most important variables in re-estimation of the monthly indicator are IoP and retail sales, because of their role in the models for private services and construction output, and the contribution that IoP makes to GDP output as a whole. The index of retail sales is released a little before IoP which comes out approximately five to six weeks after the month to which it refers. Thus in practice the earliest point at which the CSO could produce

an estimate of MIGDP would be at the time of publication of IoP, covering the same time period of data.

All of the results of the performance testing were derived by reproducing the MIGDP estimates over the period from January 1994 to June 1995. A vintage dataset was compiled as at January 1994 including all of the GDP output components and the monthly indicators, then the MIGDP output that would have appeared at the time of the IoP First Release was simulated. The exercise was then repeated, adding the next month's published values (including historical revisions) to the dataset each time up to June 1995.

Overall, the coefficients of the fitted parameters in all five output models were very stable over the test period. In statistical terms, all remained within one standard error of the coefficients in the original models generated by DAE up to the end of 1993.

The regression models with indicators passed the key statistical tests well, especially the private sector services model. The model representing the construction sector, presented by DAE, had showed signs of parameter instability. It was, nevertheless retained on the grounds that the parameter values represented an average over the sample period. The parameter instability persisted in our re-estimation, although the coefficients scarcely moved from the DAE estimates.

All three autoregressive models (for agriculture, public services and ownership of dwellings) displayed heteroscedasticity[5] suggesting that regression models would probably perform better. However as was stated previously, the research did not identify any obvious monthly indicators that could be included in a regression model. Since these three industries are either small components of GDP or contribute relatively little volatility it is thought that they will not adversely affect the performance of the monthly indicator. However this is an area that needs to be examined further.

In most months during the testing period there were no revisions greater than 0.1 of a percentage point to GDP, or the components, beyond the last 12 months. In general, and not surprisingly, greater revisions across all models would have been made in the month following the third estimate of GDP in a quarterly round. This is due to the incorporation for the first time of historical revisions to GDP into the MIGDP system. Even so revisions would have been restricted to roughly the last two years. Revisions beyond this point would have only occurred in the

CHART 3
MIGDP three month growth rates, January 1975-December 1995
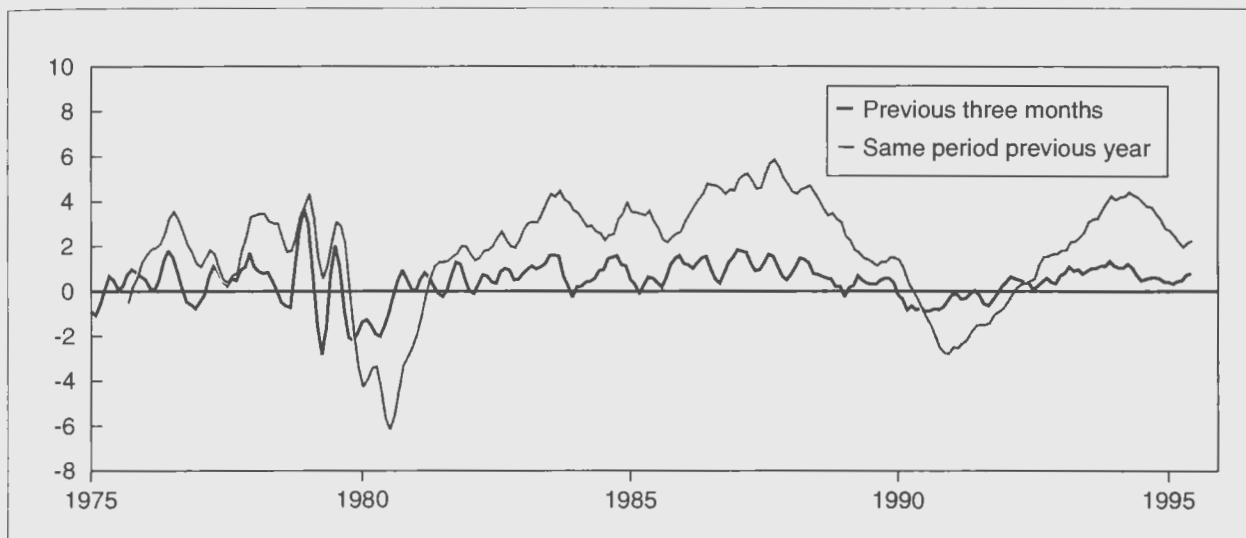
first month with the addition of Blue Book data and, very occasionally, months following exceptional historical revisions. Chart 2 illustrates these points, showing the revisions effect for GDP in July 1994, a month following exceptional revisions as well as a more typical month, August 1994. Overall the revisions performance is considered to be more than acceptable and compatible with that for quarterly estimates.

PREDICTIVE QUALITIES

It has already been noted that part of the original motivation for producing a monthly indicator of GDP was not only to produce a constrained interpolated monthly series, but also to extrapolate it, consistent with the latest published monthly information. Once the models have been fitted on a quarterly basis it is a straightforward process to let them run on to produce extrapolations up to the first two months in the latest quarter, after which the preliminary GDP estimate is currently published and the system is constrained once again. Chart 3 shows MIGDP growth rates for the latest three months, compared with the previous three months and the same period in the previous year.

Chart 4 shows the performance of the extrapolations for GDP over the test period, made prior to the published preliminary GDP estimates. Because the timing of MIGDP is the same as IoP, it is not possible to compare quarterly growth rates but instead the three month period up to the second month of the quarter for MIGDP has been compared with the appropriate quarterly estimate.

Overall the system predicts GDP growth reasonably well although it is less good for the components. The extrapolation performance for private services is similar to this although the performance of the autoregressions and the construction models is worse, which is not surprising given the exceptionally good fit for the private services model. However, over the test period at least, the differences have tended to cancel each other out to provide an overall estimate remarkably close to the preliminary GDP estimate.

One important aspect of the model testing which we have not been able to carry out yet is how they perform around turning points in economic activity. The test period examined was one of relatively smooth growth throughout and it is the ability to track turning points which is the most rigorous test for any econometric model.

CHART 4
Predictive quality of MIGDP: MIGDP (three month on previous three months growth up to month 2) compared with published growth rates (quarterly GDP)

31
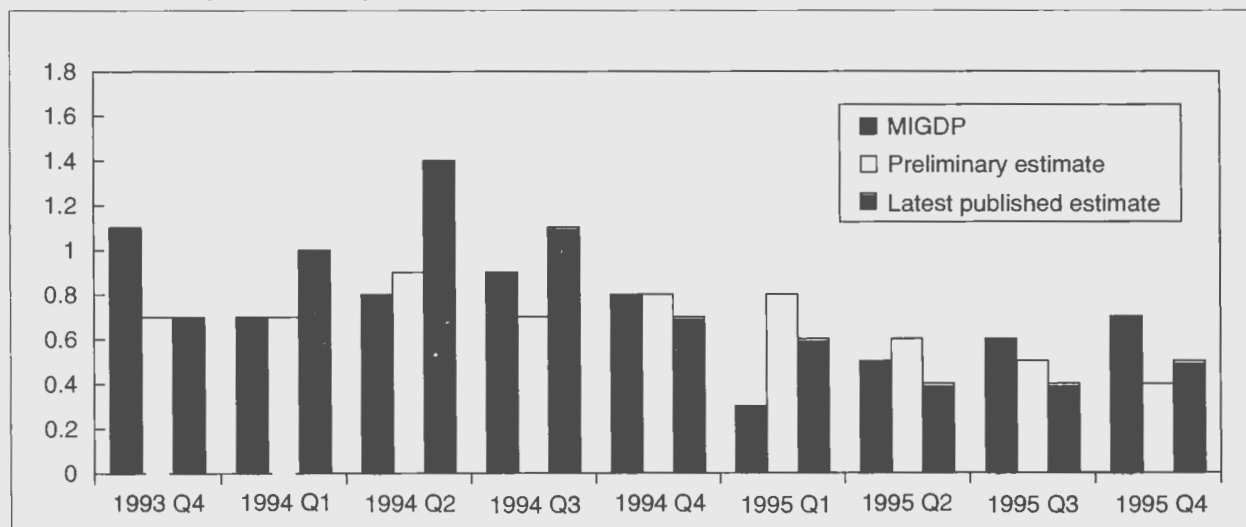
An example quarter: 1995 Q1

Another way to assess the performance of the MIGDP models is to examine one quarter in detail: 1995 Q1 was a good, if rather stringent, test since this quarter raised a lot of questions at the time over the growth in GDP. In particular, before the preliminary GDP estimate was published in April, growth in both IoP and retail sales was negligible. However the first estimate of GDP for Q1 showed strong growth of 0.8 per cent with a large element coming from services.

As has already been stated, IoP and retail sales are the most important indicators in the MIGDP models for determining the forecast growth of GDP so it would be expected that growth estimates by the models would be fairly small. The conclusion from the tests is that the models failed to pick up some of the growth (mainly that of private services) shown in the preliminary

estimate, however the overall MIGDP growth forecast was around 0.4 per cent - perhaps not as low as might have been predicted.

Growth over the first two months of the quarter from the private services model would have been shown as 0.9 per cent - not negligible. This arises from the constant term in the underlying (implicit) monthly model. Most of the components in the preliminary estimate of private services were roughly in line with the services model although there were some large exceptions. These were generally in sectors outside of the coverage of the monthly indicators, especially retail sales, and consequently would have been extremely hard to model.

As a final point it is worth noting that GDP growth for Q1 has since been revised downwards and was estimated in February 1996 at 0.6 per cent growth quarter on quarter. It is interesting to speculate whether the original estimate might have been closer to its final one if the MIGDP had been available then.

The Use of Indicator Variables to Interpolate GDP

The need for interpolation arises because the national accounts variables are measured only quarterly. On the other hand there are a range of monthly variables which are believed to be closely correlated with the national accounts aggregates. The statistical relationship between these variables and the quarterly aggregates can be used to generate monthly estimates of the national accounts aggregates.

If the relationship between the national accounts variables (y) and the indicators (X) is purely static and is defined in terms of the levels of the variables, things are very straightforward. We have an underlying regression equation on the monthly data

$$y = Xb + u \qquad\qquad (1)$$

where u represents a vector of 'white noise' regression errors. We can add up three successive monthly observations on the X variables to give their quarterly total. The sum of the three white noise regression errors will also be white noise, with one quarter's regression error uncorrelated with another's. So b can be estimated from quarterly data in order to determine the underlying relationship. Looking ahead, a monthly estimate of y is given as Xb. However the three monthly estimates will not add *ex-post* to the quarterly data when they are known. If u is genuinely white noise, the appropriate thing to do is to add a third of the discrepancy to each initial monthly estimate in order to give monthly data consistent with the quarterly data.

If the regression equation is correctly specified in logarithms, the adding up property is lost. The sum of three monthly logarithms does not equal the quarterly logarithm. However, a correction can be made for this which turns out to be almost exact when the monthly X variables are reasonably close to each other. Once again b can be estimated. However if the regression is logarithmic the underlying assumption is that errors are proportional. The discrepancy between the *ex-ante* and *ex-post* values of y has to be corrected by applying the same proportionate adjustment of each of the *ex-ante* monthly values.

When the regression equation includes a lagged dependent variable, things are more complicated. Suppose that the monthly equation is now

$$y = ay(-1) + Xb + u \qquad\qquad (2)$$

It is no longer possible to convert this to a quarterly equation with serially uncorrelated errors simply by adding up three monthly observations. We can generate an equation only in quarterly variables by adding to the equation for month t, a times the equation for month t - 1 and a^2 times the equation for month t - 2. In the quarterly equation the lagged quarterly value of y enters with a coefficient of a^3. The coefficients of X depend on a as well as on b, but this does not matter if a is known. Of more concern is the fact that the error in one quarterly equation is a function of the errors in neighbouring quarterly equations, in a manner that depends on a.

If a is known, it is possible to correct for the changed nature of the regression errors and estimate the equation by Generalized Least Squares. However, the model solution requires a to be estimated along with b. We therefore adopt an interactive process, estimating a before making any GLS correction, and then repeating the estimate using the previous estimate of a for the GLS correction. This is continued until the value of a converges.

If it is believed that the regression equation (2) represents the true process driving the y variable, then the correction needed to generate consistency between the fitted monthly data and the observed quarterly data should take this into account. For example if a is close to 1, then the error should be allocated in a way which keeps the changes in y from one month to the next small, while if a is close to zero, it makes more sense to allocate the discrepancy almost equally across the fitted values.

Further adjustments are needed when the underlying equation is logarithmic because the adding up constraint is more complicated, but the basic principals are the same as those set out above.

For the purpose of extrapolation equation (2) can be used as it stands. This gives monthly estimates beyond the end of the last observed quarterly data period.

There is one important special case of equation (2). If the value of a is equal to 1, then the equation is estimated in first differences. If the unrestricted estimate of a is consistent with a = 1, then it is often desirable to impose this value. For a value of a below 1, the X and y variables are co-integrated. With a = 0 the relationship is the purely static one given by (1).

SUMMARY OF THE METHODOLOGY

The underlying method is an extension of previous work by Chow and Lin[6] and Ginsburgh[7]. There is assumed to be a regression equation linking low-frequency and high-frequency data. If this regression is known it can be used to produce interpolated high-frequency estimates of low-frequency data. In this case the low frequency data are quarterly and the high frequency data are monthly. However the method can be applied to other cases; in fact, one of the tests carried out on the system was to compare quarterly GDP with interpolated annual estimates using quarterly indicators (the performance of which was remarkably good).

In the situation described by Chow and Lin it is assumed that there is a regression equation explaining levels of quarterly data by quarterly aggregates of levels in monthly data. Ginsburgh suggests a hybrid model. A regression equation is assumed to have been estimated in levels on quarterly aggregates but the interpolands are estimated so as to minimise the quadratic sum of their rates of change. The latter minimisation is more easily justified when the equations are specified in rates of change in the first place, and such a structure is more likely to be in line with present-day econometric thinking. However, care is needed in estimating the equation if it is assumed that the underlying model is specified in monthly first differences.

The DAE team presented a generalised framework of these methods to cope with a non-linear (logarithmic) relationship between the monthly and quarterly data. The framework also accommodates the more general dynamic structures which are often found helpful in modelling, for instance the situation in which there is a cointegrating vector linking the monthly data to the interpoland, but the vector has to be identified exogenously. This is done in a custom-made regression programme which takes account of cointegration and includes the full battery of tests carried out on the regression equations, as well as out-of-sample test forecasts for the last four quarters.

The underlying approach adopted is essentially structural, identifying links between quarterly and monthly variables which should be expected to be closely linked. This structural approach, however, requires some degree of disaggregation in the models for interpolation although it has the benefit that the regression coefficients can be assessed for plausibility.

Where no suitable monthly indicators are available, quarterly data can be interpolated on the basis of the quarter-on-quarter growth rate (assumed to relate from mid-month to mid-month of each quarter), but minimising the sum of the squared month-on-month changes which arise subject to the requirement that the monthly data add to the quarterly estimates. For the purpose of projecting the monthly output of these industries it would be necessary to forecast the quarter on quarter growth rate. An alternative procedure adopted by the CSO is to use autoregressions. This is found to be satisfactory since the series projected in this way have either little variability or else make only a small contribution to total GDP.

POSSIBLE FUTURE DEVELOPMENTS

Apart from those areas already highlighted for further investigation, the DAE team identified several deficiencies, especially on the private services model, where data could either be improved upon or extended. In particular they noted:

● Transport and communication, where monthly indicators investigated did not relate well to published quarterly data, possibly because of problems with numbers of trading days and seasonality and

● Public sector, where there is a lack of published monthly information, such as employment, wages and salaries: production of expenditure figures would be more complicated because of the accruals adjustments.

Other improvements were suggested for models on the expenditure and income side.

It was also noted that if there was interest in the private services model, this might support the case for attempting to measure services monthly by a more direct means. The CSO has been gradually introducing over the past few years quarterly turnover inquiries for the services sector. Some of these inquiries, in particular catering & hotels, motor trades and parts of wholesale, transport and communications, which combined cover around 10 to 12 per cent of the economy (out of a total for services of 40 per cent) have recently been put on a monthly basis. It is hoped that these will form the basis of a monthly index of services' output (although this would probably take at least another two years to prepare). If this were done then the monthly indicator could incorporate these directly measured survey results within its framework.

Extension of the monthly indicator methodology has been proposed outside of the CSO, which would include monthly non-CSO (ie. tendency survey) data, for instance data from the Confederation of British Industry (CBI) Industrial and Financial Surveys as well as newer surveys, such as the Purchasing Managers Index. Such data are more timely than hard data but obviously less reliable. Their use gives rise to conceptual problems because the data can be presumed to include an element of measurement error. This effects the nature of the model which can be estimated. One way in which this might work is to insert in the existing model IoP modelled/extrapolated using CBI manufacturing survey data and retail sales replaced by CBI distributive trades components (the coverage being less similar here). As the real data become available these would replace the survey estimates.

CONCLUSION

The monthly indicator is an interesting development in the short-term assessment of developments the economy. The results from the CSO's simulation exercise suggest that the methodology is useful, although the only true test is to use the models for real. However the methodology is essentially a forecasting technique, applied in this instance to GDP. Consequently it would be inappropriate for the ONS to publish the monthly indicator as part of its series of estimates of GDP outturns. It will continue to use the methodology developed for the monthly indicator, along with many other tools, to assess its quarterly GDP estimates.

ONS's future work on the DAE research is likely to concentrate on the implications for the cyclical indicators methodology. This is considered in more depth in the accompanying Economic Trends article. Meanwhile the existing series of cyclical indicators will continue to be published.

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1 Moore B.(1993), 'A Review of CSO Cyclical Indicators', Economic Trends number 477

2 Salazar,E., Smith,R., Weale,M. & Wright,S. (1994) 'Indicators of Monthly National Accounts', Atelier Sur Les Comptes Nationaux Trimestriels

3 Yeend,C. (1995) 'A Monthly Indicator of GDP for the UK', 22nd CIRET Conference, Singapore

4 Generally only stationary time series - ones that do **not** contain a trend and/or exhibit cycles with increasing or decreasing amplitude over time - should be used with regression techniques. But a group of non-stationary time series is said to be cointegrated if there is a linear combination (cointegrating equation) of them that is stationary, allowing the series to be used with the regression technique. This implies that there is a common factor which helps determine the path of the original series. Hence the cointegrating equation is interpreted as a long-run equilibrium relationship. It is plausible that there is a common factor driving the path of Construction Output and Construction Orders Received, the two series that are cointegrated within the model for construction.

5 Heteroscedasticity occurs when the variance of the error term in the regression is not constant. Hence although the relationship between the dependent and independent variables may remain constant on average, it progressively becomes more variable around that average.

6 Chow,G.C. & Lin, A.L. (1971) 'Best linear unbiased interpolation, distribution and extrapolation of time series by related series', The Review of Economics and Statistics 53, 372-75 Chow,G.C. & Lin, A.L. (1976) 'Best linear estimation of missing observation in an economic time series', Journal of the American Statistical Association 71, 719-21

7 Ginsburgh A., (1973) 'A further note on the derivation of quarterly figures from annual data', Applied Statistics 5, 388-394

Cyclical Indicators for the UK Economy

by Colin Yeend, Office for National Statistics

INTRODUCTION

Interest in cyclical indicators, rather like the economic activity which they attempt to track, appears to rise and fall periodically. Obviously, interest in the figures is at its highest when there is uncertainty about the direction of the economy and it appears to be about to change. However it also often seems to be in part a reaction to the perceived failure of the latest large macro-economic models to pick up the latest changes in the economy. Support for cyclical indicators stems from the need for a simpler predictive tool as well as the belief that series exist which have an inherently stable (and possibly causal) relationship with the state of the economic cycle. Moreover although they are sometimes criticised as merely confirming what is already known, there are also plenty of users who feel this confirmation adds value in itself.

This article takes a look at recent development work on the cyclical indicators originally conducted by the Central Statistical Office (CSO) and complements the article on the Monthly Indicator of GDP also published in this edition of Economic Trends. It presents the conclusions from a research project, carried out for the CSO by a team from the Department of Applied Economics (DAE), University of Cambridge during 1994-95.

The aim of the research project was to examine the existing system of cyclical indicators and to make recommendations for possible replacements. The DAE team arrived at a variety of criticisms of the cyclical indicators and proposed instead a new form of indicator, based on a multivariate regression modelling technique. The Office for National Statistics (ONS) has decided against the adoption of this new technique at least in the way proposed by DAE, largely on the grounds that it would be an explicit forecast of GDP growth.

The article attempts to give an appreciation of the existing cyclical indicators system and some of the criticisms levelled at it: it does not attempt to examine the forecasting record of the existing indicators in any detail. The article then looks briefly at the proposed new indicator and suggests an approach to the problem of improving the identification of turning points and which builds on the DAE proposal.

ONS's EXISTING CYCLICAL INDICATORS

The ONS publishes each month a set of four cyclical indicators of the UK economy: a longer leading index (which looks for turning points around year ahead); the shorter leading index (indicating turning points around half a year ahead); a coincident index; and a lagging index (looking at turning points a year after they occurred). The methodology is based on the traditional approach of the US National Bureau of Economic Research (NBER) developed by Burns and Mitchell[1]. It is very similar to that employed by, amongst others, the US Department of Commerce (now conducted by the Center for International Business Cycle Research, Columbia University) and the OECD.

The composition of the indicators was last reviewed in 1992/93 and the results were published in CSO's Economic Trends, July 1993. However, the CSO had noted growing concern over both the methodology and the results amongst users. Criticism has been on the grounds that the leading indicators generally predicted broad swings in the growth cycle when indicators were chosen after the event, but the performance of the indicators was sometimes less than robust due to data revisions and revisions to trend level in the light of new data. It has also been noted that the implicit assumption of a fixed five year cycle to calculate the trend could be misleading if the latest cycle is atypical. Finally, it is arguable whether the choice of indicators was optimal: there are two monetary aggregates in the longer leader, whereas the shorter leader is weighted towards personal sector indicators.

The cyclical indicators are constructed using a technique which was established in the late 1940s before much of the basis of econometrics had been established. They are intended to anticipate or define only turning points in the economy, rather than provide a quantitative prediction of the growth of the economy. A brief description of the ONS's cyclical indicators methodology follows.

The series are first detrended and then scaled (so that the mean absolute deviation from the trend over a five year window is equal to five) to give cycles of similar amplitude over all the indicators concerned. They are then inverted where appropriate (for example interest rates) and averaged using equal weights to produce an overall index. The underlying cycle is given by a five-year moving average since this is taken to represent the length of cycle. The trend for the initial and terminal values is estimated from a regression which also includes a sinusoidal term. A moving average is then used to smooth the resulting series, with the length of the filter window being the shortest period over which (on the basis of past experience) cyclical movements dominate monthly movements: this is usually a filter length of two or three months. Some quarterly indicators are included with linear interpolation being used to convert them to monthly data.

Because the final indicators show values against a trend it is possible that even historically average values can appear to be above or below trend solely because the surrounding values are comparatively much higher or lower. An illustration of this has occurred recently with the CBI optimism series where the detrended series is showing a large negative value (which might suggest a recession) even though the actual data is around zero. In the previous recession for instance in the late 1980s the optimism showed large negative balances. In this way, both recessions and slowdown can appear the same from the final contribution series.

The assumption of the length of the cycle has not been changed since the series were started, although it is fairly clear that the economy has changed fundamentally since the early 1970s and cycles since then have been growing longer. However, it is only after they occur that the length can be identified so changing this assumption would be far from straightforward.

An illustration of the potential importance of the cycle length assumption can be shown in the mid-1980s. During this period the economy is generally recognised by most analysts as having slowed down, however a trough is located at 1985Q4 in the reference cycle (GDP at factor cost) - albeit a less marked one than others. Even so, if the assumed cycle is lengthened (ie. by lengthening the moving average used to detrend the series) then this 'trough' starts to diminish; it would not have not have been declared as a trough if a seven year cycle was used in the calculations.

EVALUATION OF THE ONS CYCLICAL INDICATOR METHODOLOGY

The DAE research criticised the cyclical indictors technique on two major grounds. Firstly, the impact which pre-filtering of data, in particular using a moving average, has on the identification of the cycle, and secondly, the problem of selection of indicator series solely on the basis of turning points.

Much of recent econometric work on non-stationary series has pointed to the conclusion - which DAE's work supported - that GDP output is close to being a random walk (or in other words, its growth rate this period is largely unrelated to that in previous periods). The ONS practice is to carry out some form of prior smoothing of the detrended data before construction of the indicators. The rationale for this approach is the true cycle may be obscured by short-term volatility in output.

It was found that this detrending and smoothing process affects the statistical properties of the data. The argument, put most simply, is that if a series is a random walk applying the smoothing filter induces an apparent cycle. (In technical terms, the series will exhibit strong positive autocorrelation.) Moreover, the process has undesirable effects on its time series properties, which would make it almost impossible to fit the filtered series satisfactorily in a typical regression equation.

The second main criticism of DAE (concerning mainly the leading indicators) was that the indicators are selected on the basis of goodness of fit compared with only turning points in the reference cycle (ie. GDP filtered and smoothed). Selection on the basis of fit at turning points poses at least two problems. There are relatively few turning points, so it is difficult to make a conventional econometric assessment of performance at turning points. The ONS attempts to take into account variation in leads of turning points using summary statistics but inevitably a great deal of subjective judgment is used. In addition, if the movement of the reference cycle (ie. GDP) is close to a random walk then there is no logic to defining performance with reference only to turning points: all the movements in GDP should have equal importance.

FORECASTING POWER OF THE ONS CYCLICAL INDICATORS

To justify their use in forecasting, it is not enough merely to pick indicators on the basis of their historic fit (ie. ex-post) to be the best linear combination for an in-sample fit. Possible explanations for why such an index may deteriorate in accuracy include regular revisions in the composition of the indices and that the final data in-sample may differ in important ways from provisional numbers at the time forecasts are prepared.

The DAE research concluded that although the leading indicators do indeed have some predictive power it is at best weak. They showed this by using econometric techniques to investigate the extent to which the ONS's leading indicators actually do forecast the variable they are supposed to be leading - the coincident indicator. If the leading indicator had good predictive power the expectation would be a model with coefficients on the leading indicator alone. However when this was attempted it was found that the major variable was a moving average of the coincident indicator, with only a small part being played by the leading indicator. In other words the best forecast of the coincident indicator came from its values in previous periods.

Moreover, as part of the work on finding alternative leading indicators of GDP, DAE found that several of the individual indicators which are used in the ONS's composite leading indicators did indeed have reasonably good predictive power. Not surprisingly, however, they found that some indicators were better at predicting the reference cycle than others, and had a better overall fit: it was concluded that by giving individual indicators in the composite indicator equal weighting the overall predictive power was diminished.

There is no rigorous statistical test for assessing the leading indicators performance at identifying turning points, largely because of the lack of observations. One indication can be gained from the range of leads (shown in table B of the monthly first release): of the fourteen turning points in GDP identified since 1960, the longer leader has correctly anticipated only four of them (even with allowing a three month window either side of the median lead). The shorter leader has performed better, anticipating nine out of the last twelve turning points.

Another indication of the predictive strength is illustrated by the probability that the leading indicator anticipates the correct change in direction of the reference cycle. For both the leading indicators this is around 65 per cent, with a sample period of close to forty years. This is statistically significant (against the null hypothesis of a 50:50 chance of getting the direction right), but nonetheless means that the leading indicator will get the change in the reference cycle wrong one in every three times.

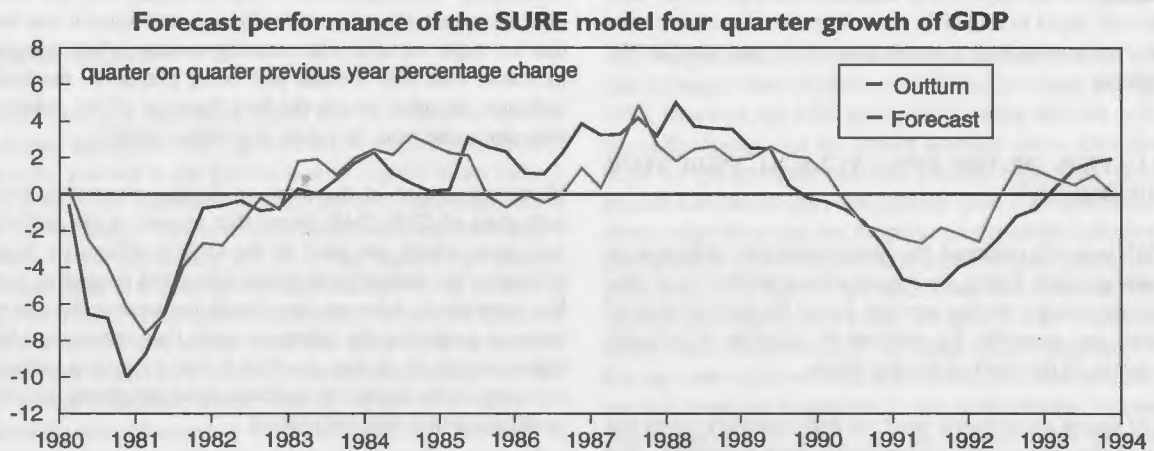## DAE's PROPOSED NEW LEADING INDICATOR

Before estimating any equations for GDP the DAE team first had to decide which version of GDP to use and then which leading indicators could be useful. The measure of activity of the economy used was GDP excluding North Sea oil and the Non-Trading Public Sector. The logic of this choice was two-fold. First of all the battery of indicators which are available, with the possible exception of oil price, are not likely to predict the vagaries of the oil industry. The indicators are all intended to represent private sector activity: unless some policy response function were to be embedded in the reduced form of the model, they would also fail to anticipate the activity of the non-traded public sector. Secondly, it was felt that users were more likely to be interested in this narrower definition of GDP.

In order to sift-out which indicators to examine further the obvious econometric technique of "Granger-Causality" was used. This is a bivariate technique to test whether there is a significant link between variables. It is not a true test of causality but rather it examines whether movements in one variable regularly precede those in another variable. A simple example is the purchase of

Assessing the Performance of the Proposed SURE Model

The DAE tested the performance of the SURE model by selecting the model over the period 1971Q1 to 1989Q4 and then forecasting over the period 1990Q1 to 1994Q3. The performance over the latter period represents a genuine forecast test: the values in the chart below represent within-sample values while those for 1990 and beyond are out-of-sample projections.

Forecast performance of the SURE model four quarter growth of GDP

quarter on quarter previous year percentage change
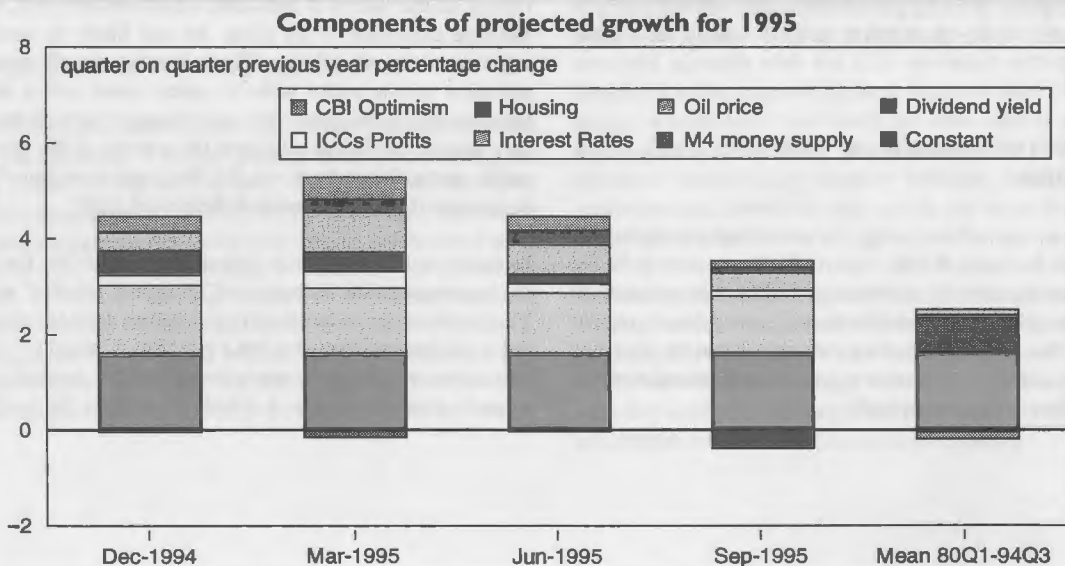
— Outturn
— Forecast

Another way of presenting the forecasts is by looking at the ability of the model to predict correctly whether growth will be above or below average. In order to judge better how much value the model is adding, it is also useful to present benchmark statistics for a naive model which uses past year-on-year growth rates of quarterly GDP to predict the growth in GDP over the subsequent four quarters. The R^2 between the predicted and actual values are also shown.

Outturn\Forecast		DAE-SURE model +	−	Naive model +	−
1980Q1-1984Q4	+	8	0	4	6
	−	1	11	7	3
1985Q1-1989Q4	+	17	3	16	2
	−	0	0	2	0
1990Q1-1994Q3†	+	7	0	0	3
	−	3	9	2	11

	R^2	R^2
1980Q1-1984Q4	0.77	0.005
1985Q1-1989Q4	0.09	0.03
1990Q1-1994Q3†	0.66	0.04
Whole sample	0.71	0.14

† Results shown for naive model are for 1990Q1-1993Q4

An example of a forecast is shown in the chart below. It gives the projections for the total growth rate in the four quarters ending in the period 1994Q4 to 1995Q3. It indicates the contribution to the projection made by each variable. The last column shows the predicted value when the components take their mean values for the period Q to 1994Q3, allowing us to identify the sources of the projected high rates of growth. For instance it can be seen that while the money stock has shifted from being an expansionary to a contractionary force, the interest rate is an important factor in the projected expansion.

Components of projected growth for 1995

quarter on quarter previous year percentage change

▨ CBI Optimism ■ Housing ▨ Oil price ■ Dividend yield
□ ICCs Profits ▨ Interest Rates ▨ M4 money supply ■ Constant

antifreeze in the months leading up to winter: it is clear that winter causes antifreeze purchase but a typical Granger Causality test would suggest reverse causation, since the antifreeze purchases come first. However in the context of the search for leading indicators this problem does not arise: in this example, anti-freeze purchases are a good leading indicator of winter. The DAE applied this technique to a variety of indicators to see which were potentially good candidates as leading indicators of the modified GDP, and also to give an indication of the appropriate lag-length to apply, before being combined in a multi-variate estimation procedure[2].

The estimation approach which DAE applied was Seemingly Unrelated Regression Estimation (SURE) first developed by Arnold Zellner[3]. In this context it is an example of the Vector AutoRegression (VAR) class of forecasting techniques. Using SURE, equations for GDP quarterly growth one, two, three and four quarters ahead are first modelled individually (using normal linear regression). The second stage it to estimate the equations simultaneously as a system, by taking account of the entire matrix of correlations of all of the equations: the system estimator minimises the covariance matrix. At this point cross equation restrictions are also imposed using the considerable degree of similarity between the four equations ie the same coefficients of one equation are imposed on one more of the other equations for each variable. This last part is only possible if all the equations are estimated jointly.

Essentially the SURE method works by exploiting the fact that the equation for, say, two quarters ahead is similar to the one for one quarter ahead with a lag applied. By modelling each quarter separately it also avoids the problems of serial-correlation experienced by other models which attempt to model growth one year ahead directly. The approach also allowed the DAE team to exploit the superior range of data available in forecasting over shorter horizons, but combining this information with longer-dated information which could be used to forecast over longer horizons. It is the power of the cross-equation restrictions, adding up the models one by one, which enables the four quarters ahead prediction to be much more powerful than the single equation for a year ahead.

One practical advantage of such a system would be its timeliness. The application of the lags in the models actually allows an indicator for one year ahead to be constructed for the same quarter as the current year's GDP estimate, simultaneously. It also has the added advantage of versatility in presenting forecast periods: it would be possible in principle to produce a leading indicator up to any of the four periods. (Thus shorter and longer leading indicators could still be maintained).

PREDICTIVE PERFORMANCE OF THE NEW LEADING INDICATOR

The predictive performance of the SURE equation was tested in two ways by the DAE team. First they estimated the model over the period 1971-1989 and ran the model on for the next four years. Thus the data for 1990-1993 would be a genuine test. In this pure forecast the R^2 between the forecast data and the outturn was 0.66 which is a good performance for a pure forecast. Perhaps more importantly in this context, the model also correctly predicted whether growth would be above or below average 16 out of 19 times. The variable selection was not affected in the light of this performance either.

A second test was to look at recursive forecasts by taking the final model structure but estimating recursively over the period 1980-1993. Here the forecasts were on the correct side of the mean 36/40 times. Over the whole period 1980-1993 the fit between the forecasts and outturn was $R^2=0.71$. This performance generally exceeded that of two similar rival models[4] examined. In common with the two other models the SURE model did better in the periods of recession (1980-1984 and 1990-1993) than in the periods of steady growth.

Regardless of the good performance in tests done it would need to be recognised that the projections would not fit the outturn exactly and there may on occasion be large errors. Similarly, it must also be recognised that no econometric model can be expected to be stable for ever and indeed the SURE model showed some signs of parameter instability. If the model or a similar one were to be used, constant monitoring would be needed to assess its performance and substantial revision may be necessary on occasions.

There have been precedents for such failure to predict. Most notably recently was in the United States where a new approach developed by Stock and Watson (using a VAR model), after generating much interest in its test performance failed to anticipate the 1990 recession and thus reduced its credibility. Of the possible explanations examined for this failure the significant one was the set of leading indicators behaved differently compared to previous recessions. On the other hand the failure to predict the 1990 recession was common with standard econometric models and the consensus of the business forecasters.

POSSIBLE FUTURE DEVELOPMENT

So far, the ONS has not taken the development or testing of the new leading indicators any further. Before any further development of the project the ONS would first need to establish more precisely the extent of demand for leading indicators which have traditionally focused on identifying "turning points", whereas the DAE methodology is more akin to forecasting levels of GDP.

Typical cyclical indicators are essentially "deviations from trend" which require two elements:

(i)   a lagged and weighted combination of monthly/quarterly indicators (which historically have a good relationship with the reference cycle you are trying to predict); and

(ii) a trend estimate of either individual indicators (or their composite) from which turning points are selected as the largest deviation from that trend.

The new DAE indicators (both the Monthly Indicator of GDP and the leading indicator) could be considered to be an improved version of the first of these. In both cases the weighting is dynamic, using econometric models which are re-estimated with additional data. In the case of the leading indicator the lags are also dynamic, though to a lesser extent, according to the significance of individual variables in any of the four quarterly equations. The leading indicator could reasonably be considered as a "future realisation" of the reference cycle (GDP) and therefore an extension of the quarterly path (rather just a composite of individual indicators as currently used in the cyclical

indicators), and so detrending the leading indicator would in essence be the same process as estimating the reference cycle as currently done but in the future as well.

The second part, and hence the viability of the approach for developing replacement cyclical indicators by building on DAE's work, depends on finding a sensible and improved method of detrending. Traditional filtering techniques which are model-free (such as moving averages) have been found to have undesirable effects on the statistical qualities of the time series. Obvious alternatives include univariate models such as ARIMA and Kalman filters and multivariate models such as VARs, however such techniques are not uncontroversial: essentially the choice of trend extraction method depends as much on its purpose as any statistical property. Finally, it is not clear at the outset what the implications of building an additional model on top of the DAE models would have on the resulting series.

CONCLUSION

Modern theories of business cycles are based on the notion that cycles are inherently unpredictable - although they may show persistence over time, the changes in direction should, in principle, be random shocks. The research presented by DAE can be thought of then as representing a process of testing the null hypothesis that the cycle is not predictable. The alternative hypothesis - which is effectively accepted - is essentially that the cycle is predictable but without any rigid view of the mechanism by which it becomes so. In other words, indicators have been found which empirically have a good relationship (with GDP) and whose coefficients in an econometric model are broadly those expected in a modern Keynesian model.

One possible criticism of any leading indicators approach is that since there are no cause-effect relationships identified, they do not explain anything and there is no guarantee of stability. The approach relies on observed relationships between GDP and the economic indicators used to be able to predict the path of GDP. This is the logic of critics of data-mining, whereby if enough variables are considered some are bound to apparently explain the desired variable. Although the DAE attempted to avoid this problem by extensive use of out-of-sample testing, to see whether the model structure changed, it still has to be recognised that hindsight played a large role in model selection.

The methodology also assumes a stable relationship so where behaviour in indicators suddenly changes the indicators may fail to predict well. One example is the recent behaviour in unemployment in the UK, usually assumed to be a lagging indicator but which started to respond far earlier in the latest recovery phase of the cycle. A structural model would seek to account for such changes when the econometric equations experienced predictive failure. To overcome this, leading indicators would have to find stable relationships between economic variables so that it could accurately predict turning points in GDP.

Many observers think that what is more likely is that after each cycle a new batch of variables would be thrown into a simple statistical analysis, with the resulting indictors each time being the best to coincide with the latest turning point. Simple models of this sort (in econometric terms) are unlikely to sufficiently track the very complex phenomenon of economic cycles.

However the same could be said of larger models such as those HM Treasury uses. One possibility may be to use simpler models in order to check if there are any changes occurring to established relationships.

Clearly it is very difficult to maintain useful leading indicators. It requires a lot of research to ensure that the indicators are maintaining their relationship with GDP, and it requires continuous investigation of the alternatives. Changes in the indicators adopted should be related to changes in the way the economy works. Essentially these are changes in the structure of the economy - increased reliance on services, a more open economy, more flexible labour markets etc. It requires skill to assess these changes and ensure that the indicators reflect the important changes (especially when these statistics may be unavailable or difficult to obtain).

The ONS believes the research carried out for it in this area has indicated some promising alternatives to the traditional cyclical indicators methodology. In the meantime the ONS will continue producing the cyclical indicators. Comments and views are invited on both the approach adopted in the work so far, as well as the value and use of cyclical indicators in general.

1 Burns,A. & Mitchell,W. (1946) 'Measuring Business Cycles', NBER, New York

2 The indicators which were used in the final model were: CBI optimism, housing starts, (real) oil price, FT dividend yield, profit of Industrial and Commercial Companies, 3-month interest rate and M4 money supply.

3 Zellner,A. (1962) 'An efficient method of estimating seemingly unrelated regressions and tests for aggregations bias', Journal of the American Statistical Association 57, 348-368

4 The models examined were from:
  The National Institute of Economic and Social Research, Britton,A. & Pain,N. (1992) 'Economic forecasting in Britain', NIESR Report No.4, Pain,N. 'The UK economy', National Institute Review 149 p8-29;and
  Goldman Sachs, Davies,G. & Shah,M. (1992), 'New methods for forecasting GDP growth in the UK'
Both used single equation econometric approaches: the NIESR equation forecasts output one half-year ahead; Goldman Sachs modelled four-quarter growth rate.

Regional Accounts 1994: Part 2

P A Lee, Office for National Statistics

This article presents revised estimates of Gross Domestic Product (GDP) for the standard statistical regions for 1994; provisional first estimates for Greater London and the Rest of the South East for 1994; and estimates for the counties of England and Wales and regions of Scotland for 1993. Because of the late availability of some of the source data used in the compilation of regional and county GDP, part 1 of the Regional Accounts article published in December 1995 contained estimates of GDP for the standard statistical regions only for 1994.

The latest figures published in this article show that:

● in 1994, Greater London accounted for 15 per cent of the GDP of the UK, having risen slowly over the previous decade;

● the region with traditionally the lowest GDP per head, Northern Ireland, was closer to the UK average in 1994 than at any time in the previous ten years;

● in 1993, Oxfordshire saw the strongest growth in GDP per head.

Gross domestic product by region

Latest figures and recent trends

In 1994, total UK GDP is estimated to have been £579 billion, of which more than one third is still accounted for by the South East; Greater London's share of the total stands at 15 per cent (see Table A and Chart B). Note that the differential between Greater London and the Rest of the South East takes account of the fact that income from employment is recorded on a residence basis, so that the income of commuters is included in the region where they live, not where they work.

There are wide variations in GDP per head between the regions, with Greater London having the highest level and Northern Ireland the lowest; the latest estimates for 1994 are around £12,300 and £8,000 respectively (see

Table A and Chart A). The highest GDP per head outside the South East is in East Anglia at just under £10,000, followed by Scotland at £9,700. After Northern Ireland, GDP per head in Wales is the next lowest at £8,200. Between 1993 and 1994 growth in GDP per head was strongest in Wales, whilst East Anglia, the South West, the Rest of the South East, Scotland and Northern Ireland also performed better than the UK average (see Annex Table 1).

Regional GDP is compiled as the sum of of five factor incomes: income from employment; income from self employment; gross trading profits and surpluses; stock appreciation; and rent. An analysis of factor incomes reveals that there has been some change between the relative importance of income from employment and gross trading profits and surpluses. For example, whilst gross trading profits and surpluses form a greater part of total UK GDP in 1994 compared with earlier in the decade, this growth has been particularly strong in Greater London (Annex Table 2).

CHART A
GDP per head 1984-94   Index (UK=100)

GDP per head
- 115.0 and above
- 105.0 – 114.9
- 95.0 – 104.9
- 85.0 – 94.9
- 84.9 and below
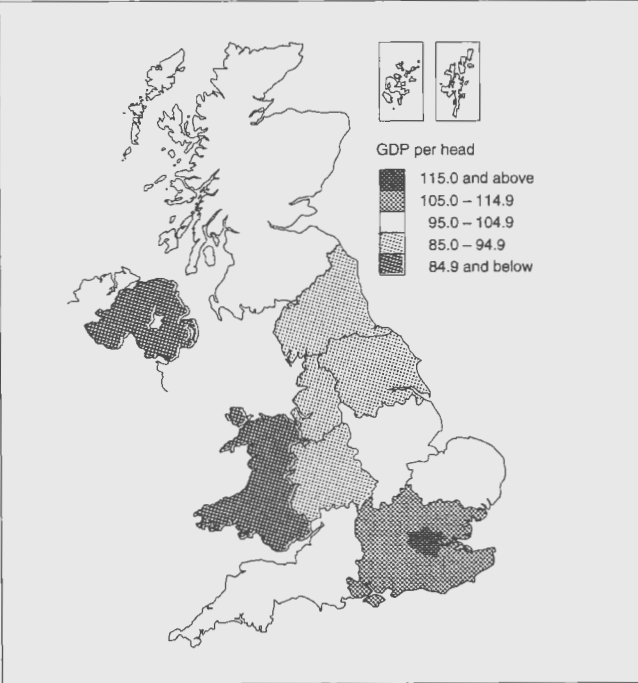
TABLE A
Regional GDP, 1994[1]

Region	Total £bn	Share of UK (%)	Per head £	Per head index UK=100
United Kingdom[2]	570.4	100.0	9,768	100.0
North	26.9	4.7	8,675	88.8
Yorkshire & Humberside	43.9	7.7	8,733	89.4
East Midlands	38.5	6.8	9,389	96.1
East Anglia	21.0	3.7	9,961	102.0
South East	204.0	35.8	11,411	116.8
Greater London	85.5	15.0	12,278	125.7
Rest of the South East	118.4	20.8	10,858	111.2
South West	44.8	7.9	9,351	95.7
West Midlands	48.0	8.4	9,045	92.6
North West	56.5	9.9	8,812	90.2
England	483.4	84.8	9,925	101.6
Wales	23.8	4.2	8,173	83.7
Scotland	50.0	8.8	9,734	99.7
Northern Ireland	13.2	2.3	8,025	82.2

1. Provisional
2. Excluding the Continental Shelf

Trends over time

Over the last ten years there has been significant variation in regions' economic performances. Chart C shows regional GDP per head indexed to the UK average, from 1984 to 1994. This shows that only Greater London has consistently improved its position during this period; the South West, the West Midlands, Scotland and Northern Ireland have all improved their positions over the entire period, but the improvement is less significant for the first region, the second shows a downturn in the latest year, and the last two saw a downturn before seeing any increase. East Anglia is the only region other than Greater London and the Rest of the South East above the UK average. Yorkshire and Humberside and the East Midlands have shown downward trends relative to the UK average over most of the period.

The changes in regional GDP as a percentage of the UK total over the last ten years (see chart B) have also generally followed the above trends, with overall increases for Greater London, East Anglia and the South West over the whole period and for Scotland and Northern Ireland in the latter half. This is to be expected since changes to GDP are to some extent matched by fluctuations in population, although changes in regions' GDP per head tends to be less marked than those in regions' GDP share. For instance, the East Midlands have generally maintained their share of total UK GDP between 1984 and 1994, but on the basis of GDP per head there was a dip at the the end of the eighties. This reflects an increase in the population greater than the increase in GDP at that time, followed by a decrease in population less than the decrease in GDP.

CHART B
Regional shares of UK GDP, 1984-94

Percentages (UK=100%)
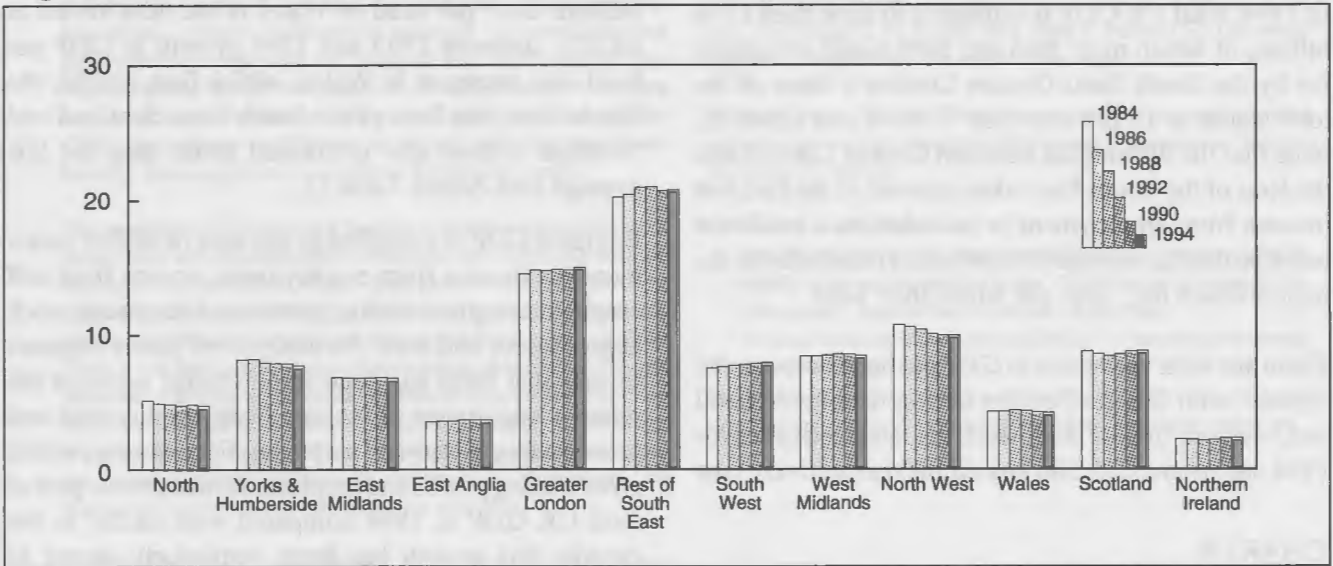
CHART C
Regional GDP per head, 1984-94

Indices (UK=100)
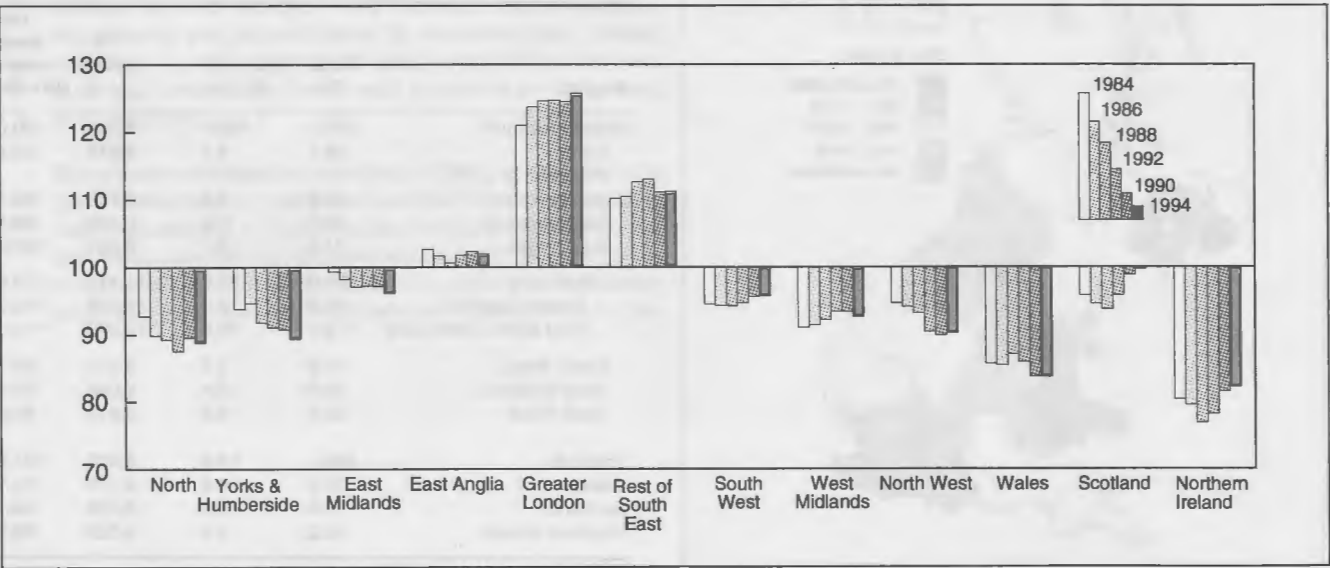
Industrial breakdown of regional GDP

Part of the explanation for the wide variation in regional GDP per head and changes therein lies in the marked differences in the industrial structures of the regions. Very significant but short term factors, such as changes in the sterling price of oil, may affect industries, and therefore regions, very differently. A detailed industrial analysis of GDP is given in Appendix Table 3; changes to the industrial classification used for this are referred to in the Revisions section of the Background Notes.

The analysis by industry shows that output of the construction industries in most regions fell during the three years up to 1993 but has recovered in 1994.

Mining and quarrying, including oil extraction, showed falls in 1993 and 1994 in the North, Yorkshire and Humberside, East and West Midlands, the North West and Wales, the regions traditionally dominant in the mining sector, due to the mine closures which have occurred during recent years. The Scottish increase within this sector was probably due to increased oil activity. For manufacturing, Wales saw a percentage increase well above the national average in 1994. Northern Ireland has had increases higher than most regions in 1994 in the transport, storage and communications sector.

CHART D
Industrial breakdown of regional GDP, 1994

Proportions of regional totals
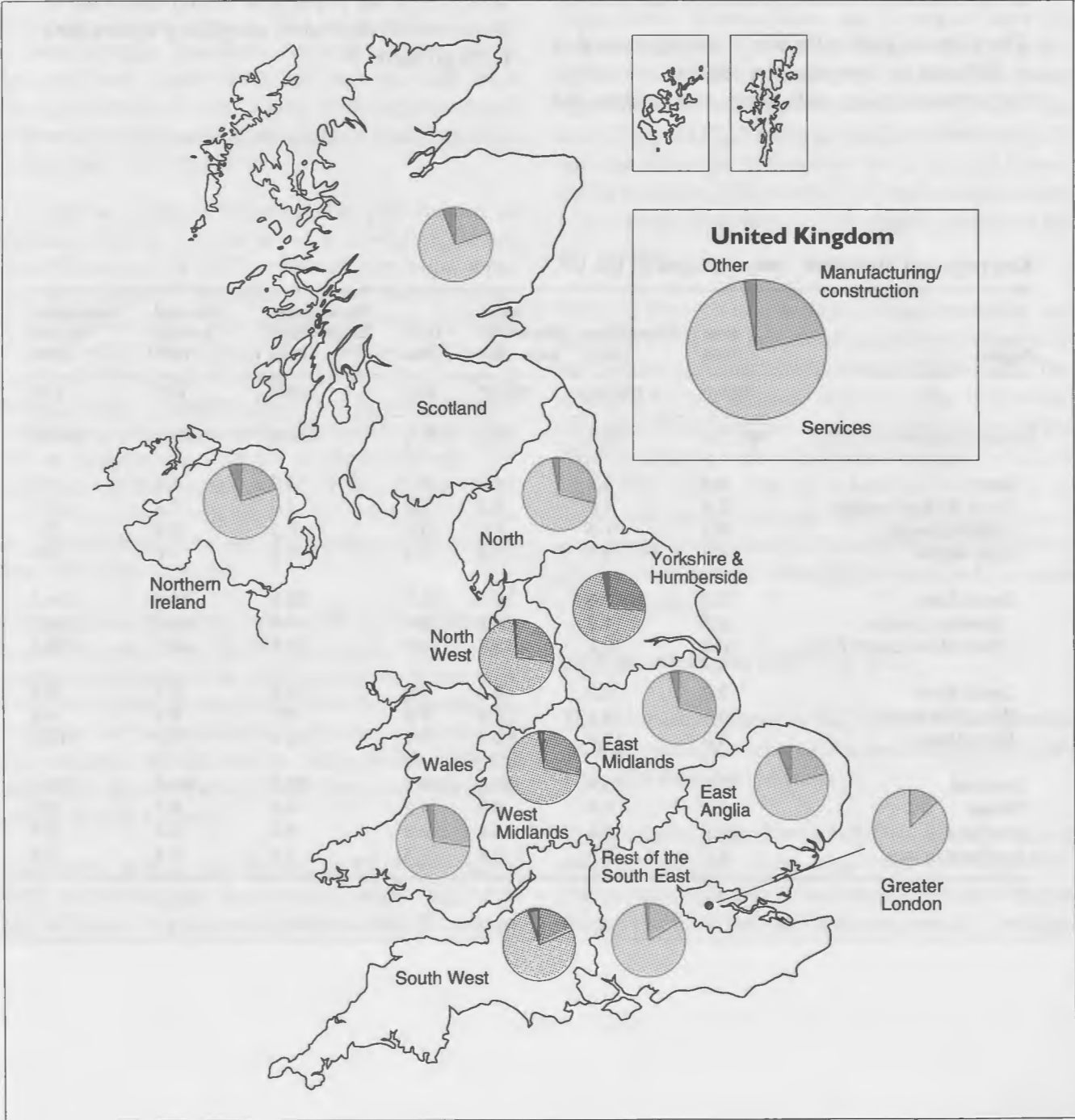
Diversity of the Regions

There is much diversity between the regions of the UK. Scotland, Wales, Northern Ireland and the regions of England are all different in character, industrial structure and economic performance. The table below shows some of the differences in size of the regions. Scotland has the largest area, but has a small population relative to its size; the North West has the smallest area, but the second largest population. The South East is densely populated; with 17.8 million people, it has three times the population of any other region. At the other extreme, Northern Ireland has only a population of 1.6 million. These large variations in the regions' populations are reflected in the size of regional GDP and incomes.

The wide variation in the size of the regions makes it difficult to compare the regions' economic performance using cash totals; comparisons are therefore usually expressed in terms of amounts per head of the population. However, it is important to note that the growth in totals may be quite different to the growth per head in regions where the population has increased or decreased. Furthermore, the level per head is determined both by the average amount of cash of the working population and by the proportion of dependants. In Northern Ireland, for example, households have a high proportion of children (26 per cent of the population was aged under 16 in 1993 compared with 19 to 21 per cent in other regions). This will tend to depress amounts per head. Ideally the age structure of the population should therefore be taken into account when comparing figures on a per head basis.

Key regional statistics - percentages of the UK

Region	Area 1993	Population 1994	Civilian Workforce June 1994	GDP 1994	Consumers' Expenditure 1993	Personal Income 1993	Household Income 1993
	sq km	million	million	£bn	£bn	£bn	£bn
United Kingdom (=100%)	241,752	58.4	25.2	579.6	405.6	575.5	546.8
North	6.4	5.3	4.9	4.7	4.8	4.8	4.9
Yorks & Humberside	6.4	8.6	8.3	7.7	8.0	7.9	8.0
East Midlands	6.5	7.0	7.0	6.8	6.5	6.6	6.7
East Anglia	5.2	3.6	3.8	3.6	3.5	3.6	3.6
South East	11.3	30.6	32.3	35.7	35.3	34.6	34.2
Greater London	0.7	11.9	14.3	15.1	14.6	14.4	14.0
Rest of the South East	10.6	18.7	18.3	20.7	20.7	20.1	20.2
South West	9.9	8.2	8.3	7.8	8.1	8.1	8.3
West Midlands	5.4	9.1	8.9	8.4	8.1	8.7	8.5
North West	3.0	11.0	10.4	9.9	10.5	10.2	10.2
England	53.9	83.4	84.0	84.7	84.8	84.4	84.4
Wales	8.6	5.0	4.6	4.2	4.5	4.4	4.5
Scotland	31.9	8.8	8.8	8.8	8.3	8.8	8.8
Northern Ireland	5.6	2.8	2.6	2.3	2.4	2.4	2.4

Gross domestic product by county

There is wide variation between the counties of England and Wales, the regions of Scotland and Northern Ireland, in size and population. Appendix Table 4 presents estimates of GDP for these areas from 1989 to 1993, and also gives their population, area, employment and unemployment rates. The size of the employed population is a major factor in determining a county's GDP. Other factors are average wage levels and profitability, which tend to reflect the counties' industrial structure. These differences are reflected in the size of both total GDP and GDP per head. GDP by county measures the value of goods and services produced in a county; it does not measure the income of residents of a county.

In 1993, GDP varied from under £1 billion in the Isle of Wight and the Borders region of Scotland to over £90 billion in Greater London. This estimate for Greater London is higher than that given in the regional tables because these county estimates measure GDP on a workplace basis, so that income from employment of commuters is allocated to the county where they work rather than where they live.

In order to compare the economic performance of counties varying so much in size, it is necessary to use an indicator such as GDP per head of population or per person employed. Comparisons of such measures over time should be made with care for the reasons explained in the Diversity of the Regions box. The most commonly used is GDP per head indexed to UK=100. It is important to note that the estimates of GDP per head use resident population as the denominator. The implication of using this in conjunction with the workplace-based GDP figures is that the productivity of urban areas into which workers commute will tend to be overstated by this indicator, while that of surrounding areas in which they live will be understated.

The large map opposite shows GDP per head for each county compared with the UK average in 1993. There is considerable variation in the levels within the counties of most regions. In the South East, for example, the average GDP per head for the region as a whole was 17 per cent above the UK average, but in the Isle of Wight and in East Sussex it was 32 and 25 per cent respectively below the UK average.

The county with by far the highest GDP per head in 1993, as in other years, was Greater London. At £13,400 this is almost 50 per cent higher than the UK average

excluding the Continental Shelf, reflecting the dominance of the capital. The next highest GDP per head is estimated to have been Grampian, at £13,000 (41 per cent higher), followed by Berkshire at £12,400 (33 per cent higher), then Lothian at £11,400 (23 per cent higher). At the other end of the scale, Mid Glamorgan's GDP per head is estimated to have been £5,800 (37 per cent lower than the UK average), followed by the Isle of Wight at £6,300 (32 per cent lower), Cornwall at £6,600 (29 per cent lower) and East Sussex at £6,900 (25 per cent lower).

Many of the differences between counties' GDP per head are long-standing, but some counties have seen significant changes in their relative levels. The greatest increase between 1984 and 1993 has been in Berkshire, which has risen from being 16 per cent above the UK average to 33 per cent above. Lothian, Surrey, Oxfordshire, Warwickshire and Grampian have all experienced strong growth in GDP per head during this period. On the other hand, some counties have seen significant falls in their position relative to the UK. The Isle of Wight's GDP per head has fallen from being 24 per cent below the UK average to 32 per cent below. South Yorkshire, Fife, Northumberland and Merseyside have also had large falls over the decade, relative to the UK average.

Where a county relies heavily on employment in one industry, its GDP is particularly sensitive to changes in the profitability of and employment in that industry. The changing fortunes of the oil industry probably gives the clearest example and can cause large movements in the GDP of counties with oil refineries such as Dyfed and areas with North Sea oil related activity such as Grampian. The long term decline of manufacturing as a percentage of national GDP is reflected in the relative decline of industrial communities such as Cleveland and Merseyside.

GDP by sub-region (NUTS level 2)

The European Community NUTS level 2 classification groups counties into sub-regions; see Background Notes 17 and 18 for more information.

Table 5 shows total GDP and GDP per head for each of these sub-regions, for the years 1989, 1991 and 1993. The inset map opposite shows sub-regions according to the level of GDP per head, relative to the UK average.

GDP per head by county[1] (NUTS level 3)
comparison with UK average (UK=100)

GDP per head
(UK=100)

- 125.0 and above
- 115.0 – 124.9
- 105.0 – 114.9
- 95.0 – 104.9
- 85.0 – 94.9
- 75.0 – 84.9
- 74.9 and below
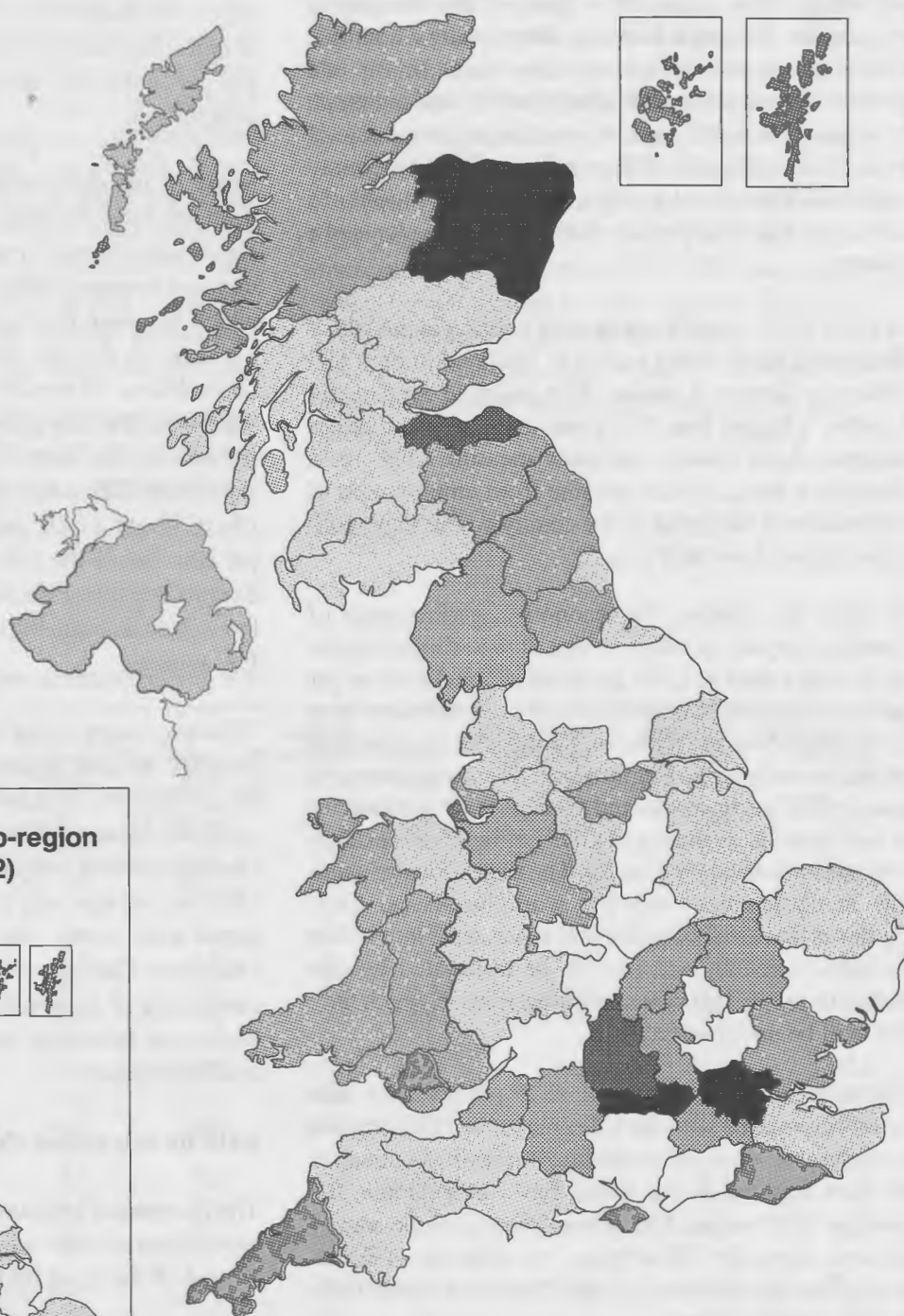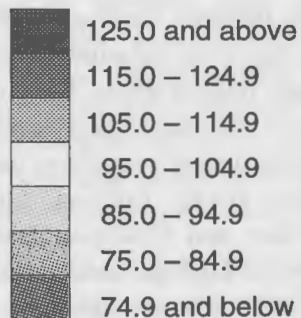
**GDP per head by sub-region
(NUTS level 2)**

1 Local authority regions in Scotland; Northern Ireland is not sub-divided.

Source: Tables 4 and 5

BACKGROUND NOTES

General

1. The regional accounts presented in this article are, in general, consistent with the national accounts published in the *United Kingdom National Accounts (Blue Book)* 1995 edition, which also defines the terms used.

2. Due to information becoming available after the publication of the 1995 *Blue Book*, the UK total for agricultural, hunting, forestry and fishing GDP for 1994 has been revised. This manifests itself in the regional accounts as a difference in the UK totals between Tables 2 and 3 (which reflect the revision) and Table 1 (which is consistent with the 1995 *Blue Book*, and which therefore does not reflect the revision).

3. The methodology employed in producing the original items of the regional accounts was described in *Regional Accounts (Studies in Official Statistics* No 31) published in 1978 and updated in the publication *Methods Used to Compile Regional Accounts (Eurostat, 1984)*. Brief descriptions of the sources and methods used to compile the estimates of GDP are given below.

Accuracy

4. As with the national accounts, the regional estimates, although calculated as reliably as possible, cannot be regarded as accurate to the last digit shown.

5. The regional GDP estimates are partly based on sample surveys and the quality of the results therefore vary according to sample size. This means that the results for areas with smaller populations are subject to a greater degree of uncertainty than those for more populated areas. An assessment of the quality of the regional and county estimates was published in *Economic Trends, November 1990*.

Regional and county gross domestic product - concepts and definitions

6. Estimates of regional GDP are measured at factor cost, that is excluding the value of taxes on expenditure (such as VAT), but including subsidies, and are compiled by the income method; insufficient information is available to estimate GDP using either the production or expenditure approaches.

7. GDP for the United Kingdom is defined as the sum of all incomes earned from productive activity in the UK; regional GDP should thus be defined as the sum of incomes earned from productive activity in the region, so that the income of commuters is included in the region where they work. However, the estimates of regional GDP are not compiled on this basis; they include regional estimates of income from employment on a residence basis, because this is the basis of the most reliable data source (the one per cent sample of Department of Social Security (DSS) records). This has a significant effect on the estimates for Greater London and the Rest of the South East, but is assumed not to introduce any significant distortion for the other regions.

8. Since this assumption does not hold at the county level, employment data on the workplace basis are used to break down GDP for the regions to the county level. This results in two separate estimates for Greater London.

9. All the items are measured in current prices which means that increases over time reflect inflation as well as real growth. Trends in total GDP per head cannot be analyzed easily without deflating the data. However, there are no regional price indices which could be used to remove the effect of inflation from the figures. Comparisons of trends can therefore be based either on the difference between regional increases at current prices or on movements in the amount relative to the UK average. Both approaches would be misleading if the rate of inflation in any region were different from the national average.

10. In the regional accounts it is usual to look at changes per head relative to the UK average over time. However, this obscures the effect of changes in population size and area. In areas where the population is increasing most rapidly, growth in total GDP would be expected to grow relatively strongly; conversely, areas with a low or negative population growth would be expected to grow more slowly.

Revisions

11. All items in the regional accounts are subject to revision when better information becomes available, either from the national accounts for the UK, from regional data sources, or from improvements to regional accounts methodology. Revisions to one year frequently suggest the need for revisions to other years, and GDP series have previously been maintained back to 1971, with no comparable data for earlier years being available. However, the changes to the region by industry series due to the introduction of the *Standard Industrial Classification, Revised 1992 (SIC(92))*, have only been taken back to 1982, with earlier data continuing to be available on SIC(80).

12. The change from SIC(80) to SIC(92) was described in articles in the October 1992 and February 1993 issues of *Economic Trends*. Its adoption leads to a change in the definition of manufacturing, which now includes coke ovens, mineral oil processing and nuclear fuel production; these industries were previously classified as energy industries. The change in the regional analysis by industry to SIC(92) was implemented in the December 1993 article; in some cases the source data used in the compilation of the regional accounts have been supplied on the new classification, and in other cases, data have been supplied on the older classification. In the latter case, the data have been adjusted by regrouping at the section or sub-section level. The technical note to the December 1995 article listed the data sources used in the compilation of the regional accounts which had been moved onto the new standard for that article.

13. The data included in this article updates that produced for the December 1995 article and provides the estimates for Greater London and the Rest of the South East separately, which were not then provided due to late receipt of source data.

14. The analyses of GDP by industry, both national and regional, are based on classifying each economic unit by industry, based on its main activity, and allocating all its activity to that industry. Subsidiary activities of these units

are therefore included with the main activity. From the 1993 *Blue Book*, this general principle has been extended to Rent income, which is now allocated by industry according to the main activity of each rent-receiving unit.

Provisional estimates of GDP

15. The estimates of GDP for 1994 given in this article are based on a less complete set of data than estimates for earlier years, and projections are employed where necessary. These provisional estimates are particularly subject to revision when more data for 1994 become available e.g. from the one per cent sample of pay records by DSS, from the Annual Census of Production, from the Survey of Personal Incomes, from the Agriculture departments and from the national accounts.

NUTS - (Nomenclature of territorial units for statistics)

16. The NUTS provides a single, uniform breakdown for the production of regional statistics for the European Union. This nomenclature is referred to in Community regulations on the Structural funds, and used for decisions regarding the eligibility of the areas for assistance.

17. There are five levels:

NUTS 1   Standard Statistical Regions;
NUTS 2   groups of English and Welsh counties and Scottish regions, sometimes referred to as sub-regions;
NUTS 3   English and Welsh counties; Scottish regions and Northern Ireland;
NUTS 4   local authority districts;
NUTS 5   electoral wards.

18. Some areas appear at more than one level, for example, Northern Ireland is a single unit at NUTS levels 1, 2 and 3.

Continental Shelf

19. Gross domestic product for the Continental Shelf region consists only of profits and surpluses less stock appreciation, which cannot be allocated to standard regions. It does not include income from employment, which is allocated to the region of residence of the employee; there is no resident population in the Continental Shelf region. Since GDP per head cannot be calculated for the Continental Shelf region, it is excluded from the United Kingdom total in the calculation of the national average used in comparisons of regional GDP per head. Continental Shelf GDP incorporates profits of both UK and foreign contractors.

European Community definition of regional GDP

20. The treatment of the adjustment for financial services (or interest) in the accounts differs from the approach used by the Statistical Office of the European Community (Eurostat). In the UK regional accounts, the adjustment for financial services is deducted from the GDP of the region providing the service and receiving the interest payment (pro-rata employment in banking, finance and insurance). The treatment used by Eurostat is to deduct the interest from the GDP of the region

paying the interest. It is assumed that the interest paid is proportional to GDP. The effect on regional GDP is to increase the level of the South East and reduce that of other regions.

21. There are also two other very minor adjustments to the regional distribution of GDP. The GDP of UK embassies is added to the Continental Shelf region or Extra-Regio and the GDP of foreign embassies in the UK is deducted from the GDP of the South East. The GDP of UK forces stationed abroad is also included in the Extra-Regio.

Personal Income, Household Income and Consumers' Expenditure

22. Regional estimates of personal income, personal disposable income, household income, household disposable and consumers' expenditure by region for 1994 and household income and household disposable income by county for 1993 will be published in the May 1996 issue of *Economic Trends*.

Regional Trends and other products

23. A wider range of statistics for the regions and counties of the United Kingdom can be found in *Regional Trends 1995*, (HMSO), £34.95 net. The topics covered in *Regional Trends* include population, housing, transport, environment, health, crime, education, employment, industry and agriculture.

24. *Focus on the East Midlands (HMSO)*, £19.95 net, is the pilot of a series which may eventually cover all regions. Its aim is to meet the increasing demand for more easily accessible information on smaller geographic areas.

25. *GEOSTAT™ for Windows™*, price £50+VAT, introduces the concept of an integrated software tool for manipulating spatially referenced statistical information, and presenting it in graphical form such as charts and map images. A generalised economics dataset is available which includes variables from the regional accounts, ACOP, and size analysis of UK businesses. For further information, please call the ONS Sales Desk on 0171 270 6081.

26. *Regional Statistics: A Brief Guide to Official Sources, 1993 edition* provides useful information on sources and contact points, and is available from the address at the end of these notes.

The regional accounts database

27. This article necessarily presents only a summary of the regional accounts for recent years. Longer time series and in some cases additional detail can be made available either on paper or on floppy disk on payment of a fee. Requests should be addressed to Mr Bob Cooper, Regional Accounts Branch, Office for National Statistics, PO Box 1333, Room 1819, Millbank Tower, Millbank, London SW1P 4QQ.

1 Gross domestic product, factor cost : current prices

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994[1]
Total GDP											£ million
United Kingdom	280653	307902	328272	360675	401428	441759	478886	495900	516458	546733	579140
North	13265	14723	15610	17243	18979	20829	22177	23314	24421	25533	26893
Yorkshire and Humberside	21264	23716	26137	28253	31191	34483	37080	38749	39944	41765	43892
East Midlands	17764	19796	21655	23819	26592	29841	32005	33463	34720	36556	38519
East Anglia	9198	10165	11403	12431	14133	15728	17179	17778	18792	19642	20975
South East	90597	100970	112639	124450	140892	155705	169155	174546	181106	192693	203925
Greater London	37844	42448	47335	52420	58244	64322	70048	72385	75585	81195	85537
Rest of South East	52754	58522	65304	72030	82647	91382	99108	102161	105522	111498	118388
South West	19524	21688	24196	26792	30288	33443	36437	37918	39911	42165	44845
West Midlands	21802	24452	26725	29340	33271	36779	40219	41432	43346	45602	47891
North West	27945	30831	33718	36505	40868	44264	47262	48646	50589	53521	56505
England	221358	246342	272082	298834	336215	371073	401513	415846	432829	457478	483444
Wales	11094	12036	13548	15059	17152	18851	20262	20938	21332	22264	23808
Scotland	22775	25216	27255	29760	32970	36154	40084	42050	44433	46932	49959
Northern Ireland	5751	6318	7007	7545	8375	9247	10186	11071	11599	12339	13175
United Kingdom less Continental Shelf	260979	289912	319893	351198	394712	435325	472046	489905	510193	539013	570386
Continental Shelf[2]	18504	17990	8379	9477	6716	6434	6840	5995	6265	7720	9195
Statistical discrepancy (income adjustment)	1170	-	-	-	-	-	-	-	-	-	-441
Regional Shares of United Kingdom GDP less Continental Shelf[3] = 100											Percentage (UK=100%)
United Kingdom	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
North	5.1	5.1	4.9	4.9	4.8	4.8	4.7	4.8	4.8	4.7	4.7
Yorkshire and Humberside	8.1	8.2	8.2	8.0	7.9	7.9	7.9	7.9	7.8	7.7	7.7
East Midlands	6.8	6.8	6.8	6.8	6.7	6.9	6.8	6.8	6.8	6.8	6.8
East Anglia	3.5	3.5	3.6	3.5	3.6	3.6	3.6	3.6	3.7	3.6	3.7
South East	34.7	34.8	35.2	35.4	35.7	35.8	35.8	35.6	35.5	35.7	35.8
Greater London	14.5	14.6	14.8	14.9	14.8	14.8	14.8	14.8	14.8	15.1	15.0
Rest of South East	20.2	20.2	20.4	20.5	20.9	21.0	21.0	20.9	20.7	20.7	20.8
South West	7.5	7.5	7.6	7.6	7.7	7.7	7.7	7.7	7.8	7.8	7.9
West Midlands	8.4	8.4	8.4	8.4	8.4	8.4	8.5	8.5	8.5	8.5	8.4
North West	10.7	10.6	10.5	10.4	10.4	10.2	10.0	9.9	9.9	9.9	9.9
England	84.8	85.0	85.1	85.1	85.2	85.2	85.1	84.9	84.8	84.9	84.8
Wales	4.3	4.2	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.1	4.2
Scotland	8.7	8.7	8.5	8.5	8.4	8.3	8.5	8.6	8.7	8.7	8.8
Northern Ireland	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3
GDP Per Head, £[4]											£
United Kingdom	4946	5430	5774	6327	7023	7702	8320	8578	8903	9395	9925
United Kingdom less Continental Shelf	4619	5113	5627	6160	6906	7590	8201	8475	8795	9263	9768
North	4284	4764	5057	5592	6163	6756	7183	7541	7881	8230	8675
Yorkshire and Humberside	4332	4833	5328	5759	6339	6968	7472	7777	7985	8330	8733
East Midlands	4586	5081	5526	6048	6704	7471	7973	8292	8548	8953	9389
East Anglia	4740	5171	5722	6174	6948	7694	8347	8539	8997	9381	9961
South East	5285	5860	6505	7166	8098	8921	9639	9897	10230	10844	11411
Greater London	5588	6251	6958	7708	8603	9461	10222	10506	10947	11711	12278
Rest of South East	5087	5605	6213	6817	7776	8577	9265	9506	9772	10289	10858
South West	4367	4805	5306	5818	6508	7153	7763	8037	8409	8843	9351
West Midlands	4206	4707	5143	5626	6364	7017	7661	7869	8213	8621	9045
North West	4373	4832	5296	5740	6433	6951	7411	7606	7905	8346	8812
England	4709	5221	5747	6293	7058	7762	8366	8626	8947	9426	9925
Wales	3954	4283	4805	5315	6011	6570	7041	7241	7359	7660	8173
Scotland	4426	4909	5320	5821	6473	7094	7856	8234	8693	9166	9734
Northern Ireland	3709	4004	4472	4790	5307	5842	6409	6913	7167	7562	8025
GDP Per Head, United Kingdom less Continental Shelf[3] = 100											Index (UK=100)
United Kingdom	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
North	92.8	93.2	89.9	90.8	89.2	89.0	87.6	89.0	89.6	88.9	88.8
Yorkshire and Humberside	93.8	94.5	94.7	93.5	91.8	91.8	91.1	91.8	90.8	89.9	89.4
East Midlands	99.3	99.4	98.2	98.2	97.1	98.4	97.2	97.8	97.2	96.7	96.1
East Anglia	102.6	101.1	101.7	100.2	100.6	101.4	101.8	100.8	102.3	101.3	102.0
South East	114.4	114.6	115.6	116.3	117.3	117.5	117.5	116.8	116.3	117.1	116.8
Greater London	121.0	122.3	123.7	125.1	124.6	124.7	124.6	124.0	124.5	126.4	125.7
Rest of South East	110.1	109.6	110.4	110.7	112.6	113.0	113.0	112.2	111.1	111.1	111.2
South West	94.6	94.0	94.3	94.4	94.2	94.2	94.7	94.8	95.6	95.5	95.7
West Midlands	91.1	92.1	91.4	91.3	92.2	92.5	93.4	92.8	93.4	93.1	92.6
North West	94.7	94.5	94.1	93.2	93.2	91.6	90.4	89.7	89.9	90.1	90.2
England	102.0	102.1	102.1	102.1	102.2	102.3	102.0	101.8	101.7	101.8	101.6
Wales	85.6	83.8	85.4	86.3	87.0	86.6	85.9	85.4	83.7	82.7	83.7
Scotland	95.8	96.0	94.6	94.5	93.7	93.5	95.8	97.2	98.8	99.0	99.7
Northern Ireland	80.3	78.3	79.5	77.8	76.9	77.0	78.2	81.6	81.5	81.6	82.2

1. Provisional.
2. Gross Domestic Product for the Continental Shelf region does not include income form employment, which is allocated to the region of residence of the employee.
3. The regional estimates of GDP are income-based and are linked to the average estimate of United Kingdom GDP by a statistcal discrepancy. This discrepancy is excluded from the figures for the United Kingdom less Continental Shelf.
4. Estimates of GDP per head cannot be calculated for the Continental Shelf region as there is no resident population.

2 Factor incomes in the gross domestic product, factor cost : current prices

£ million

	Income from employment	Income from self-employment	Gross trading profits and surpluses	Less stock appreciation	Rent [1]	Gross domestic product
1991						
United Kingdom	330459	57153	61228	2010	49070	495900 [2]
North	15761	2325	3403	125	1950	23314
Yorkshire and Humberside	25936	4554	5276	176	3160	38749
East Midlands	21845	4204	4563	182	3033	33463
East Anglia	11365	2800	1948	66	1732	17778
South East	119846	19833	15410	507	19964	174546
Greater London	50172	7493	5422	194	9492	72385
Rest of South East	69674	12340	9988	313	10472	102161
South West	24729	5471	3842	176	4053	37918
West Midlands	28057	4577	4978	256	4076	41432
North West	33197	4670	6523	248	4504	48646
England	280736	48434	45942	1737	42471	415846
Wales	13335	2598	3291	81	1795	20938
Scotland	29097	4585	4797	185	3755	42050
Northern Ireland	7290	1536	1247	51	1049	11071
Continental Shelf [3]	-	-	5951	-44	-	5995
Statistical discrepancy (income adjustment)	-	-	-	-	-	-
1992						
United Kingdom	342515	57449	64095	1778	54177	516458 [2]
North	16404	2221	3757	118	2157	24421
Yorkshire and Humberside	26898	4481	5229	170	3507	39944
East Midlands	22504	4051	4988	171	3348	34720
East Anglia	11954	2847	2133	66	1924	18792
South East	123464	19839	16214	301	21890	181106
Greater London	51662	7834	5864	39	10264	75585
Rest of South East	71802	12005	10350	262	11626	105522
South West	25691	5845	3949	100	4525	39911
West Midlands	29187	4558	5317	237	4520	43346
North West	34301	4775	6717	242	5038	50589
England	290404	48616	48303	1403	46910	432829
Wales	13877	2545	3035	99	1974	21332
Scotland	30582	4630	5281	207	4147	44433
Northern Ireland	7652	1659	1210	69	1147	11599
Continental Shelf [3]	-	-	6265	-	-	6265
Statistical discrepancy (income adjustment)	-	-	-	-	-	-
1993						
United Kingdom	352007	60285	79232	2350	57559	546733 [2]
North	16695	2334	4278	141	2366	25533
Yorkshire and Humberside	27612	4426	6206	166	3687	41765
East Midlands	23289	4318	5581	149	3518	36556
East Anglia	12158	2789	2683	32	2044	19642
South East	127329	21534	21321	631	23140	192693
Greater London	53063	8946	8540	243	10888	81195
Rest of South East	74266	12588	12781	389	12252	111498
South West	26411	6027	5147	189	4768	42165
West Midlands	29818	4848	6441	297	4793	45602
North West	35108	5043	8369	313	5316	53521
England	298421	51319	60025	1919	49632	457478
Wales	14129	2452	3719	119	2082	22264
Scotland	31493	4841	6282	244	4560	46932
Northern Ireland	7964	1673	1512	95	1286	12339
Continental Shelf [3]	-	-	7694	-26	-	7720
Statistical discrepancy (income adjustment)	-	-	-	-	-	-
1994 [4]						
United Kingdom	362958	63955	95704	3880	60844	579140 [2]
North	16972	2519	5095	227	2533	26893
Yorkshire and Humberside	28224	4894	7241	342	3875	43892
East Midlands	23900	4644	6565	330	3741	38519
East Anglia	12516	3088	3348	152	2176	20975
South East	131857	22327	26382	1040	24399	203925
Greater London	55110	8822	10767	363	11158	85537
Rest of South East	76747	13400	15615	678	13241	118388
South West	27384	6486	6190	303	5087	44845
West Midlands	30519	5108	7683	458	5039	47891
North West	36136	5233	10013	458	5581	56505
England	307508	54298	72518	3311	52431	483444
Wales	14859	2704	4189	172	2228	23808
Scotland	32347	5134	7983	300	4795	49959
Northern Ireland	8244	1819	1839	117	1390	13175
Continental Shelf [3]	-	-	9176	-19	-	9195
Statistical discrepancy (income adjustment)	-	-	-	-	-	-441

1. Including imputed charges for consumption of non-trading capital.
2. See footnote 3 to Table 1.
3. See footnote 2 to Table 1.
4. Provisional.

Gross domestic product by industry groups, factor cost : current prices[1]

	1991	1992	1993	1994 [2]	1991	1992	1993	1994 [2]
	North				**Yorkshire and Humberside**			
Agriculture, hunting, forestry and fishing	437	517	580	622	754	823	898	950
Mining, quarrying inc oil and gas extraction	550	512	396	237	890	885	710	369
Manufacturing[3]	6516	6873	7140	7783	10095	10165	10689	11392
Electricity, gas, water	542	526	564	534	1284	1225	1148	1072
Construction	1699	1612	1522	1592	2562	2349	2471	2607
Distribution, hotels and catering; repairs	3038	3129	3371	3637	6123	6148	6268	6840
Transport, storage and communication	1727	1709	1807	1892	2951	2968	3338	3547
Financial and business services[4]	4195	4583	4771	5146	7084	7878	8173	9156
Public administration and defence[5]	1489	1704	1861	1857	2274	2485	2600	2678
Education, social work and health services	2915	3084	3294	3433	4790	5338	5617	5743
Other services	781	857	876	934	1285	1376	1489	1546
Adjustment for financial services	-574	-682	-649	-772	-1343	-1696	-1635	-2008
Total	23314	24421	25533	26892	38749	39944	41765	43892
	East Midlands				**East Anglia**			
Agriculture, hunting, forestry and fishing	936	948	1114	1160	937	968	1049	1079
Mining, quarrying inc oil and gas extraction	1013	1016	763	401	107	122	143	152
Manufacturing[3]	9264	9786	10303	11221	3776	3920	4131	4338
Electricity, gas, water	1092	1177	1264	1139	462	502	567	671
Construction	2186	2107	2035	2367	1242	1192	1019	1136
Distribution, hotels and catering; repairs	4844	5072	5474	5787	2614	2622	2669	2938
Transport, storage and communication	2296	2263	2504	2555	1741	1930	1955	2015
Financial and business services[4]	6383	6787	7069	7986	3817	4225	4614	5065
Public administration and defence[5]	1712	1818	1835	1825	1274	1406	1409	1410
Education, social work and health services	3649	3795	4038	4107	1927	2152	2291	2462
Other services	965	996	1148	1147	636	673	663	735
Adjustment for financial services	-876	-1045	-992	-1176	-754	-918	-868	-1029
Total	33463	34721	36556	38518	17778	18793	19641	20974
	South East				**Greater London**			
Agriculture, hunting, forestry and fishing	1259	1301	1454	1535	49	60	41	42
Mining, quarrying inc oil and gas extraction	442	476	517	492	181	163	177	167
Manufacturing[3]	27425	27968	28959	30480	9515	9905	10548	11005
Electricity, gas, water	4115	4043	4210	4700	1451	1416	1472	1597
Construction	10791	9861	9369	9953	3746	3401	3065	3312
Distribution, hotels and catering; repairs	25575	26747	28624	29645	10360	11251	11909	12338
Transport, storage and communication	18455	19075	20152	21612	8645	8778	9114	9892
Financial and business services[4]	57778	62509	67250	73785	28358	30900	33540	36686
Public administration and defence[5]	12445	13280	13776	14171	4777	5024	5421	5560
Education, social work and health services	18956	20269	21333	22278	7934	8314	8710	9021
Other services	7630	8023	8607	9342	3781	4101	4414	4750
Adjustment for financial services	-10326	-12448	-11556	-14063	-6411	-7730	-7214	-8830
Total	174545	181103	192697	203929	72385	75582	81198	85540
	Rest of South East				**South West**			
Agriculture, hunting, forestry and fishing	1210	1241	1413	1493	1211	1455	1582	1753
Mining, quarrying inc oil and gas extraction	261	313	341	326	388	450	513	557
Manufacturing[3]	17910	18063	18411	19475	7365	7407	7905	8285
Electricity, gas, water	2664	2627	2738	3103	1427	1456	1504	1733
Construction	7046	6459	6303	6641	2561	2392	2320	2546
Distribution, hotels and catering; repairs	15214	15496	16715	17307	5848	6038	6388	6826
Transport, storage and communication	9811	10297	11038	11720	2557	2711	2825	2929
Financial and business services[4]	29421	31609	33711	37099	8747	9636	10303	11750
Public administration and defence[5]	7668	8257	8355	8611	3716	4024	4159	4113
Education, social work and health services	11022	11954	12623	13258	4516	5018	5216	5504
Other services	3849	3922	4194	4592	1311	1395	1457	1470
Adjustment for financial services	-3914	-4717	-4342	-5233	-1728	-2072	-2007	-2623
Total	102160	105521	111499	118389	37918	39911	42164	44844

See footnotes on next page

	1991	1992	1993	1994 [2]	1991	1992	1993	1994 [2]
	West Midlands				North West			
Agriculture, hunting, forestry and fishing	812	926	1009	1103	466	524	554	591
Mining, quarrying inc oil and gas extraction	362	317	215	132	131	105	62	53
Manufacturing[3]	12153	12428	12927	13509	13763	13935	14501	15327
Electricity, gas, water	1087	1117	1374	1399	1385	1261	1355	1558
Construction	2596	2423	2459	2545	2954	2714	2798	3069
Distribution, hotels and catering; repairs	5993	6342	6643	7148	7243	7812	8335	8523
Transport, storage and communication	2818	3001	3080	3211	4051	4244	4452	4866
Financial and business services[4]	8560	9455	10152	11009	10233	11295	11997	13136
Public administration and defence[5]	2308	2409	2407	2438	2661	2872	3056	3125
Education, social work and health services	4795	5219	5522	5732	5955	6380	6703	7021
Other services	1307	1348	1407	1509	1711	1788	1932	1943
Adjustment for financial services	-1359	-1637	-1593	-1844	-1907	-2340	-2223	-2704
Total	41431	43346	45602	47891	48646	50588	53521	56505
	England				Wales			
Agriculture, hunting, forestry and fishing	6812	7462	8240	8793	494	488	550	573
Mining, quarrying inc oil and gas extraction	3884	3883	3320	2392	230	217	190	115
Manufacturing[3]	90357	92480	96555	102335	5851	5544	5831	6451
Electricity, gas, water	11394	11307	11986	12806	584	612	757	762
Construction	26590	24650	23992	25815	1244	1237	1197	1265
Distribution, hotels and catering; repairs	61278	63908	67771	71343	3035	3088	3064	3393
Transport, storage and communication	36595	37900	40113	42627	1431	1443	1525	1604
Financial and business services[4]	106797	116369	124329	137033	3460	3752	3910	4353
Public administration and defence[5]	27879	29998	31103	31616	1569	1716	1747	1771
Education, social work and health services	47502	51254	54015	56279	2867	3134	3350	3435
Other services	15626	16456	17579	18626	700	742	790	837
Adjustment for financial services	-18868	-22837	-21525	-26220	-524	-640	-648	-751
Total	415844	432827	457479	483445	20940	21332	22263	23807
	Scotland				Northern Ireland			
Agriculture, hunting, forestry and fishing	1172	1259	1373	1532	486	518	557	649
Mining, quarrying inc oil and gas extraction	1042	1160	1250	1327	53	53	62	48
Manufacturing[3]	8459	8840	9141	9898	2229	2206	2411	2588
Electricity, gas, water	1111	1211	1420	1643	299	246	241	248
Construction	3020	3175	2965	3232	652	734	696	723
Distribution, hotels and catering; repairs	6012	6327	6524	7056	1430	1473	1565	1681
Transport, storage and communication	3568	3688	3721	4106	598	621	631	702
Financial and business services[4]	8248	9209	9895	10786	1708	1935	2114	2379
Public administration and defence[5]	3172	3284	3466	3568	1638	1749	1824	1842
Education, social work and health services	6190	6493	7084	7198	1813	1947	2075	2205
Other services	1630	1783	1996	2044	431	467	511	537
Adjustment for financial services	-1572	-1994	-1903	-2433	-266	-350	-347	-425
Total	42050	44434	46931	49958	11071	11599	12339	13175
	United Kingdom							
Agriculture, hunting, forestry and fishing	8964	9727	10719	11548				
Mining, quarrying inc oil and gas extraction	5208	5313	4822	3883				
Manufacturing[3]	106896	109071	113940	121272				
Electricity, gas, water	13388	13375	14404	15458				
Construction	31506	29796	28851	31035				
Distribution, hotels and catering; repairs	71755	74795	78924	83472				
Transport, storage and communication	42191	43651	45990	49039				
Financial and business services[4]	120212	131264	140248	154550				
Public administration and defence[5]	34257	36747	38140	38797				
Education, social work and health services	58371	62827	66523	89116				
Other services	18387	19448	20876	22044				
Adjustment for financial services	-21230	-25821	-24423	-29828				
Total	489905	510193	539014	570386				

1. Gross domestic product is shown for each industry after deducting stock appreciation.

2. Provisional.

3. Definition of manufacturing as revised in SIC 92.

4. Financial intermediation, real estate, renting, business activities, including rent on dwellings.

5. Public administration, national defence and compulsory social security.

Gross domestic product by county, factor cost : current prices

	Population (000s) (1993)	Area (sq. km) (1993)	Population per sq. km (1993)	Employment (000s) (1993)	Unemployment rate (%) (1993)
UNITED KINGDOM[1]	58191	241752	241	21663	10
Cleveland	559	597	937	193	14
Cumbria	490	6824	72	182	8
Durham	608	2429	250	183	11
Northumberland	307	5026	61	92	11
Tyne and Wear	1138	540	2107	420	13
NORTH	3102	15415	201	1070	12
Humberside	884	3508	252	323	11
North Yorkshire	722	8309	87	271	7
South Yorkshire	1306	1559	838	427	13
West Yorkshire	2102	2034	1033	812	10
YORKSHIRE AND HUMBERSIDE	5014	15411	325	1833	10
Derbyshire	951	2629	362	322	10
Leicestershire	910	2551	357	368	8
Lincolnshire	601	5921	102	199	9
Northamptonshire	592	2367	250	227	9
Nottinghamshire	1028	2160	476	381	12
EAST MIDLANDS	4083	15627	261	1497	10
Cambridgeshire	683	3400	201	270	8
Norfolk	765	5372	142	272	9
Suffolk	646	3798	170	243	8
EAST ANGLIA	2094	12570	167	785	8
Bedfordshire	539	1236	436	199	10
Berkshire	764	1259	607	342	7
Buckinghamshire	652	1877	347	256	8
East Sussex	722	1795	402	222	12
Essex	1560	3675	425	470	11
Greater London	6933	1578	4394	3091	12
Hampshire	1594	3779	422	593	9
Hertfordshire	1000	1639	610	376	9
Isle of Wight	125	380	328	41	13
Kent	1540	3735	412	509	11
Oxfordshire	586	2606	225	241	7
Surrey[2]	1038	1677	619	381	..
West Sussex	718	1988	361	272	8
SOUTH EAST	17769	27224	653	6992	9
Avon	973	1332	731	406	10
Cornwall	477	3559	134	138	13
Devon	1049	6703	157	359	10
Dorset	667	2653	252	221	10
Gloucestershire	544	2653	205	204	9
Somerset	474	3452	137	166	9
Wiltshire	583	3476	168	217	7
SOUTH WEST	4768	23829	200	1711	10
Hereford and Worcestershire	695	3923	177	245	9
Shropshire	414	3488	119	153	8
Staffordshire	1054	2715	388	354	10
Warwickshire	494	1979	249	183	9
West Midlands	2634	899	2930	1026	13
WEST MIDLANDS	5290	13004	407	1960	11
Cheshire	972	2331	417	377	8
Greater Manchester	2579	1286	2005	977	11
Lancashire	1421	3070	463	510	9
Merseyside	1441	655	2200	458	15
NORTH WEST	6412	7342	873	2323	11
Clwyd	416	2430	171	143	9
Dyfed & Powys	471	10843	43	139	9
Gwent	450	1377	327	151	11
Gwynedd	240	3863	62	75	11
Mid Glamorgan	544	1017	535	146	13
South Glamorgan	413	416	993	184	10
West Glamorgan	371	820	453	121	10
WALES	2906	20766	140	959	10
Borders	105	4670	23	38	6
Central	273	2627	104	93	10
Dumfries and Galloway	148	6370	23	50	8
Fife	351	1308	269	109	12
Grampian	528	8707	61	264	5
Highlands and Islands	279	30611	9	103	11
Lothian	754	1756	429	341	8
Strathclyde	2287	13529	169	825	12
Tayside	395	7502	53	150	9
SCOTLAND	5120	77080	66	1973	10
NORTHERN IRELAND	1632	13483	121	559	14

1.Excluding the Continental Shelf region and the statistical discrepancy of the income based measure.

2.Unemployment rates cannot be calculated for Surrey since it does not meet the self-containment criteria for a local labour market.

Gross domestic product by county, factor cost : current prices (cont'd)

	Gross domestic product (£ million)			Gross domestic product per head (£)			Gross domestic product per head(UK=100)		
	1989	**1991**	**1993**	**1989**	**1991**	**1993**	**1989**	**1991**	**1993**
UNITED KINGDOM[1]	435322	489905	539014	7590	8475	9263	100.0	100.0	100.0
Cleveland	4009	4236	4631	7180	7568	8278	94.6	89.3	89.4
Cumbria	4044	4497	4775	8265	9193	9741	108.9	108.5	105.2
Durham	3657	4021	4353	6098	6637	7166	80.3	78.3	77.4
Northumberland	1859	1957	2163	6111	6382	7039	80.5	75.3	76.0
Tyne and Wear	7261	8603	9611	6416	7611	8446	84.5	89.8	91.2
NORTH	20829	23314	25533	6756	7541	8230	89.0	89.0	88.9
Humberside	6398	7079	7703	7372	8069	8710	97.1	95.2	94.0
North Yorkshire	5242	6190	6831	7363	8609	9464	97.0	101.6	102.2
South Yorkshire	7972	8961	9246	6139	6883	7078	80.9	81.2	76.4
West Yorkshire	14871	16519	17984	7183	7925	8558	94.6	93.5	92.4
YORKSHIRE AND HUMBERSIDE	34483	38749	41765	6968	7777	8330	91.8	91.8	89.9
Derbyshire	6449	7254	7707	6892	7692	8105	90.8	90.8	87.5
Leicestershire	7237	7910	8783	8180	8844	9648	107.8	104.4	104.2
Lincolnshire	3924	4590	5148	6736	7766	8560	88.8	91.6	92.4
Northamptonshire	4594	5116	5783	7956	8722	9771	104.8	102.9	105.5
Nottinghamshire	7637	8592	9135	7532	8422	8882	99.2	99.4	95.9
EAST MIDLANDS	29841	33463	36556	7471	8292	8953	98.4	97.8	96.7
Cambridgeshire	5532	6134	7008	8491	9173	10266	111.9	108.2	110.8
Norfolk	5426	6129	6629	7230	8072	8665	95.3	95.2	93.5
Suffolk	4770	5514	6005	7427	8434	9293	97.9	99.5	100.3
EAST ANGLIA	15728	17778	19641	7694	8539	9380	101.4	100.8	101.3
Bedfordshire	4192	4551	4922	7983	8547	9125	105.2	100.9	98.5
Berkshire	7060	8376	9436	9476	11124	12357	124.8	131.3	133.4
Buckinghamshire	5420	6121	6632	8617	9577	10178	113.5	113.0	109.9
East Sussex	4238	4627	4996	5966	6466	6918	78.6	76.3	74.7
Essex	10158	10970	12182	6598	7092	7807	86.9	83.7	84.3
Greater London	75019	83660	92922	11034	12142	13403	145.4	143.3	144.7
Hampshire	11867	13842	15226	7569	8751	9554	99.7	103.3	103.1
Hertfordshire	7970	8843	9282	8110	8945	9285	106.9	105.5	100.2
Isle of Wight	728	791	785	5684	6262	6290	74.9	73.9	67.9
Kent	10592	11992	12459	6931	7807	8092	91.3	92.1	87.4
Oxfordshire	4565	5284	6265	8010	9096	10694	105.5	107.3	115.5
Surrey	8388	9574	10995	8228	9262	10593	108.4	109.3	114.4
West Sussex	5509	5914	6595	7765	8302	9189	102.3	98.0	99.2
SOUTH EAST	155704	174545	192697	8921	9897	10844	117.5	116.8	117.1
Avon	7513	8614	9604	7829	8927	9867	103.2	105.3	106.5
Cornwall	2689	2878	3146	5748	6070	6596	75.7	71.6	71.2
Devon	6696	7597	8436	6467	7314	8040	85.2	86.3	86.8
Dorset	4523	5184	5656	6898	7848	8473	90.9	92.6	91.5
Gloucestershire	4192	4658	5198	7859	8635	9556	103.6	101.9	103.2
Somerset	3326	3596	3996	7193	7678	8430	94.8	90.6	91.0
Wiltshire	4503	5392	6129	8024	9431	10513	105.7	111.3	113.5
SOUTH WEST	33442	37918	42164	7152	8037	8843	94.2	94.8	95.5
Hereford and Worcestershire	4330	5020	5769	6369	7324	8303	83.9	86.4	89.6
Shropshire	2674	3150	3545	6563	7653	8563	86.5	90.3	92.4
Staffordshire	7103	7500	7802	6815	7145	7405	89.8	84.3	79.9
Warwickshire	3619	4132	4536	7437	8446	9190	98.0	99.7	99.2
West Midlands	19050	21630	23951	7258	8226	9094	95.6	97.1	98.2
WEST MIDLANDS	36779	41431	45602	7017	7869	8621	92.5	92.8	93.1
Cheshire	7836	8484	9930	8168	8782	10217	107.6	103.6	110.3
Greater Manchester	18149	20043	21880	7102	7798	8484	93.6	92.0	91.6
Lancashire	9841	10978	11620	7031	7786	8179	92.6	91.9	88.3
Merseyside	8437	9140	10092	5806	6305	7004	76.5	74.4	75.6
NORTH WEST	44264	48646	53521	6951	7606	8347	91.6	89.7	90.1
Clwyd	2893	3266	3464	7060	7897	8330	93.0	93.2	89.9
Dyfed & Powys	2738	3027	3324	5899	6459	7052	77.7	76.2	76.1
Gwent	2973	3231	3442	6664	7203	7643	87.8	85.0	82.5
Gwynedd	1447	1575	1733	6047	6581	7216	79.7	77.7	77.9
Mid Glamorgan	3102	3196	3153	5762	5898	5792	75.9	69.6	62.5
South Glamorgan	3284	3882	4275	8152	9500	10346	107.4	112.1	111.7
West Glamorgan	2414	2764	2872	6547	7450	7736	86.3	87.9	83.5
WALES	18852	20940	22263	6570	7242	7660	86.6	85.5	82.7
Borders	626	719	804	6087	6910	7637	80.2	81.5	82.4
Central	1837	2059	2234	6752	7545	8185	89.0	89.0	88.4
Dumfries and Galloway	962	1040	1223	6538	7040	8266	86.1	83.1	89.2
Fife	2217	2554	2668	6377	7311	7598	84.0	86.3	82.0
Grampian	4584	6140	6885	9031	11909	13037	119.0	140.5	140.7
Highlands and Islands	1658	2076	2150	6092	7531	7707	80.3	88.9	83.2
Lothian	6280	7200	8612	8406	9588	11423	110.8	113.1	123.3
Strathclyde	15379	17259	18906	6654	7510	8267	87.7	88.6	89.3
Tayside	2611	3002	3450	6714	7647	8730	88.5	90.2	94.2
SCOTLAND	36153	42050	46931	7094	8234	9166	93.5	97.2	99.0
NORTHERN IRELAND	9247	11071	12339	5842	6913	7562	77.0	81.6	81.6

1.Excluding the Continental Shelf region and the statistical discrepancy of the income based measure.

Gross domestic product by sub-region (NUTS level 2), factor cost : current prices

	(£ million)			Per head (£)			Per head (UK=100)		
	1989	**1991**	**1993**	**1989**	**1991**	**1993**	**1989**	**1991**	**1993**
UNITED KINGDOM[1]	435322	489905	539014	7590	8475	9263	100.0	100.0	100.0
Cleveland, Durham	7666	8257	8985	6620	7084	7699	87.2	83.6	83.1
Cumbria	4044	4497	4775	8265	9193	9741	108.9	108.5	105.2
Northumberland, Tyne and Wear	9119	10560	11774	6351	7349	8147	83.7	86.7	88.0
NORTH	20829	23314	25533	6756	7541	8230	89.0	89.0	88.9
Humberside	6398	7079	7703	7372	8069	8710	97.1	95.2	94.0
North Yorkshire	5242	6190	6831	7363	8609	9464	97.0	101.6	102.2
South Yorkshire	7972	8961	9246	6139	6883	7078	80.9	81.2	76.4
West Yorkshire	14871	16519	17984	7183	7925	8558	94.6	93.5	92.4
YORKSHIRE AND HUMBERSIDE	34483	38749	41765	6968	7777	8330	91.8	91.8	89.9
Derbyshire, Nottinghamshire	14086	15846	16842	7225	8071	8509	95.2	95.2	91.9
Leicestershire, Northamptonshire	11830	13027	14566	8091	8796	9696	106.6	103.8	104.7
Lincolnshire	3924	4590	5148	6736	7766	8560	88.8	91.6	92.4
EAST MIDLANDS	29841	33463	36556	7471	8292	8953	98.4	97.8	96.7
EAST ANGLIA	15728	17778	19641	7694	8539	9380	101.4	100.8	101.3
Bedfordshire, Hertfordshire	16058	18393	20148	7673	8699	9445	101.1	102.7	102.0
Berkshire, Bucks, Oxfordshire	17046	19781	22333	8768	10026	11160	115.5	118.3	120.5
Surrey, East-West Sussex	18134	20114	22586	7435	8171	9115	98.0	96.4	98.4
Essex	10158	10970	12182	6598	7092	7807	86.9	83.7	84.3
Greater London	75019	83660	92922	11034	12142	13403	145.4	143.3	144.7
Hampshire, Isle of Wight	8697	9634	10067	7830	8641	8953	103.2	102.0	96.7
Kent	10592	11992	12459	6931	7807	8092	91.3	92.1	87.4
SOUTH EAST	155704	174545	192697	8921	9897	10844	117.5	116.8	117.1
Avon, Gloucestershire, Wiltshire	16208	18664	20931	7890	8990	9966	104.0	106.1	107.6
Cornwall, Devon	9386	10475	11581	6243	6924	7589	82.3	81.7	81.9
Dorset, Somerset	7849	8780	9652	7020	7777	8455	92.5	91.8	91.3
SOUTH WEST	33442	37918	42164	7152	8037	8843	94.2	94.8	95.5
Hereford and Worcester, Warwickshire	7950	9152	10306	6815	7791	8671	89.8	91.9	93.6
Shropshire, Staffordshire	9777	10650	11346	6744	7288	7731	88.9	86.0	83.5
West Midlands	19050	21630	23951	7258	8226	9094	95.6	97.1	98.2
WEST MIDLANDS	36779	41431	45602	7017	7869	8621	92.5	92.8	93.1
Cheshire	7836	8484	9930	8168	8782	10217	107.6	103.6	110.3
Greater Manchester	18149	20043	21880	7102	7798	8484	93.6	92.0	91.6
Lancashire	9841	10978	11620	7031	7786	8179	92.6	91.9	88.3
Merseyside	8437	9140	10092	5806	6305	7004	76.5	74.4	75.6
NORTH WEST	44264	48646	53521	6951	7606	8347	91.6	89.7	90.1
Clwyd, Dyfed, Gwynedd, Powys	7078	7867	8522	6358	7015	7558	83.8	82.8	81.6
Gwent, Mid-South-West Glamorgan	11774	13072	13742	6704	7385	7724	88.3	87.1	83.4
WALES	18852	20940	22263	6570	7242	7660	86.6	85.5	82.7
Borders, Central, Fife, Lothian, Tayside	7291	8334	9156	6560	7449	8142	86.4	87.9	87.9
Dumfries and Galloway, Strathclyde	16341	18299	20128	6647	7481	8267	87.6	88.3	89.3
Highlands and Islands	1658	2076	2150	6092	7531	7707	80.3	88.9	83.2
Grampian	4584	6140	6885	9031	11909	13037	119.0	140.5	140.7
SCOTLAND	36153	42050	46931	7094	8234	9166	93.5	97.2	99.0
NORTHERN IRELAND	9247	11071	12339	5842	6913	7562	77.0	81.6	81.6

1.Excluding the Continental Shelf region and the statistical discrepancy of the income based measure.

Expanded geographical breakdown of 1994 Balance of Payments Current Account

In the October 1995 edition of Economic Trends, the CSO published a geographical breakdown of the current account of the Balance of Payments. The Balance of Payments Division has recently undertaken a project in connection with the President of the Board of Trade's Task Force on Service Sector Statistics. This has led to the geographical breakdown being expanded to cover a further 12 countries, bringing the total number of countries covered to 35. The additional countries are Hong Kong, Singapore, Saudi Arabia, India, Malaysia, Israel, South Korea, China, Thailand, Taiwan, Russia and Poland. In addition much of the methodology used has been improved and new data sources have been identified.

Revised data for 1994 based on this revised methodology are now available from the Balance of Payments Division. The data incorporate revisions to the global totals published in the Balance of Payments first release of 21st December 1995 but they are not as up to date as the data published in the first release of 26th March 1996. The revised data consist of totals for each of the 35 countries for Trade in Goods, Trade in Services, Investment Income, Transfers, Total Invisibles, Total Trade and Total Current Account. Users should note that data for back years have not yet been revised.

We plan to publish these data in the April 1996 edition of Economic Trends. Until that time copies of the data are available on request from Balance of Payments Division (contact: Alison Bridges, 0171-270-6098). In the October 1996 edition we hope to publish a set of data for earlier years consistent with the 1996 Pink Book, along with 1995 results.

Articles published in *Economic Trends*, 1980-1995

To supplement the monthly list of recent articles in *Economic Trends*, there follows a similar list of all articles published between 1980 and 1995. Copies of these may be obtained from the Publications Co-Ordinator, Room 60a/3, Office for National Statistics, Great George Street, London, SW1P 3AQ, on payment of a remittance of £4.00 per copy. Cheques, etc, should be made payable to the Office for National Statistics.

1980

January	The effects of taxes and benefits on household income, 1978
February	A glimpse of the hidden economy in the national accounts
	Local authority expenditure in England and Wales since 1974-75
	The distribution of income in the United Kingdom, 1977-78
March	The change in revenue from an indirect tax change
	Trends in sales of land and buildings, 1973-79
April	The Budget: 26 March 1980
	Economic prospects to mid 1981
May	Cyclical indicators: some developments and an assessment of performance
	Measures of UK trade competitiveness in manufactures
June	Manufacturing industry in the seventies: an assessment of import penetration and export performance
	Measures of variability in economic time series
July	Research and development: expenditure and employment, 1978
August	Measuring the public sector borrowing requirement
September	United Kingdom air transport: an international industry
	Skill shortages
October	UK visible trade in the post-war years
November	National and sector balance sheets for the United Kingdom
	Employment in the public and private sectors, 1974-80
	Regional accounts: estimates for 1978 and 1979
December	A comparison of public services employment in the United Kingdom with five other European countries
	International comparisons of taxes and social security contributions, 1971-78

1981

January	Revisions to index numbers of production
	The effects of taxes and benefits on household income, 1979
February	The distribution of income in the United Kingdom, 1978-79
	Exports and imports of services analysed by industry
	Seasonal adjustment of the overseas trade figures
March	The effective exchange rate for sterling
May	Revisions to estimates of economic growth
	The energy coefficient revisited
July	A new output enquiry for the construction industry
	Financial wealth of the non-bank private sector
August	Movements in UK costs and prices, 1973-79
	Research and development; expenditure and employment in the seventies
September	Recent developments in economic accounts for agriculture
	The household sector
October	Additional tables on national income and expenditure
November	Regional accounts, 1980
	Committed and discretionary saving
December	Employment in the public and private sectors, 1975-81
	Agricultural incomes
	International comparisons of taxes and social security contributions, 1970-79

1982

January	The effects of taxes and benefits on household income, 1980
	Labour productivity: output per person per hour in manufacturing
February	Quarterly survey of UK company sources and uses of funds: summary of results 1977-80
	Effects of leasing on statistics of manufacturing capital expenditure
March	The Budget: 9 March 1982
	The economy: recent developments and prospects to mid-1983
April	International comparisons of gross domestic product

August	Central government expenditure on research and development
October	A new index of average house prices
November	Regional accounts, 1981
December	The effects of taxes and benefits on household income, 1981
	International comparisons of taxes and social security contributions in 18 OECD countries, 1970-80

1983
February	Employment in the public and private sectors, 1976-82
	Capital expenditure by the UK shipping industry, 1977-81
March	Introduction of the revised standard industrial classification, 1980
	Index of industrial production - rebasing and reclassification
	Rebasing and reclassifying the national accounts: the reasons and the likely effects
	The Budget: 15 March 1983
	The economy: recent developments and prospects to mid-1984
May	Trends in sales of land and buildings, 1977-81
June	The reconciliation of personal sector transactions and wealth
September	Consumers' expenditure
	Research and development: preliminary estimates of expenditure in the United Kingdom
October	Additional tables on national income and expenditure
	The rebased estimates of the index of the output of the production industries
	Cyclical indicators: some developments and an assessment of performance
November	Effects of taxes and benefits on household income, 1982
	Regional accounts 1971-1981: new industrial classification
	Public expenditure: definitions and trends
	Monthly estimates of the public sector borrowing requirement
December	The effects of rebasing on the measures of gross domestic product
	International comparisons of taxes and social security benefits in 20 OECD countries, 1971-81

1984
February	The national accounts treatment of index-linked bonds
	Public sector bank deposits: redefinition of the PSBR and money stock
March	Employment in the public and private sectors, 1977-83
	The Budget: 13 March 1984
	The economy: recent developments and prospects to mid-1985
May	Estimating capital consumption for fixed assets employed in Northern Ireland agriculture
June	Regional accounts, 1982
July	The distribution of income in the United Kingdom, 1981-82
August	Research and development in the United Kingdom, 1981
	Industrial and commercial companies' real rates of return: differences between figures derived from national and company accounts
September	A note on the personal sector saving ratio
October	Analysis of Pay as you Earn (PAYE) statistics
November	Regional Accounts, 1983
December	The effects of taxes and benefits on household income, 1983

1985
February	International comparisons of taxes and social security contributions in 20 OECD countries, 1972-82
March	Employment in the public and private sectors, 1978-84
	The Budget: 19 March 1985
	The economy: recent developments and prospects to mid-1986
May	Commodity flow accounts for the United Kingdom
July	Revisions to quarterly estimates of GDP
August	Research and development in the United Kingdom in 1983
	Measuring public expenditure
November	Regional accounts, 1984
December	Employment in the public and private sectors, 1979-85
	The effects of taxes and benefits on household income, 1984

1986
March	The Budget: 18 March 1986
	The economy: recent developments and prospects to mid-1987
May	International comparisons of taxes and social security contributions in 20 OECD countries, 1973-83

July	The effects of taxes and benefits on household income, 1984
August	Central government expenditure upon research and development in 1984
November	The effect of taxes and benefits upon household income, 1985
	Regional accounts, 1985
December	The monthly invisibles balance
	Employment in the public and private sectors, 1980-86

1987

February	A new UK definition of the High Technology industry
March	The Budget: 17 March 1987
	The economy: recent developments and prospects to mid-1988
May	International comparisons of taxes and social security contributions in 20 OECD countries, 1973-84
	National and sector balance sheets 1957-1985
June	International comparisons of Real Value, Productivity and Energy Intensity in 1980
July	The effects of taxes and benefits on household income, 1985
August	Revisions to quarterly estimates of GDP
October	Long term trends in public expenditure
November	Regional accounts 1986, part 1
	The distribution of income in the United Kingdom, 1984-5
December	International comparisons of taxes and social security contributions in 20 OECD countries, 1975-1985
	Employment in the public and private sectors, 1981-87

1988

January	Regional accounts 1986, part 2
March	The Budget, 15 March 1988
	The economy: recent developments and prospects to mid-1989
	Rebasing the National Accounts; the reasons and the likely effects
July	PSBR: new data on notes and coin
August	Research and development in the United Kingdom, 1986
November	Regional accounts 1987, part 1
December	The effects of taxes and benefits on household income, 1986
	Employment in the public and private sectors, 1982-88

1989

January	International comparisons of taxes and social security contributions in 20 OECD countries 1976-1986
	The effects of rebasing on the estimates of gross domestic product
February	An investigation into balancing the UK national and financial accounts, 1985-1987
	The rebased index of production
March	The Budget, 14 March 1989
	The economy: recent developments and prospects to mid-1990
May	Energy consumption in the United Kingdom
July	Regional accounts 1987, part 2
August	A technical note on the treatment of the community charge and non-domestic rates in the national accounts
	Research and development in the United Kingdom in 1987
November	Regional accounts 1988, part 1
December	Employment in the public and private sectors

1990

March	The Budget, 20 March 1990
	The economy; recent developments and prospects to mid-1991
April	Regional accounts 1988, part 2
	International comparisons of taxes and social security contributions in 20 OECD countries, 1977-1987
May	The effects of taxes and benefits on household income 1987
June	The Welsh index of production and construction
September	Research and development in the United Kingdom in 1988
October	Estimates of the distribution of wealth
November	International comparisons of taxes and social security benefits in 20 OECD countries, 1978-1988
	Regional accounts 1989, part 1
December	Employment in the public and private sectors

1991

January	The 1989 Share Register Survey

February	Improving economic statistics; the Chancellor's Initiative
March	The Budget, 19 March 1991
	The economy; recent developments and prospects to mid-1992
April	Regional accounts 1989, part 2
June	Number of property transactions in England and Wales
July	Number of property transactions in England and Wales (amendments)
August	Research and development in the United Kingdom in 1989
October	The 1991 Share Register Survey
November	Regional accounts 1990, part 1
	Estimates of the distribution of personal wealth; marketable wealth and pension rights of individuals 1976 to 1989
December	The use of supply side estimates in the National Accounts
	Employment in the public and private sectors
1992	
January	International comparisons of taxes and social security contributions in 20 OECD countries 1979-1989
	Effects of taxes and benefits on household income 1989
February	Improving economic statistics
March	Sectoral analysis of banking statistics: a joint Bank of England/CSO study
April	Regional accounts 1990, part 2
	The Budget; 10 March 1992
	The economy; recent developments and prospects to mid-1993
	Changes to the structure of manufacturing industry 1973-1989 as measured by the annual census of production
	The inter-departmental business register
May	Testing for bias in initial estimates of economic indicators
	Figures for Europe; a guide to Eurostat
June	Investigating the domestic interbank difference
	Sir Richard Stone and the National Accounts
July	Producer price indices; present practice, future developments and international comparisons
	Property transactions in England and Wales 1991
August	Research and development in the United Kingdom in 1990
	The 1992 Share Register Survey
September	Input-output balance for the United Kingdom 1989
	Trade credit
October	Sector allocation of dividend and interest flows; a new framework
	Sources and methods in the measurement of personal sector income and expenditure
	The new UK Standard Industrial Classification of economic activities; SIC (92)
November	The production of fully reconciled UK national and sector accounts for 1988-1991
	Environmental issues and the National Accounts
December	International comparisons of taxes and social security benefits in 20 OECD countries 1980-1990
	Regional accounts 1991; part 1
	Developments in balance of payments statistics; problems and some solutions 1987-1992
1993	
January	Employment in the public and private sectors
	The treatment of council tax in the national accounts
	Effects of taxes and benefits upon household income 1990
	Intrastat
	Improving macro-economic statistics
February	Transition to the new Standard Industrial Classification; SIC(92)
	Rebasing the national accounts; the reasons and the likely effects
	Testing for bias in initial estimates of the components of GDP
March	Prodcom
April	The Budget; 16 March 1993
	The economy; recent developments and prospects to mid-1994
May	New arrangements for release of CSO data
	Effects of taxes and benefits upon household income 1991
	Regional accounts 1991; part 2
	Measuring the contribution of finincial institutions to gross domestic product
	Testing for bias in initial estimates of key economic indicators
June	CSO's success in meeting national accounts targets in 1992-93
July	Integrating the builders address file with the CSO business register
	A review of CSO cyclical indicators