

# Economic Trends

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### Introduction

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

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

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 I 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 17 June 1996.

2. The four letter identification code at the top of each column of data (eg, DJDD) is ONS's own reference to this series of data on our database. Please quote the relevant code if you contact us requiring any further information about the data. 3. Some data, particularly for the latest time period, is provisional and may be subject to revisions in later issues.

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

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

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

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

8. 'Billion' denotes one thousand million.

9. There is no single correct definition of *money*. 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.

10. Symbols used:

- .. not available
- nil or less than half the final digit shown
- + alongside a heading indicates a series for which measures of variability are given in the table on page 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, SWIP 3AQ.

Marketing and Customer Service Division Office for National Statistics

17 June 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, SWIP 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.



## **H M Treasury**

## **Summer Economic Forecast 1996**

Copies of the Summer Economic Forecast will be available from HMSO from 9 July at a cost of £7.50.

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### Summer Economic Forecast 1996 -data definitions and sources-

A note detailing data definitions and sources for the charts and tables published in the Summer Economic Forecast will be available from HM Treasury from the same date. Copies are free to personal callers and at a handling fee of £2.50 by post. Cheques should be made payable to HM Treasury and sent to Miss C T Coast-Smith, Public Enquiry Unit, Room 110/2, Treasury Chambers, Parliament Street, London, SW1P 3AG. Telephone enquiries on 0171 270 4558.

### **ECONOMIC UPDATE - June 1996**

(includes data up to 19th June 1996)

by Adrian Richards and Philip Blackburn, Economic Assessment - Office for National Statistics

### Overview

Manufacturing ouput has remained flat and further labour shedding in the manufacturing sector confirm this position. Signs of increasing consumer demand have not revealed themselves in retail sales figures, however, the sharp increase in demand for credit last month signals strengthening consumer confidence. Inflationary pressure is not apparent from latest figures: underlying retail price inflation fell and the rate of change of ouput prices fell to its lowest level since December 1994. Earnings are stable, although service sector earnings have recently been revised upwards. Unemployment continues to fall, but the latest fall in employment is at odds with the previous quarter's rise, raising questions on the present state of the labour market. External demand , both inside and outside the European Union, has seen imports continuing to grow at a faster rate than exports, which will have a negative effect on GDP growth.

### Activity

The CSO's coincident cyclical indicator, based on partial information, fell between March and April continuing to fall from its peak in October 1995. Partial information suggests that the shorter leading index picked up sharply in April to stand at its highest level since October 1994 and the longer leading index continued its rise from December 1995.

### **Output and expectations**

2. The index of industrial production, seasonally adjusted, was 0.3% higher in the three months to April than the previous three months. Within this, manufacturing output remained unchanged, mining and quarrying output, including oil and gas extraction rose by 0.7% and output of the electricity, gas and water supply industries rose by 2.1%. Although manufacturing production overall was flat, there were significant increases in production in the three months to April in the food, drink and tobacco industries of 1.4%, the transport equipment industries of 1.3% and textiles, clothing and leather of 0.9%.

3. The CBI Monthly Trends Enquiry in manufacturing revealed that the output expectations balance in the next 4 months, seasonally adjusted, fell sharply from 15% in April to 9% in May, the lowest balance since July 1993.

4. The volume of new construction orders in Great Britain, seasonally adjusted, fell by 9% in the three months to April compared with the three months to January. New private housing orders rose by 13% over the same period. Chart 1 shows that growth in the value of new private housing exceeds that of total new construction.

### **Indicators of domestic demand**

5. In the three months to May, the volume of retail sales was 0.5% higher than in the previous three months and 2% up on a year earlier.

6. Total net personal borrowing, seasonally adjusted, rose from £5.8 billion in the three months to January to £6 billion in the three months to April. Over this period, net borrowing secured on dwellings, seasonally adjusted, fell from £3.8 billion to £3.6 billion while net consumer credit, seasonally adjusted, rose from £2 billion to £2.5 billion, with a significant increase in credit of 40% from March to April. Chart 2 highlights the recent surge in demand for consumer credit following a period of weak credit demand.

### Chart 1

Value of new orders for all new construction in GB





### **Prices and wages**

7. The 12-month rate of increase of the retail prices index (RPI) was 2.2% in May, falling from 2.4% in April. The rate has fallen in each successive month since December 1995, a total of 1%. Downward pressure has come from food prices, which have risen less than compared with a year earlier. Excluding mortgage interest payments (RPIX), the 12-month rate fell from 2.9% in April to 2.8% in May. This rate is within the government's target range of 1-4%. Excluding mortgage interest payments and indirect taxes (RPIY), fell from 2.6% in April to 2.3% in May. The differing rates of retail inflation are shown in Chart 3.

#### Chart 3

Measures of price inflation



8. Producer price data continued to show signs of lower inflation. 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 1.3% in April to 1% in May, the lowest rate since November 1992. In May, the annualized change in **input prices** (all manufacturing), seasonally adjusted and excluding food, beverages, tobacco and petroleum, saw a fall in prices slightly less than the previous month, from deflation of 4.4% to deflation of 4%. Chart 4 shows the latest downward movements in producer price inflation.

9. Expectations of price increases by manufacturers fell again in May, indicating no immediate anticipation of inflation in the manufacturing sector. The CBI Monthly Trends Enquiry for manufacturing showed a balance of 7%, seasonally adjusted by the ONS, expecting to raise prices in the next four months; this balance is the lowest since May 1994.

10. The annual rise in underlying whole economy average earnings for Great Britain in April remained unchanged from March at 3<sup>3</sup>/<sub>4</sub>% in April . Sectorally, underlying annual earnings growth in April was unchanged from March in the production industries sector and the service sector at 4<sup>1</sup>/<sub>4</sub>% and 3<sup>1</sup>/<sub>2</sub>%, respectively, however, the annual growth rate fell in manufacturing to be 4% for April.

### Chart 4

Producer prices (all manufacturing excluding food, beverages, tobacco and petroleum products



### Labour market and productivity

11. UK claimant unemployment, seasonally adjusted, fell in May by 14,800 to 2.2 million, or 7.7% of the workforce. In the three months to May the average monthly fall was 14,900 compared with an average fall of 10,800 in the three months to February. Job centre vacancies increased by 7,100 in May; the recent rises in vacancies, as highlighted in Chart 5, augurs well for future falling unemployment.



12. The UK workforce in employment, seasonally adjusted, is estimated to have fallen by 74,000 between 1995 Q4 and 1996 Q1 to 25.7 million. Chart 6 shows the recent fall in employment which is at odds with the previous rise.



13. There was a fall in **GB employment in manufacturing** industries of 18,000 between March and April, and a fall of 18,000 in the twelve months to April. Employment in the rest of the production industries fell by 3,000 between March and April, and by 19,000 in the twelve months to April.

14. In the three months to April 1996, productivity in manufacturing was 0.7% up on the three months to April 1995. Unit wage costs in manufacturing rose by 3.6% over the same period.

### **Monetary** indicators

15. The annual growth of narrow money (M0), seasonally adjusted, rose from 5.6% in April to 6.2% in May, further away from the Government's monitoring range of 0-4%.

### **Government finances**

16. In May the **public sector borrowing requirement (PSBR)** was £3.2 billion. For the first two months of 1996-97 the PSBR was £6.7 billion compared with £7.8 billion in the same period last year. Excluding privatisation proceeds the figures were £7.9 billion and £7.8 billion respectively. The sale of Railtrack shares contributed £0.8 billion to public sector revenue.

### **Balance of payments**

17. The deficit on the balance of UK visible trade rose from £3.2 billion in the three months to December to £3.5 billion in the three months to March. Over this period the volume of total exports, excluding oil and erratics, rose by 3.2%. On the same basis imports

rose by 4.3%. Exports of semi-manufactures and basic materials led the export gowth over this period, rising by 5.1% and 4.3%, respectively.

18. More timely data on trade with non-EC countries shows that the deficit did not significantly change in the three months to April from its level of £2.4 billion in the three months to January. In the three months to May, export volumes, excluding oil and erratics rose by 2.3% compared with the previous three months. On the same basis imports rose by 6%: half this rise can be attributed to imports of aircraft. As seen in Chart 7, the depreciation in the US dollar/ UK sterling exchange rate since March 1995 has improved export conditions with non-EC countries.

### Chart 7 Volume of non-EC exports and US dollar / sterling exchange rate



### **Forecast for the UK Economy** A comparison of independent forecasts, June 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.

	Inde	pendent Forecasts for 19	96
	Average	Lowest	Highest
GDP growth (per cent)	2.3	1.8	3.2
Inflation rate (Q4) - RPI - RPI excl MIPS	2.4 2.7	1.5 2.1	3.4 3.2
Unemployment (Q4, mn)	2.11	1.99	2.40
Current Account (£bn)	-6.9	-11.2	-1.7
PSBR (1996-97, £bn)	26.9	22.2	32.0

	Inde	pendent Forecasts for 19	97
	Average	Lowest	Highest
GDP growth (per cent)	3.2	2.0	4.1
Inflation rate (Q4) - RPI - RPI excl MIPS	3.4 2.9	1.7 1.7	4.9 4.3
Unemployment (Q4, mn)	1.97	1.63	2.40
Current Account (£bn)	-8.2	-16.3	0.0
PSBR (1997-98, £bn)	22.7	15.0	31.9

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 June 1996)

### by Kevin Madden, Economic Assessment - Office for National Statistics 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. **Data on unified Germany has begun to be available and is included, where applicable, in this article for the first time. Footnotes to the tables explain the commencement or otherwise of the data.** 

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 on a quarterly basis, growth in the United Kingdom fell from 0.5% in 1995 Q4 to 0.4% in 1996 Q1. In this

period the United States economy grew by 0.7% a rise of 0.6 percentage points on the previous quarter. In 1995 Q4, there was a marked decline in both the German and Italian growth rates, with the former contracting by 0.4% and the latter 0.9%.

4. Evidence of weakness in **consumer price inflation** was apparent, with the United Kingdom reporting a fall from 2.4% to 2.2%, and Italy a decline from 4.6% to 4.3% in the month to May. Inflation stabilized in France and the United States, at 2.4% and 2.9% respectively. In the previous period German inflation fell from 1.9% in March to 1.8% in April. Only in Japan, where the rate rose by 0.7 percentage points to 0.6% was there an increase, but since 1995 deflation has tended to predominate.

5. **Standardised unemployment rates** (ILO based) rose to 5.5% in the United States in May only partly offsetting the fall recorded the previous month. With new data becoming available on unified Germany it is clear that unemployment has risen quite rapidly gaining a full percentage point since August 1993 to reach 9% in February 1995. Elsewhere, Japan reported a rise from 3.1% in March to 3.4% in April. Italy had the highest rate, however, of the G7 economies with 12.1% in October 1995.

### Gross domestic product at constant market prices: index numbers

1990 = 100United United Germany<sup>1</sup> France Italy EC States Japan<sup>2</sup> Canada OECD Kingdom Major 7 FNAO GAB GABH GABJ GAEK GAEH GAEI GAEG GAEO GAEJ 1980 79.9 792 80.3 79.0 66.8 75.1 76.8 77 1 75.9 76.2 84.9 84.7 85.4 86.1 85.1 87.4 80.2 86.6 1985 85.4 85.5 86.7 87.6 88.6 87.5 89.9 82.1 87.8 1986 88.6 89.5 87.8 90.6 90.6 1987 92.8 87.9 89.6 91.4 90.1 92.7 85.4 93.2 91.1 93.8 95.3 93.8 96.4 90.9 1988 97.5 98.2 94.7 94.5 97.7 97.5 1989 99.6 94.4 97.6 97.9 97.1 98.8 95.1 100.3 1990 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 112.4 100.8 101.2 103.0 99.4 104.0 98.3 101.0 1991 98.0 101.5 114.4 102.2 102.0 104.0 105.0 1992 97.5 101.7 99.0 103.1 102.5 113.1 100.8 103.4 101.0 100.6 104.8 105.1 1993 99.7 104.5 103.8 1994 103.5 116.4 103.5 102.7 106.4 109.1 105.7 105.8 107.7 106.8 118.9 106.0 105.7 108.9 109.8 106.0 106.5 108.2 1995 108.8 112.9 100.5 103.2 104.2 105.2 101.0 1993 Q2 99.2 101.0 104.2 104.1 113.7 100.7 100.0 104.9 Q3 100.2 103.6 105.4 101.0 104.6 104.6 Q4 100.9 113.5 100.9 101.1 103.9 106.5 104.9 102.0 105.4 105.3 114.8 101.6 101.2 104.7 106.0 1994 Q1 101.9 105.3 103.0 106.3 105.5 Q2 116.2 103.1 102.2 106.0 107.2 105.8 103.2 105.0 107.3 106.6 117.0 104.2 108.2 Q3 104.1 103.6 106.9 106.5 107.0 108.4 107.5 105.2 103.6 107.6 Q4 104.8 117.7 109.0 105.3 108.0 109.0 107.9 1995 O1 105.3 118.0 105.9 105.0 108.3 109.2 105.5 108.1 109.6 108.3 106.1 105.0 108.8 119.3 109.3 106.1 107.9 02 105.8 110.1 108.4 119.4 106.2 106.9 109.4 110.3 106.7 03 108.2 109.2 106.3 110.9 Q4 118.9 105.9 105.9 109.2 110.4 107.7 108.4 106.8 109.4 1996 Q1 107.2 111.2 Percentage change, latest quarter on corresponding quarter of previous year 1995 Q4 1.9 1.0 0.7 2.2 1.5 1.3 2.3 0.4 1.4 1996 Q1 1.9 1.8 Percentage change, latest guarter on previous guarter -0.4 -0.3 -0.9 -0.2 0.1 1995 Q4 0.5 0.9 0.2 02 1996 Q1 0.4 0.7

1 Data available for unified Germany since 1991

2 GNF

## Consumer prices<sup>1</sup> Percentage change on year earlier

	United Kingdom	Germany <sup>2</sup>	France	Italy	EC	United States	Japan	Canada	Major 7	OECD <sup>3</sup>
1980	18.0	5.5	13.4	21.1	13.4	13.7	8.0	10.2	12.8	14.8
1985	6.1	2.2	5.9	8.6	6.2	3.5	2.1	4.0	4.1	6.9
1986	3.4	-0.1	2.7	6.2	3.7	1.9	-0.1	4.1	2.1	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	3.6	4.0	0.7	4.0	3.4	8.6
1989	7.8	2.8	3.5	6.6	5.3	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	-1.2	2.1	4.2	3.4	3.0	1.3	1.9	2.6	4.1
1994	2.4	2.7	1.7	3.9	3.0	2.5	0.7	0.2	2.3	4.4
1995	3.5	1.9	1.8	5.4	3.7	2.9	-0.1	2.2	2.6	5.7
1995 Q2	3.5	0.8	1.6	5.5	3.8	3.1	-0.2	2.7	2.8	5.8
Q3	3.7	1.7	1.8	5.8	3.7	2.7	0.1	2.4	2.6	5.9
Q4	3.2	1.8	1.9	5.7	3.6	2.8	-0.5	2.0	2.5	5.7
1996 Q1	2.8	1.8	2.1	5.0	2.8	2.8	-0.2	1.4	2.2	5.6
1995 Jun	3.5	1.9	1.6	5.9	3.9	3.1	0.2	2.7	2.8	5.9
Jul	3.5	1.8	1.5	5.6	3.7	2.9	0.4	2.6	2.6	5.9
Aug	3.6	1.7	1.9	5.8	3.7	2.7	-0.2	2.3	2.5	5.8
Sep	3.9	1.8	2.0	5.8	3.8	2.6	-0.1	2.3	2.6	5.9
Oct	3.2	1.8	1.8	5.9	3.6	2.8	-0.8	2.4	2.6	5.8
Nov	3.1	1.7	1.9	5.7	3.7	2.7	-0.6	2.0	2.4	5.6
Dec	3.2	1.8	2.1	5.5	3.6	2.9	-0.1	1.7	2.5	5.7
1996 Jan	2.9	1.7	2.0	5.6	2.9	2.7	-0.4	1.5	2.2	5.6
Feb	2.7	1.7	2.0	5.0	2.8	2.7	-0.3	1.3	2.2	5.5
Mar	2.7	1.9	2.3	4.4	2.8	2.9	-0.1	1.4	2.3	5.6
Apr	2.4	1.8	2.4	4.6	2.7	2.9	0.6	1.4	2.3	5.6
May	2.2		2.4	4.3		2.9				

1 Components and coverage not uniform across countries

2 Data available for Unified Germany from 1991

3 OECD data includes 'higher inflation' countries (Mexico and Turkey)

### Standardised unemployment rates: percentage of total labour force<sup>1</sup> 3

	United Kingdom	Germany <sup>2</sup>	France	Italy	EC <sup>3</sup>	United States	Japan	Canada	Major 7	OECD
	GABE	GABD	GABC	GABE	GADB	GADO	GADP	GADN	GAEQ	GADQ
1980	6.4	3.1	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	7.8	11.7	10.2	10.9	6.7	2.5	11.2	7.2	7.8
1994	9.5	8.4	12.3	11.8	11.4	6.0	2.9	10.3	7.0	7.8
1995	8.7	8.2	11.6		11.0	5.5	3.2	9.5	6.8	7.5
1995 Q4	8.6	8.5	11.6	••	11.1	5.5	3.3	9.4	6.8	7.6
1996 Q1	8.4		11.8		11.1	5.6	3.3	9.4	6.8	7.6
1995 Jun	8.8	8.2	11.6		11.0	5.5	3.2	9.5	6.7	7.5
Jul	8.8	8.1	11.5	12.2	11.0	5.6	3.2	9.7	6.8	7.6
Aug	8.7	8.2	11.5		11.0	5.6	3.2	9.5	6.8	7.5
Sep	8.6	8.3	11.5		11.0	5.6	3.2	9.2	6.8	7.5
Oct	8.6	8.3	11.6	12.1	11.0	5.4	3.2	9.4	6.7	7.5
Nov	8.5	8.5	11.6		11.0	5.5	3.4	9.4	6.8	7.6
Dec	8.6	8.6	11.7		11.2	5.5	3.4	9.4	6.9	7.6
1996 Jan	8.4	8.8	11.8		11.1	5.7	3.4	9.5	6.9	7.7
Feb	8.4	9.0	11.8		11.1	5.5	3.3	9.5	6.8	7.6
Mar	8.3		11.9		11.2	5.6	3.1	9.3	6.8	7.6
Apr			11.9			5.4	3.4			
May						5.5				

Uses an ILO based measure of those without work, currently available for work, actively seeking work or waiting to start a job already obtained
 Data available on Unified Germany from January 1993
 Excludes Denmark, Greece and Luxembourg

	United				United		
	Kingdom	Germany <sup>1,2</sup>	France	Italy	States <sup>1</sup>	Japan <sup>1</sup>	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
1995	-1.0	-0.7	1.1	2.5	-2.1	2.2	-1.7
1994 Q4	-0.3	-1.3	0.7	1.8	-2.5	2.6	-1.4
1995 Q1	-0.3	-	1.9	1.0	-2.3	2.5	-3.7
Q2	-1.1	-0.1	1.3	3.0	-2.5	2.2	-2.6
Q3	-1.2	-1.4	0.3	3.3	2.2	2.1	-0.6
Q4	-1.3	-0.9	0.9	2.6	-1.7	1.9	0.1

1 Balance as percentage of GNP 2 Data available for Unified Germany from July 1990



### Total industrial production: index numbers

										1990 = 100
	United Kingdom	Germany <sup>1</sup>	France	Italy	EC	United States	Japan <sup>2</sup>	Canada <sup>3</sup>	Major 7	OECD <sup>4</sup>
	DVZI	HFGA	HFFZ	HFGB	GACY	HFGD	HFGC	HFFY	GAES	GACX
1980	81.5	97.3	88.0	87.9	83.7	79.3	67.3	81.4	78.7	78.8
1985	88.0	100.3	88.5	84.8	86.4	89.0	79.8	94.5	86.3	86.3
1986	90.1	87.3	89.5	87.9	88.2	89.9	79.6	93.8	87.3	87.2
1987	93.7	87.6	91.3	91.3	90.4	94.3	82.4	98.4	90.5	90.4
1988	98.2	90.7	95.0	96.8	94.2	98.5	90.7	103.6	95.6	95.2
1989	100.3	95.0	98.5	99.8	97.9	100.0	95.9	103.4	98.5	98.3
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	100.1	98.3	101.9	95.8	99.7	99.7
1992	96.2	101.0	100.2	98.9	99.0	101.7	96.1	96.8	99.5	99.6
1993	98.3	93.4	97.6	96.5	96.0	105.2	92.0	101.2	99.0	99.3
1994	103.2	96.9	101.3	101.5	100.4	111.4	93.1	107.8	103.4	103.7
1995	105.9	97.6	103.6	106.9	103.6	115.1	96.0	112.0	106.5	106.7
1995 Q2	105.6	98.8	104.4	106.1	103.8	114.5	96.4	111.8	106.5	106.6
Q3	106.4	98.3	104.7	107.9	104.2	115.4	94.7	112.1	106.6	106.8
Q4	106.3	95.9	101.6	109.4	103.5	115.6	96.5	111.8	106.7	107.0
1996 Q1	106.6	97.1	99.2	105.5	103.0	116.3	97.5	112.3	106.9	107.4
1995 Apr	105.5	98.2	103.2	107.6	103.2	114.5	97.0	111.9	106.6	106.4
May	105.9	99.6	105.1	105.5	104.3	114.4	96.5	112.2	106.6	106.8
Jun	105.5	98.7	104.9	105.3	104.0	114.5	95.7	111.3	106.2	106.5
Jul	106.0	99.8	105.4	107.8	104.3	114.6	93.5	111.8	106.2	106.2
Aug	106.4	97.6	105.4	108.4	104.6	115.7	96.6	112.1	107.2	107.4
Sep	106.9	97.5	103.3	107.5	103.8	115.8	94.0	112.3	106.5	106.7
Oct	105.9	95.4	101.5	106.7	102.8	115.3	95.3	111.9	106.0	106.3
Nov	106.4	95.4	102.0	106.1	103.3	115.6	96.7	112.1	106.6	107.0
Dec	106.8	96.8	101.3	115.3	104.3	115.8	97.6	111.4	107.4	107.7
1996 Jan	106.0	97.8	98.7	103.4	102.9	115.5	98.2	112.7	106.6	107.2
Feb	106.5	96.1	99.1	104.7	102.4	116.9	100.1	112.3	107.5	107.8
Mar	107.2	97.4	99.9	108.4	103.8	116.4	94.2	111.9	106.6	107.1
Apr	106.4	97.1				117.4	97.7		••	
Percentage char	nge: average of late	st three months o	n that of corre	esponding pe	riod of previo	ous year				
1996 Mar	1.2	-0.4	-4.4	1.3	0.2	1.2	1.1	0.0	0.6	0.7
Apr	1.0	-1.2				1.9	0.1			
Percentage char	nge: average of late	st three months o	n previous thi	ree months						
1996 Mar	0.2	1.3	-2.3	-3.5	-0.4	0.6	1.0	0.4	0.2	0.3
Apr	0.3	0.2		••		1.1	-0.2			

1 Data available for Unified Germany from 1991 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

h

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

	United Kingdom	Germany <sup>1</sup>	France <sup>2</sup>	Italy	EC	United States	Japan	Canada	Major 7	OECD <sup>3</sup>
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	-2.4	-2.0	0.1	-1.0	-1.4	-4.7	0.9	-1.5	1.5
1987	3.7	-0.3	0.2	3.1	1.2	2.1	-2.9	2.7	1.1	5.8
1988	4.3	1.5	4.8	3.5	3.4	2.5	-0.3	4.5	2.4	7.2
1989	4.7	3.4	5.2	5.8	4.8	5.2	2.1	1.8	4.4	5.8
1990	5.8	1.5	-1.0	4.2	2.5	4.9	1.6	0.3	3.3	4.7
1991	5.4	2.2	-1.2	3.3	2.2	2.1	1.1	-1.0	1.9	3.3
1992	3.5	1.6	-1.4	1.9	1.2	1.3	-1.0	0.5	0.8	2.2
1993	3.7	0.0	-2.6	3.7	1.2	1.3	-1.6	3.3	0.8	2.1
1994	2.9	-2.9	1.1	3.7	1.4	0.6	-1.7	5.6	0.5	3.1
1995	3.4	2.2	6.4	7.9	5.7	1.8	-0.7	8.1	3.1	6.8
1995 Q4	3.8	1.7	2.7	7.2	4.6	1.9	-0.7	5.8	2.8	6.5
1996 Q1	3.8	0.8		4.7		2.7		1.6		
1995 Jun	3.2	2.6	8.5	9.2	6.4	2.2	-0.6	8.7	3.4	7.0
Jul	3.6	2.4	7.1	9.2	6.3	1.9	-0.7	8.3	3.2	6.9
Aug	3.7	2.3	6.8	9.0	6.1	1.3	-0.7	7.2	2.9	6.7
Sep	3.9	2.5	5.7	8.7	5.9	2.2	-0.6	7.7	3.1	6.9
Oct	3.8	2.2	4.0	7.9	5.2	2.0	-0.6	6.7	3.1	6.7
Nov	3.7	1.7	2.6	7.2	4.6	1.8	-0.6	5.6	2.6	6.4
Dec	4.0	1.4	1.7	6.5	4.2	1.9	-0.8	5.1	2.5	6.3
1996 Jan	3.4	0.9	-0.4	5.9	2.5	3.0	-0.8	2.5	1.8	6.9
Feb	4.0	0.7	-1.4	4.7		2.4	-0.9	1.9		0.0
Mar	3.9	0.5	,	3.5		2.7	0.0	0.6		
Apr	3.8	0.0		2.6		2.5		0.6		
May	3.6			2.0		2.2		0.0		
	0.0									

Data available for Unified Germany from 1991
 Producer prices in intermediate goods
 OECD includes 'higher inflation' countries (Mexico and Turkey)

### 7

### Total employment: index numbers<sup>1</sup>

	United Kingdom	Germany <sup>2,3</sup>	France <sup>3</sup>	Italy	EC	United States <sup>3</sup>	Japan	Canada <sup>3</sup>	Major 7	OECD
	DMBC	GAAR	GAAU	GAAS	GADW	GADT	GADU	GADS	GAEU	GADV
1980	93.5	95.3	96.6	97.0	100.0	84	89	84.3		
1985	91.2	93.5	95.6	97.3	93.1	91	93	89.1	92.3	92.1
1986	91.4	94.4	96.1	97.9	93.8	93	94	91.9	93.6	93.4
1987	93.4	95.3	96.5	97.8	95.0	95	95	94.3	95.2	95.0
1988	96.7	96.3	97.5	99.0	96.8	98	96	97.4	97.1	97.0
1989	99.4	97.2	99.0	98.6	98.4	100	98	99.4	98.9	98.8
1990	100.0	100.0	100.0	100.0	100.0	100	100	100.0	100.0	100.0
1991	97.1	101.9	100.0	101.3	99.9	99	102	98.1	99.9	99.9
1992	94.6	102.8	99.4	100.7	98.7	100	103	97.6	100.1	99.7
1993	93.6	100.9	98.2	95.9	96.3	101	103	98.8	100.1	99.5
1994	94.2	99.3	98.4	94.0	95.8	104	104	101.0	101.4	100.7
1995	94.9	99.1	99.5	93.9	96.5	106	103	102.6	102.4	101.6
1995 Q4	95.0	99.4	99.8	94.3	96.8	106.5	103.1	102.7	102.5	101.9
1996 Q1				93.1				100.8		
1996 Feb						105.3	100.8	101.0		
Mar								101.2		
Percentage chang	je, latest quarter	on that of correspo	nding period of	previous yea	ır					
1995 Q4	0.3	0.4	1.0	0.4	0.8	0.7	-0.1	0.9	0.4	0.6
1996 Q1				0.8				1.3		
Percentage chang	je latest quarter	on previous quarter								
1995 Q4	0.2	0.2	0.1	-0.7	-0.1	-0.3	-1.2	-2.4	-0.4	-0.4
1996 Q1				-1.3				-1.9		

Not seasonally adjusted except for the United Kingdom
 Western Germany (Federal Republic of Germany before unification)
 Excludes members of armed forces

1990 = 100

## Average wage earnings in manufacturing<sup>1</sup> Percentage change on a year earlier

	United Kingdom <sup>2</sup>	Germany <sup>3</sup>	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	3.9	3.1	3.8	3.8	5.1
1986	7.7	4.0	4.0	4.7	5.2	2.0	1.4	2.8	3.7	3.3
1987	8.1	3.8	3.1	6.6	5.4	1.8	1.7	3.3	2.4	3.5
1988	8.5	4.6	3.0	6.0	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	4.5		4.5	3.1		2.4	3.1	1.5	0.6	1.8
1995 Q3	4.4		1.8	3.5	3.8	2.7	3.6	2.3	1.0	1.5
Q4	4.0		2.6	3.9	3.0	2.6	2.4	2.0	0.0	0.7
1996 Q1				3.3		2.7	1.4	1.8		
1995 Apr	5.2	3.8	2.4	2.3	7.6	2.3	3.5	0.7	1.2	3.5
May	4.5			2.3	7.5	2.3	3.2	1.2	1.1	3.4
Jun	4.4			2.2	7.6	2.3	1.5	0.9	-0.6	1.8
Jul	4.9	3.3	1.5	3.5	3.8	2.8	7.6	1.1	1.1	1.6
Aug	4.2			3.4	3.7	2.8	1.2	3.3	0.6	1.3
Sep	3.9			3.9	3.8	2.6	1.9	2.6	1.1	1.6
Oct	4.0		1.7	3.9	3.0	2.6	1.9	2.4	0.6	1.3
Nov	3.7			3.9	3.0	2.5	0.9	1.7	0.2	0.9
Dec	4.1			3.9	3.1	2.7	4.5	2.2	-0.6	0.1
1996 Jan	3.9		1.5	3.2		3.4	-0.7	1.4		
Feb				3.3		2.7	2.5	1.8		
Mar				3.2		2.2	2.3	2.1		

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

### Retail Sales (volume): index numbers

										1990 = 100
	United Kingdom	Germany <sup>1</sup>	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	90.8	101.5	93.4	89.1	89.0
1987	91.5	86.9	94.8	97.8	91.5	93.3	107.1	98.6	92.3	92.1
1988	97.3	89.8	98.2	95.7	94.0	97.0	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	97.6	101.9	89.6	99.0	99.2
1992	99.4	103.6	100.3	102.2	100.8	100.9	99.1	90.8	100.4	100.3
1993	102.4	99.3	100.3	99.0	99.1	106.3	94.3	93.5	102.1	101.3
1994	106.2	97.5	100.8	94.4	98.3	112.9	92.8	101.1	105.1	104.0
1995	107.5		100.2	89.1	98.8	117.5	98.6	101.5	107.9	107.3
1995 Q4	108.3		97.6	82.5	97.0	119.0	98.5	101.2	107.8	107.3
1996 Q1	108.7									
1995 Aug	107.1		101.8	93.8	100.0	118.7	99.7	102.6	109.2	108.6
Sep	107.3		101.1	90.1	100.0	118.7	99.0	101.9	108.8	108.3
Oct	107.3		95.9	79.5	96.0	118.1	97.7	101.3	106.9	106.3
Nov	108.6		99.6	86.2	98.0	119.3	99.4	100.9	108.5	108.0
Dec	108.8		97.3	81.7	97.0	119.7	98.3	101.3	108.1	107.7
1996 Jan	108.0		102.7		100.0	118.7	100.1	101.4	109.0	108.4
Feb	108.9		103.3					102.0		
Mar	109.2									
Percentage chan	ge average of latest	three months on	that of corresp	onding period	l of previous y	/ear				
1996 Feb	1.9		-0.2					-1.2		
Mar	2.1									
Percentage chan	ge average of latest	three months on	previous three	months						
1996 Feb	0.7		2.3					0.2		
Mar	0.4									

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

## **10** World trade<sup>1</sup>

	Export	of manufac	tures	Import	of manufact	ures	Ex	port of go	ods	Im	port of goo	ods	World ti	rade
	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	113.9	109.7	130.0	115.2	111.1	126.3	115.3	112.1	123.3	115.0	110.8	126.8	114.5	115.1
1994	127.6	121.5	151.0	128.9	124.3	141.2	127.4	123.0	139.4	126.8	121.9	140.8	128.2	127.1
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	113.5	109.2	129.9	114.0	109.8	125.6	115.0	111.7	123.8	114.3	109.9	126.8	113.7	114.6
Q3	114.9	110.0	134.2	116.0	111.3	128.9	116.5	112.4	127.4	116.2	111.3	130.0	115.5	116.3
Q4	117.8	112.6	137.8	118.9	114.3	131.6	119.1	115.2	129.9	118.3	113.4	132.2	118.4	118.7
1994 Q1	121.7	115.3	146.1	123.0	117.7	137.4	122.3	117.3	136.1	122.1	116.6	137.5	122.3	122.2
Q2	126.3	120.5	148.8	126.9	122.4	139.2	126.1	121.9	137.7	125.2	120.4	138.8	126.6	125.7
Q3	129.2	122.8	154.2	130.6	125.7	143.9	128.8	124.1	141.6	128.3	123.0	143.3	129.9	128.5
Q4	133.1	127.4	155.1	135.0	131.5	144.4	132.5	128.9	142.1	131.7	127.5	143.7	134.0	132.1
1995 Q1	147.0	142.4	165.1	151.1	150.0	154.2	145.5	143.7	155.1	148.5	146.7	153.4	149.1	147.0
Q2	148.5	144.2	165.1	152.3	151.6	154.2	146.5	145.2	155.1	149.6	148.2	153.4	150.4	148.1
Q3	152.0	145.6	176.5	157.2	154.5	164.6	150.3	146.8	164.7	154.4	151.1	163.6	154.6	152.3
Percentage o	change, latest	quarter on	correspondi	ng quarter o	f previous y	ear								
1995 Q2	17.6	19.7	11.0	20.0	23.9	10.8	16.2	19.1	12.6	19.5	23.1	10.5	18.8	17.8
Q3	17.6	18.6	14.5	20.4	22.9	14.4	16.7	18.3	16.3	20.3	22.8	14.2	19.0	18.5
Percentage of	change, latest	t quarter on	previous qua	arter										
1995 Q2	1.0	1.3	0.0	0.8	1.1	0.0	0.7	1.0	0.0	0.7	1.0	0.0	0.9	0.7
Q3	2.4	1.0	6.9	3.2	1.9	6.7	2.6	1.1	6.2	3.2	2.0	6.6	2.8	2.8

1 Data used in the World and OECD aggregates refer to Germany after unification 1990 = 100





### **REGIONAL ECONOMIC INDICATORS**

(includes data up to 18th June 1996)

### by Adrian Richards and Philip Blackburn, Economic Assessment - Office for National Statistics

#### Summary

- There was a narrowing of the differential in total personal disposable income per head between regions during 1994.

- Business Optimism was positive in only three regions in April 1996 : Northern Ireland, the South East and the North West. However output expectations were positive in all regions except the North.

- Employees in employment fell in all regions between December 1995 and March 1996.

- The number of **dwellings started** in England in 1996 Q1 was 11% below 1995 Q1. Dwellings started fell in all regions except East Anglia and the East Midlands (not including Northern Ireland and Scotland).

Gross domestic product, income and expenditure and pay (tables 1 to 7)

Total personal disposable income per head was £8,101 in the UK in 1994; this represents a growth of 3.1% on the previous year. The highest personal disposable income per head in 1994 was in Greater London at £9,677 (19% above the UK average) and lowest in Wales at £7,245 (11% below the UK average). As Wales saw the highest annual growth rate of 5.9% between 1993 and 1994, and Greater London saw the lowest growth rate of 1.3%, there was a narrowing of the differential between regions during 1994.

Consumers' expenditure per head as

### Chart 1

a proportion of personal disposable income per head - 1994 £s

Household disposable income per head was £7,983 in the UK in 1994. The regional variation in household disposable income per head is narrower than personal disposable income: ranging from £9,034 (13% above the UK average) in Greater London to £7,241 (9% below the UK average) in Northern Ireland. The redistributive effects of

taxation on income and state benefits cause the regional differentials to narrow compared to those of personal disposable income.

Household disposable income by category details regional growth changes in sources of household income. Wales saw the highest annual growth between 1993 and 1994 for household disposable income generated from wages and salaries at 5.3% and for income generated from self-employment at 11.2%. However, there was a fall in growth of social security benefit payments to Wales of 1.4%.

**Consumers' expenditure per head** was  $\pounds7,331$  in the UK in 1994, a rise of 5.2% from 1993. Greater London had the highest consumers' expenditure per head of  $\pounds8,792$ , whilst Northern Ireland had the lowest at  $\pounds6,264$ . The largest annual growth rates were in the West Midlands (at 9.3%), the North West (at 6.1%), the East Midlands (at 5.9%) and Northern Ireland (at 5.8%), and the smallest rate increases were in the North (at 4.1%), Greater London (at 3.8%) and Wales (at 3.3%). Chart 1 highlights disparate spending as a proportion of personal income, across regions.

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 May from 7.9% to 7.7%. In this period, unemployment fell in all regions except Scotland (0.1 percentage point rise) and Northern Ireland (unchanged), with the largest fall being 0.3 percentage points.

2. The unemployment rate as a percentage of the workforce in May 1996 remains lowest in East Anglia at 5.8%, 0.1 percentage points lower than in February 1996, and highest in Northern Ireland at 11.1%, the same as February 1996.



3. Employees in employment fell in the UK by 1% between December 1995 and March 1996, as chart 2 shows. Employment fell in all regions with the largest falls being in the East Midlands (at 2.1%), Scotland (at 1.4%) and Greater London (at 1.3%) and the smallest falls being in East Anglia and Wales (at 0.5%).

### Index of industrial production (table 12)

4. Between 1995 Q3 and 1995 Q4, industrial production fell by 0.2% in the UK as a whole. Industrial production rose over this period in Wales by 1.2%, but fell in Scotland and Northern Ireland by 0.6 and 0.4 respectively. The latest available industrial production data for the UK shows a return to growth of 0.2% in 1996 Q1.

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

5. As chart 3 shows, **business optimism** was positive in only three regions in April 1996 : Northern Ireland, the South East and the North West.Optimism deteriorated strongly in the South West and the North.



6. In the four months to April 1996, **output** balances (firms reporting rises in output less those reporting falls) were positive in all regions, except the North, Wales, the West Midlands, and Yorkshire and Humberside. The largest balances were in the East Midlands and Northern Ireland.

7. **Output expectations** were positive in all regions except the North, with the strongest expectations of output growing in the North West, East Anglia, Wales and the South East.

8. The balance reporting increased volumes of new orders (next 4 months) was positive in all regions except Northern Ireland. However, firms in Northern Ireland, Scotland, the North, Wales and the East Midlands anticipate lower growth in new orders compared to January.

9. The balance for volumes of new export orders shows an expectation of rising demand in all regions except the North, Wales and Scotland.

10. There was a rise of 3 percentage points in the number of firms working below capacity in the UK between January 1996 and April 1996. The number of firms working below capacity rose in all regions except Northern Ireland, the South West and the East Midlands.

### Housing Market (tables 18 to 20)

11. The number of **dwellings started** in England in 1996 Q1 was 11% below 1995 Q1 indicating a downturn in the housing market from the previous level a year ago. As shown in chart 4 (with Scotland and Northern Ireland omitted), dwellings started fell in all regions except East Anglia and the East Midlands for this period, with the North West showing the largest fall of 18.8% and the North showing the smallest fall of 1%. However, there was a pick up in demand during 1996 Q1, where the number of dwellings started in England increased by 22.9% from 1995 Q4.





12. Between 1995 Q1 and 1996 Q1 the number of dwellings completed in England fell by 4.6%. Dwellings completed during this period fell in all regions except the North West, Wales, Scotland and Rest of the South East. Between 1995 Q4 and 1996 Q1, dwellings completed decreased in all regions except the North West.

13. The Department of the Environment's all dwellings house prices index for the UK rose by 1.5% between 1995 Q4 and 1996 Q1. A sharp upswing in prices occured over this period in Wales (9.1% rise), in the South West (6.3% rise), in Scotland (4.3% rise) and in the Rest of the South East (3.1% rise). However, prices fell in Yorkshire and Humberside by 3.3%, in East Anglia by 1.7%, in the North West by 1.4%, in Greater London by 0.7% and in the East Midlands by 0.2%.

£ million and percentages

Source: Office for National Statistics

Source: Office for National Statistics

£

£

£

							Percentage of	of the UK1					
	United Kingdom <sup>1</sup> (£m)	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	DCIX	DCJF	DCJD	DCJC	DCIZ	LRAD	LRAE	DCJA	DCJB	DCJE	DCJG	DCJH	DCJI
1985	289 912	5.1	8.2	6.8	3.5	14.6	20.2	7.5	8.4	10.6	4.2	8.7	2.2
1986	319 893	4.9	8.2	6.8	3.6	14.8	20.4	7.6	8.4	10.5	4.2	8.5	2.2
1987	351 198	4.9	8.0	6.8	3.5	14.9	20.5	7.6	8.4	10.4	4.3	8.5	2.1
1988	394 712	4.8	7.9	6.7	3.6	14.8	20.9	7.7	84	10.4	4.3	8.4	2.1
1989	435 325	4.8	7.9	6.9	3.6	14.8	21.0	7.7	8.4	10.2	4.3	8.3	2.1
1990	472 046	4.7	7.9	6.8	3.6	14.8	21.0	7.7	8.5	10.0	4.3	8.5	2.2
1991	489 905	4.8	7.9	6.8	3.6	14.8	20.9	7.7	8.5	9.9	4.3	8.6	2.3
1992	510 193	4.8	7.8	6.8	3.7	14.8	20.7	7.8	8.5	9.9	4.2	8.7	2.3
1993	539 013	4.7	7.7	6.8	3.6	15.1	20.7	7.8	8.5	9.9	4.1	8.7	2.3
1994	570 386	4.7	7.7	6.8	3.7	15.0	20.8	7.9	8.4	9.9	4.2	8.8	2.3

1 UK less continental shelf and statistical discrepancy.

### Gross domestic product at factor cost: £ per head

	United Kingdom <sup>1</sup>	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
1984	DCJJ	DCJR	DCJP	DCJO	DCJL	LRAF	LRAG	DCJM	DCJN	DCJQ	DCJS	DCJT	DCJU
	4 619	4 284	4 332	4 586	4 740	5 588	5 087	4 367	4 206	4 373	3 954	4 426	3 709
1989	7 590	6 756	6 968	7 471	7 694	9 461	8 577	7 153	7 017	6 951	6 570	7 094	5 842
1990	8 201	7 183	7 472	7 973	8 347	10 222	9 265	7 763	7 661	7 411	7 041	7 856	6 409
1991	8 475	7 541	7 777	8 292	8 539	10 506	9 506	8 037	7 869	7 606	7 241	8 234	6 913
1992	8 795	7 881	7 985	8 548	8 997	10 947	9 772	8 409	8 213	7 905	7 359	8 693	7 167
1993	9 263	8 230	8 330	8 953	9 381	11 711	10 289	8 843	8 621	8 346	7 660	9 166	7 562
1994	9 768	8 675	8 733	9 389	9 961	12 278	10 858	9 351	9 045	8 812	8 173	9 734	8 025

1 UK less continental shelf and statistical discrepancy.

### Total personal disposable income: £ per head

	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
1984	DCSD	DCSM	DCSK	DCSJ	DCSG	DCSF	DCWI	DCSH	DCSI	DCSL	DCSN	DCSO	DCSP
	3 958	3 633	3 672	3 814	4 000	4 805	4 206	3 919	3 654	3 754	3 535	3 885	3 433
1989	6 141	5 542	5 778	6 031	6 257	7 376	6 675	6 066	5 780	5 753	5 364	5 762	5 296
1990	6 573	5 946	6 182	6 348	6 614	7 853	7 054	6 372	6 241	6 154	5 786	6 509	5 762
1991	7 020	6 484	6 619	6 706	7 118	8 387	7 390	6 827	6 715	6 529	6 322	7 024	6 396
1992	7 497	6 909	7 023	7 015	7 670	8 917	7 875	7 394	7 187	6 979	6 697	7 630	6 853
1993	7 861	7 213	7 309	7 423	7 840	9 553	8 323	7 675	7 514	7 283	6 840	7 921	7 231
1994	8 101	7 423	7 473	7 686	8 190	9 677	8 539	7 942	7 733	7 572	7 245	8 210	7 536

Source: Office for National Statistics



### Household disposable income: £ per head

	United		Yorks &	East	East	Greater	Rest of	South	West	North			Northern
	Kingdom	North	Humber	Midlands	Anglia	London	South East	West	Midlands	West	Wales	Scotland	Ireland
	DEPZ	DEQA	DEQB	DEQC	DEQD	DEQE	DEQF	DEQG	DEQH	DEQI	DEQJ	DEQK	DEQL
1990	6 627	5 992	6 216	6 366	6 806	7 668	7 230	6 720	6 127	6 166	6 0 1 8	6 540	5 645
1991	7 053	6 561	6 620	6 740	7 197	8 107	7 571	7 157	6 6 1 3	6 57 1	6 4 2 8	7 033	6 211
1992	7 506	6 975	7 068	7 103	7 756	8 556	7 977	7 640	7 012	7 039	6 864	7 705	6 518
1993	7 755	7 213	7 225	7 354	7 906	9 033	8 264	7 773	7 279	7 230	6 977	7 919	6 828
1994	7 983	7 445	7 482	7 672	8 193	9 034	8 388	8 072	7 512	7 543	7 381	8 201	7 241

Source: Office for National Statistics

#### Consumers' expenditure: £ per head United East Northern West North Yorks & East Greater Rest of South Kingdom Wales Scotland West Ireland North Humber Midlands Anglia London South East West Midlands DCVD 3 519 DCVI 3 235 DCVL 3 297 DCVN 3 126 DCVO 3 399 DCVP DCVM DCVK DCVJ DCVG DCVE DCWD DCVH 2 809 3 0 4 9 3 146 3 2 9 0 3 4 1 2 3 4 6 0 4 4 0 5 3 9 3 7 4 715 5 122 5 461 5 696 5 280 5 578 5 815 5 914 5 422 5 724 5 999 6 217 5 211 5 597 5 843 6 141 5 707 6 038 4 908 5 177 5 531 5 079 5 293 5 298 5 748 5 704 6 025 7 219 7 508 6 346 6 670 5 781 6 174 4 993 5 406 6 314 6 581 5 603 5 943 6 106 6 343 6 599 7 681 7 997 6 991 6 475 6 601 5 736 5 968 5 872 6 0 3 6 7 345 7 747 6 6 1 8 6 968 6 313 6 529 6 4 8 0 6 797 8 4 6 9 6 810 6 291 6 148 6 6 5 5 5 920 7 023 7 331 6 569 6 856 6 864 7 121 8 792 8 128 7 135 6 878 6 352 6 970 6 264

Source: Office for National Statistics

1984

1989 1990

1991 1992

1993

1994

	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 wee	kly disposa	ible house	ehold incor	ne									
1994-95	DCXQ 298.43	DCXR 253.73	DCXS 282.21	DCXT 297.34	DCXU 282.35	DCXV 341.57	DCXW 344.03	DCXX 309.02	DCXY 264.91	DCXZ 277.09	DCYA 241.51	DCYB 292.86	DCYC 280.16
Average wee	kly househ	old expen	diture										
1994-95	DCYD 283.58	DCYE 239.64	DCYF 274.23	DCYG 296.07	DCYH 257.08	DCYI 316.25	DCYJ 321.00	DCYK 276.80	DCYL 259.93	DCYM 271.87	DCYN 230.73	DCYO 280.53	DCYP 295.33

Source: Family Expenditure Survey, Office for National Statistics

£

### Total average gross weekly pay<sup>1</sup>

	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
1991 Apr	DEOG 283.80	DCQK 258.00	DCQI 257.90	DCQH 261.30	DCQE 268.90	DCPI 361.10	DEOH 295.30	DCQF 265.60	DCQG 261.10	DCQJ 267.10	DCQL 252.20	DCQM 265.30	DCQN 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

 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

### Claimant unemployed as a percentage of total workforce

												Season	ally 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
1991 1992 1993 1994 1995	DCKH 8.0 9.7 10.3 9.4 8.2	DCKP 10.3 11.1 11.9 11.6 10.6	DCKN 8.7 9.9 10.2 9.6 8.8	DCKM 7.2 9.0 9.5 8.7 7.7	DCKJ 5.8 7.6 8.1 7.1 6.2	DCRA 8.0 10.5 11.6 10.7 9.7	DEOB 5.9 8.2 9.0 7.7 6.5	DCKK 6.9 9.2 9.5 7.1 7.0	DCKL 8.4 10.3 10.8 9.9 8.4	DCKO 9.3 10.6 10.7 10.0 8.8	DCKQ 9.0 10.0 10.3 9.3 8 5	DCKR 8.8 9.4 9.7 9.3 8.2	DCPL 12.9 13.8 13.7 12.6 11.4
1995 Jun	83	10.6	8.8	7.7	6.2	9.7	6.5	7.0	8.4	8.9	8.5	8.1	11.3
Jul Aug Sep Oct Nov Dec	8.2 8.2 8.1 8.1 8.0 8.0	10.6 10.6 10.4 10.4 10.3 10.3	8.8 8.7 8.6 8.6 8.6 8.5	7.7 7.6 7.5 7.5 7.5 7.5	6.2 6.2 6.1 6.1 6.1	9,7 9.6 9.5 9.5 9.4	6.5 6.4 6.3 6.2 6.2	7.0 6.9 6.8 6.8 6.7 6.7	8.4 8.3 8.2 8.2 8.1 8.1	8.8 8.7 8.6 8.6 8.5 8.5	8.6 8.5 8.4 8.3 8.3	8.2 8.1 8.0 8.0 8.0 8.0	11.4 11.3 11.2 11.2 11.2 11.2
1996 Jan Feb <sup>1</sup> Mar Apr May	7.9 7.9 7.8 7.8 7.7	10.2 10.1 10.1 10.1 10.1 10.0	8.5 8.5 8.4 8.3	7.4 7.4 7.3 7.3 7.2	6.0 5.9 5.8 5.8 5.8	9.3 9.3 9.2 9.1 9.0	6.0 6.0 5.9 5 9	6.6 6.6 6.5 6.5 6.4	7.9 8.0 7.9 7.8 7.8	8.4 8.5 8.4 8.3	8.2 8.4 8.3 8.4 8.3	8.0 8.0 8.0 8.1 8.1	11.1 11.1 11.0 11.1 11.1

1 Provisional

Source: Office for National Statistics

Percentages

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

													5
	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northerr
1995 Jul Oct	DCKS 3.1 2.9	DCLA 4.0 3.9	DCKY 3.1 3.0	DCKX 2.8 2.6	DCKU 1.9 1.9	DCRB 4.1 4.1	DCKT 2.2 2.1	DCKV 2.3 2.2	DCKW 34 3.2	DCKZ 3.2 3.0	DCLB 2.9 2.7	DCLC 2.8 2.6	DCLE 6.3 6.1
1996 Jan Apr	2.9 2.9	3.9 3.9	3.0 3.0	2.6 2.5	1.8 1.8	4.0 4.0	2.0 2.0	2.1 2.1	3.1 3.1	2.9 2.9	2.7 2.7	2.6 2.6	6.1 6.0

Source: Office for National Statistics

## **10** ILO unemployed as a percentage of the economically active, not seasonally adjusted

				<b>F</b>		0	- Deat of	Quinth	March	blocth			Northorn
	United	A.L	YORKS &	East	East	Greater	Hest of	South	vvest	NORI	Malaa	Contland	koland
	Kingdom	North	Humberside	Midiands	Anglia	London	South East	west	Midiands	vvesi	wates	Scotland	Telano
	LRAH	LRAI	LRAJ	LRAK	LRAL	LRAM	LRAN	LRAO	LRAP	LRAQ	LRAR	LRAS	LRAT
Spring 1993	10.3	11.3	10.0	9.1	8.4	13.2	8.5	9.2	11.8	11.1	9.6	10.2	12.5
Summer 1993	10.5	12.7	11.1	9.0	9.0	13.8	8.8	8.4	11.6	10.8	10.0	10.4	
Autumn 1993	10.2	12.0	10.0	8.3	8.1	14.4	8.4	8.6	11.4	10.6	9.8	9.7	
Winter 1993	10.0	11.8	10.0	8.0	8.8	19.4	8.0	8.3	11.0	11.0	10.3	10.3	
Spring 1994	9.6	11.8	9.9	8.3	7.4	13.1	7.6	7.5	10.0	10.4	9.3	10.0	11.7
Summer 1994	9.7	11.6	10.4	9.1	7.9	13.0	7.6	8.1	9.8	10.9	9.9	9.9	
Autumn 1994	9.0	11.2	9.0	8.1	8.0	12.0	7.1	7.9	9.1	9.7	9.9	8.9	
Winter 1994	8.9	11.6	8.8	7.5	7.4	11.7	7.3	7.7	8.6	9.2	9.6	8.5	11.4
Spring 1995	8.6	10.8	8.6	7.4	7.1	11.5	6.8	7.8	9.0	9.1	8.8	8.3	11.0
Summer 1995	8.9	11.0	9.1	7.1	7.0	12.3	7.1	7.3	8.9	9.6	8.4	9.2	11.2
Autumn 1995	8.6	10.5	8.2	6.9	7.2	11.8	6.7	7.5	8.7	9.3	8.3	9.1	10.7
Winter 1995	8.3	10.5	7.9	7.4	6.8	11.0	6.5	7.2	8.5	8.5	8.9	8.9	9.7

Source: Labour Force Survey, Office for National Statistics

Percentages

Thousands

### Total in employment<sup>1</sup>, not seasonally adjusted

	United Kingdom <sup>2</sup>	North	Yorks & Humberside	East Midlands	East Anglia	Greater London	Rest of South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
	LRAU	LRAV	LRAW	LBAX	LRAY	LRAZ	LRBA	LRBB	LRBC	LRBD	LABE	LRBF	LRBG
Spring 1993	25 511	1 283	2 203	1 865	976	3 052	5 068	2 126	2 274	2 676	1 155	2 229	604
Summer 1993	25 085	1 276	2 205	1 882	966	3 027	5 107	2 174	2 307	2 7 2 2	1 172	2 247	
Autumn 1993	25 075	1 281	2 208	1 877	981	3 000	5 115	2 142	2 318	2716	1 183	2 254	
Winter 1993	24 928	1 263	2 194	1 856	978	2 990	5 104	2 137	2 318	2 686	1 151	2 252	
Spring 1994	25 697	1 264	2 180	1 858	994	3 0 1 3	5 137	2 180	2 343	2 681	1 177	2 266	604
Summer 1994	25 341	1 272	2 191	1 858	999	3 047	5 186	2 199	2 378	2716	1 200	2 293	
Autumn 1994	25 359	1 272	2 215	1 874	996	3 076	5 190	2 199	2 359	2711	1 191	2 277	
Winter 1994	25 831	1 249	2 202	1 890	996	3 074	5 133	2 174	2 362	2 692	1 176	2 272	609
Spring 1995	25 973	1 264	2 224	1 896	1 004	3 076	5 205	2 188	2 347	2 672	1 189	2 285	623
Summer 1995	26 272	1 283	2 240	1 930	1 0 1 6	3 100	5 260	2 229	2 373	2 703	1 203	2 307	628
Autumn 1995	26 265	1 292	2 247	1 935	1 0 1 4	3 1 1 2	5 268	2 222	2 385	2 676	1 192	2 282	640
Winter 1995	26 179	1 285	2 239	1 926	1 001	3 111	5 243	2 209	2 383	2 702	1 180	2 252	650

Includes employees, the self-employed, participants on Government-supported training and employment programmes and unpaid family-workers.
 Prior to Winter 1994, data for Northern Ireland were only collected annually, in the Spring quarters. Figures for the Spring quarters relate to United Kingdom, the other quarters relate to Great Britain.

Source: Labour Force Survey, Office for National Statistics

## **12** Redundancies

Wales	North West	West Midlands	South West	Rest of South East	Greater London	East Anglia	East Midlands	Yorks & Humber	North	Great Britain	
DCXN	DCXM	DCXL	DCXK	DCXJ	DCXI	DCXH	DCXG	DCXF	DCXE	DCXD	
11.4	12.4	13.9	12.5	11.2	11.2	2	13.9	13.1	16.5	12.3	Spring 1993
15.6	10.6	11.3	10,7	10.1	12.6	_2	11.9	12.4	14.1	11.2	Summer 1993
12.0	7.5	10.4	7.2	9.4	11.0	_2	8.3	9.1	13.8	9.6	Autumn 1993
12.1	11.2	10.6	11.5	8.3	10.2	14.1	11.1	11.2	13.1	10.6	Winter 1993
10.8	8.9	10.7	8.8	9.1	9.3	_2	9.7	11.0	12.7	9.6	Spring 1994
_2	9.6	7.9	7.9	8.9	7.7	_2	10.2	10.4	11.4	9.0	Summer 1994
_2	9.7	8.3	7.9	7.2	8.0	_2	12.6	8.5	11.6	8.8	Autumn 1994
_2	5.4	_2	_2	6.7	4.6	_2	7.4	5.6	_2	5.5	Winter 1994
14.7	10.9	11.1	9.6	8.2	9.9	13.7	11.5	10.1	9.8	10.2	Spring 1995
10.1	9.8	9.6	7.6	8.1	11.7	_2	11.6	9.2	15.4	9.7	Summer 1995
11.2	9.0	9.6	7.7	10.2	9,5	_2	10.9	8.4	13.0	9.7	Autumn 1995
9.6	9.8	8.1	9.1	8.9	11.3	15.1	9.5	9.8	14.2	10.2	Winter 1995
	Wales DCXN 11.4 15.6 12.0 12.1 10.8 _2 _2 _2 _2 14.7 10.1 11.2 9.6	North West         Wales           DCXM         DCXN           12.4         11.4           10.6         15.6           7.5         12.0           11.2         12.1           8.9         10.8           9.6         -2           9.7         -2           5.4         -2           10.9         14.7           9.8         10.1           9.0         11.2           9.8         9.6	West Midlands         North West         Wales           DCXL         DCXM         DCXN           13.9         12.4         11.4           11.3         10.6         15.6           10.4         7.5         12.0           10.6         11.2         12.1           10.7         8.9         10.8           7.9         9.6         -2           8.3         9.7         -2           -2         5.4         -2           11.1         10.9         14.7           9.6         9.0         11.2           19.6         9.0         11.2           8.1         9.8         9.6	South West         West Midlands         North West         Wales           DCXK         DCXL         DCXM         DCXN           12.5         13.9         12.4         11.4           10.7         11.3         10.6         15.6           7.2         10.4         7.5         12.0           11.5         10.6         11.2         12.1           8.8         10.7         8.9         10.8           7.9         7.9         9.6         -2           -2         -2         5.4         -2           9.6         11.1         10.9         14.7           7.6         9.6         9.8         10.1           7.7         9.6         9.0         11.2           9.1         8.1         9.8         9.6	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

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

### Employees in employment (all industries)

												Ju	ne 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
1994 1995	DCLE 97.0 98.0	DCLM 95.6 97.4	DCLK 95.5 95.6	DCLJ 96.7 97.8	DCLG 99.3 101.6	DCRC 90.5 92.0	DCLF 92.9 93.9	DCLH 96.8 98.8	DCLI 92.8 93.8	DCLL 94.4 94.3	DCLN 97.5 98.3	DCLO 98.2 97.6	DCLP 104.1 106.4
1995 Jun Sep Dec	98.0 98.0 98.7	97.5 97.3 98.6	96.4 95.3 96.1	97.3 97.8 99.2	101.4 102.0 102.8	91.5 92.0 92.9	94.3 94.0 94.4	99.2 99.5 99.9	93.3 93.1 94.7	94.0 94.5 94.8	98.9 98.5 98.5	97.8 97.9 97.7	106.3 106.5 107.6
1996 Mar	97.7	97.5	95.0	97.1	102.3	91.7	93.6	99.1	94.0	94.0	98.0	96.3	106.6

Source: Office for National Statistics

Source: Labour Force Survey, Office for National Statistics

## **4** Index of industrial production

#### Seasonally adjusted 1990 = 100

	United			Northern
	Kingdom	Wales	Scotland	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	95.4	91.8
1989	100.3	102.8	97.6	97.5
1990	100.0	100.0	100.0	100.0
1991	96.3	96.4	98.6	98.8
1992	96.2	98.1	99.0	99.5
1993	98.1	100.2	101.9	102.2
1994	103.1	104.4	106.8	109.0
1995	105.6	108.5	110.1	113.1
1995 Q1	105.1	109.9	108.9	112.2
02	105.3	105.4	110.8	113.5
03	106.1	108.8	110.8	113.5
Q4	105.9	110.1	110.1	113.1
1996 Q1	106.1			

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

### **15** Manufacturing industry: optimism about business situation

	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 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
Apr	-3	-33	-15	-2	-16	5	-31	-14	4	8	-2	10

1 Balance in percentage of firms reporting rises less those reporting falls.

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

Balance<sup>1</sup>

Balance<sup>1</sup>

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Percentag

## **16** Manufacturing industry: volume of output

	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 16	DCLY 26	DCLW 22	DCLV 1	DCLS 27	DCLR 16	DCLT 19	DCLU 29	DCLX 17	DCLZ 48	DCMA	DCMB 32
1996 Jan Apr	6	16 4 -20	5 -3 -5	33 16 32	-17 -3	14 4 3	20 6	17 5 ~9	-18 6 3	19 -15	-8 8 10	4 20 24
Next 4 months	DCMC 14	DCMK 6	DCMI 11	DCMH 16	DCME 21	DCMD 18	DCMF 11	DCMG 13	DCMJ 23	DCML 20	DCMM 10	DCMN 6

1 Balance in percentage of firms reporting rises less those reporting falls.

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

## **17** Manufacturing industry: volume of new orders

												Balance
	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
Past 4 months			DONG	DONE	DONO	DCNR		DONE			DONK	DCNI
1995 Jul	12	25	21	DOINF -	DUNC -	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
Apr	-	6	-25	37	-9	1	-1	-8	-3	-30	10	-7
Next 4 months												
1000 4	DCNM	DCNU	DCNS	DCNR	DCNO	DCNN	DCNP	DCNQ	DCNT	DCNV	DCNW	DCNX
1990 Apr	15	7	5	12	2	25	8	19	20	10	8	-15

1 Balance in percentage of firms reporting rises less those reporting falls.

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

## **18** Manufacturing industry: volume of new export orders

												Dalance
	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 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
Apr	1	-14	-23	24	18	-1	7	2	3	-18	16	3
Next 4 months												
	DCOK	DCOS	DCOQ	DCOP	DCOM	DCOL	DCON	DCOO	DCOR	DCOT	DCOU	DCOV
1996 Apr	12	-1	7	29	21	10	24	6	25	-1	-1	26

1 Balance in percentage of firms reporting rises less those reporting falls.

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

### **19** Manufacturing industry: firms working below capacity

												rerearinger
	United Kingdom	North	Yorks & Humber	East Midlands	East Anglia	South East	South West	West Midlands	North West	Wales	Scotland	Northern Ireland
1995 Jul Oct	DCOW 47 46	DCPE 66 64	DCPC 35 41	DCPB 51 31	DCOY 32 42	DCOX 49 45	DCOZ 46 49	DCPA 41 51	DCPD 49 54	DCPF 52 59	DCPG 48 60	DCPH 58 57
1996 Jan Apr	49 52	54 68	44 53	50 47	48 62	51 55	52 43	54 56	47 51	59 65	38 49	68 39

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

## 20 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
1994 1995	DEOI 209 504	DCRZ 9 645 7 582	DCRX 15 700 13 718	DCRW 16 523 13 533	DCRT 9 925 8 519	DCRR 16 954 11 207	DCWL 40 690 35 569	DCRU 18 304 14 719	DCRV 17 254 13 119	DCRY 19 793 19 345	BLIA 10 589 9 222	BLFA 24 440	BLGA 9 687 9 779
1995 Q1 Q2 Q3 Q4	47 926 52 170 44 680	1 977 2 267 1 858 1 480	3 592 3 803 3 470 2 853	3 326 4 308 3 119 2 780	1 988 2 720 2 119 1 692	3 113 3 169 2 925 2 000	8 881 10 772 9 657 6 259	4 148 4 383 3 518 2 670	3 748 4 087 2 642 2 642	5 367 5 640 4 551 3 787	2 213 2 751 2 271 1 987	7 342 5 257 6 009	2 231 3 013 2 541 1 994 <sup>1</sup>
1996 Q1		1 957	3 305	3 342	2 123	2 552	7 724	3 662	3 132	4 359	1 818 <sup>1</sup>		

1 Provisional

Sources: Department of the Environment; Welsh Office;

Sources: Department of the Environment; Welsh Office;

The Scottish Office; Department of the Environment, Northern Ireland

The Scottish Office: Department of the Environment, Northern Ireland

### 21 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 <sup>1</sup>	Northern Ireland
1994 1995	DEOJ 189 084	DCVZ 8 439 8 944	DCVX 14 346 15 429	DCVW 16 261 16 557	DCVT 9 750 9 136	DCVR 15 255 16 300	DCWM 38 320 37 848	DCVU 15 996 17 062	DCVV 15 955 15 225	DCVY 18 660 18 974	BLII 9 947 8 952	BLFI 19 178	BLGI 6 977
1995 Q1 Q2 Q3 Q4	47 927  	2 427 2 411 1 934 2 172	3 651 4 008 3 895 3 875	4 211 4 443 3 641 4 262	2 342 2 260 2 184 2 350	3 935 4 150 4 098 4 117	9 426 9 838 8 940 9 644	4 116 4 212 4 453 4 281	4 230 3 611 3 677 3 707	4 690 5 024 4 324 4 936	2 092 2 071 2 179 2 610	5 223 6 598 7 323	1 584  
1996 Q1		1 882	3 516	4 072	2 279	3 376	9 459	4 094	3 605	4 950	2 157 <sup>2</sup>		

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

2 Provisional

## **22** House prices<sup>1</sup>

United Fast Rest of West Northern Yorks & Fast Greater South North Scotland Ireland Kingdom North Humber Midlands London South East West Midlands West Wales Anglia DCPO DCPS DCPX DCPZ DCQB DCPY 104.5 DCPR DCQA DCPW DCPV DCP.I DCPT DCPU 1994 102.5 102.2 101.4 103.3 103.1 100 5 101. 101.3 101.1 103.9 98.4 105.2 1995 103.2 99.2 98.6 102.4 104.0 106.2 104 2 104 1 103.2 100.8 994 102.2 116.0 114.7 115.8 1995 Q1 102.2 99.6 94.6 99.4 100.2 108.7 104.1 103.6 103.3 96.6 98.6 97.0 103.3 98.9 98.4 101 5 105.7 103.1 102.1 104.7 104.3 103.8 105.6 105.1 101.8 98.6 116.4 118.2 Q3 104 2 98.7 102.3 106.0 105.0 105.7 102.1 101.8 99.9 105.6 Q4 102.8 100.5 98.6 102.7 106.9 105.0 103.5 102 9 102.4 99 5 96.2 103.6 1996 Q1 108.1 118.7 104.3 101.5 95.3 106.7 109.4 102.8 98.1 105.0 102.5 105.1 104.3

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 and are based on a sample of mortgage completions by all lenders

### 23 VAT registrations and deregistrations: net change<sup>1</sup>

United North Northern Yorks & East East Greater Rest of South Wesl Kingdom North Humber Midlands Anglia London South East West Midlands West Wales Scotland Ireland DC7A DC78 DCZC DCYQ DCYS DCYT DCYU DCYV DEON DEOK DCYX DCYY DCY7 1991<sup>2</sup> 0.9 0.6 3.0 0.1 0.6 02 2.0 -1.2-1.4 1.5 -0.40.5 1992 -39.0 -1.3 -2.0 -1.8 -5.3 -3.0 -3.1 -2.0 -0.4 -2.6 1993<sup>3</sup> -22.0 -0.8 -1.2 -0.8 4 -2.9 -2.6 -39 -1.7 -1.0 0.8 -1.1 19943 4 5.0 -0.3 -0.5 0.3 -03 -1.2 0.4 -04 -09 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.

 A 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

Source: Department of the Environment

1993 = 100

Thousands

Numbers

Numbers

### MEASURING REAL GROWTH -INDEX NUMBERS AND CHAIN-LINKING

### Robin Lynch, Office for National Statistics

This article presents issues which the Office for National Statistics will consider with regard to the introduction of chain-linked estimates of real growth in the national accounts of the United Kingdom.

The paper begins by setting out some fundamental properties of the index numbers conventionally used in the national accounts. A superlative index is then described - the Fisher Ideal Index, together with the economic justification for using it. Annual chain-linking is described, and a hypothetical example given which illustrates the kinds of effects annual chain-linking and using a Fisher as opposed to a base-weight index can have on estimates of real growth. Some of the major benefits and drawbacks from introducing chain-linked estimates of growth are set out, and finally UK plans to further investigate the key issues are described.

### INDEX NUMBERS IN THE NATIONAL ACCOUNTS

The system of national accounts provides a framework for recording economic transactions within which an integrated set of price and volume measures can be compiled which are conceptually consistent, and analytically useful.

For an individual good or service recorded as part of an economic transaction, there is a fundamental identity:

the value of a flow of an individual product is equal to the price per unit multiplied by the number of units of that product.

Value = price x quantity 
$$(v = p \cdot q)$$

Estimates of growth in components of GDP can be split into two stages - estimation of the current price values in different periods, and then separation of the changes in current prices into two separate effects - a price change, and a quantity change.

Values are expressed in a common unit of currency, and are additive across different products, in a way which has direct economic significance. So for example it is sensible to talk about the total value of a harvest, equal to the sum of the values of an apple harvest and an orange harvest. It is not sensible to talk about the average price of the harvested fruit by adding the price of apples to the price of oranges and dividing by two. Similarly, it is of limited economic interest to add together the numbers of apples and oranges harvested and call the growth in this number the volume growth of the harvest.

For example, a 10% increase in expenditure on oranges could result from

- (1) a 10% increase in the price of an orange, with no change to the quantities sold
- (2) a 10% increase in quantity sold, with no increase in price
- (3) some combination of change in price and quantity which results in an overall change of 10% in the value in current prices.

Measuring the change in aggregate value is conceptually straightforward, but partitioning the change into a price change and a quantity change is not. This is because aggregate price change, and aggregate quantity change, can not be observed directly in economic terms. Instead, aggregate price and quantity changes must be calculated, and the calculation method is determined by economic theory and analytical requirements.

How should we measure the change in harvest in real terms? One way is to combine the quantity growth of each product in a manner which reflects the relative importance of each product. In this example, the most straightforward measure of relative economic importance is the total value of the output of each product. This then raises the question of which of the two periods being compared we should use to determine the relative importance - ie which of the periods should we use to provide the value of the outputs.

We could chose the first period, and express growth into later periods by combining the individual volume growths through a weighted average using the first period values as weights. This would create a time series of Laspeyres indices. If we denote the base period by the subscript 0, and the later period by the subscript t, and the summation  $\Sigma$  represents summing over the various product types that make up the economy, then the algebraic form is as follows:

$$L_{q} = \sum w_{0} \cdot (q_{t}/q_{0}) \quad \text{where } w_{0} = v_{0}/\sum v_{0} \quad (1)$$

$$= \sum v_{0} \cdot (q_{t}/q_{0}) / \sum v_{0}$$

$$= \sum (p_{0} \cdot q_{0}) \cdot (q_{t}/q_{0}) / \sum (p_{0} \cdot q_{0})$$

$$= \sum (p_{0} \cdot q_{1}) / \sum (p_{0} \cdot q_{0}) \quad (2)$$

$$= \sum (p_0.(v_1/p_1)) / \sum (v_0)$$
  
=  $\sum (v_1.(p_0/p_1)) / \sum (v_0)$   
=  $\sum (v_1/(p_1/p_0)) / \sum (v_0)$  (3)

Expressing the algebraic forms of the equations above in words, the equivalence of the following statements has been demonstrated:

- a series of Laspeyres indices created by weighting together according to their relative base year values, indicators of volume growth of individual products
- (2) valuing the quantities occurring at time t by the prices observed in the base year 0, relative to the base year value obtained using base year prices to value base year quantities
- (3) a series of estimates at constant prices divided throughout by the base year value.

The process in (3) of dividing the current value by the ratio of current price to base year price is known as deflation - stripping out the price increase effect from a value series.

Estimating growth in real terms ideally requires full information about all goods, but this is not available in practice. However, an index can be constructed using partial information together with reasonable assumptions about growth and representativeness. There is rarely a unique price available for each of the products involved in the calculation of the Laspeyres series according to the form of expression (3), and so a price index has to be calculated to allow the process of deflation to take place. One particular price index which proves to have desirable properties when compiling Laspeyres volume indices, is the Paasche index.

A Paasche index can be interpreted as the reciprocal of a backward looking Laspeyres index. In other words, the reciprocal of a Laspeyres price index for the period 0 which uses the period t as the base period:

$$L_0 = \sum (v_t (p_0/p_t)) / \sum (v_t)$$

Inverting this price index to give a price index which shows growth into the current year, we get the Paasche index form for prices:

$$P_{t} = 1/L_{0} = \sum(v_{t}) / \sum(v_{t} \cdot (p_{0}/p_{t}))$$
  
=  $\sum (p_{t} \cdot q_{t}) / \sum (p_{t} \cdot q_{t} \cdot (p_{0}/p_{t}))$   
=  $\sum (p_{t} \cdot q_{t}) / \sum (p_{0} \cdot q_{t})$ 

Because of our definition, it follows that multiplying the Laspeyres volume index by the Paasche price index gives

$$L_{t} \cdot P_{t} = \{ \sum (p_{0}.q_{t}) / \sum (p_{0}.q_{0}) \} \cdot \{ \sum (p_{t}.q_{t}) / \sum (p_{0}.q_{t}) \\ = \{ \sum (p_{t}.q_{t}) / \sum (p_{0}.q_{0}) \} \\ = \{ \sum v_{t} / \sum v_{0} \} \\ = V_{t}, \text{ the value index.}$$

So at the aggregate index level,  $V = P \propto Q$ , which demonstrates that at an aggregate product level. Laspeyres volume indices are equivalent to value indices deflated by Paasche price indices.

We could carry out an identical calculation to the one described in establishing the Laspeyres volume index of equation (3) above, but using the second period weights, rather than the base year weights, as representative of the relative importance of the products. This has led to various proposals for "averaging" the weights to give a compromise.

A full description of the relationship between Laspeyres and Paasche indices is given in the new edition of the SNA (UN 1993), in Chapter 16, section 3. Largely quoting from that section, the economic theory underlying the approach to index numbers will now be briefly set out.

Assuming that consumers' expenditures are related to an underlying utility function, a cost of living index can be defined between two states of the economy with associated sets of quantities and prices. It is defined as the ratio of the minimum expenditures required to enable a consumer to attain the same level of utility under the two sets of prices. The index growth represents the amount by which money income of a consumer needs to change in order to leave the consumer as well off as before the price changes occurred. This amount depends not only on the consumers' preferences, or indifference map, but also on the initial levels of income and expenditure of the consumer.

Given this postulated theoretic index, it can be shown that the Laspeyres index provides an upper bound to the theoretic index. Suppose consumers' income were to be increased by the same proportion as the Laspeyres index. It follows that the consumer would be able to purchase the same quantities as in the base period, and therefore be at least as well off as in the base period. However, by substituting products that have become relatively less expensive, replacing ones that have become relatively more expensive, the consumer should be able to obtain a higher level of utility. This substitution will set up a negative correlation between the price and quantity relatives. As the consumer can therefore attain a higher level of utility, the Laspeyres index must exceed the theoretic index. Similar reasoning can be used to show that the Paasche index provides a lower bound to the theoretic index.

In order to specify exactly the theoretic index, it is necessary to make two further assumptions:

- the preferences of the consumer are homothetic ie each indifference curve is a uniform enlargement or contraction of the other indifference curves for other income and expenditure levels,
- (2) the precise form of the indifference curves is specified by adopting a utility function that is a homogeneous quadratic function.

It can then be shown that the underlying theoretic index is equal to Fisher's Ideal Index.

The USA has adopted this form of index for its volume growth measures: the Fisher Ideal index number (F). It is defined as the geometric mean of the Laspeyres and Paasche volume indices.

so 
$$F = SQRT\{L_q, P_q\}$$

The Fisher index has a property known as "time reversal" - if all the price and quantity changes that occurred between period 0 and t are subsequently reversed to occur between t and a later period n, then the chain Fisher linking period 0 through t to n returns to unity, unlike the Laspeyres index.

The Fisher Ideal Index also has a number of drawbacks in practice, and they are set out in the SNA93 (UN, 1993) and are listed here:

- (1) The Fisher index requires a lot of data as both Paasche and Laspeyres indices have to be compiled
- (2) The Fisher index is not as easy to understand as the Paasche or Laspeyres indices, which can be interpeted as measuring the change in a specified basket of goods and services
- (3) The particular preference function for which the Fisher index provides the exact measure of the underlying theoretic index is only a special case
- (4) The Fisher index is not additively constant it cannot be used to create an additive set of constant price estimates.

### ANNUAL CHAIN-LINKING

When considering growth over several periods, rather than just two, there are two ways of decomposing the value change between the reference period and a subsequent period. One possibility is to apply the index formula to the total length of the periods, with the reference period as the base period. Alternatively, the formula may be applied to each period separately, using the previous period as the base. The change between the reference period and any subsequent period can then be calculated by multiplying the indices together that form the links in the chain. This is known as linking, and the resulting index is called a chain index.

The choice between the direct application of index number formula across a whole period, and chaining across the intervening periods to measure growth, is entirely different from the choice between the various index number formulae. The choice of the most appropriate index number formula reflects the way in which simultaneous changes in values, quantities and prices should be aggregated. The choice between the direct application of index number formulae and the chain-linking approach reflects the question of how consecutive changes should be treated to form a time series.

### EXAMPLE

Consider three different time periods in which we have perfect information on the value, price and quantities of two types of computer sold in a market. In order to copy observed effects in the computer market recently, a typical leading edge personal computer (PC) has been chosen as one product, typified by increasing volume and decreasing price. The other product (mini) is a slower moving computer industry product which has much less volume growth, and a more stable price.

PCs	р	q	V	KP(0)
year 0	30	20	600	600
year l	20	30	600	900
year 2	10	40	400	1200
	1			TTD.O.
Mini s	р	q	V.	KP(0)
year 0	р 20	9 5	100	100 KP(0)
year 0 year 1	р 20 25	9 5 5	100 125	KP(0)           100           100

The data is set out in the panels below.

The Laspeyres volume index for computers as a whole can be calculated in this situation of complete information by simply weighting together the volume growths according to the base year value weights.

So 
$$L_{01} = \{ 600 . (30/20) + 100 . (5/5) \} / 700$$
  
= (900 + 100) / 700  
= 142.9  
 $L_{02} = \{ 600 . (40/20) + 100 . (4/5) \} / 700$   
=  $\{ 1200 + 80 \} / 700$   
= 182.9

Alternatively, we can arrive at the same results by deflating the current price value by the appropriate Paasche price deflator. These are given by

$$P_{01} = 725 / \{ 30.30 + 20.5 \} = 725 / 1000$$
  
= 72.5

and so the constant price measure of computers in period 1 is given by

$$KP_{01} = 725 / (72.5/100) = 1000$$
, and so  
 $L_{01} = 1000 / 700 = 142.9$  as before.

Note that for PC's  $KP_{01} = 30.30 = 900$ for Mini's,  $KP_{01} = 20.5 = 100$ Total spending = 1000

This demonstrates that the volume measures estimated over the whole time period exhibit the property of additivity ie component products at constant prices add up to the aggregate measure. Measuring the growth from year 1 to year 2, using the weights of year 1, gives

To calculate the chain-linked  $L_{02}$ , we must multiply the growths in the respective yearly links. So

$$L(chain)_{02} = (142.9*124.1) = 177.3$$

The equivalent constant price estimate is obtained by multiplying by the base year value

$$KP(chain)_{02} = 177.3 * \pounds700 = \pounds1,241.1$$

Note that the chain-linked estimate of aggregate volume in the second period is not the sum of the components, which are  $PCs = \pounds 1200$  and Mini's = \pounds 80.

This feature of non-additivity for chain-linked estimates only applies at the aggregate level. At the level of homogeneous product of PCs and Mini's respectively, there is no problem of aggregation in terms of prices or quantities, and so there exists a unique measure for quantity and volume growth between periods for each of the products : index choice and chaining do not come into play.

Calculating a Fisher index, we must calculate the Paasche volume index

$$P_{01} = 725 / (600.(20/30) + (125.(5/5)))$$
  
= 725 / (400 + 125)  
= 138.1  
$$F_{01} = SQRT(L_{01}.P_{01}) = SQRT(142.9*138.1))$$
  
= 140.5  
$$P_{12} = 520 / (400.(30/40) + 120.(5/4)))$$
  
= 520 / (300 + 150)  
= 115.6  
$$F_{12} = SQRT(124.1*115.6) = 119.8$$

So  $F_{02}$  chained =  $F_{01}$ . $F_{12}$  = 168.3.

In order to calculate an unchained Fisher index for growth over the period from the base to the second year, we must calculate

$$P_{02} = 520 / (400.(20/40) + 120.(5/4))$$
  
= 520 / (200 + 150)  
= 148.6

$$F_{02} = SQRT(L_{02}*P_{02}) = SQRT(182.9*148.6)$$
  
= 164.9

Unchained ----- chained-----

All Comp's	Values	Laspeyres	Fisher	Laspeyres	Fisher
Year 0	700	100	100	100	100
Year 1	725	142.9	140.5	142.9	140.5
Year 2	520	182.9	164.9	177.3	168.3

In the simple example shown, chaining the Laspeyres has reduced the base weighted measure of growth between the base period and the second period from 182.9 to 177.3. Using the Fisher Ideal index has reduced the measure of growth between the base period and the second period to 164.9. Chaining the Fisher index in fact causes this estimate of growth to rise slightly, to 168.3, although this is still well below the chained Laspeyres estimate.

Because this is a hypothetical and much simplified example, no conclusions can be drawn from the relative effects of chaining and using a superlative index such as the Fisher Ideal, as demonstrated by these figures. The example was chosen in an area where the choice of index number form and annual chain-linking would be expected to have a dramatic effect on the measures of growth. Most sectors of the economy do not exhibit structural changes of this order, and so the effect on aggregate measures will be on a much smaller scale.

### **UK PRACTICE**

Current UK practice is to measure changes in the volume of Gross Domestic Product (GDP) and its components on the output side as a series of base-weighted (Laspeyres) indices. On the expenditure side, changes in volume are represented by values expressed "at constant prices" - the prices of a base-year. (Expressing these constant price values as percentages of the corresponding base-year figures would also result in Laspeyres indices.)

These measures are compiled over a period, with reference to a given base year, 1990 for example. The base year is moved forwards every five years. The figures for recent years are recalculated by reference to the new base year. But figures for earlier years (using previous base-years) are linked on to the current period. This is, in effect, chain linking at five-year intervals.

With the passage of time within the five year base period range, the weights of the base year become less representative of the relative prices attaching to the various industries in the economy. This can give rise to measured changes in volume which are not representative of recent growth.

On the output side, indicators of changes in the volume of total output are generally used as proxies for changes in the volume of value added, defined as the difference between the volume of outputs and the volume of inputs. This procedure is based on the assumption that the ratio of the volume of value added to outputs (turnover) - the "net to gross ratio" - is assumed to remain constant over time. These output indicators are mostly obtained by deflating current values of total output or turnover by suitable price indices. On the expenditure side, current values of expenditure are similarly deflated by suitable price indices.

Regular rebasing ensures that

- the importance of industries as represented by value added is maintained in a timely manner
- (2) price structures remain representative, in cases on the expenditure side where no true current weights exist for compiling price indices and base weights are used as a proxy, and
- (3) any changes in net:gross ratios assumed in compiling the index of growth in GDP from the output approach, are corrected before they distort the growth message significantly.

To conform with international practice, the base year is taken as years ending in 5 or zero, so that the latest base year for the UK national accounts is 1990, and we will move to 1995 in the year 1998. It is the intention of the UK to move onto the new European System of Accounts (ESA95) in 1998. This system is consistent with the United Nations System of National Accounts (SNA93). In the SNA93, it is recommended that countries move to a chain-linked set of estimates of volume growth, with the weights used being updated annually rather than every five years. This is because dramatic shifts in relative prices and weights can cause base-weighted indices to grossly misrepresent current volume growth.

An example occurred in the UK accounts in the nineteen eighties. In 1985, value added by the activity of oil and gas extraction represented 6.2% of GDP. In 1986, the price of oil almost halved and the sector's contribution to GDP fell to 2.8% in 1986, and to 1.7% in 1990. Under the existing methods, the 1985 weight of 6.2% would have been used for all GDP estimation until rebasing on the year 1990, which occurred in 1993. This meant that movements in the volume of oil output in years after 1985 would have been given more weight than would have been implied by the sector's contribution to GDP in the current year. In practice steps were taken to alter the weights so that a more representative structure was used in estimating growth after 1986. However, there were still significant revisions to growth rates when the accounts were rebased onto 1990. These problems would have been resolved in a more satisfactory manner if annual chain-linking had been in use.

Chain-linking requires knowledge of more up-to-date price structures, and this can cause its own problems of revisions and resource constraints. The UK Producer Price Index (PPI) has traditionally been a base-weighted price index, but the UK plans to move to a chain-linked version, updating the base annually to a more representative structure of the economy.

### **EXPERIENCE ABROAD**

Chain-linked estimates of output growth have been introduced recently in the United States of America. This has attracted media attention in that the estimates of growth from the chain-linked index of output are different from the traditional base-weighted measure. Initial response from economic analysts was initially quite negative, but more recent comments have been more positive.

The Netherlands also produces chain-linked estimates of volume growth along-side the base weighted estimates of GDP. They argue that estimating chain-linked measures of economic growth can only be carried out with confidence within a timely annual input-output framework. This allows a detailed reconciliation of output, income and expenditure components of the economy at current prices, and also allows volume growth from one period to the next to be estimated within this framework so that consistency of growth measures across product groups and industries can be checked.

An important difference between the American and Dutch approaches, is the form of the index used to represent real growth between consecutive periods. The Dutch use a Laspeyres index, using the structures of the first period to weight together the volume growths into the second period. This has the advantage that the second period estimates expressed in the prices of the first period are additive, and so this facilitates the checking of consistency of deflators in the measurement of volume growth over the period.

The USA approach does not involve the use of timely balances of the economic accounts. They have opted for a superlative index form in describing growth between two successive time periods. A superlative index is a compromise between using the first period weights to aggregate real volume growth, and second period weights. The one they have chosen is the Fisher Ideal index, as described earlier. American studies (Triplett, 1992, and Young, 1992) into areas likely to be most sensitive to the process of annual chaining and index number form,

have suggested that the form of the index number can be more important in reducing measurement bias, than the replacing of five year chaining intervals by annual. The ONS will be carrying out a feasibility study using UK data to further investigate this issue. The study will encompass sensitivity tests using past data.

Chapter Sixteen of the new SNA (UN, 1993) has an authoritative discussion of the merits of the index form, the advantages of chain-linking, and recommends "best practice" for countries. The UK plans are in line with the recommendations of that chapter.

### BENEFITS AND DRAWBACKS OF CHAIN-LINKING

BENEFIT	DRAWBACK
weighting represents contemporary structures - helps avoids substitution bias - overstatement in latter periods, under- statement in previous periods	requires timely information on structures
avoids 5 yearly upheaval - no more dramatic changes in recent history	loss of additivity of constant price estimates
makes the measurement of volume growth less sensitive to choice of index	new to users
allows products to be well matched between rebasing time periods - less completely new products to be handled	liable to revision of growth rates due to revision of structures.

One particular aspect of chain-linking which may cause users concern is that in general components of GDP expressed in constant prices no longer exhibit the usual property of adding to the chain-linked aggregate measure. So adding up components of expenditure measured at constant prices using chain-linked methods, will not give the equivalent chain-linked estimate of GDP in total. This is no different from the situation for time series in the present national accounts, for the periods preceding the link year of a rebased period.

### **UK PLANS**

The UK has as yet no firm plans on how and when to introduce chainlinked estimates of growth into the accounts, and for public release.

We will investigate the feasibility of compiling chain-linked estimates of volume growth in the accounts, with a view to publishing provisional estimates in the Autumn of 1997. We will examine the effect of using superlative indices as opposed to simple Laspeyres style indices to measure volume growth. Only after studying the results of the feasibility study will we be able to say with confidence whether we can and should move over to chain-linking as the prime method of estimating volume growth in the UK accounts.

Issues which will be addressed in the feasibility study are

(1) Once we have chain-linked estimates, should we stop publishing base-weighted estimates?

(2) Will the project reveal a significantly worse revisions record for estimates of GDP, due to revising the structures underlying the estimates of volume and price? If so, should we still go for chainlinked estimates as more accurate but more volatile than the traditional base-weighted estimates?

(3) Should we choose simple or superlative index number forms? If superlative, should we choose the Fisher form?

(4) Should we take such decisions unilaterally, or agree with our European and international colleagues on the way ahead? Given the expected bias correction, it seems wrong that country GDP growth rates can only be compared if the basis of the compilation method is known.

Comments on any aspect of this paper, including plans for the future, will be very welcome.

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### THE UNITED KINGDOM'S INPUT-OUTPUT BALANCES

Jennie Tse, Office for National Statistics

### Introduction

The aim of this article is to provide a basic, introductory level overview of input-output balances. It will explain why input-output balances are constructed and what they are used for. The structure and content of the matrices will also be explained. To help illustrate some of the flows of goods and services in the economy, we have included an example of the production and demand for a tin of beans.

### Role of input-output

Input-output work in the UK has come a long way since the first official tables were drawn up in 1961, for the year 1954, and is now an integral part of the United Kingdom's national accounts.

Input-output balances are constructed annually and used as a tool to achieve a single estimate of Gross Domestic Product (GDP). Each measure of GDP (income, expenditure and output) can be calculated from input-output analyses and, therefore, when balanced, each calculation has the same result. The three measures are reconciled during the balancing process to arrive at an agreed level by resolving imbalances between the supply and demand for goods and services and linking the components of value added, output and final demand.

### What do input-output balances show

What resources does each industry use in producing its final output? What is each industry's contribution to GDP? How are the outputs of an industry consumed by other industries and final demand? Do we export more motor vehicles in value terms than we purchase as consumers? Input-output balances provide the answers to such questions by adding an extra dimension to the way the national accounts are compiled and presented. They show a balanced and complete picture of the flows of goods and services in the economy for the year in a matrix form. Relationships between producers and consumers of goods and services are illustrated and importantly, they also show the interdependence between industries, ie what industries purchase from each other in order to produce their output. The United Kingdom's input-output balances show these intermediate transactions for one hundred and twenty-three different industries and the corresponding product groups. For clarity, our example matrices are presented using eight industries and products.

### The Make/Supply matrix

This is a table showing "who makes what". The columns show industries producing products, while the rows show products made by all the industries (see Table 1).

There are currently one hundred and twenty-three industries shown separately in the input-output balance. The same one hundred and twenty-three groups are used to denote the products, covering services as well as goods.

The matrix shows how much each industry makes of its principal product in the diagonal entry while the off diagonal entries show the industry's production of other products.

### EXAMPLE : TIN OF BEANS

The mining industry will extract the metal ores as raw material for producing the tin. In our eight by eight example Make matrix, the value of this product will be represented in the energy column and row. This is because although metal is not energy, the title includes the industry/ product group for 'mining and extraction of metal ores'. The entry is on the diagonal as it is the principal product of that industry.

Similarly, the agriculture industry (column) will produce the beans (a diagonal entry) unless they are imported, in which case the value will be shown as imports of agriculture or processed beans.

Other products from the agriculture industry producing the beans might be animal feeding stuffs. The value of this production would be represented in the manufacturing row in our example matrix because animal feeding stuffs is classified as processed food and not as farm produce.

The Make matrix is valued at producers' prices, which may be thought of as the price of goods and services "at the factory gate", after any taxes on production have been levied and subsidies taken into account.

Domestic production forms only part of the supply of goods and services in the UK. We must also add distributors' trading margins, imports and certain other taxes to arrive at an estimate of supply at purchasers' prices. This is known as a Supply matrix :

a. Distributors' trading margins.

Distributors' trading margins form part of the extra cost associated with a product between the "factory gate" and the consumer purchasing the good. The margins are typically wholesale and retail margins and represent, for example, the difference between the price paid by the wholesaler for the good and the price charged. The margins column in the supply matrix sums to zero. This is because at purchasers' prices, the margins are shown as part of the cost of the product (hence the positive figures in the margins column) and not as a cost of "using" the wholesale product (hence the negative figure).

### Table 1 INPUT-OUTPUT BALANCE

### Make/Supply matrix

			Industries						Track				
Products	Agric	Energy	Manuf	Constrn	Distribn	Trans	Business Services	Other Services	Domestic Output	Imports	Distribution Margins	Taxes	Total Supply
Agriculture	19110								19110	4108	1846	269	25333
Energy (inc. minii	ng) 2	69344	355						69701	8838	5165	1902	85606
Manufacturing	23	207	278335						278565	113866	90044	23618	506093
Construction	155	1140	414	88388					90097			3049	93146
Distribution	120	727	946()	952	123386	433	407	217	135702	5956	-97055	4393	48996
Transport		211	980			68118			69309	8254		2155	79718
Business services	227	478	6217	378	1768	1403	150779	2043	163293	4205		1890	169388
Other services	73	26	324	147	355	129	1770	207672	210496	3058		2472	216026
Total outputs	19710	72133	296085	89865	125509	70083	152956	209932	1036273	148285		39748	1224306

### EXAMPLE : TIN OF BEANS

Trading margins will include, for instance, the cost of transporting both the unfinished goods, such as, the raw beans to a food processing factory and the finished goods, the tin of beans, to a supermarket.

### b. Certain taxes on expenditure

"Taxes on expenditure" covers those taxes which are not reflected in output at producers' prices. These may be thought of as "product specific" taxes. The largest of these is VAT, which is treated as being paid almost wholly by final buyers. Import duties are also included here rather than in the imports column.

### The "Combined" Use matrix

This table shows "who uses what" (see Table 1). Each column shows;

- i) each industry's intermediate purchases of domestic and imported goods and services used to produce its own output and,
- ii) the primary inputs into the production process eg taxes, wages and salaries, profits etc.

Each row shows how a product is used in the economy, either by industries as an intermediate purchase or as a purchase by final demand eg consumers' expenditure. All are valued at purchasers' prices, enabling a balance to be struck between supply and demand.

### EXAMPLE : TIN OF BEANS

The manufacturing industry will purchase tin from the mining industry (shown on the energy and mining row) and beans from the agriculture industry as intermediate purchases necessary to produce its own output, the completed tin of beans. The value of these purchases will be represented in the energy and agriculture rows of the manufacturing column.

The manufacturing industry will, of course, not only have to purchase the raw materials as part of the production process but will also have to pay for its primary inputs, such as wages and salaries to its employees and capital expenditure.

A hotel or restaurant may purchase the tin of beans as an intermediate purchase to produce its own final output (meals for the customers). This will be shown in the manufacturing row of the distribution column (as hotels and restaurants are included in the distribution industry in our example matrix).

£ million

The row that shows taxes less subsidies includes those taxes associated with the production of specific products, such as duty on tobacco, together with business rates etc. It excludes those "product specific" taxes used to derive the total supply of products in the Make/Supply matrix. The total of taxes less subsidies in the Make/Supply and the "Combined" Use matrices, add up to the factor cost adjustment shown in Table 1.1 of the *Blue Book*<sup>1</sup>.

"Sales by final demand" represents the sales and purchases of those goods which have entered final demand prior to the period of the account. Examples are the sale of business cars to employees and the repeated sales of works of art or second hand furniture.

The excess of an industry's output over the payment for intermediate inputs and taxes is its Value Added.

Each row shows the sales of each product to other industries or final demand as:

Intermediate purchases Consumers' expenditure General government final consumption Gross domestic fixed capital formation Changes in stocks Exports

### **EXAMPLE : TIN OF BEANS**

The final demand components purchase finished goods which usually, therefore, cease to be measured in the UK's economy. Consumers would purchase them to consume in their households or manufacturers may export them.

### Table 2INPUT-OUTPUT BALANCE

"Combined" Use matrix

### What do they tell us?

The balances are constructed using the economic principles that;

- i) total supply of each product is equal to the total demand for that product and
- ii) the total output of each industry is equal to the total input of that industry.

As stated earlier, once the Make/Supply and "Combined" Use matrices are in balance then the three measures of GDP will be reconciled.

The income, expenditure and output components of GDP at current factor cost can all be derived from the input-output balance as shown below.

The income measure is derived from the data underlying value added such as wages and salaries, income from self employment, gross profits, rent income etc. This appears as the value added row in the "Combined" Use matrix and is consistent with the data shown in Tables 2.2 and 2.3 in the *Blue Book*<sup>1</sup>

The expenditure measure can be calculated from the sum of the final demands less imports and factor cost adjustment, as follows:

		£ million
	Consumers' expenditure	347526
plus	General government final consumption	112934
plus	Gross domestic fixed capital formation	106776
plus	Change in stocks	-1117
plus	Exports	133283
less	Imports	148285
less less	Taxes on expenditure (Make/Supply) Taxes on expenditure less	39748
	subsidies (Use)	32484
equals	Gross domestic product at current factor cost	478886

### £ million

				Inte	rmediate	demand	(Industrie	s)					Final	lemand			
Products	Agric	Energy	Manuf	Constrn	Distribn	Trans	Business Services	Other Services	Financial Services Adjusts	Total Interme- diate demand	Consu- mers' Expen- diture	General Govt Final Consu- mption	Gross Domestic Fixed Capital Formation	Change in Stocks	Exports	Total Final Demand	Total Demand
Agriculture	3669		11626	4	873	42		250		16464	6952		_	112	1805	8869	25333
Energy (inc. mining	) 768	30349	8268	686	2836	3717	2118	3865		52607	23853			-223	9369	32999	85606
Manufacturing	4978	4608	117746	21580	14886	5496	9008	27223		205525	158439		47922	-1887	96094	300568	506093
Construction	242	28	1006	22991	631	148	1887	6445		33378	6060		52773	881	54	59768	93146
Distribution	321	280	1007	245	3196	2055	1772	833		9709	34003				5284	39287	48996
Transport	277	2101	9217	917	11992	9900	11055	4681		50140	19583		710		9285	29578	79718
Business services	698	1589	21811	8190	14774	7326	38720	12700	24972	130780	22096		8701		7811	38608	169388
Other services	383	353	3877	401	1016	1008	3082	16364		26484	68119	120518			905	189542	216026
Total Intermediate	1336	39308	174558	55014	50204	29692	67642	72361	24972	525087	339105	120518	110106	-1117	130607	699219	1224306
Sales by final deman	nd 22	61	1949	159	143	211	1240	95		3880	5387	-7584	-4360		2676	-3881	-1
Taxes on expenditur	e										-						
less subsidies	-571	8965	9013	163	7086	109	2282	1373		28420	3034		1030			4064	32484
Value added	8923	23799	110565	34529	68076	40071	81792	136103	-24972	478886							478886
Total Inputs	9710	72133	296085	89865	125509	70083	152956	209932		1036273	347526	112934	106776	-1117	133283	699402	1735675

Some of the industry/product group headings have been truncated. Please note that differences between totals and sums of components are due to rounding.

The output measure can be calculated as total output (equal to total inputs) less total intermediate purchases, sales by final demand and taxes:

		£ million
	Total inputs (equals total outputs)	1036273
less	Total intermediate purchases	525087
less	Sales by final demand	3880
less	Taxes on expenditure less subsidies	
	for industries only	28420
equals	Gross domestic product at current	
·	factor cost	478886

#### Sources

The data used to produce input-output balances are typically collected by inquiry forms sent to businesses in the UK. The best way to see how the UK approach works is to consider some of the inquiries which are used in the balance and where they are used (a more detailed explanation of the sources and methods used in the UK for input-output balances is given in both the 1992 and 1993 *Balances for the United Kingdom*<sup>2</sup>, August 1995);

### Annual Census Of Production

Provides information for the production industries on output for the Make matrix, purchases and value added for the "Combined" Use matrix.

#### PRODCOM

A product sales inquiry is used to compile the detailed product breakdown for the manufacturing industries in the Make matrix.

#### Purchases Inquiry

Provides the purchases structure for manufacturing and energy industries in the "Combined" Use matrix.

### Annual Service Trades Inquiries

Provide gross output and value added for the Make and "Combined" Use matrices. They are also used to provide detail on the purchasing structure for the services industries in the "Combined" Use matrix.

#### **Distributive Trades Inquiries**

Similar to the service trades inquiries but are also used as a source of information on trade margins in the Make/Supply matrix.

#### Family Expenditure Survey

A major component of consumers' expenditure estimates, forming part of final demand.

### **INTRASTAT/Customs and Excise**

Provide details of trade in goods with EU countries and the rest of the world. Together with information on trade in services, this provides imports data for the supply estimates and exports data in the "Combined" Use matrix.

This list is not exhaustive as many other inquiries and administrative sources are used. Some of the inquiries are run by other government departments, for example, the agricultural inquiries run by the Ministry of Agriculture, Fisheries and Food.

### Users of input-output balances

We continue to welcome any expert advice that readers of this article can offer, for example, on the pattern of demand for particular goods and services or on the purchasing structure of any industry. Such advice will, we hope, be one of the main agents for improving future balances.

We will be publishing the annual balance for 1994 and a revised balance for 1993 on 2 August 1996, which is the same date the 1996 Blue Book will be published. Readers can also obtain the balances in computer readable form on disk as either ASCII files or Lotus 1-2-3 spreadsheets. They can be accessed from an IBM-PC compatible computer running DOS 3.0 or higher. The charge is £24.95 for hardcopy publication and £50.00 plus VAT for the disk. Balances for 1992 onwards are available on a 1992 Standard Industrial Classification.

Other analyses of these data, for example aggregations to different levels of detail, can be supplied for an appropriate fee.

The Input-Output branch of the ONS is also presently considering the possibility of setting up a conference or seminar later this year, in order to discuss input-output issues with the people who purchase and use our data. We would welcome any suggestions that you may have on topics you would like to see covered.

If you wish to contact us on this, or any other matter, please use the addresses given at the end of this article.

#### **Contact points**

All requests for publications and data in computer readable form should be addressed in the first instance to:

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Tel : 0171 270 6081 Fax : 0171 270 4986

Other enquiries regarding input-output data should be addressed to:

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The Input-Output branch is currently staffed by David Blunt, Andrew Fereday, Allan Flowers, Lata Ghedia, Joseph Harding, Ian Gouldson, Sanjiv Mahajan, Maxine Richards and the author.

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1 United Kingdom National Accounts 1995 (The Blue Book). HMSO, 1995.

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