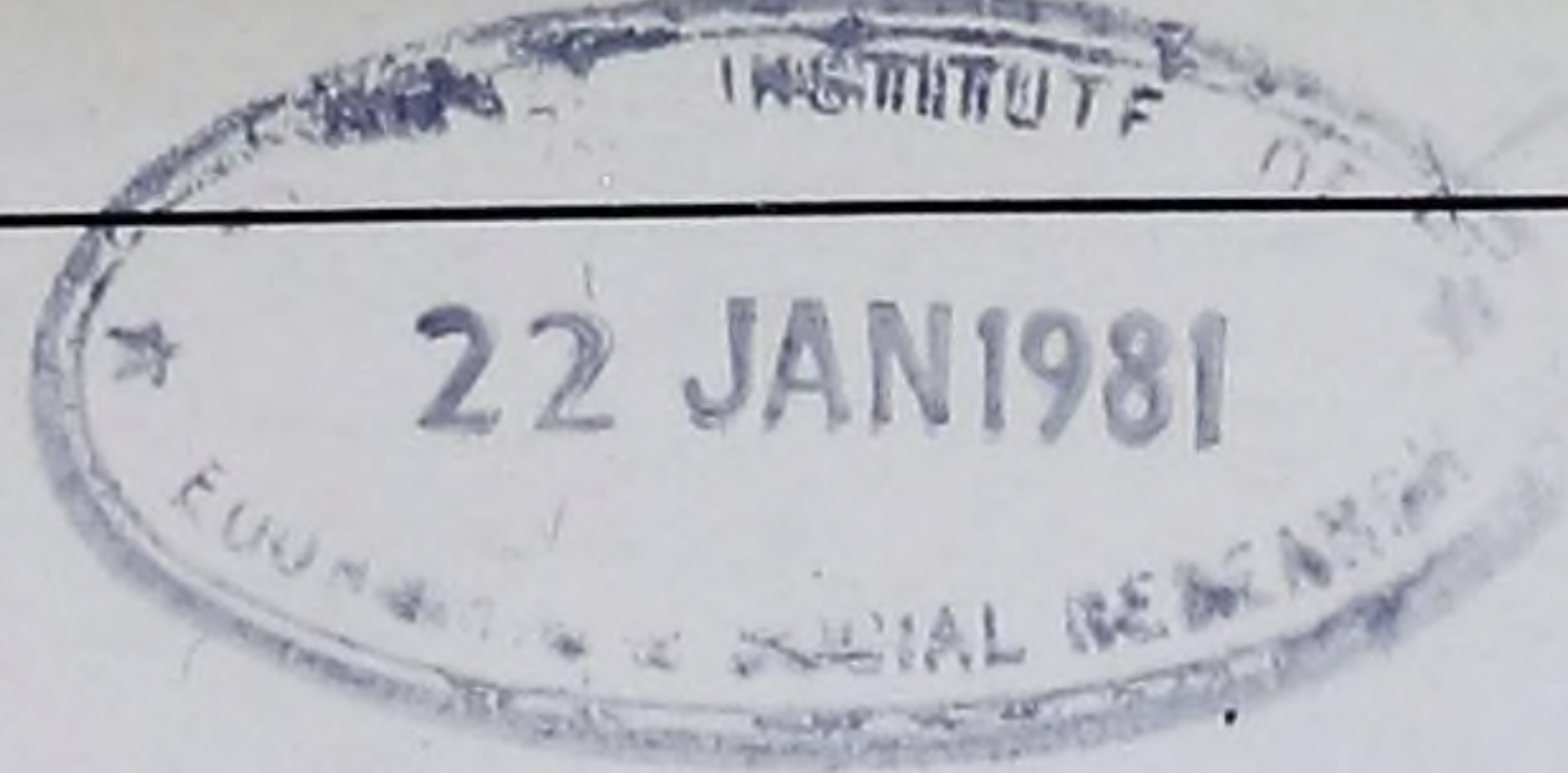


51



CSO

NOVEMBER 1980

HMSO £2.25 net

# STATISTICAL NEWS

**Developments  
in British Official  
Statistics**



A publication of the Government Statistical Service

*TRINDER*



---

# Note by the Editor

---

The aim of *Statistical News* is to provide a comprehensive account of current developments in British official statistics and to help all those who use or would like to use official statistics.

It appears quarterly and every issue contains two or more articles each dealing with a subject in depth. Shorter notes give news of the latest developments in many fields, including international statistics. Some reference is made to other work which, though not carried on by government organisations, is closely related to official statistics. Appointments and other changes in the Government Statistical Service are also given.

A cumulative index provides a permanent and comprehensive guide to developments in all areas of official statistics.

It is hoped that *Statistical News* will be of service and interest not only to professional statisticians but to everybody who uses statistics. The Editor would therefore be very glad to receive comments from readers on the adequacy of its scope, coverage or treatment of topics and their suggestions for improvement.

Enquiries about individual items in this issue should be made to the appropriate sources where indicated; otherwise they should be addressed to the Editor of *Statistical News* at:

Central Statistical Office,  
Great George Street,  
London, SW1P 3AQ.

Subscriptions and sales enquiries should be addressed to Her Majesty's Stationery Office at PO Box 569, London SE1 9NH (Telephone: 01-928 1321) or to any of the addresses listed on back page of cover.



# Statistical News

Developments in British  
Official Statistics

**No. 51**  
**November 1980**



© Crown copyright 1980

First published 1980

Brief extracts from this publication may be reproduced provided the source is fully acknowledged. Proposals for reproduction of larger extracts should be addressed to Copyright Section, Her Majesty's Stationery Office, St. Crispins, Duke Street, Norwich NR3 1PD

Developments in British  
Official Statistics

No. 51  
November 1980



# Articles in recent issues of *Statistical News*

## No. 40 February 1978

Statistics users' conference 1977: Financial statistics  
Designing a database for use in compiling the national accounts  
Introducing personalised forms for the quarterly inquiries into manufacturers' sales  
The use of postcodes in statistical work by central government departments  
The survey of small goods vehicles 1976  
A study of school improvement policy and the role of a survey of school buildings  
Road traffic and the environment

Brian Baty

Anne Harrison

G. S. Hull and C. R. Cook

E. J. Kafka

J. M. Haslam

Alan McIntyre

F. D. Sando

## No. 41 May 1978

Report on seminar on value added  
Measuring value added from the census of production  
Social accounting matrices and developing countries  
The Department of Industry's investment intentions survey  
Factors affecting the output of Crown Court centres

Central Statistical Office

Dr. Bernard Mitchell

C. C. Greenfield

Miss M. O'Connor

H. D. Mitchell, G. Croft and  
E. J. Ainsworth

## No. 42 August 1978

Sir Claus Moser: an appreciation  
National Dwelling and Housing Survey: organisation and fieldwork  
National Dwelling and Housing Survey: enquiries and comments  
The General Household Survey: 1971-78  
Some important classifications of the European Communities

The Rt. Hon. Edmund Dell, M.P.  
Roger Sellwood and Dennis  
Roberts

Mrs. Margaret Waite

Mrs. Mary Durant

Central Statistical Office

## No. 43 November 1978

Statistical computing: The COMPSTAT 78 symposium  
NEDO's data bank of OECD trade data and the industrial strategy  
Productivity comparisons—Caveat emptor  
The top 1,500 industrial and commercial companies

P. B. Kenny

D. C. Connell

Matt Semple

S. J. Penneck

## No. 44 February 1979

Statistics users' conference 1978: Dissemination of statistics  
The use of company reports for national statistics  
Constructing a sampling frame of industrial and commercial companies  
Scheduling a dockyard factory  
Projections of the population by marital condition  
Primary education in England  
Scottish secondary school accommodation model

Hamish Lumsden

M. J. Erritt

Clive Lewis

D. W. Wallage and I. F. Body

C. Daykin and R. Leete

M. Stock

F. Thomas



# Articles in recent issues of *Statistical News*

## No. 45 May 1979

Measuring the effectiveness of the Survey Control Unit  
The conference of European Statisticians Working Party  
on Electronic Data Processing  
The SSRC Survey Archive  
Defence Statistics and NATO  
Retailing enquiries: field follow-up surveys  
A successful application of computer output microform (COM)

Robin Horton

T. F. Hughes

Ivor Crewe

K. Pettet

P. F. Andrews

J. R. Merchant and Lt.Col. J. R.  
Sharp (RAPC)

## No. 46 August 1979

Human resources in statistical services  
Travel to work areas  
Library manpower statistics

Ian B. Beesley

H. Howson

Mrs. S. Keith and Mrs. E. Mellor

## No. 47 November 1979

Revision of the Standard Industrial Classification  
The rise in expenditure on invalidity benefit  
Pension funds and national accounting  
Multiple electoral registration amongst students  
Managing the Royal Navy's manpower  
Postcodes in the 1981 census of Scotland  
New methods for surveying health risks at work

R. A. Bowditch

J. B. Dearman

P. J. Stibbard

Dr. David Bruce

J. M. Griffin and R. K. Willmer

R. A. de Mellow

J. B. Werner

## No. 48 February 1980

Investigations into the feasibility  
of a wealth survey  
Secondary Education in England  
Changes in Scottish drinking habits  
and behaviour following the extension  
of permitted evening opening hours  
Migration assumptions for sub-national  
population projections  
Evaluation of past surveys

G. W. L. Jackson and

Mrs C. D. Morgan

S. D. Shenfield

Dr. David Bruce

P. D. Gurling and C. Morrey

S. Brown and K. M. Macafee

## No. 49 May 1980

Dwelling stock estimates from the 1981 Census of Population  
Discussion of Social Accounting Matrix with reference to  
Kenya

D. L. H. Roberts

R. M. Allen

## No. 50 August 1980

The work of the Survey Control Unit in 1979  
OPCS and the 1981 Census  
International comparisons of public service employment

Fred Johnson

S. C. Boxer

Central Statistical Office



# Contents

# November 1980

<b>ARTICLES</b>		<i>Page</i>
<b>Reg Beales – an appreciation</b>		51.1
<b>A follow-up income survey</b>	Department of Employment	51.2
<b>Migration assumptions for the 1979-based sub-national population projections</b>	Chris Morrey	51.6
<b>The second generation of MOD manpower models</b>	D. H. Baillie and Dr. M. T. R. Blackwell	51.11
<b>Employment and defence</b>	Chris Pite	51.15
 <b>REGULAR FEATURES</b>		
<b>Recently available statistical series and publications</b>		51.20
<b>New surveys assessed by the Survey Control Unit</b>		51.22
 <b>NOTES ON CURRENT DEVELOPMENTS</b>		
	<i>Page</i>	<i>Page</i>
<b>Population and vital statistics</b>		
<i>Population Trends</i>	51.24	Drinking in England and Wales 51.29
1981 Census of Population of England and Wales	51.24	Scottish drinking 51.29
Population projections	51.24	<b>Education</b>
Sub-national population projections	51.25	Adult education 51.29
Implications of current demographic trends in the UK for social and economic policy	51.25	Trends in entry to higher education 51.29
Population and vital statistics for Scotland	51.27	Further education students, 1979-80 51.30
		University statistics 51.30
<b>Social statistics</b>		Scottish Education Department – Statistical bulletins 51.30
National Dwelling and Housing Survey – Second Report	51.27	<b>Manpower and earnings</b>
<i>People as Pedestrians</i>	51.28	Manpower planning 51.30
Drownings in Scotland	51.28	Top salaries 51.31
Family Expenditure Survey – Response rate in 1979	51.28	University technicians – pay 51.31
		Local authority building workers – pay 51.31
<b>Health and social services</b>		Armed Forces pay (service medical and dental officers) 51.31
Birth statistics	51.28	Teachers – pay 51.32
Infant and perinatal statistics	51.28	Apprentices and trainees in manufacturing industries 51.32
Mortality statistics: accidents and violence 1978	51.29	Department of Employment statistics 51.32
Misuse of drugs	51.29	New Earnings Survey 1980 51.32



Earnings and hours by occupation	51.32	<b>Government Statistical Service</b>	
Survey of labour costs in 1978	51.33	Computing support for statistical divisions in	
Report on the EC labour force survey	51.33	the Departments of Environment and	
Skill shortages	51.33	Transport	51.41
Industrial stoppages	51.34	New head of information for Department of	
Trade union rules on admission, discipline		Employment	51.42
and expulsion	51.34		
Joint consultation in British industry	51.34	<b>Other publications</b>	
Women's experience of maternity rights	51.34	National Institute Economic Review No 93	51.42
		World Fertility Survey	51.42
<b>Agriculture and food</b>			
Agricultural censuses and surveys	51.34	<b>Late items</b>	
<i>Agricultural Statistics for the United Kingdom</i>		Survey of inland origins and destinations of UK	
<i>1976/77</i>	51.35	international trade in 1978	51.42
Scottish agricultural censuses	51.35	Revisions to index numbers of industrial	
		production	51.43
<b>Industrial statistics</b>			
Annual Census of Production 1977 –		<b>ALPHABETICAL INDEX</b>	51.44
PA1002 – Summary volume	51.35		
Annual Census of Production 1978	51.35		
<b>Home finance</b>			
<i>National Income and Expenditure 1980 Edition</i>	51.36		
Equipment leasing	51.36		
Financing British industry	51.37		
The measurement of capital	51.37		
Insolvencies in England and Wales – monthly			
figures	51.37		
Profitability in UK and other countries	51.37		
<b>Overseas finance</b>			
<i>United Kingdom Balance of Payments</i>			
<i>1980 Edition</i>	51.38		
Conditions in the syndicated medium-term			
euro-credit market	51.38		
<b>Overseas aid</b>			
<i>British Aid Statistics 1975–1979</i>	51.38		
<b>International</b>			
International unemployment statistics	51.39		
International road haulage survey	51.39		
United Kingdom air transport	51.39		
<b>Environment</b>			
Environmental pollution	51.40		
<b>Research and development</b>			
Research and development statistics	51.40		
<b>Conferences and meetings</b>			
Institute of Statisticians Conference 1980	51.40		
Time series and forecasting special interest			
group	51.41		



---

## Reg Beales

*A personal tribute from Sir John Boreham*

---

Reg Beales' death on 22 September, after a short illness, while on holiday in Cornwall, grieved me and many other readers of *Statistical News*. We are all diminished by it. It was, however, a good way to go and somehow characteristic of clever old Reg, who lived such a good, helpful and well-ordered life. He was a modest and simple man and it was often hard to realise that he was one of the great creators of the Government Statistical Service. He was the excellent and devoted Deputy first of Sir Harry Campion and then of Sir Claus Moser. He was very much my mentor. He was the dear friend of all three of us.

I first met him when I came to the CSO in 1958. I realised from the beginning that Reg was a man who attached the utmost importance to mastery of detail and clarity of expression; a man who quietly and undramatically got on with his job and expected others to do the same. But I also realised that illuminating those professional virtues was a human kindness which showed up in a real delight in sharing his private interests – family, gardening, sports, especially tennis – with his colleagues who were all also friends.

Reg was born in Norwich in 1909 and started work there in insurance. He stayed with insurance, qualifying as an Actuary in 1934, until his move to the CSO in 1943. That was just two years after the office had been formally constituted and it was still a small group of close colleagues each of whom did what was needed. It must have suited Reg with his gifts for friendship. From the beginning he showed the care for younger colleagues which was one of his great virtues. Nearly all the present senior members of the GSS owe much of their skills and strengths to Reg's tutelage.

In 1949 he went to Inland Revenue as a Chief Statistician and in 1952 he became Director of Statistics and Intelligence there. The after-effects of the war were still apparent and some of his work concerned accounting for the backlog of company and personal taxes. He also started the income surveys based on PAYE and linked the procedures for estimating the effects of possible tax changes with those for the official national income forecasts. He also provided the statistical input to the Radcliffe Royal Commission on Taxation.

In 1957 he returned to the CSO and then for 15 years until his retirement he carried out two great roles. The first was as eminence grise of national accounts. He certainly was the master but, though he successively brought up Laurie Berman, me, Rita Maurice, John

Walton and Jack Hibbert to have some of his mastery, his name rarely appeared on any publications. His other role was as Deputy Director of the CSO. His first boss was his old friend from 1943, Sir Harry Campion. Reg helped him continue laying the foundations of the GSS and especially establishing public confidence in the integrity of official statistics. In 1967 Sir Harry Campion was succeeded by Sir Claus Moser and Reg helped him forge even closer links between statistics and government policy and further raise the standing of statisticians in government.

Up to his retirement and after it Reg was active in a wider statistical world than the GSS. He served on the Council of the Royal Statistical Society from 1965-69 and was its vice-president in 1967/68. He was always very active in international statistical work. He took me to my first international conference and I still remember his delighted gusto about the trip which in no way, however, diminished his insistence that I should master all the details of the subject we were discussing (East/West national income comparisons). Reg was held in high esteem and affection in the United Nations both in New York and Geneva. He had many close friends there and in most capitals of the world where there are government statisticians. He was a very long-standing and active member of the International Association for Research into Income and Wealth. He always delighted in the friendly meetings of the Association and I know it was a particular pleasure to him when he organised the Association's meeting in York in 1977. No doubt his contributions to international statistical work contributed to his being made a Commander of the Order of the British Empire in 1961.

Reg was not the sort of man to produce great innovations. Instead, through complete mastery of his subject, especially national income, he made sure, by specifying and effecting a myriad gradual improvements, that the system was always in full and detailed congruence with the changing economy it portrayed. But his most precious qualities were friendliness and a complete absence of any spite or malice. Reg was the model of a statistician – meticulous, industrious, clear, modest, active and friendly.



# A follow-up income survey

## Department of Employment

### Introduction and summary

The degree to which incomes of individual households change from one year to another is of considerable interest. A survey providing information on such changes was commissioned by the Committee of Enquiry into Local Government Finance, chaired by Frank Layfield. This article presents the main results: the text is essentially an abridged version of a more detailed paper available on request from the Department of Employment.\*

The survey involved revisiting, in the second quarter of 1975, households which had co-operated in the Family Expenditure Survey in the second quarter of 1974 and asking them for information on their current incomes. Although the data are now somewhat out-of-date, the main results are considered to merit publication because of the scarcity of longitudinal income data for households. The absolute size of the changes between 1974 and 1975 may not be wholly representative or typical, since the rise in incomes over this period was particularly large. However the pattern of change, in particular the contrast in experience of low and high income households is in accord with other evidence, although too great a significance should not be placed on changes associated with small numbers of households owing to proportionally large sampling errors.

The present study looks, inter alia, at the stability of household income† at different points in its distribution over the year between interview and re-interview. The basis of much of the analysis was to split the sample of households co-operating in the survey in 1974 and 1975 into quantiles (or divisions) of the distribution of household income. A household within the same quantiles of the income distribution in both 1974 and 1975 would lie along the diagonal of a matrix based on the distributions of household income in the two years. A household which changed its relative position would move up or down the income distribution and might cross a quantile of the grid (see Table 2). The stability of

the income distribution can be gauged from the amount of movement. If most households lie on the diagonal of the matrix, the income distribution is stable.

1419 households (some 80 per cent of those which responded in the Q2 1974 FES) were prepared to co-operate a second time in Q2 1975. However, the composition of some of these households changed over the year and the results in this article are confined to 1282 households of unchanged composition.

Some main results are:

1. Percentage increases in household incomes were, on average, larger for the lower income households and smaller for the higher income households. This divergence of experience became very marked towards the ends of the income distribution.

2. There was a high degree of overall stability in the income distribution of households of unchanged composition, nearly two-thirds of households remaining in the same inter-quantile range.

3. There is an interaction between the stability of household income from one year to the next and the composition and income of the household. In particular, the income distributions of high income household types are less stable than those types with low income.

4. Changes in the number of workers in a household accounted for only a part of the changes in income over the period.

### Overall pattern of changes

Table 1 shows the percentage increases in household incomes at different income levels. Households with very low incomes (under £10 per week in Q2 1974) had large percentage increases in gross income whereas high income households (£120 or more per week) had very low percentage increases. For the bulk of households between these extremes, there was a steady progression in this direction although there was not a large dispersion in the percentage increases for the two-thirds of households having gross incomes between £15 and £75 per week in 1974.

\*Statistics A6, Room 334, Caxton House, Tothill Street, London SW1H 9NA (Telephone 01-213 6909/6426).

†The concept of income used is broadly that of gross weekly cash income current at the time of the interview. Exceptionally high or low earnings due to special circumstances (e.g. if a person is temporarily away from work) are adjusted to give 'normal' income. Income for some self-employed persons and investment income is estimated retrospectively over the year preceding the interview. An 'imputed rent' is added to the gross income and expenditure of owner-occupied households, to place these households on a basis similar to households which actually pay rent, and to replace mortgage payments.



Table 1

## Percentage changes in average household income from Q2 1974 to Q2 1975 by ranges of Q2 1974 income

Ranges of gross Household Income at Q2 1974 (£ per week)	Households with no change in adult composition (N 4 1282)									
	Under £10	£10 -£15	£15 -£25	£25 -£40	£40 -£60	£60 -£75	£75 -£100	£100 -£120	£120 or more	All households
Q2 1974 Mean Income	£8.4	£12.2	£19.8	£32.7	£49.6	£67.2	£85.6	£107.7	£155.6	£53.5
Number of Households	22	124	159	178	314	196	190	53	46	1282
Percentage change in mean income Q2 1974 to Q2 1975	129	45	36	33	30	29	21	23	4	26

Table 2

## Comparison of household income between Q2 1974 and Q2 1975 – number and percentage of households in selected inter-quantile ranges of the all household income distribution

FES INCOME QUANTILES <sup>†</sup>		Households with no change in adult composition (N 4 1282)										Marginal total
		Q2 1974	below 10% Lowest decile (£19.85)	10 to 25% Lower quartile (£36.22)	25 to 50% Median (£65.15)	50 to 75% Upper quartile (£97.15)	75 to 90% Highest decile (£134.05)	above 90%				
below 10%	Q2 1975	126 (9.8%)	12 (0.9%)	1 (0.1%)	1 (0.1%)			1 (0.1%)			141 (11.0%)	
Lowest decile (£14.62)												
10 to 25%	Q2 1975	21 (1.6%)	151 (11.8%)	24 (1.9%)	3 (0.2%)						199 (15.5%)	
Lower quartile (£28.23)												
25 to 50%	Q2 1975	5 (0.4%)	44 (3.4%)	210 (16.4%)	53 (4.1%)	6 (0.5%)					319 (24.9%)	
Median (£50.50)												
50 to 75%	Q2 1975		4 (0.3%)	63 (4.9%)	194 (15.1%)	44 (3.4%)					312 (24.3%)	
Upper quartile (£73.05)												
75 to 90%	Q2 1975			11 (0.9%)	77 (6.0%)	82 (6.4%)					193 (15.1%)	
Highest decile (£96.10)												
above 90%	Q2 1975	1 (0.1%)		7 (0.5%)	10 (0.8%)	36 (2.8%)	64 (5.0%)				118 (9.2%)	
Marginal total	Q2 1975	153 (11.9%)	211 (16.5%)	316 (24.6%)	338 (26.4%)	168 (13.1%)	96 (7.5%)				1,282 (100%)	

<sup>†</sup>These quantiles are defined in terms of the full FES samples for Q2 1974 and Q2 1975.

The stability of the income distribution relating to all households co-operating in the study is illustrated by Table 2. This shows the number of households within inter-quantile ranges (i.e. the various parts of the income distribution) in Q2 1975 compared with Q2 1974. Nearly two-thirds of co-operating households lay along the diagonal of the matrix showing that they remained in the same inter-quantile range in both years. Furthermore, most of the remaining households were in the adjacent cells of the matrix. As might be expected, the relative income of a large proportion of households is quite

stable. Approximately 22 per cent of households lay below the diagonal, which means that the relative position of those households worsened over the year. The households above the diagonal, which improved their relative position, accounted for nearly 14 per cent. The difference between 22 and 14 per cent reflects the fact that fewer households of unchanged composition in the Layfield sample improved their relative position than the number whose relative position declined. This feature is further illustrated by examining the marginal percentages. For 1974, the marginal totals at the right of



the table do not differ appreciably from the expected percentages of 10, 15, 25, 25, 15 and 10. However, for 1975, the marginal totals at the bottom of the table show that only 20½ per cent of households were above the upper FES quartile in contrast with the expected 25 per cent.

Of the 141 households in the lowest tenth of the Q2 1974 income distribution, 126 (89 per cent) remained there in Q2 1975. This is despite the higher average increase at the lower end of the income distribution and the increase in the lowest FES decile from £14.62 to £19.85. Most of these would be retired households of limited means, many comprising only one person. 151 (76 per cent) of the 199 households lying between the lowest decile and the lower quartile in 1974 remained there in 1975; of the remaining 48 households, the relative positions of 21 worsened by crossing the lower quartile. Overall, the lowest quarter of the distribution showed a large degree of stability. For households above the lower FES quartile in 1974, more movement across quantiles was evident.

#### Dispersion of the changes

The differences in the dispersion of the Layfield sample figures for 1975 compared with those for the normal FES sample may have arisen from known differences between the two samples. Even if the 1419 households which co-operated a second time formed a representative sub-sample of the original 1771 FES households (and there is evidence that this is not the case), the exclusion of a further 137 households of changed composition means that there is reason to expect that the overall results for the Layfield sample will differ from the overall FES results for the same quarters. Households which changed their composition over the year (e.g. because of a son or daughter leaving home or the birth of a child) are unlikely to experience the same average change in household income as households of unchanged composition.

The median gross household income of the full

Layfield sample of 1419 households increased by 23.8 per cent over the year compared with 29.0 per cent shown by FES households. This implies that households which did not co-operate in the follow-up survey (because they refused or had moved location and were thereby excluded from the sample) enjoyed larger increases in incomes, on average, than the co-operating households. A further factor is that the matched sample would necessarily exclude newly created households. Differential response to the follow-up survey (which varied between 92 per cent for one adult aged over 65 to 68 per cent for larger households with children) would affect the overall changes. Also, the interval between a household being interviewed and re-interviewed would not, in general, have been exactly one year.

#### Abridged results for various household types

The more detailed paper contains a table similar to table 2 for each of the sub-groups of households. Table 3 is a summary table of these eight tables showing the percentage of households in each sub-group which remained within the same inter-quantile range, moved up or down into the next range, or moved up or down more than one range. The household groups showing the greatest stability of the income distribution, that is those having the highest percentage remaining within the same inter-quantile range, were households containing either one adult, or two adults with the head aged over 65. Income distributions for larger households, whether or not children were present, were less stable. The household types with prevailing lower median incomes are associated with more stable income distributions than higher income households. For the four household types with median incomes below the all household median (£49.40), the proportion of households remaining in the same range exceeded 70 per cent, whereas the corresponding proportion for each of the other four groups was less than 60 per cent.

Table 3  
Movement across quantiles of the FES income distribution – by type of household

Household type	Number of households	Median income in Q2 1974	Percent of households moving across quantiles				
			Down more than one range	Down into next range	Remained in same range	Up to next range	Up more than one range
All households	1,282	£49.40	3	19	64	12	2
1 adult under 65	100	£30.00	1	13	74	11	1
1 adult aged 65 or more	151	£13.02	1	8	86	5	—
2 adults head aged under 65	213	£62.88	3	22	57	15	3
2 adults head aged 65 or more	179	£24.81	2	15	75	8	—
3 or more adults without children	82	£78.75	2	23	59	16	—
1 adult with child(ren)	35	£29.64	3	14	71	12	—
2 adults with child(ren)	470	£59.89	4	22	57	14	3
3 or more adults with child(ren)	52	£92.50	6	21	54	17	2



Table 4

**Movement across quantiles of the FES income distribution – by change in the number of workers per household**

Households with:	Percent of households moving across quantiles				
	Down more than one range	Down into next range	Remained in same range	Up to next range	Up more than one range
No workers	–	11	84	5	–
Fewer workers	11	35	49	5	–
Same number of workers	3	19	62	14	2
More workers	1	13	49	31	6

**Changes in the number of workers per household**

One factor likely to cause a change in the relative position of a household would be a change in the number of adults in employment, and this was studied by a further analysis of the households of unchanged composition between Q2 1974 and Q2 1975. Four sub-groups were identified, namely:

- i. no workers in either year (284 households);
- ii. fewer workers in 1975 than in 1974 (134 households);
- iii. same number of workers in both years (779 households);
- iv. more workers in 1975 than in 1974 (85 households).

The movement across inter-quantile ranges of these four sub-groups of households is summarised in table 4 above.

For households with fewer workers in 1975 than in 1974, the average gross normal household income actually fell about one per cent from £56.05 to £55.44. By contrast, for households with more workers in 1975 than in 1974, the average income rose by nearly 45 per cent from £58.53 to £84.58.

It might have been expected that much of the movement evident across quantiles could have been attributed to changes in the number of workers in a household. Examination of the data shows that, although proportionately more movement across quantiles took place for households where the number of workers changed, compared with households having the same number of workers, only a minority of the total movement can be attributed to a changed number of workers. Consequently, other factors must be involved.

In 219 households, the number of workers in Q2 1975 changed compared with Q2 1974. Of these households, only 111 changed their relative position by crossing a quantile and, of these, 19 moved in the direction opposite to that expected e.g. the relative positions of 12 households worsened although they had more workers in 1975 than in 1974. Most changes in the relative income position occurred in the 779 households (comprising 60 per cent of the Layfield sample) where the number of workers was unchanged.

**Further data**

More comprehensive and up-to-date information on the stability of the income distribution of low income households with children will be available in due course from the Family Finances Survey. This survey is being conducted by the Office of Population Censuses and Surveys for the Department of Health and Social Security. Initial interviewing took place between Q4 1978 and Q3 1979. The fieldwork for this follow-up survey is expected to be completed by the end of Q3 1980.



---

# Migration assumptions for the 1979 based sub-national population projections

Chris Morrey, Senior Research Officer, Department of the Environment

---

## Summary

The internal migration assumptions to be used in the official 1979 based sub-national population projections for England have been finalised recently. This article reports on their development and compares them with those adopted in the previous 1977 based projection series.

## Introduction

The Department of the Environment (DOE) is responsible for setting the migration assumptions (total persons) for the official sub-national population projections which are produced by the Office of Population Censuses and Surveys (OPCS). Since the last major local government reorganisation in 1974, three projection series have been prepared giving results for economic planning regions, counties, metropolitan districts and recently for London boroughs, based on their estimated populations at mid-1974<sup>1</sup>, 1975<sup>2</sup> and 1977<sup>3</sup>.

In formulating the migration assumptions, the following two principles have been adopted:—

- i. hierarchical controlling from the national to the local level to achieve consistency with national population projections; and
- ii. consultation with local authorities and other government departments to take into account local factors which are considered to influence future migration.

However, the operation of these two procedures has led to considerable difficulty in providing generally acceptable assumptions at the local level. In particular in the earlier projection series, many local authorities considered that the hierarchical controlling of assumptions produced unrealistic constraints at the regional level which made it difficult for them to develop appropriate migration assumptions for their own areas.

## Arrangements for the 1977 based population projections

In an attempt to resolve such difficulties the DOE invited local authority participation at an earlier stage for the 1977 based series by obtaining their views prior to any assessment of regional migration. In analysing the local authority submissions it became clear that the regional migration controls were not in themselves a major impediment in producing assumptions at the local level, as was considered to be the case in the earlier projection rounds. The main source of uncertainty and debate over

future migration was seen to be confined largely within rather than between regions, particularly in those regions containing conurbations. Typically, the metropolitan authorities proposed continued reductions in their net migration losses whereas the surrounding shire counties allowed for a return to the higher net migration gains of earlier in the decade. In other words, both types of authorities were competing for the same people in their submissions. The regions where there was most disagreement and uncertainty concerning future migration were the South East and the West Midlands and, to a lesser extent, the North West. A fuller assessment of the consultations held for the 1977 based projection series appears in an earlier *Statistical News* article<sup>4</sup>.

## Arrangements for the 1979 based population projections

Recently, migration assumptions for a 1979 based round of projections have been developed. For this latest series, the consultation procedure was amended to try to resolve the difficulty with intra-regional migration by asking local authorities in the South East, West Midlands and North West to make a collective appraisal of their regional migration assumptions and, if possible, of individual county proposals. Another innovation made was the provision of clearer guidelines by DOE to participating authorities to encourage a more consistent approach between individual authorities in preparing their submissions. The advice given was essentially that their migration proposals should be framed as closely as possible to the available demographic evidence and to depart from this only where the likelihood of a change from past trends was extremely strong.

## Results

The local authority migration proposals for the 1979 based projections are summarised in Table 1. In aggregate, the submissions by counties imply a net inflow of 31,700 per annum in the first two projection years compared to the national migration assumption of a 3,000 per annum net gain. The difference of 28,700 per annum between 1979 and 1981 represents a considerable reduction, by more than half, from the comparable figure of 78,100 that resulted in the 1977 based series. A similar improvement resulted for the years 1981 to 1986 and an even greater one for the remainder of the projection period.

In the assessment of the local authority submissions it



became apparent that the majority of their proposals could be accepted with little if any amendment. As a result, over half of the 46 county migration proposals were modified by less than 500 persons for any single projection year and over three-quarters by 1,000 or less. This compares with a third and a little over a half respectively of the number of counties in the 1977 based series.

Numerically the largest difference between the county submissions and the final migration assumptions occurred in Greater London. However, in terms of the capital's sizeable population, the changes made were not excessive and considerably smaller than in the 1977 series. In the remainder of the South East, the majority of the counties' proposals were accepted with hardly any amendment. In the cases of Bedfordshire and Hertfordshire their migration proposals were taken unaltered. Similarly, most other submissions appeared reasonable when compared with the trend migration data.

The migration proposals submitted by counties in the West Midlands, in particular, appeared more compatible for the 1979 based series than previously as a direct result of the introduction of the special collective consultation arrangements. However, in the North West, some of the county proposals had to be modified in the light of recent changes in the migration trends. Such evidence has indicated that the net losses from the northern regions have been increasing, especially from the North West, due to predominantly fewer people moving to the region, mainly from the South East, rather than from increased numbers moving southwards.

A comparison of the county proposals and the final migration assumptions adopted in both the 1977 and 1979 based projections is summarised in Table 2. At the national level, the cumulative difference over the period 1979 to 1991 between the county and the final assumptions for the 1979 series amounts to an excess of 299,400 compared with 750,700 for the 1977 series. Such a reduction represents a considerable overall convergence between the views of local and central government concerning future migration. In 32 counties, mainly in the south of the country, the differences have decreased from the 1977 to the 1979 series. By far the largest improvement, in absolute terms, has been made in Greater London but, relative to their sizes of population, many of the other counties have shown similar improvements. In only 14 counties have the differences of view concerning future migration increased from the 1977 to the 1979 based projections. Most of these counties are situated in the three northern regions and in the East Midlands. However, in many of these cases the increased divergence has been minimal with the possible exception of Greater Manchester.

### Concluding remarks

The 1979 based consultations have resulted in a much closer agreement between local and central government regarding the future pattern of the net movement of people to and from local authority areas. This convergence of opinion has resulted largely from:—

- i. a greater appreciation by local authorities of the nature of the official projections and the factors to be taken into account in formulating their proposals; and
- ii. the special arrangements made in the South East and the West Midlands, whereby a more consistent view regarding future migration within the region has been obtained.

It is hoped that the actual 1979 based OPCS projection results, incorporating the migration assumptions developed by DOE, will be published in the OPCS Monitor series by the end of the year. The next round of sub-national population projections is likely to benefit from more accurate estimates of base-year populations being available, founded on the population counts from the 1981 Census. However, detailed migration information is unlikely to be available from the Census for use in the projections until at least 1983.

### References

1. OPCS, Population projections area: 1974-1991, Series PP3 No 1, (HMSO 1977) (Price £1.75 net)
2. OPCS, Population projections area: 1975-1991, Series PP3 No 2, (HMSO 1978) (Price £2.00 net)
3. OPCS Monitor, Population projections: regions and counties, mid-1977 based, PP3 79/1, (1979); and  
OPCS Monitor, Population projections: metropolitan districts and London boroughs, mid-1977 based, PP3 79/2, (1979)
4. Peter Girling and Chris Morrey, 'Migration assumptions for sub-national population projections', *Statistical News* 48, pp 13-18, (HMSO 1980), (Price £1.90 net)



## APPENDIX

Table 1

## County migration assumptions for OPCS 1979-based population projections: comparison of Local Authority and adopted assumptions

Thousands per annum

Area	Initial county proposals			Adopted county assumptions			Difference <sup>1</sup>		
	1979-81	1981-86	1986-91	1979-81	1981-86	1986-91	1979-81	1981-86	1986-91
Cleveland	-2.3	-2.3	-1.5	-2.0	-1.9	-1.5	-0.3	-0.4	0.0
Cumbria	+1.1	+0.4	+0.3	+0.1	+0.2	+0.1	+1.0	+0.2	+0.2
Durham	-0.1	-0.2	-0.2	-1.0	-0.8	-0.6	+0.9	+0.6	+0.4
Northumberland	+1.0	+0.9	+0.7	+0.4	+0.4	+0.4	+0.6	+0.5	+0.3
Tyne and Wear	-5.2	-4.5	-3.6	-6.0	-5.4	-4.9	+0.8	+0.9	+1.3
<b>North</b>	-5.5	-5.7	-4.3	-8.5	-7.5	-6.5	+3.0	+1.8	+2.2
Humberside	-0.4	-0.5	-0.6	-0.7	-0.7	-0.6	+0.3	+0.2	0.0
North Yorkshire	+4.3	+2.5	+1.6	+3.6	+2.9	+2.5	+0.7	-0.4	-0.9
South Yorkshire	-2.4	-2.5	-2.3	-3.3	-2.8	-2.5	+0.9	+0.3	+0.2
West Yorkshire	-1.9	-2.4	-2.4	-3.1	-2.9	-2.4	+1.2	+0.5	0.0
<b>Yorks and Humberside</b>	-0.4	-2.9	-3.7	-3.5	-3.5	-3.0	+3.1	+0.6	-0.7
Cheshire	+4.2	+3.4	+1.7	+4.0	+3.1	+2.0	+0.2	+0.3	-0.3
Greater Manchester	-10.0	-7.1	-7.0	-12.8	-11.8	-9.2	+2.8	+4.7	+2.2
Lancashire	+6.3	+5.3	+4.1	+3.4	+3.2	+2.7	+2.9	+2.1	+1.4
Merseyside	-13.1	-8.6	-6.4	-13.6	-11.5	-9.5	+0.5	+2.9	+3.1
<b>North West</b>	-12.6	-7.0	-7.6	-19.0	-17.0	-14.0	+6.4	+10.0	+6.4
Derbyshire	+2.0	+0.6	+0.3	+1.8	+0.5	+0.3	+0.2	+0.1	+0.0
Leicestershire	+1.7	+1.1	+0.8	0.0	+0.3	+0.3	+1.7	+0.8	+0.5
Lincolnshire	+4.0	+3.5	+2.5	+2.8	+1.5	+1.3	+1.2	+2.0	+1.2
Northamptonshire	+3.2	+3.2	+1.7	+2.6	+1.5	+1.1	+0.6	+1.7	+0.6
Nottinghamshire	+0.6	+0.2	0.0	-0.2	+0.2	0.0	+0.8	0.0	0.0
<b>East Midlands</b>	+11.5	+8.6	+5.3	+7.0	+4.0	+3.0	+4.5	+4.6	+2.3
Hereford & Worcester	+3.5	+2.3	+1.9	+3.5	+2.1	+1.8	0.0	+0.2	+0.1
Shropshire	+3.5	+3.3	+2.1	+2.9	+2.5	+2.0	+0.6	+0.8	+0.1
Staffordshire	+2.1	+1.7	0.0	+2.1	+1.5	0.0	0.0	+0.2	0.0
Warwickshire	+1.7	+1.9	+1.0	+1.5	+1.5	+0.9	+0.2	+0.4	+0.1
West Midlands	-18.3	-14.2	-13.2	-19.0	-16.1	-13.2	+0.7	+1.9	0.0
<b>West Midlands</b>	-7.5	-5.0	-8.2	-9.0	-8.5	-8.5	+1.5	+3.5	+0.3
Cambridgeshire	+6.2	+4.4	+3.5	+6.3	+4.2	+3.5	-0.1	+0.2	0.0
Norfolk	+5.2	+3.8	+3.8	+5.2	+3.5	+3.5	0.0	+0.3	+0.3
Suffolk	+4.5	+3.5	+2.0	+4.5	+3.3	+2.0	0.0	+0.2	0.0
<b>East Anglia</b>	+15.9	+11.7	+9.3	+16.0	+11.0	+9.0	-0.1	+0.7	+0.3
Bedfordshire	+1.2	-0.4	-1.0	+1.2	-0.4	-1.0	0.0	0.0	0.0
Berkshire	+3.1	+3.1	+2.9	+3.1	+3.0	+2.9	0.0	+0.1	0.0
Buckinghamshire	+5.8	+4.0	+5.5	+5.8	+4.0	+3.5	0.0	0.0	+2.0
East Sussex	+7.0	+7.0	+6.0	+6.0	+5.5	+5.0	+1.0	+1.5	+1.0
Essex	+4.5	+1.5	+0.3	+6.0	+2.5	+1.8	-1.5	-1.0	-1.5
Hampshire	+3.2	+3.2	+7.7	+3.2	+3.2	+4.0	0.0	0.0	+3.7
Hertfordshire	+0.4	0.0	0.0	+0.4	0.0	0.0	0.0	0.0	0.0
Isle of Wight	+1.7	+1.6	+1.5	+1.7	+1.5	+1.5	0.0	+0.1	0.0
Kent	+3.3	+1.1	+0.3	+3.3	+2.1	+0.3	0.0	-1.0	0.0
Oxfordshire	+3.4	+0.5	+0.5	+3.2	+0.5	+0.5	+0.2	0.0	0.0
Surrey	-0.9	+7.5	+3.1	-0.9	+3.0	+2.5	0.0	+4.5	+0.6
West Sussex	+10.4	+8.0	+6.0	+10.0	+7.0	+5.0	+0.4	+1.0	+1.0
<b>Rest of South East</b>	+43.1	+37.1	+32.8	+43.0	+31.9	+26.0	+0.1	+5.2	+6.8
Greater London	-37.4	-38.6	-43.6	-50.0	-45.0	-40.0	+12.6	+6.4	-3.6
<b>South East</b>	+5.7	-1.5	-10.8	-7.0	-13.1	-14.0	+12.7	+11.6	+3.2



Table 1 (continued)

Thousands per annum

Area	Initial county proposals			Adopted county assumptions			Difference <sup>1</sup>		
	1979-81	1981-86	1986-91	1979-81	1981-86	1986-91	1979-81	1981-86	1986-91
Avon	+1.0	+1.2	+1.4	+1.0	+1.1	+1.2	0.0	+0.1	+0.2
Cornwall	+4.7	+3.2	+2.5	+4.6	+3.2	+2.5	+0.1	+0.0	0.0
Devon	+9.0	+9.0	+9.0	+8.5	+8.0	+7.5	+0.5	+1.0	+1.5
Dorset	+4.1	+4.7	+6.3	+6.5	+5.8	+5.4	-2.4	-1.1	+0.9
Gloucestershire	+1.8	+0.8	+0.8	+2.2	+1.8	+1.4	-0.4	-1.0	-0.6
Somerset	+2.3	+2.3	+2.3	+2.5	+2.3	+2.0	-0.2	0.0	+0.3
Wiltshire	+1.7	+1.6	+2.5	+1.7	+1.8	+2.0	0.0	-0.2	+0.5
<b>South West</b>	<b>+24.6</b>	<b>+22.8</b>	<b>+24.8</b>	<b>+27.0</b>	<b>+24.0</b>	<b>+22.0</b>	<b>-2.4</b>	<b>-1.2</b>	<b>+2.8</b>
<b>England</b>	<b>+31.7</b>	<b>+21.0</b>	<b>+4.8</b>	<b>+3.0</b>	<b>-10.6</b>	<b>-12.0</b>	<b>+28.7</b>	<b>+31.6</b>	<b>+16.8</b>
Control	+3.0	-10.6	-12.0	+3.0	-10.6	-12.0	0.0	0.0	0.0
<b>Difference</b>	<b>+28.7</b>	<b>+31.6</b>	<b>+16.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>+28.7</b>	<b>+31.6</b>	<b>+16.8</b>

<sup>1</sup>The + signs in the Difference column indicate that the initial county proposals were higher than the adopted assumptions. Conversely the - signs indicate that the initial county proposals were lower than the adopted assumptions.

Table 2

**Comparison of initial county proposals and adopted migration assumptions for OPCS 1977-based and 1979-based population projections (comparisons made on the basis of cumulative net migration over the period 1979 to 1991)**

Thousands

Area	1977-based series				1979-based series			
	Initial county proposals	Adopted county assumptions	Difference <sup>1</sup>	Rank <sup>2</sup>	Initial county proposals	Adopted county assumptions	Difference <sup>1</sup>	Rank <sup>2</sup>
Cleveland	-4.5	-9.7	+5.2	32	-23.6	-21.0	-2.6	29
Cumbria	+5.7	+3.0	+2.7	40	+5.7	+1.7	+4.0	26
Durham	0.0	-2.2	+2.2	43	-2.2	-9.0	+6.8	18
Northumberland	+10.0	+7.8	+2.2	43	+10.0	+4.8	+5.2	21
Tyne and Wear	-48.3	-56.4	+8.1	28	-50.9	-63.5	+12.6	12
<b>North</b>	<b>-37.1</b>	<b>-57.5</b>	<b>+20.4</b>	<b>x</b>	<b>-61.0</b>	<b>-87.0</b>	<b>+26.0</b>	<b>x</b>
Humberside	-4.5	-7.6	+3.1	38	-6.3	-7.9	+1.6	30
North Yorkshire	+30.9	+34.6	-3.7	37	+29.1	+34.2	-5.1	22
South Yorkshire	-14.7	-33.6	+18.9	9	-28.8	-33.1	+4.3	25
West Yorkshire	-18.3	-21.4	+3.1	38	-27.8	-32.7	+4.9	24
<b>Yorks and Humberside</b>	<b>-6.6</b>	<b>-28.0</b>	<b>+21.4</b>	<b>x</b>	<b>-33.8</b>	<b>-39.5</b>	<b>+5.7</b>	<b>x</b>
Cheshire	+40.4	+38.0	+2.4	42	+33.9	+33.5	+0.4	42
Greater Manchester	-94.4	-104.0	+9.6	23	-90.5	-130.6	+40.1	1
Lancashire	+64.6	+50.0	+14.6	15	+59.6	+36.3	+23.3	5
Merseyside	-99.4	-118.5	+19.1	8	-101.2	-132.2	+31.0	3
<b>North West</b>	<b>-88.8</b>	<b>-134.5</b>	<b>+45.7</b>	<b>x</b>	<b>-98.2</b>	<b>-193.0</b>	<b>+94.8</b>	<b>x</b>
Derbyshire	+10.3	+5.3	+5.0	33	+8.5	+7.6	+0.9	38
Leicestershire	+12.4	+11.7	+0.7	46	+12.9	+3.0	+9.9	16
Lincolnshire	+36.2	+20.4	+15.8	12	+38.0	+19.6	+18.4	7
Northamptonshire	+34.5	+24.9	+9.6	23	+30.9	+18.2	+12.7	11
Nottinghamshire	+2.0	-10.3	+12.3	19	+2.2	+0.6	+1.6	30
<b>East Midlands</b>	<b>+95.4</b>	<b>+52.0</b>	<b>+43.4</b>	<b>x</b>	<b>+92.5</b>	<b>+49.0</b>	<b>+43.5</b>	<b>x</b>
Hereford & Worcester	+40.1	+27.3	+12.8	17	+28.0	+26.5	+1.5	32
Shropshire	+35.5	+25.4	+10.1	22	+34.0	+28.3	+5.7	20
Staffordshire	+46.9	+23.3	+23.6	7	+12.7	+11.7	+1.0	36
Warwickshire	+24.6	+13.6	+11.0	21	+17.9	+15.0	+2.9	28
West Midlands	-164.9	-180.0	+15.1	14	-173.6	-184.5	+10.9	13
<b>West Midlands</b>	<b>-17.8</b>	<b>-90.4</b>	<b>+72.6</b>	<b>x</b>	<b>-81.0</b>	<b>-103.0</b>	<b>+22.0</b>	<b>x</b>



Table 2 (continued)

Thousands

Area	1977-based series				1979-based series			
	Initial county proposals	Adopted county assumptions	Difference <sup>1</sup>	Rank <sup>2</sup>	Initial county proposals	Adopted county assumptions	Difference <sup>1</sup>	Rank <sup>2</sup>
Cambridgeshire	+53.5	+44.6	+8.9	26	+51.9	+51.1	+0.8	39
Norfolk	+49.1	+43.0	+6.1	29	+48.4	+45.4	+3.0	27
Suffolk	+51.5	+35.4	+16.1	11	+36.5	+35.5	+1.0	36
<b>East Anglia</b>	+154.1	+123.0	+31.1	x	+136.8	+132.0	+4.8	x
Bedfordshire	+6.8	+4.7	+2.1	45	-4.6	-4.6	0.0	45
Berkshire	+17.3	+12.5	+4.8	34	+36.2	+35.7	+0.5	40
Buckinghamshire	+80.1	+52.5	+27.6	6	+59.1	+49.1	+10.0	15
East Sussex	+79.0	+48.0	+31.0	3	+79.0	+64.5	+14.5	9
Essex	+73.2	+43.0	+30.2	4	+18.0	+33.5	-15.5	8
Hampshire	+67.9	+28.0	+39.9	2	+60.9	+42.4	+18.5	6
Hertfordshire	+15.0	+6.0	+9.0	25	+0.8	+0.8	0.0	45
Isle of Wight	+18.4	+14.4	+4.0	35	+18.9	+18.4	+0.5	40
Kent	+24.0	+11.0	+13.0	16	+13.6	+18.6	-5.0	23
Oxfordshire	+36.8	+18.0	+18.8	10	+11.8	+11.4	+0.4	42
Surrey	-3.0	-14.4	+11.4	20	+51.2	+25.7	+25.5	4
West Sussex	+104.3	+74.8	+29.5	5	+90.8	+80.0	+10.8	14
<b>Rest of South East</b>	+519.8	+298.5	+221.3	x	+435.7	+375.5	+60.2	x
Greater London	-459.6	-705.0	+245.4	1	-485.8	-525.0	+39.2	2
<b>South East</b>	+60.2	-406.5	+466.7	x	-50.1	-149.5	+99.4	x
Avon	+23.1	+17.4	+5.7	31	+15.0	+13.5	+1.5	32
Cornwall	+40.3	+36.3	+4.0	35	+37.9	+37.7	+0.2	44
Devon	+90.0	+74.8	+15.2	13	+108.0	+94.5	+13.5	10
Dorset	+77.4	+64.9	+12.5	18	+63.2	+69.0	-5.8	19
Gloucestershire	+12.8	+15.4	-2.6	41	+11.6	+20.4	-8.8	17
Somerset	+36.0	+27.5	+8.5	27	+27.6	+26.5	+1.1	35
Wiltshire	+28.3	+22.2	+6.1	29	+23.9	+22.4	+1.5	32
<b>South West</b>	+307.9	+258.5	+49.4	x	+287.2	+284.0	+3.2	x
<b>England</b>	+467.3	-283.4	+750.7	x	+192.4	-107.0	+299.4	x

<sup>1</sup>The + signs in the Difference column indicate that the initial county proposals were higher than the adopted assumptions. Conversely the - signs indicate that the initial county proposals were lower than the adopted assumptions.

<sup>2</sup>The ranks are based on the absolute values in the Difference column for counties only, ranging from "1", the largest difference, to "46", the smallest difference.



---

# The second generation of MOD manpower models

D H Baillie, Statistician, M H Fletcher, Statistician,  
and Dr M T R Blackwell, Senior Assistant Statistician, Ministry of Defence

---

## Introduction

During the last four years the Ministry of Defence has devoted considerable effort to the development of three manpower modelling systems. Each of these systems is a suite of computer programs of sufficient generality to permit the modelling of any MOD manpower structure; this removed the need to develop three separate systems for each of the Armed Services. For convenience the systems are referred to as models, although strictly speaking they do not become models until supplied with all the necessary data.

Now that the development of these models is nearing completion, and the Armed Forces and MOD civilians will soon have a common, sophisticated modelling capability, it seems an appropriate time at which to take stock. This article summarises how the developments came about, what the models will be able to do, and the ways in which MOD manpower statisticians intend to use them. It concludes with some conceptual problems in making the most of these new tools.

## Historical background

The Defence Statistics Organisation has five branches concerned with manpower forecasting for the Services and Civilians, primarily for planning and costing purposes. In 1976 a study was carried out to evaluate the manpower modelling and forecasting methods employed by these branches. It revealed that a wide variety of methods and computer programs were in use, but were requiring increasing effort to adapt to continually changing circumstances. The models in use could be classified into three basic types, viz simulation, optimisation and steady state.

One of the conclusions of the study was that the MOD ought to have a version of the Civil Service Department's KENT model, which is a computer program for the deterministic simulation of a wide range of manpower structures. It was established that a single version would be capable of simulating defence manpower structures of the required size and complexity without over-extending the capacities of the target computers. Building on KENT concepts, specification work started in 1977 and the result, known as Manpower Simulation Model (MSM), is now ready for use.

The early work on MSM led to the conclusion that generalised versions of the other two main types of MOD model would also be of great value. Resources that had

been committed to developing a single service manpower optimisation model were promptly redeployed on a generalised optimisation model: it was realised early in 1978 that the latter would prove to be no more difficult to design and yet would provide the other Services with a similar modelling capability. This second system is called the Manpower Optimisation Model (MOM). It will be used by the manpower planner to determine the set of policies that is 'best' (as defined by the user) at moving particular features of a manpower system towards given targets in a given time-span subject to given linear constraints.

The third system, called Manpower Steady State Model (MSS), was derived from the second. In effect it is MOM reduced to a time-span of one year and controlled so that there is no net change in the strengths in each part of the manpower structure. This system will find the set of manpower strengths that may best (again, as defined by the user) be maintained within given constant linear constraints. It is believed to be a unique application of linear programming (LP) to manpower modelling and yet, because of its similarity with MOM, will have needed only about 25 per cent – 30 per cent as much effort as MOM to implement. MOM and MSS are expected to be in use from mid-1981.

## Common features of the new models

All of the models being developed have been designed from the outset as 'generalised' models, that is to say they are not dedicated to modelling a particular manpower structure. Every manpower model implicitly makes some assumptions about the structure of the organisation being modelled, but with a generalised model these assumptions are contained solely within the input data and not in the computer program.

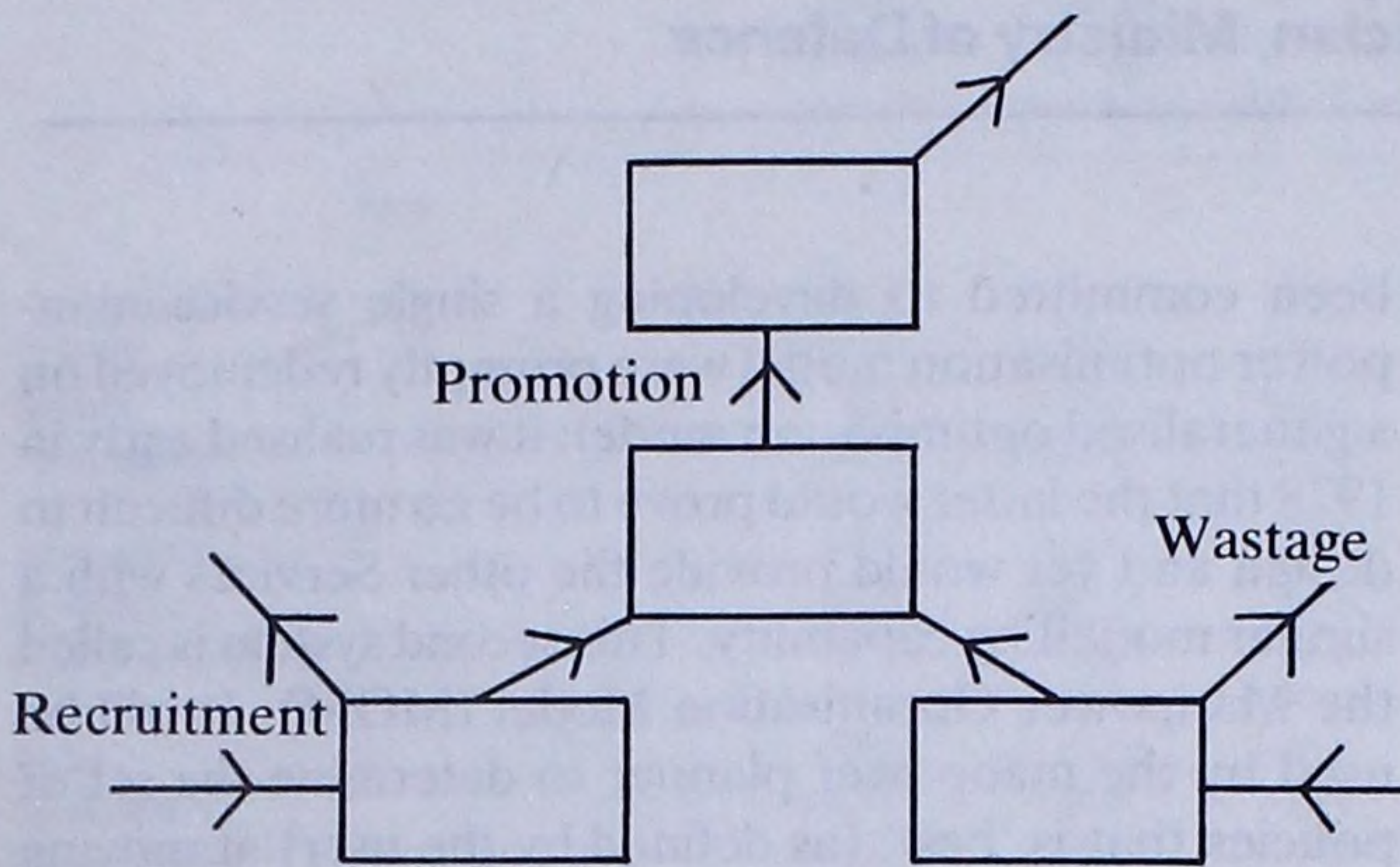
---

## Acknowledgements

The authors acknowledge, with thanks, the contributions to the specifications of the models made by other members of the Defence Statistics Organisation, in particular the initial ideas of M J M Mays and D C Snell leading to the development of MOM and MSS.



It is customary to represent the manpower structure being modelled in the form of a 'boxes and arrows' diagram e.g.

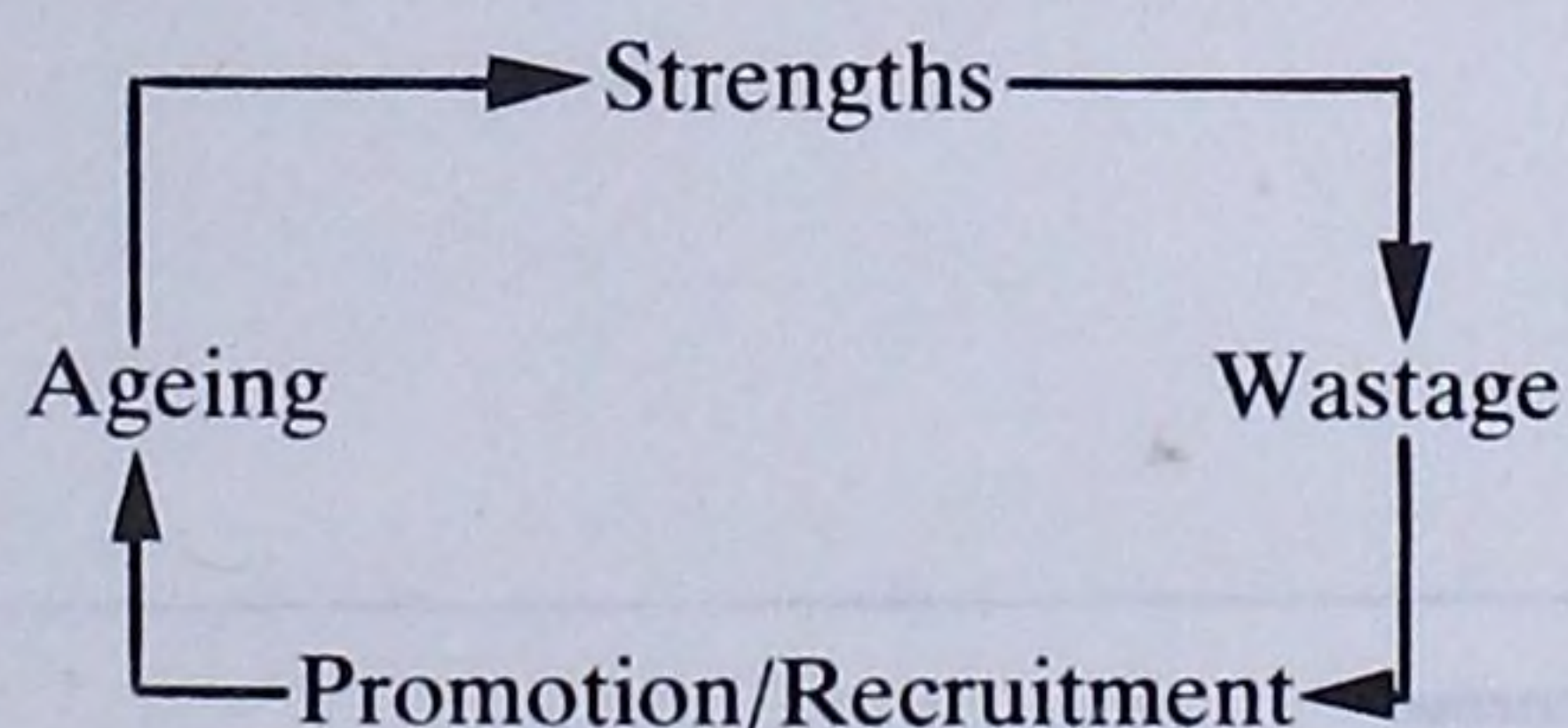


This diagram represents a very simple manpower structure. Each of the boxes represents a different grade in the organisation. The arrows represent the various wastage, promotion, (including demotion, transfer, etc) and recruitment flows that operate in the organisation. The input data for the model of this structure would include the number of grades and the number and location of the wastage, promotion and recruitment flows.

Generalised models offer considerable advantages over dedicated models from the point of view of program maintenance, and they are also much more flexible. For example, problem areas can be modelled in more detail without requiring irksome alterations to computer programs.

However, generalised models do have disadvantages. They are usually more expensive to run than dedicated models, and always require more input data to model a particular manpower system in the same detail. The range of modelling facilities available in a generalised model is restricted to those that can where appropriate be combined to produce sensible results.

Each model calculates the manpower flows over discrete steps of time, referred to as 'cycles'. In practice, these usually represent years or quarters. Within each cycle the various calculations are performed in the following order:



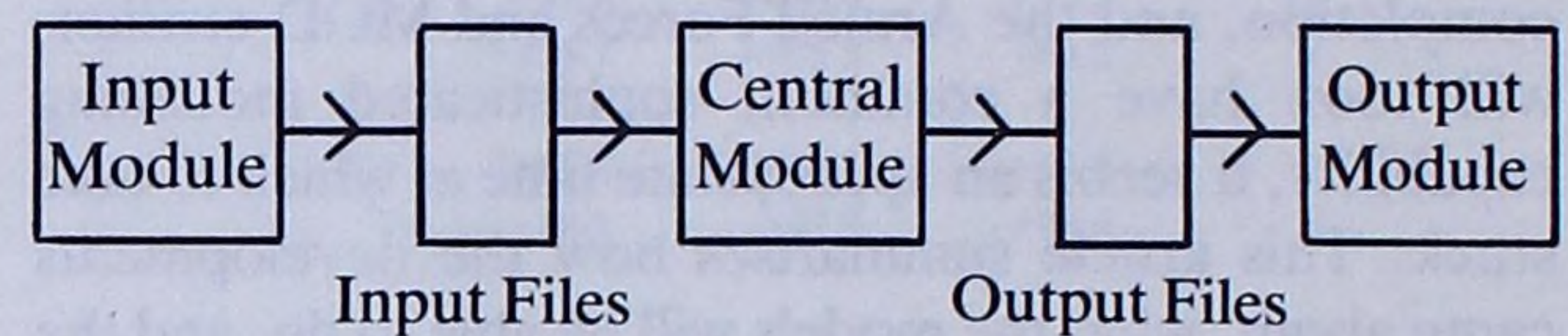
In MSM this order of calculation is explicit, but for MOM and MSS, which solve simultaneous equations,

the order is implicit in the construction of those equations.

The input data for the models is classified by some time-dependent variable such as age or length of service. For brevity this will always be referred to as age. Classification by age depends on the length of the cycle, e.g. a model with quarterly cycles requires data classified by age in quarters. The data may differ from cycle to cycle to allow for planned changes in policy.

All the modelling calculations are performed deterministically using aggregate data, and so no record of individual behaviour is kept by the models. Also, the results are the expected values of strengths and flows conditional on earlier strengths, and are not necessarily whole numbers.

Each model has three main parts, described as modules, linked by computer files as shown in the diagram below:



The Input Modules receive data which is then converted into standard form. Some of the data are received direct from computerised personnel record systems. The remainder are supplied by user branches after they have agreed with their customers on certain assumptions that need to be made. The Central Modules carry out the modelling calculations and produce raw results. The Output Modules collate and process these results to produce selected tabulations and graphs. Each MOD Manpower Statistics branch will have its own version of each of the Input and Output Modules tailored to its data sources and output requirements. The Central Modules are of a common design, though there are different versions on different computers.

### Manpower Simulation Model (MSM)

MSM is designed to answer the question "What will happen in the manpower system if a particular set of policies is implemented?" It does this by simulating activity in the system in an assumed manpower climate. The policies are expressed in terms of detailed rules governing the various flows in the models.

MSM can be used for the following purposes:

1. Forecasting the short- and medium-term effects of current manpower policies and trends.
2. Identifying any problems that are likely to occur.
3. Evaluating corrective measures and alternative policies.



The data for each grade in the model include starting strengths and, where appropriate, strength targets for the whole of the forecast period. Particular groups of grades may also be given targets, so that actual grades in the organisation can be divided into distinct categories in the model whilst the grade still has an overall target strength.

The data for each of the wastage flows consist of either wastage rates or numbers of leavers, and several wastage flows may be specified from the same grade in order to identify different types of leaver in the model's results. Both MOM and MSS have similar wastage facilities.

The data for each of the promotion and recruitment flows consist of two main items. The first governs how the strength of the flow is to be calculated, which defines three categories of flows:

- a. The Pull flow, which fills vacancies in the higher grade (eg the flow fills 10% of the vacancies in grade X).
- b. The Push flow, which promotes a given proportion of staff in the lower grade (eg the flow promotes 10% of the staff in grade Y).
- c. The Predetermined flow, which promotes a given number of people.

The second item of data specifies which people are to be promoted; in an aggregate model this is simply the spread of staff across the age categories. There are three methods of spreading a flow:

- a. Promotion quotas, which specify the proportion of the total number of promotees that are to be taken from each age category.
- b. Promotion weights, which specify the relative size of the promotion rates in each age category.
- c. Promotion targets, in which the promotees are selected so as to bring the age distribution of the strengths in the higher grade closer to a given target.

Different methods for calculating the size and the age spread of a flow may be combined as required. For each flow it is possible to specify size constraints, and what is to happen if there are not enough people available for promotion.

MSM performs the calculations within each cycle in the standard order – wastage, promotion and recruitment, and finally ageing. The cycles are dealt with chronologically, so MSM does not anticipate future problems.

The outputs from MSM consist mainly of the numbers of people in each grade at the beginning of each cycle, and the number of people involved in each of the flows during each cycle. Where appropriate, outputs are classified by age. The results may be aggregated and tabulated for presentation by the Output Module.

### **Manpower Optimisation Model (MOM)**

MOM is used to determine which policy will most closely achieve a given set of objectives. Simulation can not answer such a question directly, but linear programming often can.

Most manpower systems can be modelled by linear equations in grade strengths, flow strengths and other variables. For example, the strength of a grade in a given year is simply the strength of that grade in the previous year less out-flow plus in-flow, all scaled down to allow for wastage. Objectives, too, can usually be framed in linear terms: one example is that a grade strength should be less than a certain value, another that two flow strengths should be in a certain ratio. So it is normally possible to represent the behaviour of manpower structures over a period of time by a set of linear equations and inequalities. However, if a practical problem were to be solved in this manner the equations would almost invariably have an infinite number of solutions or be inconsistent, neither of which would generally be of much use to a manpower planner.

In practice, requirements are not always rigid and it is the more flexible ones that give meaning to the term optimisation. Requirements which are inflexible and must be satisfied precisely (eg a strength must be less than one hundred) are called hard requirements. Requirements which are flexible and need not be satisfied precisely (eg a strength should be as close as possible to one hundred) are called soft requirements. Obviously, any policy which fails to satisfy all the hard requirements placed upon it is unacceptable to the manpower planner. However, a policy which satisfies all the hard requirements but does not precisely satisfy some or all of the soft requirements merits consideration. Of these policies, the one which comes 'closest' to precisely satisfying all the soft requirements may be regarded as the optimal policy.

In MOM an objective weight is associated with each soft requirement, and these weights reflect the degree of importance the user places upon each. A policy which fails to satisfy a soft requirement precisely incurs a penalty equal to the size of the discrepancy multiplied by the objective weight. The total penalty incurred by a policy is thus a linear combination of weighted discrepancies, and is therefore a suitable objective function for a linear programming problem. If it is possible to satisfy all the hard requirements, MOM will seek to minimise this objective function and so produce the best policy.

Since the LP package solves the equations simultaneously, there is no chronological order to the calculations. This contrasts with the sequential nature of the MSM calculations, and gives MOM the power to anticipate problems and to find a suitable balance of policies across the whole forecast period.



In order to use MOM, the user must input the basic data as required by MSM together with the hard requirements, and the soft requirements with their objective weights. MOM will then either produce an optimal policy in terms of grade strengths and flow strengths, or an infeasibility report which indicates that the hard requirements placed upon the structure are either inconsistent or too severe to be achieved from the starting position.

### **Manpower Steady State Model (MSS)**

MSS is used to shed light on the long term implications of manpower policies. It does this by producing, where possible, the steady state strengths that most closely achieve a fixed set of requirements. A set of grade strengths and flow strengths are in a steady state when they recur each cycle; normally, steady states are based on an annual cycle.

Linear programming is used by MSS in much the same way as it is used by MOM. The concept of an optimal policy subject to hard and soft requirements is the same as for MOM, but there are two principal differences. Firstly, in MSS all strengths are assumed to be constant and therefore equal over time. Secondly, the steady state is independent of the current state of a given manpower structure so, unlike MSM and MOM, MSS does not require start strengths data.

If a run of MSS results in an infeasibility report it means that the hard requirements cannot be satisfied by an unchanging policy. On the other hand, if an optimal steady state policy is produced it will generally be unique. A run of MOM over a long forecast period with constant requirements should result in a very similar long term policy to that obtained by an equivalent MSS run, but the latter run would be much cheaper. A run of MSM under similar conditions will also converge to a steady state but this will probably not reflect the user's preferences.

MSS represents a considerable advance over existing steady state models, in that it can cope with a far more general class of manpower structures.

### **Other Roles for the Models**

Described above are the types of question each of the three models is designed to answer when used in isolation, and often this is how the models will be used. However, MOM generates large LP problems that are relatively expensive to solve. Hence it is expected that it will be used in a broad pathfinder role, with the consequences of its policy recommendations being examined in greater detail using MSM.

Another pairing of the models being considered is MSS with MOM, but this is less straightforward. Suppose that a number of sets of policy options have similar MOM objective function values over an n-year

plan. One might be inclined to discriminate between the options on the basis of how easily the manpower systems could be moved towards the steady state thereafter. A rough method is to discriminate on the basis of how closely the manpower policies can achieve the targets of the first n years together with the steady state in year n+1. This can easily be done by running MSS and then setting up an (n+1)-year MOM run with the steady state strength targets in the final year. In general, though, it must be sub-optimal to use the strengths from a run of MSS as part of the target for MOM when both models optimise separately. It remains to be seen whether a jointly optimal model which produces LP formulations of practicable size can or needs to be constructed.

### **Some Conceptual Problems in Manpower Modelling**

Although we are pleased with the programme of rationalisation and generalisation of Defence manpower models there remains much for us to learn in the field of optimisation. For example, what relevance to the real world does the steady state have when it is independent of the time and disruption necessary to reach it from current manning levels? One might reply that it is a useful diagnostic tool which indicates whether a set of policies is desirable in the long term. However, in this technological age little remains the same for very long, so would a more useful target be a steady state that is closer to and more quickly attainable from current strengths? If so, how much closer and how much more quickly?

Turning to MOM (including MOM with steady state targets in later years) it is difficult to conceive of circumstances that justify constant objective weighting from year to year of a plan. Different year to year weighting schemes derive from different attitudes to planning; indeed, arguments have been advanced for the weights to be decreasing (both in a harmonic and geometric sense), monotonic increasing and unimodal! Arguments in favour of decreasing weights derive from the decreasing precision of forecast requirements as one looks further into the future. Monotonic increasing weights are argued from the need to concentrate more on achieving the future steady state requirements, as currently perceived, than on dealing with short term problems. The unimodal argument is loosely based on the arguments for decreasing weights, but modified to allow for the fact that often little can be done in the short term to alleviate manning problems; this is particularly true for the Armed Forces, where recruitment is confined to the lower ranks. Although the type of weighting scheme appropriate to a particular application may be clear to a user, he may find it very difficult to determine the precise values of the weights.

When the optimisation and steady state models become available, we hope that empirical results will indicate how to use the models to best effect.



---

# Employment and defence

Chris Pite, Statistician, Ministry of Defence

---

## Introduction

The economic statistics branch of the Defence statistics organisation has been attempting to improve methods of estimating the employment effects of defence expenditure in the United Kingdom, particularly that related to the Defence equipment programme. The purpose of this article is both to give some of the results of the work and to present a comprehensive estimate of all employment generated by past defence expenditure in the United Kingdom for which the relevant base data are available.

The sources and methods used are described and, because interest in the results of the calculations lies in the changes in employment that are revealed, a brief assessment of the movements that have occurred between 1963 and 1978 is given. A preliminary estimate of employment in 1979, based on information available at the time of writing, is also provided.

## Scope of estimates and Definitions of concepts

The estimates cover both direct and indirect employment generated by expenditure in the United Kingdom from the Defence Budget and employment generated by overseas sales of defence equipment. *Direct employment* comprises:

- a. *Service personnel*, that is the members of the Regular Forces normally recruited in the United Kingdom for service world-wide.
- b. *Civilian personnel*, both industrial and non-industrial, who are paid from MOD Votes and are UK-based. UK-based civilian staff are those recruited in the United Kingdom even though in some cases they may be serving overseas. Employees of HM Dockyards and other MOD industrial establishments are included but staff at the Royal Ordnance Factories (ROFs), whose costs are borne on a trading fund, are excluded (see (c) below).
- c. *Employees in manufacturing, service and construction industries*, defined as job opportunities directly generated by MOD expenditure in the United Kingdom, and the export of defence equipment, with UK contractors including the ROFs. This sector covers the employment of defence contractors both in the defence and in other industries. Defence industries are for the purpose of calculation confined to the chemical industry and the engineering and allied products industries (Orders V to XII of the Standard Industrial Classification, 1968) from whom the bulk of weapons and warlike stores, and their specialised

components, for the equipment programme are purchased. Other industries in which defence expenditure generates employment are those where defence purchases are little different from those of the civilian market.

*Indirect employment* constitutes the number of job opportunities created by the purchase of inputs by the defence and general manufacturing industries in furtherance of their production for the Defence Budget. It relates to employment at sub-contractors, at firms supplying sub-contractors, and so on. Thus indirect employment is that generated by the intermediate output as defined in input-output analysis. It is not related to the cost accountant's definition of indirect employment, frequently used in industry, which distinguishes work which can be identified with individual products (direct) from work on management or support services which is spread over a range of activities.

Indirect employment however excludes all employment generated by the consumers' expenditure of the employees, and their households, whose wages and salaries were either paid directly from the Defence Votes or by the employing contractors from whom equipment is purchased through spending from Defence Votes. Expenditure of this kind is related to the so-called multiplier effect of government expenditure but the employment so generated is not included in our estimates.

The numbers directly employed by the MOD can be obtained from administrative records. Due allowance has to be made for the changes in scope of the activities, and therefore civilian employees, of the Ministry of Defence over time. Likewise the employment within the ROF organisation, though here a division has to be made between employment generated by MOD contracts and that by sales for export and other non-MOD work.

## Sources and Methods used

Service and civilian manpower numbers are compiled from the pay and records computers and from manual returns. Data for the UK-based civilians have to be separately identified from those of the locally-engaged civilian personnel (those recruited overseas). The numbers of all these employees of the Ministry are continuously updated to account for changes as they occur.

The numbers of employees in industry directly engaged on defence work cannot be derived from such routine administrative means. The Department of Employment conducts a monthly sample survey of



employment in manufacturing industries (the so-called L return). Up to and including 1973, the survey form for November of each year included a question asking employers to state the number of their workers who were 'engaged on defence work'. The figures produced from this question were of doubtful value. There was no way of checking that the question had been satisfactorily or comprehensively completed. No distinction was required to be drawn between work for the MOD, for the Ministry of Technology, for the Ministry of Aircraft Production, and work for export, nor was a distinction made between prime contract and sub-contract work. Figures produced from the analysis of this question showed a decline in employment which was not compatible with the values of Defence equipment expenditure and almost certainly resulted from the inadequate response to the question rather than any true decline in employment opportunities in defence industries. After 1973, the question was dropped from the survey.

Early in 1976 a scheme for the Ministry of Defence to instigate its own survey of employment in defence industries, by means of questionnaires sent to known Defence contractors, was considered but was not pursued. It was not thought appropriate to add this additional form filling burden on industry before the maximum use had been made of data that could be extracted from existing regular returns already supplied to the Government Statistical Service, or available within the MOD accounting system.

This decision came at a time when payments to Defence equipment contractors were being centralized on one computer system at Liverpool, commencing with the financial year 1976/77. This system can analyse the payments of bills to Defence contractors according to the industrial classification because each individual contract is allocated to a particular industry, as defined in the Standard Industrial Classification, according to the nature of the goods or services to be supplied. All payments against that contract are then recorded to that industry, irrespective of the actual industry to which the establishment supplying the goods may be classified in other official statistics. In practice, the majority of the commodities produced by manufacturing industry are produced at establishments classified to the industry for which the commodity is a 'principal product'. For the purpose of these calculations, it is assumed that where this is not the case the adjustments between industries that should be made will balance out. In this analysis also the VAT element in total Defence expenditure has to be excluded because the data on the value of industrial output and sales, discussed below, excludes VAT.

Having obtained an industrial analysis of Defence contract expenditure, the expenditure with each industry is divided by a measure of productivity per

employee for the same industry to yield an estimate of employment generated by the Defence contract expenditure. The estimates for each industry can then be summed to obtain an estimate of direct employment generated in total. Payments made by the MOD in any financial year relate to work done by contractors over widely varying time periods but studies within MOD finance branches indicate that the average delay between work done and payments made is about three months. We therefore assume that calendar year productivity data can be related to MOD expenditure in the financial year starting in April of the same year. The first estimates of this employment were calculated through use of calculated measures of gross output per employee obtained from all manufacturing establishments reporting to the Annual Census of Production (ACOP), analysed by the Business Statistics Office (BSO) each year.

Because of shorter production runs, more exact quality control and other special factors, Defence contractors are thought to exhibit different productivity patterns than the general run of manufacturing establishments in any one industry. For this reason defence-specific measures have been calculated for the nine major defence equipment manufacturing industries which account for over 85 per cent of expenditure from the equipment programme. The measures, aggregates for each industry of total sales (excluding merchant goods) per employee of identified Defence contractors, were calculated from information supplied by the Business Statistics Office under the Statistics of Trade Act, 1947. For the years 1972 to 1974 the data came from the ACOP and from 1975 information has been taken from the Quarterly inquiries into manufacturers' sales. The variation between the productivity of the identified defence contributors and of all establishments in the industries concerned is shown in the following table:

*Table 1*  
**Sales per employee: 1978**

Industry	MLH	£	
		Defence contractors	All establishments
Scientific & industrial instruments	354	10,290	11,250
Electrical engineering	Order IX	12,950	13,640
of which -			
Telegraph & telephone equipment	363	11,520	9,690
Radio & electronic components	364	11,410	10,130
Radio, radar & electronic cap goods	367	12,720	12,710
'Other electrical goods'	369	10,940	11,790
Shipbuilding & marine engineering	370	8,150	9,730
Aerospace equipment	383	12,780	12,730

If it had not been possible to extract data on Defence contractors, and productivity measures for the industry as



a whole had been used, then the estimated level of direct employment generated by the Defence equipment programme in 1978 would have been about 8,000 job opportunities less. No defence-specific measures have been produced for other industries identified by the Accounts' computer analysis as affected by Defence contracts. Up to 1978 the productivity measure used has been average sales (net) per employee for each industry derived from published ACOP data. For provisional estimates of employment in 1979, the 1978 ACOP data have been updated by changes between 1978 and 1979 in published quarterly inquiries data for each industry.

Sales per employee have been used to measure productivity, rather than gross output, mainly because they should relate to the same money flows as the payments recorded as Defence expenditure and therefore be more suitable for apportioning employment to the Defence expenditure with a particular industry. This remains true even when MOD expenditure takes the form of progress payments which are included in the values of 'Sales and work done' recorded by the BSO.

For the equipment programme, it is assumed that expenditure is restricted to SIC Orders V to XII and that, in the explosives and fireworks industry (MLH 279.3), defence purchases are restricted to the ROFs classified to that industry. It is also assumed that *all* the production of the ROFs and the Defence contractors classified to the Ordnance and small arms industry (MLH342) is either purchased by the MOD or exported. The industrial analysis of the MOD payments made by Defence Accounts, Liverpool, after adjustment for identified payments in foreign currency, has been assumed to be the same as that of all payments made in the United Kingdom that are included in the equipment programme. The industrial pattern of payments within the programme, made by other MOD paying agents, has to be assumed to be similar to the Liverpool payments made outside the programme. The identification of these payments has been made easier, with effect from 1977/78, by the production of an annual analysis of *all* payments against the Defence Procurement Votes (Class 1, 2 from 1979/80), according to the paying unit. This analysis gives details for each Vote, subhead, and ledger heading which facilitates industrial allocation.

Employment in the United Kingdom in 1977 and 1978, generated by the equipment programme for 1977/78 (£2,234M) and 1978/79 (£2,603M), and analysed by industry group, was estimated as follows:

Table 2  
Estimated direct employment generated by Defence UK equipment programme, 1977 and 1978

Industry Order and Minimum List Heading	number	
	1977	1978
V Chemicals manufacture <sup>1</sup>	300	300
VI Metals manufacture	400	400
VII Mechanical engineering		
Ordnance and small arms (342) <sup>2</sup>	16,200	12,900
Other mechanical engineering	6,200	7,000
VIII Instrument engineering	7,600	9,200
IX Electrical engineering		
Radio and electronic components (364)	4,100	5,100
Radio, radar & electronic capital goods (367)	31,000	34,800
Other electrical engineering	8,800	9,400
X Shipbuilding and marine engineering	46,600	44,800
XI Vehicle manufacture		
Aerospace equipment (383)	80,300	87,900
Other vehicles	6,900	6,000
XII Metal goods n.e.s.	1,200	1,000
<b>Total</b>	<b>214,700</b>	<b>218,800</b>

1. Excluding the explosives industry (MLH 279.3)

2. Including the Royal Ordnance Factories manufacturing explosives and propellants, classified to MLH 279.3

Estimates of employment within individual industries are shown in order to give a complete picture of the process of estimation but no great weight should be given to these, especially the year to year changes. The overall total estimated employment for each year's equipment programme is considered to give a reasonable estimate of the job opportunities in industry directly generated by the expenditure.

Direct employment generated in the United Kingdom by the export sales of defence equipment in 1977/78 (£800M) and 1978/79 (£850M) was estimated as follows:

	1977	1978
Exports of Ordnance and small arms	11,800	14,900
Exports of other defence equipment (mainly aerospace, warships, electronics)	66,800	54,100
<b>Total exports of defence equipment</b>	<b>78,600</b>	<b>69,000</b>

The drop in employment generated by the export of 'other defence equipment' arose from a fall of over 14,000 in shipbuilding which was partially offset by increases in other industries.

A substantial amount of Defence expenditure on goods and services occurs outside the equipment programme such as purchases of food, fuel, clothing; construction work; inland transport and professional services. The analysis of this expenditure prepared for the Central Statistical Office's input/output analysis, described below, has enabled us to estimate direct employment generated by this other Defence expenditure at about 100,000 in 1978.



The estimation of indirect employment is made by the use of the input-output tables (which could also be used to produce estimates of direct employment) published periodically by the CSO. These tables show for each industry its sales to final buyers and its purchases from other industries. Given that purchases support these sales to final buyers (the final demand), it is possible to manipulate the table to deduce what purchases from other industries would be required to meet this demand. Accordingly, taking a particular pattern of defence demand, it is possible to add to the direct demand on industry the induced demand on other suppliers, thus getting the total demand on industry. This induced demand on other suppliers generates the indirect employment mentioned above. This analysis is done by industry (MLH) according to the Standard Industrial Classification. By using estimates of employment per unit of output within each of the industries covered, the estimates of total demand lead to estimates of average total (direct plus indirect) employment generated by a given level of defence expenditure.

An analysis of defence purchases by commodity group using the Vote/subhead structure is prepared in MOD only in certain years. It is done at the request of the Treasury and the CSO who need it for the preparation of the input-output tables. The latest available analysis is for 1974-75 so that for later years this analysis has had to be pro-rated by using the percentage increase from year to year in defence current expenditure on goods and services. A number of adjustments are made to the analysis of defence expenditure to make it conform to the CSO's input-output definitions. In particular, indirect taxes such as VAT have to be deducted and the wages and salaries of some staff in certain MOD industrial establishments have to be added because the output of these establishments is treated as a purchase by 'Military defence' from an industrial sector.

The input-output tables used are those for 1972, the latest so far published. Input-output coefficients change over time, but relatively slowly. However those for 1972 were not based on full CSO recalculations of inter-industry coefficients for that year but, in part, used statistical techniques to update the detailed 1968 tables. The use of such out-of-date coefficients must invalidate some of the individual industry estimates for recent years such as 1978-79, but it is probable that the overall ratio of direct to indirect employment is not seriously adrift.

Estimates produced by the input-output method for each of the years 1974-75 to 1978-79 inclusive all suggest a ratio of direct to total defence-related employment of the order of 1 to 1.8. This ratio does however vary between different types of defence expenditure being higher for equipment and construction and lower for other goods and services purchased by the MOD. A

convenient way of producing an estimate of total employment consistent with the direct employment estimates described elsewhere in this article is thus to multiply the latter by 1.8. This may in fact give a more reliable result than using directly the figures obtained from the input-output calculations, since these only use estimates of employment per unit of output in the whole economy whereas the sales per employee estimates described above relate specifically to defence contractors in many industrial sectors, as explained earlier. Application of the ratio to the direct employment total for 1978 suggests indirect employment of around 260,000. This estimate relates both to the equipment programme and to other types of expenditure described above.

As a result of these calculations, total industrial employment directly generated by Defence expenditure in the United Kingdom, and by the exports of defence equipment, is estimated to have amounted to 388,000 job opportunities. The indirect employment from the same expenditure will have amounted to some 325,000 making a total of 713,000 job opportunities in the United Kingdom. The details are given in Table 3 below.

#### **Movement between 1963 and 1978**

Changes from year to year in the estimates of employment generated by defence expenditure are only gradual and, on the whole, well within the margin of error of the annual estimates themselves. In order to illustrate the changes that have taken place it is necessary to make a comparison over a longer time span. For this article we have chosen to compare 1963 with 1978. 1963 has been chosen because an analysis of Defence expenditure, by industry, was prepared for the Treasury/CSO use for the input-output tables in respect of the financial year 1963/64. Because of the absence of the more sophisticated analyses on contract expenditure for 1963/64, the employment estimates for 1963 depend on the input-output analysis, and on measures of output per employee related to all establishments in the industries concerned, and must be subject to wider margins of error than those for 1978. The value of exports of defence equipment in 1963, which lies behind the estimate of direct employment generated by these exports, is only a rough estimate but is the best available. Because the studies of the indirect employment generated by Defence expenditure, carried out by the economists in the Ministry of recent years, found that the ratio of total employment to direct employment changes very little over time, the estimates of indirect employment for 1963 and 1978 have been calculated using similar ratios.

The present Ministry of Defence was created on 1 April 1964 and absorbed the Admiralty, War Office, Air Ministry and Ministry of Defence. Since then the



responsibilities of the Ministry of Defence have not remained constant and there have been a number of transfers of staff between the Ministry of Defence and other bodies and departments. The principal transfers were from the Ministry of Aviation Supply on the setting-up of the Procurement Executive in 1971 and from the Atomic Energy Authority: these were offset by some works staff going to the Property Services Agency (DOE) and some canteen staff joining the Civil Service Catering Organisation (CSD). The net effect of these transfers was to increase the MOD staff by about 32,000 civilian employees between 1964 and 1978.

Comparing total employment (direct and indirect) generated by defence spending in the United Kingdom we estimate that there was a fall from 970,000 job opportunities in 1963 to 710,000 in 1978. These represent a fall from about 4.6 per cent to 3.6 per cent of employment in these industries in the same period. Between 1963 and 1978 the number of UK Service personnel in the Regular Forces decreased from 427,000 to 318,000 and the number of UK-based civilians employed by the Ministry of Defence also fell, from 299,000 to 226,000. Combining both the direct employees of the Ministry, and the total industrial employment involved in defence work, the total number of job opportunities in the United Kingdom is estimated to have fallen from some 1,690,000 in 1963 to 1,260,000 in 1978, a fall of between 400 and 450 thousand job opportunities. As a proportion of the working population of the United Kingdom, these estimates represent a fall from 6.7 per cent to 4.8 per cent over the fifteen year period. The details of these estimates, together with a preliminary estimate for 1979, are given in the table opposite:

The fall in numbers of regular Service personnel has come about through the reduction in the United Kingdom's world-wide commitments over the last fifteen years. This has been matched by a fall in the civilian employees of the Ministry of Defence whose numbers have also been affected by specific civil service wide staff cuts. The change in direct employment in industry generated by MOD expenditure on the equipment programme in the United Kingdom, which fell by some 40 per cent in the period considered, appears to have been the result of both a reduction in the real volume of the annual expenditure of some 25 per cent and an increase in productivity per employee of about 25 per cent between 1963 and 1978.

#### Acknowledgement

The author wishes to acknowledge the work of all those connected with the preparation of these estimates, especially R. F. Haselden, Economic Advisor in the Ministry of Defence; the assistance of the staff of the Business Statistics Office; and the helpful comments of colleagues during the preparation of the article.

Table 3

### Estimated defence employment in the United Kingdom, 1963, 1978, and 1979 MOD employees and industrial employment generated by defence spending

	thousands		
	1963	1978	1979
<b>MOD employees</b>			
UK Service personnel <sup>1</sup> (Regular Forces)	427	318	318
UK based civilians <sup>2</sup> (excl ROFs)	299	226	221
<b>Industrial employment<sup>3</sup></b>			
Direct employment			Pro-
MOD expenditure			visional
equipment programme (incl ROFs)	362	219	225
other spending (incl construction)	130	100	110
Exports of defence equipment	55	69	64
Total	547	388	399
Indirect employment			
MOD expenditure	379	263	276
Exports	40	62	58
Total	419	325	334
Direct and indirect employment	966	713	733
<b>Total</b>	1,692	1,257	1,272

1. Average strengths at beginning and end of financial year.

2. Average numbers of industrial and non-industrial civil servants employed at the beginning and end of the financial year. For 1963, the figure represents the combined employees of the Admiralty, War Office (excluding ROFs), Air Ministry and Ministry of Defence that were absorbed into the Ministry of Defence on 1 April 1964 plus the 32,000 (net) transfer of civilian employees between 1964 and 1978.

3. Average employment during the calendar year related to expenditure in the financial year.



---

## Recently available statistical series and publications

---

The following publications containing social statistics have recently, or will soon become available during October–December quarter of 1980. Unless otherwise specified, copies may be purchased from Her Majesty's Stationery Office. A list of release dates of economic series is published monthly in *Economic Trends*.

### Central Statistical Office

*Annual Abstract of Statistics No 117, 1981*

*Social Trends 11, 1981*

### Department of Education and Science

*Education Statistics for the United Kingdom 1978*

*Statistics of Education, Volume 6, 1977: Universities statistics 1977*

*Statistics of Education, Volume 2, 1978: School leavers and CSE/GCE Examination statistics 1978*

*Statistics of Education, Volume 5, 1978: Finance and Awards statistics 1978*

*Statistics of Education, Volume 1, 1979: Schools statistics 1979*

### Department of Employment

*Employment Gazette*, published towards the end of each month, contains indicators on earnings, unemployment and prices. Issues due in the fourth quarter will contain the Family Expenditure Survey results for the first and second quarters of 1980 and full results for 1979 (United Kingdom).

### Department of the Environment

*Housing and Construction Statistics 1969-1979*

*Housing and Construction Statistics*, June quarter Part 2 *Local Housing Statistics*. Issue 55: figures for the second quarter of 1980

*Housing and Construction Statistics*, September quarter, Part 1

### Home Office

*Statistics of Experiments on living animals, Great Britain 1979*

*Betting licensing statistics, Great Britain 1979-1980*

*Report and accounts of the Criminal Injuries Compensation Board 1979*

*Criminal Statistics, England and Wales 1979*

*Offences relating to Motor Vehicles, England and Wales 1979*

*Statistics of the criminal justice system, England and Wales 1969-1979*

*Probation and after-care statistics, England and Wales 1979*

*Offences of drunkenness, England and Wales 1979*

### Inland Revenue

*Survey of Personal Incomes 1978-1979*

### Office of Population Censuses and Surveys

*OPCS Monitors* available free from the Office of Population Censuses and Surveys include:

<i>Weekly Return</i>	WR	Weekly
<i>Births and Deaths</i>	VS	Monthly
<i>Legal Abortions</i>	AB	Monthly
<i>Deaths from Accidents</i>	DH4	Monthly
<i>Infectious Diseases</i>	MB2	Quarterly
<i>International Migration</i>	MN	Quarterly
<i>Deaths by Cause</i>	DH2	Quarterly
<i>Adoptions</i>	FM3	Annually
<i>Electoral Statistics</i>	EL	Annually
<i>Infant and perinatal statistics</i>	DH3	Occasional
<i>Population Estimates</i>	PP1	Occasional
<i>Census</i>	CEN	Occasional

### Annual Reference Volumes

*Population projections: area 1977-1991 Series PP3*

No 3

### Scottish Office

*Scottish Housing Statistics No 8*

*Scottish Housing Statistics No 9*

### Scottish Education Department

*Statistical Bulletin: Nursery Education*

*Statistical Bulletin: Qualifications of School Pupils and Leavers*

*Statistical Bulletin: Students in Vocational Further Education*

*Statistical Bulletin: Students in Non-Vocational Further Education*

*Statistical Bulletin: School Leavers*



## Department of Health and Social Security

In addition to the above, the following analyses in the Department of Health and Social Security statistical series have recently become available. Extracts and summaries from these will eventually be published in *Social Security Statistics*.

Further information can be obtained from:

Mr. R. J. McWilliam,  
Department of Health and Social Security,  
Room A2216,  
Newcastle Central Office,  
Newcastle upon Tyne NE98 1YX

## Unemployment benefit

Quarterly analysis of decisions of Insurance Officers,  
quarter ending 30 September 1980

Monthly analysis of claims by sex and region:

5 weeks ending 5.7.80

4 weeks ending 2.8.80

4 weeks ending 30.8.80

Quarterly analysis of registered unemployed by class, sex  
and region, quarter ended 7.8.80

## Child benefit

Monthly analysis of families and children, 3 months  
ended 31.7.80

## Sickness invalidity and injury benefits

Monthly analysis of weekly average of new claims by  
region: G.B.:

5 weeks ended 29.7.80

4 weeks ended 26.8.80

5 weeks ended 30.9.80

## Retirement pension and widows benefit

Number of widows receiving pensions  
or widows allowances,  
quarter ending 30.9.80



# New surveys assessed by the Survey Control Unit

## June to August 1980

For further information on the surveys listed, the appropriate departmental contact may be obtained from Mr R. C. Ponman (01-233 8583), Survey Control Unit, Central Statistical Office, Great George Street, London SW1P 3AQ.  
*An introductory note was given in Statistical News 36.41*

### New Surveys assessed June to August 1980

Title	Sponsor	Those approached	Approximate number approached	Location	Frequency
<b>Business surveys</b>					
Small Firms Service – awareness study	COI/DI	Small businesses	600	GB	AH
Youth Opportunities Programme	COI/MS	Employers	140	UK	AH
Office of Fair Trading Consumer credit publicity advertising regulations test	COI/OFT	Retailers	60	E	AH
Effects of closures on supplier firms	DEM	Manufacturers	1200	GB	AH
Economics of the UK medical equipment industry	DHSS	Engineering Companies	40	UK	AH
The timing and price aspects of engineering sales and orders	DI	Engineering Companies	450	UK	AH
Hotel and self-catering occupancy survey	HIDB	Hoteliers, Financiers	300	S	A
Agricultural Regulations 1978 – calculation of compensation value	MAFF	Surveyors	150	EW	AH
'Use of fungicides and insecticides on cereals' booklet readership survey	MAFF	Farmers	400	GB	AH
Labour shortages in the North-West – A case study approach	MSC	Engineering Companies	15	NW	AH
Employers computer training requirements	MSC	Employers	1000	GB	AH
Engineering ITB technicians in engineering	MSC	Engineering Companies	343	GB	AH
Off-the-job training facilities – Scotland	MSCS	Employers	100	S	AH
Study of industries in areas affected by oil development	SEPD	Manufacturers	150	S	AH
<b>Local authority surveys</b>					
Overseas students in further education establishments 1980	DES	Education Departments	48	EW	AH
Consumer study of old peoples homes – structure and regime	DHSS	Social Service Departments	100	EW	AH
Survey of the use of organic coagulant aids	DOE	Water Authorities	200	UK	AH
Reclaimed derelict land – interim return	DOE	Chief Executives	365	E	Y2
Evaluation of work introduction courses	MSC	Education Departments	150	GB	AH
Trainee teacher returns – Scotland	SED	Colleges of Education	12	S	A
Record of advance and other publicly owned factories	SEPD	Planning Departments	12	S	AH
<b>Other surveys</b>					
Survey of performance of dual flush WC's and associated drains	BRE	Households	2000	EM	AH
Lomond hills project – home interviews	CCS	Adults	100	S	AH
Speeding campaign (Northern Ireland)	COI/DENI	Drivers	32	NI	AH
Seat belt campaign	COI/DTP	Drivers		SE	AH
1980/81 Drink and drive campaign – animatic research	COI/DTP	Drivers	800	GB	AH
Pedal cycle campaign – animatic research	COI/DTP	Drivers	624	E	AH
Child pedestrian safety 1980/81 campaign development	COI/DTP	Children	140	GB	AH
RAF Aircrew press advertising pre-check	COI/MOD	Applicants	25	S	AH
Army 1980/81 campaign evaluation	COI/MOD	Youths	3000	EW	AH
RAF – fighter control enquirer research	COI/MOD	Applicants	200	GB	AH
Job centres – headline research	COI/MS	Employees	100	S	AH
Survey of large scale maps	COI/OS	Consumers	40	GB	AH
Study of different care provision for the elderly	DHSS	Patients	960	SE	AH
Family Income Supplement – lone parents and the 24 hour rule	DHSS	Claimants	1500	GB	AH
Research project on out of hours district nursing services	DHSS	Nurses	3411	EW	AH
Infants at risk in the East End of London	DHSS	Mothers	NK	SE	AH
Parents for children-family interviews	DHSS	Parents	50	SE	AH
Differential take-up of supplementary Pensions	DHSS	Elderly	840	S	AH
Development of Socio-dental indicators of treatment need	DHSS	Patients	600	E	AH
'Housing and construction statistics' readership survey	DOE	Readers	2500	UK	AH
Household survey in Hammersmith and Lambeth	DOE	Adults	750	SE	AH
Land reclamation project in North Staffordshire	DOE	Visitors	1500	WM	AH
'Commercial and Industrial Property statistics' readership survey	DOE	Readers	1875	UK	AH
Noise index trials	DT	Adults	600	E	AH
Accidents involving electric kettles	DT	Parents	31	UK	AH
M20/M26 before and after study	DTP	Drivers		E	AH



*New Surveys assessed June to August 1980 (continued)*

<i>Other Surveys (continued)</i>					
<i>Title</i>	<i>Sponsor</i>	<i>Those approached</i>	<i>Approximate number approached</i>	<i>Location</i>	<i>Frequency</i>
Survey of interpretive techniques at historic monuments	ETB	Tourists	2700	E	AH
Accommodation classification survey	ETB	Tourists	540	GB	AH
Visitor expenditure survey	HIDB	Tourists	7000	S	AH
Post-lingually acquired hearing loss and employment	MSC	Employees	500	GB	AH
Issues affecting the distributive industry over the next 15 years	MSC	Managers	100	GB	AH
Image of the hotel and catering industry – school pupils	MSC	Pupils/Applicants/Adults	6500	GB	AH
Youth Opportunities Programme – clients survey	MSC	Youths	3700	GB	AH
Survey on furniture labelling	OFT	Consumers	1200	S	AH
Optical character recognition field test	OPCS	Adults	600	GB	AH
Glasgow Rail Impact Study – hospital visitors survey	SDD	Visitors	1500	S	AH
– outpatients survey	SDD	Patients	1200	S	AH
– travel to work survey	SDD	Employees	8000	S	AH
Odeon roundabout subway attitude survey	TRRL	Pedestrians/Cyclists	400	SE	AH
North/South Wales bus experiment – user survey	WO	Passengers	4000	W	AH
Minor rural roads in Lampeter	WO	Owner occupiers	1000	W	AH
Motorcycle driver training evaluation project	WO	Drivers	200	W	AH
Integrated travel information timetable users	WO	Travellers	200	W	AH
Survey of first time purchasers of a motorcycle	WO	Drivers	NK	W	AH

LIST OF ABBREVIATIONS

*General*

ITB     *Industry Training Board*  
 NK     *not known*

*Frequencies*

A       *Annual*  
 AH     *Ad Hoc (or single time)*  
 Y2     *Every two years*

*Sponsors*

BRE     *Building Research Establishment*  
 CCS     *Countryside Commission for Scotland*  
 COI     *Central Office of Information*  
 DEM     *Department of Employment*  
 DENI    *Department of Employment (Northern Ireland)*  
 DES     *Department of Education and Science*  
 DHSS    *Department of Health and Social Security*  
 DI       *Department of Industry*  
 DOE     *Department of the Environment*  
 DT       *Department of Trade*  
 DTP     *Department of Transport*  
 ETB     *English Tourist Board*  
 HIDB    *Highlands and Islands Development Board*  
 MOD     *Ministry of Defence*  
 MSC     *Manpower Services Commission*

MSCS    *Manpower Services Commission for Scotland*  
 OFT     *Office of Fair Trading*  
 OPCS    *Office of Population Censuses and Surveys*  
 OS       *Ordnance Survey*  
 SDD     *Scottish Development Department*  
 SED     *Scottish Education Department*  
 SEPD    *Scottish Economic Planning Department*  
 TRRL    *Transport and Road Research Laboratory*  
 WO       *Welsh Office*

*Locations*

E        *England*  
 EM       *East Midlands*  
 EW       *England and Wales*  
 GB       *Great Britain*  
 NI        *Northern Ireland*  
 NW       *North West England*  
 S         *Scotland*  
 SE        *South East England*  
 UK        *United Kingdom*  
 W         *Wales*  
 WM        *West Midlands*



---

# Notes on current developments

---

## POPULATION AND VITAL STATISTICS

### Population Trends

The latest edition of *Population Trends*, the journal of the Office of Population Censuses and Surveys, was published in October. This latest issue contains the following articles:

#### *Recent demographic changes in the Republic of Ireland*

This article by Brendan Walsh of the Economic and Social Research Institute, Dublin, discusses the main changes that have occurred in the Irish demographic situation during the last two decades. It describes that by 1970 a substantial net inflow of population was being recorded, adding to the country's relatively high rate of natural increase, with the result that during the last decade Ireland had the fastest growing population in Europe.

#### *The age at which childbearing starts: a generation perspective*

This article by Jean Thompson of OPCS Population Statistics Division presents evidence of recent major changes in the age at which women have started childbearing. Statistics relating to different generations of women point the way to a typology of the age structure of fertility including identification of early and late patterns.

#### *Extending the electoral register canvass: a feasibility study*

One possible way of greatly improving the annual population estimates would be to enhance the annual electoral canvass of all households so that this gave an accurate enumeration of the whole population. This possibility has been considered by OPCS and this article by Valerie Roberts of OPCS Census Division reports on the work that has been done, findings, and conclusions that have been reached. The article explains why it has been decided not to pursue this approach further at the present time.

#### *Areas of rapid population growth 1961-71*

In each census since 1911 some information has been published about population change since the preceding census for areas as small as the ward or parish. This article by John Craig of OPCS Population Statistics Division outlines one of the many possible uses of this information. Wards and parishes with particularly large

population increases between 1961 and 1971 have been identified and some of their main features summarised.

In addition to these articles, the issue contains up-to-date statistics on population, births, marriages, deaths, migration and abortion.

#### Reference

*Population Trends 21* Autumn 1980 (HMSO 1980) (Price £3.00 net)

### 1981 Census of Population of England and Wales

The first stage of the 1981 Census field operations has been completed with the appointment of 110 Census Supervisors, the senior field grade responsible for the recruitment, training and control of some 2,000 Census Officers who, in turn, will eventually be similarly responsible for the 100,000 or so Enumerators.

A training course has been given to the Supervisors, dealing mainly with the recruitment of Census Officers (now under way) and their initial briefing and training, with particular attention paid to the Census Officers' first job of checking the central planning of Enumeration Districts to ensure that boundaries are clear and the workload for each Enumerator is reasonable. A further training course will be given in December when enumeration procedures will be explained, and the Supervisors taught how to present the enumeration training package for eventual transmission to Enumerators.

### Population projections

Published in October was an OPCS Monitor\* (reference PP2 80/1) which gives key results of the mid-1979 based population projections. Summary figures for England and Wales, Great Britain and the United Kingdom are provided together with a description of the underlying assumptions. Full details are available from the Government Actuary's Department†; a fuller set of figures will shortly be published on microfiche by HMSO: Population projections microfiche 1979-2019 (series PP2 no 11).

---

\*Copies available from:

Information Branch (Dept M)  
Office of Population Censuses and Surveys  
St Catherines House  
10 Kingsway  
LONDON  
WC2B 6JP

†Government Actuary's Department  
22 Kingsway  
LONDON  
WC2B 6LE  
Telephone: 01-242 6828



### Sub-national population projections

The Office of Population Censuses and Surveys is now updating the mid-1977 based population projections for the English regions, counties, London boroughs and metropolitan districts which were published in *Population projections: area 1977-1991* Series PP3 no 3 (HMSO 1980). Sub-national projections are produced biennially and the new series take the mid-1979 home population estimates as their starting point. They incorporate the latest views on the future levels of fertility, mortality and migration available at the time of preparation. As with previous projections abridged results will be released initially in two OPCS Monitors. Population projections for the English regions and counties at 1986 and 1991 together with the percentage change in population from mid-1979 will be issued in *OPCS Monitor* PP3 80/1. Similar data for the London boroughs and metropolitan districts will probably appear in *OPCS Monitor* PP3 80/2. Both Monitors will be obtainable, free of charge, direct from:

Information Branch (Dept SN),  
OPCS,  
St Catherines House,  
10 Kingsway,  
London WC2B 6JP.

More detailed results will be published in an annual reference volume, *Population projections: area 1979-1991* Series PP3 no 4, in the summer of 1981. This booklet will contain the starting population at 1979 and projections for the years 1986 and 1991 by five-year age-bands and sex for the countries of the United Kingdom, the English regions, counties and metropolitan districts. Some useful non-standard age-groups will also be given, for example 5-10, 11-15, 16-19, 16-64 for males/16-59 for females, 65 and over for males/60 and over for females, 18 and over, and 75 and over. Projections for the London boroughs will also be included but details of their presentation have not yet been finalised. As with previous volumes there will be a short commentary embracing the limitations of projections in general, the methodology and assumptions employed in the 1979 based series of projections and a discussion of the results. There will also be a table showing the projected numbers of births, deaths and natural change per annum in the periods 1979-86 and 1986-91 for each projection area.

The projections are made using a single year of age model and hence results are available for each future year up to and including 1991 and for each single age to 85 and over by sex. The projections are produced in such considerable detail to provide 'a set of building bricks' from which specific age aggregations can be computed according to the individual user's needs thus allowing the user greater flexibility. While only the main results will

be published the more detailed information including special age/sex aggregations and data for intermediate years will be supplied upon request subject to the payment of a charge to cover the cost of producing the new tabulation. Information regarding the fertility, mortality and migration assumptions incorporated in the mid-1979 based projections is also available. Requests for unpublished data or queries on the published results should be addressed to:

Miss J Reeder,  
Regional Demography Unit (Dept SNA),  
OPCS,  
St Catherines House,  
10 Kingsway,  
London WC2B 6JP.  
Telephone: 01-242 0262, ext 2180.

### References

- Population projections: area 1977-1991* Series PP3 no 3 (HMSO 1980) (Price £6.00 net)  
*OPCS Monitor* (reference PP3 80/1) available direct from OPCS (forthcoming)  
*OPCS Monitor* (reference PP3 80/2) available direct from OPCS (forthcoming)  
*Population projections: area 1979-1991* Series PP3 no 4 (HMSO forthcoming)

### Implications of current demographic trends in the UK for social and economic policy

Published in September by OPCS were the seven main papers presented at the British Society for Population Studies Conference on the 'Implications of current demographic trends in the UK for social and economic policy', University of York, 22-24 September, 1980. The seven papers are:

#### *Present demographic position in UK*

This paper by John Field of the Government Actuary's Department outlines the present demographic position and looks at the history of the UK and at recent trends in world population. The paper reviews the *1977 Demographic Review* (HMSO) updating and extending some of the tables, and includes research and analysis published since 1977. Data on some of the more straightforward features of the demographic pattern of particular current interest are given with reasons for their relevance. The paper serves as an introduction to the more complex features which are dealt with in detail in other papers.

#### *Implications for social and economic policy*

This paper by Dr David Eversley of the Policy Studies Institute emphasises that the changing size, structure and spatial distribution of the population of the UK has far reaching implications for social and economic policy, mostly in relation to the pattern of current expenditure and capital investment. The implications range from those that can be analysed easily now because there are no uncertainties about the problems and those which are



still conjectural. Some areas of policy concern are not affected by future demographic change and the importance of all problems is dependent on economic conditions. The paper concentrates on those problems which are sure to arise – for example, the increase in the number of elderly and the decrease in the size of the supporting family and community network. The paper ends with an examination of policies which have been proposed to deal with the consequences of declining fertility.

#### *Women's economic position and demographic change*

This paper by John Ermisch of the Policy Studies Institute discusses the more important demographic implications of the changing role of women in society over the last 15 years. Of particular importance is the influence of changes in employment opportunities and women's aspirations on their career choices, earning capacities and labour force participation. These economic aspects of a woman's life have ever interacted with decisions concerning marriage, fertility, divorce and migration, thus affecting most demographic patterns and trends. The paper presents an analytical survey of the recent research in these areas. The paper focuses on Great Britain but evidence of the socio-economic influences on and the consequences of women's educational, career, marital and fertility decisions is drawn from other countries, notably the USA and the Federal Republic of Germany.

#### *Patterns of child rearing and child care and the effects on them of recent demographic movements for women in society*

This paper by Peter Moss of the Thomas Coram Research Unit concentrates on children of pre-school and primary school age. The first part is a critical review of sources which might be expected to give information on patterns of child-rearing and child-care for this age group. Particular attention is paid to the adequacy of sources for providing assessment of change over the post-war years, and in particular over the last 15-20 years. The second part of the paper examines the relationship between the changes in patterns of child-rearing and child-care, and the major demographic changes that have occurred since the Second World War. It also speculates about child-care and child-rearing changes that may have arisen from demographic developments, but which may not have been adequately documented in surveys or other studies. The paper concludes with a discussion of the case for keeping under regular review certain major aspects of the circumstances of children and their families, including patterns of child-care and rearing, including which aspects should be covered and how best this could be done.

#### *Patterns of family formation and dissolution*

This paper by Kathleen Kiernan of the Centre for Population Studies at the London School of Hygiene and Tropical Medicine asks whether major modifications to patterns of family formation and dissolution have occurred in recent times. In the traditional structure, marriage heralded the start of a new family, initially one man and one woman tied by legal bond, within which sexual relations commenced and reproduction and child-bearing ensued. Generally in the past the marriage partnership was broken only by death. Deviations from this central structure have always been present and the first part of the paper looks at recent trends in pre-marital sexual experience, pre-marital cohabitation, trends in first marriages, divorces and remarriages, fertility behaviour and one-parent families. The second part of the paper draws together the various aspects outlined in the first part of the paper and tries to assess any connection and interactions between these individual components.

#### *Population redistribution and regional policy in Britain*

This paper by Professor John Clarke of the University of Durham examines the spatial redistribution of the population in Britain over recent decades and the role of policies in influencing redistribution. It focuses particularly on two persistent and complementary tendencies: the increased demographic and economic concentration in the central and southern part of Britain and the depopulation of larger cities and the older industrial areas.

#### *Ethnic minorities and local needs*

The first part of this paper by John Hollis and Monica Myers of the Greater London Council describes the demography of ethnic groups and their housing and employment compared with the rest of the population. It concentrates on the New Commonwealth ethnic groups resident in Greater London and uses data from the 1971 Census, the National Dwelling and Housing Survey and the GLC Letting Survey. Attention is drawn to those aspects where the New Commonwealth ethnic groups appear to be worse off than the community at large. The second part of the paper presents a specific case study of the Bangladeshis living in the Spitalfields area in Tower Hamlets.

#### **Reference**

British Society for Population Studies: Conference at York University *OPCS Occasional Paper No 19 Volumes 1, 2, 3*, price £3 net (not sold separately) from Information Branch (Dept OP) Office of Population Censuses and Surveys, St Catherine's House, 10 Kingsway, London WC2B 6JP.



## Population & Vital Statistics for Scotland

*The Registrar-General's fourth quarterly return for 1979* was published on 29 August; containing provisional annual statistics for 1979, and estimated overseas and regional migration for the year to mid 1979 in addition to the usual quarterly tables. *Annual Estimates of the population of Scotland, local government and health districts for mid 1979* (by sex and age) were published on 22 August.

The first quarterly return for 1980 was published in October, and summary first quarters vital statistics for local government districts in weekly returns 28 and 29/80.

Population projections for local and health authority areas, based on the mid 1979 population estimates and consistent with the Government Actuary's projection for Scotland (published in weekly return 30/80), are available on prepayment from the GRO(S) statistics branch (Ladywell House, EH12 7TF). Abbreviated results for Region and Health Board areas were published in a recent weekly return.

### References

*The Registrar-General's fourth quarterly return for 1979* (HMSO 1980) (Price £2.25 net).

*Annual Estimates of the population of Scotland, local government and health districts* (HMSO 1980) (Price £1.25 net).

## SOCIAL STATISTICS

### National Dwelling and Housing Survey (NDHS) – Second report

A report by the Department of the Environment on the results of the second and third phases of the NDHS was published by HMSO in September. The results of the first phase were published in February 1979, and the organisation of the survey was described in *Statistical News* No 42.

Interviewing for the second phase of the NDHS was carried out between November 1978 and July 1979. It was carried out by a consortium of three market research companies – National Opinion Polls Market Research Limited, Research Surveys of Great Britain Limited, and Social and Community Planning Research. This phase of the survey was undertaken in 35 selected areas covering both Metropolitan and non-Metropolitan Districts. About 205,000 addresses were visited, and successful interviews were achieved in about 87 per cent of cases.

Interviewing in the third phase was undertaken between May and November 1979. It was carried out by a consortium of five companies – British Market Research Limited, Marplan Limited, Public Attitudes Surveys Limited, Research Bureau Limited, and Research Services Limited. This phase of the survey covered 283 local authority districts. Interviewing took

place in the seven Metropolitan Districts not covered in detail in the first two phases, and in all the non-Metropolitan Districts not covered in the second phase, so that there was a sample of at least 7,000 in each of the non-Metropolitan Counties. A total of about 312,000 addresses were visited in this phase, and successful interviews were achieved in about 86 per cent of cases.

Taken together the three phases of the NDHS have produced samples of over 7,000 addresses in each shire county, each Metropolitan District, and each London Borough.

These samples provide an up-to-date picture of the housing situation in each of these areas, and the national sample undertaken in the first phase provides a picture for the whole of England.

The information collected covered a range of housing topics including household formation, sharing and concealed households, vacant dwellings, tenure and the housing stock generally. Data were also collected on waiting lists, degree of satisfaction, and ethnic groups of households. Social data such as age, sex, SEG, working status, etc. were also collected.

The data have wide application within Government, both central and local, for up-to-date policy briefing, for research, and for increasing our knowledge of housing circumstances. One major example has been the use of the data in the assessment of grant related expenditure for the 1981/82 Rate Support Grant allocation. Indeed, the third phase was designed largely to complete the coverage of English Local Authorities required for this purpose. The data also have potential for use in Research, Commerce, and Industry.

### Tabulation Service

The two NDHS reports together include a total of 484 tables. These provide basic information for England, the non-Metropolitan Counties, Metropolitan Districts, and London Boroughs. The Department of the Environment has available (on request at the address given below) a tabulation service that can provide more detailed information about any of these areas.

Further details from:

SHB Division,  
Department of the Environment,  
2 Marsham Street,  
LONDON SW1P 3EB  
Telephone 01-212 3221

### References

*National Dwelling and Housing Survey – Phases II and III* (HMSO 1980) (Price £25.00 net).

*National Dwelling and Housing Survey* (HMSO 1978) (Price £8.50 net).

'National Dwelling and Housing Survey: organisation and fieldwork', Roger Sellwood and Dennis Roberts, *Statistical News*, No 42, August 1978 (HMSO) (Price 80pence net).



### People as pedestrians

The report of a survey published in August provides basic data about the extent to which people go out and about on foot and investigates the relationship between pedestrian activity and pedestrian accidents. The survey was carried out by the Office of Population Censuses and Surveys for the Transport and Road Research Laboratory and consisted of interviews with a random sample of 5,000 adults, about all of their pedestrian activities on a particular day and also about their attitude towards roads and road safety. Interviewers rewalked the pedestrian parts of the journeys and made observations about the kinds of roads involved and the number of roads crossed. This information together with the interview data was used to calculate the average distance walked, the length of time out on foot and the number of roads crossed. The survey was particularly concerned with the variations in the pedestrian casualty rates with respect to age and sex and whether the introduction of a measure of pedestrian exposure into the calculation of the casualty rates would serve to equalise the rates.

The report is in three parts: the first part shows how pedestrian activity was measured and how it varied for different people, on different days of the week and for different journey characteristics; the second part presents peoples views on roads and road safety; the third part combines the pedestrian activity data with accident statistics to produce estimates of pedestrian risk associated with the varying levels of pedestrian exposure.

#### Reference

*People as pedestrians* by J E Todd and A Walker. (SS1066) A survey by the Office of Population Censuses and Surveys on behalf of the Transport and Road Research Laboratory. (HMSO 1980) (Price £7.50 net)

### Drownings in Scotland

Detailed statistics of drownings in Scotland, based on police reports of individual drowning incidents, were first collected in 1975 by the Scottish Office to provide evidence for the Working Party on Water Safety. An analysis of the 1975 figures, together with similar tables for England and Wales produced by the Home Office, were included in *Report of the Working Party on Water Safety*. Drowning information continued to be collected from the police forces in Scotland until the end of 1979 and a limited number of tables covering the years 1975-9 are now available in the Scottish Office. These cover 1,136 drownings in Scotland of which 652 were classified as accidental, 338 as probable suicide and 146 as undetermined as to whether suicide or accidental.

Further information about the tables available can be obtained from:

I. D. Bald,  
Scottish Office,  
Room 5/57,  
New St Andrew's House,  
St James Centre,  
EDINBURGH EH1 3SX.  
Telephone: 031-556 8400 extension 5193

#### Reference

*Report of the Working Party on Water Safety* (HMSO 1977)

### Family Expenditure Survey – Response rate in 1979

Copies of an analysis of the 1979 response rates are available on request from the Office of Population Censuses and Surveys. Analyses show response by quarter, by region and type of area. Requests should be addressed to:

R. U. Redpath,  
Social Survey Division,  
OPCS,  
St Catherines House,  
10 Kingsway,  
London WC2B 6JP

## HEALTH AND SOCIAL SERVICES

### Birth statistics 1978

The number of live births in the calendar year 1978 (596 thousand) was almost 5 per cent higher than in 1977 (569 thousand). *Birth statistics 1978* published in July contains detailed analyses of the births by season of birth, age of parents, number of previous liveborn children, duration of marriage, area of usual residence, place of confinement, birthplace of parents, and social class. The volume, produced by OPCS, also looks at multiple births, fertility and abortion and contains cohort analyses of births to women born between 1920 and 1963 and to women married between 1920 and 1977.

#### Reference

*Birth statistics 1978* (Series FM1 No 5) (HMSO 1980) (Price £5.75 net)

### Infant and perinatal statistics

In September OPCS published a Monitor, the first in a new series, based on linked notification and registration statistics. Further Monitors in this series (reference DH3) will provide analyses of birthweight data in relation to infant deaths and various social and biological factors. Also, in future, Monitors on infant and perinatal mortality statistics (previously issued in the DH1 series) will be included in this series.

#### Reference

*Birthweight statistics* (OPCS Monitor Reference DH3 80/1). Obtainable free of charge from Information Branch (Dept M), Office of Population Censuses and Surveys, St. Catherines House, 22 Kingsway, London WC2B 6JP.



### **Mortality statistics: accidents and violence, 1978**

OPCS statistics of deaths attributed to accidents and violence in England and Wales in 1978 were published in September. The report contains numbers of deaths attributed to accidents, suicide and homicide and includes detailed tables on deaths from transport accidents and accidents in the home. The report also contains a table on poisoning showing numbers of deaths by sex and age-group and substance(s) involved, distinguishing accidents from suicide.

The data relating to transport accidents are not comparable with those published by the Department of Transport whose figures are restricted to deaths within 30 days of the accident.

The complete picture of causes of deaths in England and Wales in 1978 was published in February 1980 by HMSO in *Mortality statistics: cause 1978* (Series DH2 No 5).

*OPCS Monitor* DH4 80/3 published by OPCS on 15 July 1980, contained provisional figures of deaths from accidents and violence for 1979.

#### **Reference**

*Mortality statistics: accidents and violence, 1978* (Series DH4 No 5) (HMSO 1980) (Price £3.25 net)

### **Misuse of drugs**

*Statistics of the misuse of drugs in the United Kingdom, 1979*. This annual Home Office Statistical Bulletin was published on 12 August 1980. It gives statistics of seizures of controlled drugs and of drugs offenders, covering the years 1973-79, and of drug addicts notified to the Home Office during the years 1970-79. In addition to the regular tables, it includes tables showing the use of custodial sentences for drugs offenders during the years 1973-79, and, for persons under sentence in Prison Department establishments in England and Wales on 30 June 1979 for drugs offences, their type of offence, length of sentence, number of previous convictions and number of previous custodial sentences.

*Supplementary tables 1978-79* were published at the beginning of September 1980 and bring up to date most of the tables in the publication *Statistics of the misuse of drugs, United Kingdom, 1977*, apart from those already updated in the Bulletin reported above.

#### **References**

*Statistics of the misuse of drugs in the United Kingdom, 1979* Home Office Statistical Bulletin 11/80. Free.

*Statistics of the misuse of drugs, United Kingdom, Supplementary tables 1978-79* (Home Office 1980) (Price £2.00 net)

Copies available from:

Home Office Statistical Department,  
Room 1706,  
Tolworth Tower,  
Surbiton,  
Surrey KT6 7DS

### **Drinking in England and Wales**

An OPCS report on Drinking in England and Wales was published in October. The report contains the results of a survey carried out on behalf of the DHSS during 1978 with a random sample of 2,000 adults. It shows the average weekly consumption levels and extent of drinking problems within various demographic groups and analyses the drinking patterns of regular drinkers.

#### **Reference**

*Drinking in England and Wales*, by Paul Wilson. SS1128 (HMSO 1980) (Price £5.50 net)

### **Scottish drinking**

An OPCS report on Scottish Licensing Laws is to be published in December. This report covers a series of 3 surveys conducted with the same random sample of 1,143 Scottish adults to monitor their drinking patterns and consumption levels before and after two important changes in Scottish Licensing Laws. It seeks for any evidence of changed consumption after the extension of permitted hours to 11 pm and the Sunday licensing of public houses, and report on attitudes to these new provisions within different sub-groups of the population.

#### **Reference**

*Scottish Licensing Laws*, by Ian Knight and Paul Wilson. SS 1094. (HMSO 1980) (Price to be announced).

## **EDUCATION**

### **Adult education**

The Department of Education and Science will publish a statistical bulletin of the results of an exploratory survey designed to collect detailed information about adult education courses organised by local education authorities in England and Wales. The survey which covered the academic year 1978-79, collected retrospective information about the number of courses provided; their length in terms of hours of tuition, subjects of study and enrolments for the whole of the academic year. The survey is being repeated for the academic year 1980-81.

#### **Reference**

*Enrolments at Adult Education Centres in 1978-79*, DES Statistical Bulletin (Forthcoming)

### **Trends in entry to higher education**

The Department of Education and Science has published a statistical bulletin which presents historical trends in full-time students entering higher education in Great Britain for the first time ('initial entrants'). Higher education is made up of university courses, teacher training courses and other advanced courses in the public



sector. The bulletin identifies three categories of initial entrant, namely young home entrants, mature home entrants (aged 21 and over) and overseas entrants. It gives the historical series for each category of entrant and also, in respect of young home entrants, gives the measures of participation in higher education, the age participation rate (APR) and the qualified participation rate (QPR). The former relates young initial entrants to the total population in the relevant age group, while the latter relates these entrants to the population in the age group with the minimum qualifications deemed necessary for entry to higher education (2 GCE 'A' level or 3 Scottish 'Highers'). Charts further analyse the APR and QPR into men and women and by the three sectors of higher education.

Series are presented from entrants to courses in the academic year 1966-67 and extend to provisional estimates of 1979-80 entrants. The figures show that although there was a steady decline in the qualified participation rate (QPR) during the 1970s, this was entirely due to the Government's planned reduction in teacher training. For universities and for other advanced courses the rate for men was virtually constant whilst that for women was rising steadily.

#### Reference

*Trends in Entry to Higher Education*, DES Statistical Bulletin 12/80 (available free from Statistics Branch, Department of Education and Science, Elizabeth House, York Road, London SE1 7PH)

#### Further education students, 1979-80

DES Statistical Bulletin 8/80 published in August gave provisional figures of enrolments at further and adult education establishments in England and Wales for November 1979. The figures were based on firm information for 83 per cent of the colleges and grossed up for those whose data was either still in error or not available. By using estimates in this way this data have been published much earlier than in previous years.

#### Reference

*Statistics of Further Education Students for 1979-80*, DES Statistical Bulletin 8/80 (available from address given above)

#### University statistics

The publication of *Statistics of Education, Volume 6, 1977: University Statistics* will be announced in a DES Statistical Bulletin. The Bulletin presents some statistics on students in universities in the United Kingdom in December 1977 which appear in that volume and compares them with corresponding information for 1969, 1974 and 1978 and with provisional figures for 1979. Undergraduates and post-graduates are shown analysed by sex, whether they were studying full-time or part-time and home/overseas fee-paying status.

#### References

*University Statistics: Statistics of Education 1977, Volume 6 and provisional student numbers in December 1979*, DES Statistical Bulletin (Forthcoming)  
*Statistics of Education Volume 6, 1977: University Statistics* (HMSO 1980) (Price £10.50 net)

#### Scottish Education Department – Statistical Bulletins

In the absence of the previously published annual volume *Scottish Education Statistics*, readers are reminded of the on-going series of *Statistical Bulletins* produced by the Scottish Education Department. These bulletins form the only definitive and formal source of published statistical data, apart from the educational tables in *Scottish Abstract of Statistics* and the Scottish contributions to UK volumes of statistics.

The bulletins cover specific educational topics, e.g. Nursery Education, Students in Vocational Further Education, and are published (approximately one per month) as and when data become available.

We give below a list of those currently available and of those about to be published.

Nursery Education

Qualifications of School Pupils and Leavers

Students in Vocational Further Education

Students in Non-Vocational Further Education

School Leavers

For further information and copies of the bulletins write to:

Scottish Education Department,

Statistic Division/Branch 4,

43 Jeffrey Street,

EDINBURGH EH1 1DN

or Telephone 031-556 9233 extension 286

#### MANPOWER AND EARNINGS

##### Manpower planning

Articles on manpower planning and related topics have appeared in recent issues of the *Employment Gazette*. The June issue contained the third article – 'Getting better all the time' – in a series giving results of a national survey of the early careers of graduates; this latest article describes graduates' jobs in 1977 (when the survey was carried out) seven years after graduating. In the July issue there was an article – 'Measuring Labour Slack', – by Professor Maddison on unemployment and output in the UK, Germany and France. The August issue contained an article – 'Ethnic origin and the labour force' – describing some findings of the National Dwelling and Housing Survey, and an article on 'Voluntary early retirement – taking the decision'.

#### Reference

*Employment Gazette*, June, July, August 1980 (HMSO) (Price £1.65 each net)



### **Top salaries**

The Fourth Report on Top Salaries by the Review Body on Top Salaries under the Chairmanship of Lord Boyle of Handsworth was published in June 1980. The report deals with Chairmen and members of Boards of nationalised industries, the higher judiciary, senior civil servants, and senior officers of the armed forces. Included in the report are the results obtained from two surveys: remuneration of top management (Appendix C), and salary compression in nationalised industries (Appendix B). In addition, a summary is provided (Chapter 4, Table C) of the levels of remuneration given up by recent appointees to the High Court Bench.

The survey of remuneration of top management followed the same general pattern as the limited survey undertaken in 1979 which was summarised in the Review Body's Third Report on Top Salaries (Cmnd. 7576 (HMSO) June 1979). There was a 77 per cent response rate from the organisations in the sample. The results which are based on 1,343 posts in 94 organisations relate both to 1 January 1979 and 1 January 1980. Analyses show movements in earnings in the year to 1 January 1980, distributions of 1 January 1980 earnings and the incidence of dates of the most recent salary increases for various sizes of organisations and levels of appointment.

The compression survey was similar in form and coverage to the first such survey which covered the period 1974–1977 and was summarised in the Review Body's Second Report on Top Salaries (Cmnd. 7253 (HMSO), June 1978). The latest survey covered the 51 nationalised industries and other organisations within the Review Body's remit. Replies were received in time to be used from all except one organisation. Analyses show the number of organisations in which there is overlap of pay between board members and senior executives, and the extent of this overlap.

#### **Reference**

*Review Body on Top Salaries, Report No 14: Fourth Report on Top Salaries (Cmnd 7952) (HMSO July 1980) (Price £3.15 net).*

### **University technicians – pay**

Report No 8 of the Standing Commission on Pay Comparability under the Chairmanship of Professor H A Clegg, published in July 1980, examined the pay of some 20,000 university technicians. This follows the Commission's interim Report No 2 for this group published in August 1979. The types of work performed come under 8 main headings (ranging from mechanical and electrical engineering to animal husbandry and glass-blowing) given in Appendix 2, which also sets out statistics of technician vacancies based on survey returns from 67 universities and colleges. A study had been carried out for the interim report by the Industrial Relations Research Unit of the Social Science Research Council,

the results of which were insufficiently conclusive for the report to be final. Consequently the Civil Service Pay Research Unit (PRU) was asked by the Commission to carry out a further comparability study for Report No 8. Chapter 2 (Table 1) gives details of the median maximum pay of comparators by grade (based on a total of 376 jobs examined) compared with university technicians. Comparisons of various conditions of service and fringe benefits are set out in Appendix 1.

#### **Reference**

*Standing Commission on Pay Comparability, Report No 8: 'University Technicians' (Cmnd 7974, July 1980) (Price £2.00 net)*

### **Local Authority building workers – pay**

Report No 10 of the Standing Commission on Pay Comparability under the Chairmanship of Professor H A Clegg was published in August 1980. The report deals with five reference groups of Local Authority building workers: building workers (other than electricians) in England and Wales, electricians in England and Wales, building workers (other than electricians and plumbers) in Scotland, electricians in Scotland, and plumbers in Scotland. The Civil Service Pay Research Unit (PRU) conducted five comparability studies for the Commission, one for each reference group. A total of 60 local authority organisations participated in England and Wales, and 52 in Scotland. In the comparator organisations, 296 jobs were studied in England and Wales, and 221 in Scotland. In Chapter 3, Table 1 analyses the weekly earnings of local authority building workers; Table 2 shows the median weekly pay of comparators at various dates separately for those with and without bonus schemes; Table 3 gives the estimated median weekly pay of comparators in England and Wales participating in bonus schemes, adjusted to a common date; Tables 4 and 5 analyse overtime earnings and holiday entitlements, while Tables 6 and 7 compare the average weekly pay at key dates, after certain adjustments, of workers in the reference groups and comparators.

#### **Reference**

*Standing Commission of Pay Comparability, Report No 10: 'Local Authority Building Workers' (Cmnd 8014, August 1980) (Price £3.30 net)*

### **Armed forces pay (service medical and dental officers)**

A supplement to the Ninth Report on Armed Forces Pay, published in July 1980, deals with the pay of Service Medical and Dental Officers. Recommended salaries for the ranks of captain to colonel are given in Table 1. Paragraphs 32, 33 and 34 include details of recommended salaries of brigadiers, pre-registration medical practitioners and cadets, while paragraphs 35 to 39 are concerned with specialist, senior specialist and consultant pay, derived from a fresh basis of assessment undertaken for the 1980 review. Appendix 1 gives a



selection of manning statistics for 1975–1980 of the defence medical and dental services.

#### Reference

*Review Body on Armed Forces Pay, Service Medical and Dental Officers*, Supplement to Ninth Report: (Cmnd 7956) (HMSO July 1980) (Price £2.00 net)

#### Teachers – pay

Report No 7 of the Standing Commission on Pay Comparability under the Chairmanship of Professor H A Clegg, published in April 1980, examined the pay of over 600,000 teachers in primary, secondary and further education in England and Wales, and in Scotland.

The report describes the attempt to assess teachers' pay using job evaluation by factor analysis and gives the reasons for the rejection of the results. The report then describes the alternative approach adopted by the Commission based on a comparison of starting salaries for graduates in teaching and elsewhere.

#### Reference

*Standing Commission on Pay Comparability, Report No 7: 'Teachers'* (Cmnd 7880) (HMSO April 1980) (Price £2.75 net)

#### Apprentices and trainees in manufacturing industries

An article on trends in the numbers of apprentices and trainees in manufacturing industries was published in the September 1980 issue of *Employment Gazette*. It was based on information collected by the Department of Employment for May of each year since 1964. This was the first time that all this information had been published as a continuous series.

The article indicates that there are currently just under a quarter of a million employees in manufacturing industries being given formal training by their employers: these make up about 3½ per cent of all employees in manufacturing, 4½ per cent of all males and 2 per cent of all females. About 150,000 of the trainees are apprentices, nearly all males. Of the 90,000 other trainees, just over one-third are females.

The number now being trained is only just over half of the peak reached in 1968. Nearly all of the decline occurred in the period to the middle of the 1970s. This fall is a consequence of three factors, an overall decline in manufacturing employment, a reduction in the length of training periods (particularly apprenticeships), and a real fall in the proportions receiving formal training. In broad terms, the trends have been similar for males and females, for apprentices and other trainees and for engineering and non-engineering industries.

#### Reference

*Employment Gazette* September 1980. Pages 943–953 (HMSO) (Price £1.65 net)

#### Department of Employment Statistics

From October 1980 the presentation of regularly published statistics in *Employment Gazette* has been revised.

All tables and charts other than those in special articles now appear in a 64-page supplement in the centre of each issue. This combines the separate sections of time series and the latest month's data, and features the interpretative commentary 'Trends in Labour Statistics' which was introduced in January 1980.

A number of analyses hitherto unpublished on a regular basis are included. Among these are tables showing international comparisons of prices, earnings and employment, and some extensions to statistics covering the unemployed. Account has been taken of opinion expressed in the readership survey held in early 1980 and many tables have been redesigned. For ease of reference each regular table and chart, whether or not it is published each month, has a unique number, making page reference within the 64-page section redundant.

#### Reference

*Employment Gazette* October 1980 (HMSO) (Price £1.65 net)

#### New Earnings Survey 1980

A brief description of the information to be obtained in the New Earnings Survey 1980 was given in *Statistical News* 48.29. As in previous years, the detailed results will be published in a six-part report, New Earnings Survey 1980 Parts A to F. The key results of the survey will also be published in the October 1980 issue of *Employment Gazette*.

The main contents of the six parts and their probable publication dates will be:

- Part A General results; streamlined analysis of key results by collective agreement, industry, occupation, age and region; descriptions of the survey methods; classifications, terminology, etc. (mid-November 1980).
- Part B Earnings and hours of groups covered by particular major collective wage agreements (mid-October 1980).
- Part C Earnings and hours in particular industries (mid-December 1980).
- Part D Earnings and hours in particular occupations (mid-January 1981).
- Part E Earnings and hours in regions, counties and age-groups (mid-February 1981).
- Part F Hours; earnings and hours of part-time women workers (mid-March 1981).

#### References

*New Earnings Survey 1980*, a publication in six parts (HMSO) (forthcoming, Price £7.90 each, net)

*Employment Gazette*, October 1980 (HMSO) (Price £1.65 net)

#### Earnings and hours by occupation

The October 1980 issue of *Employment Gazette* carried the latest results of the regular survey of the earnings and hours, classified by level of skill and occupation, of full-



time adult male manual workers in engineering, ship-building and ship-repairing and chemical manufacture. The survey is carried out by the Department in June each year.

The results of the survey illustrate the structure of skill differentials and the way such differentials have changed over time. The 1980 survey is also particularly interesting in showing how the effect of the recession on hours worked (particularly overtime hours) has varied between the different categories of worker.

The published tables enable comparisons to be made between the average earnings, and earnings movements, of skilled workers, semi-skilled workers and labourers, between workers covered by different payment systems (timework or payment by results) and between particular occupations. Further details, on earnings by occupation and by region within particular industries in the engineering sector, are available on request from the Department of Employment.

#### Reference

*Employment Gazette*, October 1980 (HMSO) (Price £1.65 net)

### Survey of labour costs in 1978

The main results of the 1978 survey of labour costs were published in the September 1980 issue of *Employment Gazette*. The survey covered the index of production industries (manufacturing, mining and quarrying, construction, gas, electricity and water), wholesale and retail distribution, banking, insurance and finance. The full range of labour costs was covered, not just pay.

This survey, and a similar one conducted in Northern Ireland by the Department of Manpower Services, was carried out under Regulation 494/1978 of the Council of the European Communities (*Statistical News* 41.35). Analyses of the survey data for the United Kingdom as a whole have been forwarded to the Statistical Office of the European Communities for publication in the EUROSTAT series.

There was a survey of labour costs in the United Kingdom in the index of production industries in 1975 and the results for Great Britain were published in the *Employment Gazette* in September, November and December 1977. Comparable results for distribution, banking, insurance and finance, relating to the year 1974, were published in the June 1976 issue of the *Gazette*.

#### Reference

*Employment Gazette*, September 1980 (HMSO) (Price £1.65 net)

### Report on the EC labour force survey

Recently published by HMSO for OPCS, *Labour Force Survey 1973, 1975 and 1977* is the first of a proposed series of reports on the EC Labour Force Survey.

The survey, which samples approximately 1/2 per cent of

the private household population and collects information relating primarily to various aspects of economic activity, is carried out for OPCS, the General Register Office for Scotland and the Department of Finance in Northern Ireland on behalf of the Department of Employment, which in turn is required to sponsor such a survey as part of the United Kingdom's membership of the European Community. Surveys are carried out every two years and have taken place in the United Kingdom in 1973, 1975, 1977 and 1979. Data for 1979 are still being evaluated and results will be published in report form as soon as possible.

The current report contains six chapters. The first four deal with the background to the surveys, topics included, methodology and quality of response. Of the remaining two chapters, the first deals with illustrative results from the surveys and includes data on such subjects as country of birth, economic activity, hours worked, employment by occupation and industry and unemployment. The final chapter deals with comparative data from other EC member countries. A listing of all the tables produced from the 1977 survey is given in Appendix 6.

While the report covers all three surveys carried out in the United Kingdom, the majority of the data used is from the 1977 survey and, where relevant, comparisons are made with other sources e.g. the Census of Employment.

#### References

*Statistical News* 47.47, 30.31, 29.25 (HMSO)

*Labour Force Survey 1973, 1975 and 1977* (Series LFS No 1) (HMSO 1980) (Price to be announced)

### Skill shortages

Alan Oliver's article in the September issue of *Economic Trends* investigates recent trends in the labour market, where despite generally high levels of unemployment, there will still be some occupations for which vacancies cannot be filled, mainly those requiring highly skilled labour.

The measurement of these skill shortages is based on two main indicators, the ratio of the number of notified vacancies to the number of registered unemployed, known as the v/u ratio, and the estimated duration of vacancies.

The shortage of skilled labour is caused mainly by a lack of adequate training but other factors such as pay, relative to less skilled occupations and the failure of employers to anticipate future requirements, contribute to difficulties in filling vacancies. The effects on the economy of skill shortages are very difficult to quantify. Some reports are of constraints on levels of output, the cut back in recruitment of semi- and unskilled workers, and of increased costs due to the necessity of overtime working and sub-contracting.

Although the statistics cannot claim to show an accu-



rate picture, they may be used to analyse trends. As would be expected there are fewer shortages during times of high unemployment. Recovery from recession brings greater shortages since employers tend to cut back training schemes and apprenticeships during times of economic hardship.

The Manpower Services Commission, through its Training Opportunities Scheme and 'Training for Skills' programme, can help to minimise the difficulties.

#### Reference

'Skill shortages' by Alan Oliver, *Economic Trends*, September 1980 (HMSO) (Price £6.45 net)

### Industrial stoppages 1960-1979

An article in the September issue of *Employment Gazette* provides an analysis of large industrial stoppages between the years 1960 and 1979. The article concentrates on a small number of large stoppages and how these greatly influence the total figure of numbers of workers involved in all industrial stoppages and total working days lost. The analysis is statistical and covers two decades and includes strikes known to be official.

#### Reference

*Employment Gazette* September 1980 (HMSO) (Price £1.65 net)

### Trade union rules on admission, discipline and expulsion

Based on results from a study of the closed shop in Britain being carried out by a research team at the London School of Economics and financed by the Department of Employment, two articles – one on the content of formal closed shop agreements and the other on the industrial and occupational coverage of closed shops – appeared in the November 1979 and January 1980 issues of the *Employment Gazette*. A further article looking at union rules on admission and expulsion from union membership has now been published in the June edition. The team examined the content of national rule books relating to admission and expulsion of 79 affiliated unions with a membership of just under 12 million or 99 per cent of the TUC's total membership and contrasted this with the TUC guidelines on these matters. The article concludes that the formal rule books of most unions leave a good deal to be desired but that actual abuse or injustice probably occur only on a very small scale.

#### Reference

John Gennard, Mark Gregory and Stephen Dunn, 'Throwing the book – Trade union rules on admission, discipline and expulsion', *Employment Gazette*, June 1980, pages 591-601 (HMSO) (Price £1.35 net)

### Joint consultation in British industry

An article in the April issue of the *Employment Gazette* looks at changing patterns of joint consultation in Britain. Based in part on material from the DE/OPCS survey of company organisation and worker participa-

tion, it discusses the purposes and development of consultative machinery up to the end of the 1960s, considers more recent developments and offers some explanations for recent changes. The article suggests that joint consultation has been on the increase in recent years.

#### Reference

W R Hawes and C C P Brookes, 'Joint consultation in British industry: change and renewal', *Employment Gazette*, April 1980, pages 353-361 (HMSO) (Price £1.35 net)

### Women's experience of maternity rights

An article in the May issue of the *Employment Gazette* presents a factual summary of the main findings from a postal survey of mothers' knowledge and experience of maternity rights. This forms part of a larger programme of research on the operation and effects of the maternity provisions of the Employment Protection Act 1975 being carried out by the Policy Studies Institute (PSI) and funded by the Department of Employment. (A full and evaluative report on this part of the study has been published by PSI: W W Daniel, *Maternity Rights. The Experience of Women*. June 1980 Price £4.95.) The work on other parts which include a survey of employers' experience is continuing.

Questionnaires were sent to a national sample of 3,285 mothers of babies born in February or March 1979 and 2,414 completed schedules were returned (a response rate of 74 per cent). The results show that two thirds of women who said they would return to work after childbirth did not in fact do so. Women in small firms were less likely to get the maternity pay they were entitled to than their counterparts in large firms and this was mainly through lack of knowledge or misinformation. The article suggests that the right to re-instatement has had little direct effect upon the levels of women's return to work although it may have had some indirect effect.

#### Reference

W W Daniel, 'Women's experience of maternity rights legislation', *Employment Gazette*, May 1980, pages 468-471 (HMSO) (Price £1.35 net)

## AGRICULTURE AND FOOD

### Agricultural censuses and surveys

#### *The December 1979 Agricultural Census*

The main results of this census for the United Kingdom were published in Statistical Information Notice STATS No 191/80 on 8 July 1980.

#### *The December 1979 Glasshouse Census*

(i) The main results of the December 1979 Glasshouse census were published in Statistical Information Notice STATS No 215/80 on 31 July 1980.

(ii) The County/Regional results (P.S.M.) for England and Wales were published in August 1980.



*Estimated Yields and Production of Crops – 1979 Harvest*  
The County/Regional results (PC/EW) for England and Wales were published in August 1980.

*The April 1980 Sample Pig Enquiry*

The results of this enquiry for England and Wales and the United Kingdom were published in Statistical Information Notice STATS No 171/80 on 18 June 1980.

*The June 1980 Agricultural Census*

(i) The provisional results for England were published in Press Notice No 312 on 18 August 1980.

(ii) The provisional results for the United Kingdom were published in Statistical Information Notice STATS No 248/80 on 4 September 1980.

*The June 1980 Horticultural Census*

The provisional results for England were published in Statistical Information Notice STATS No 256/80 on 12 September 1980.

**Agricultural Statistics for the United Kingdom 1976/77**

This volume recently published gives the area and production of crops, numbers of livestock, agricultural holdings and agricultural workers in the United Kingdom, with separate figures for England and Wales, Scotland, Great Britain and Northern Ireland. The volume also contains monthly and annual price indices for main agricultural products and materials in the United Kingdom.

**Reference**

*Agricultural Statistics for the United Kingdom 1976–77* (HMSO 1980) (Price to be announced).

**Note**

The press notices mentioned above may be obtained from:  
The Ministry of Agriculture, Fisheries and Food,  
Room A615,  
Government Buildings,  
Epsom Road,  
Guildford, GU1 2LD

**Scottish agricultural censuses**

*Final results of the December 1979 Scottish agricultural census*

The final results of the Scottish Agricultural Census held in December 1979 were published as a Scottish Office Press Notice on 23 June 1980 (Press Notice 696/80).

*Results of the Scottish April 1980 sample pig census*

The results of the Scottish April 1980 Sample Pig Census were published as a Scottish Office Press Notice on 23 June 1980 (Press Notice 695/80).

*Provisional results of June 1980 Scottish agricultural census*

The provisional results of the Scottish Agricultural Census held in June 1980 were published as a Scottish Office Press Notice on 4 August 1980 (Press Notice 853/80).

**INDUSTRIAL STATISTICS**

**Business Monitor – Annual Census of Production, 1977**

**PA 1002 – Summary Volume**

The *Summary Volume* of the 1977 Annual Census of Production (PA 1002) is available price £7.75. As in previous years this summarises results previously published in the separate industry monitors (PA 101 to PA 603). It also provides analyses of the census data by enterprise and size analyses by net output, employment and sales. Further tables show information relating to foreign enterprises.

**Business Monitors – Annual Census of Production, 1978**

As the Business Monitors reporting the results of the 1978 Census become available they will be brought to the attention of the readers of *Statistical News*. A list of the first of these monitors to be published is given below:

<i>Business Monitor Number</i> <i>PA Series</i>	<i>Description</i>	<i>Standard Industrial Classification Minimum List Heading</i>
1001	Introductory notes	
101	Coal mining	101
211	Grain milling	211
221	Vegetable and animal oils and fats	221
229.1	Margarine	229/1
240	Tobacco	240
261	Coke ovens and manufactured fuel	261
263	Lubricating oils and greases	263
271.2	Organic chemicals	271/2
271.3	Miscellaneous chemicals	271/3
273	Toilet preparations	273
277	Dyestuffs and pigments	277
278	Fertilizers	278
279.3	Explosives and fireworks	279/3
279.6	Surgical bandages, etc	279/6
321	Aluminium and aluminium alloys	321
331	Agricultural machinery (except tractors)	331
332	Metal-working machine tools	332
335	Textile machinery and accessories	335
336	Construction and earth-moving equipment	336
338	Office machinery	338
352	Watches and clocks	352
361	Electrical machinery	361
365.2	Broadcast receiving and sound reproducing equipment	365/2
380	Wheeled tractor manufacturing	380
381.2	Trailers, caravans and freight containers	381/2
382	Motor cycle, tricycle and pedal cycle manufacturing	382
392	Cutlery, spoons, forks and plated tableware etc.	392
393	Bolts, nuts, screws, rivets, etc	393
394	Wire and wire manufactures	394
395	Cans and metal boxes	395
399.1	Metal furniture	399/1
399.6	Metal hollow-ware	399/6 and 7
412	Spinning and doubling on the cotton and flax systems	412
413	Weaving of cotton, linen and man-made fibres	413
414	Woollen and worsted	414
417.2	Warp knitting	417/2
418	Lace	418
419	Carpets	419
421	Narrow fabrics	421
422.1	Household textiles and handkerchiefs	422/1



<i>Business Monitor Number PA Series</i>	<i>Description</i>	<i>Standard Industrial Classification Minimum List Heading</i>
422.2	Canvas goods and sacks and other made-up textiles	422/2
429.2	Miscellaneous textile industries	429/2
441	Weatherproof outerwear	441
446	Hats, caps and millinery	446
449.1	Corsets and miscellaneous dress industries	449/1, 3 and 4
449.2	Gloves	449/2
461.1	Refractory goods	461/1
461.2	Building bricks and non-refractory goods	461/2
464	Cement	464
481	Paper and board	481
482.1	Cardboard boxes, cartons and fibre-board packing cases	482/1
482.2	Packaging products of paper and associated materials	482/2
483	Manufactured stationery	483
484.1	Wallcoverings	484/1
484.2	Miscellaneous manufactures of paper and board	484/2
485	Printing, publishing of newspapers and periodicals	485/486
491	Rubber	491
492	Linoleum, plastics, floor-covering, leathercloth, etc	492
495	Miscellaneous stationers' goods	495
499.2	Miscellaneous manufacturing industries	499/2
601	Gas	601
602	Electricity	602

Copies of these Business Monitors are available on standing order from Her Majesty's Stationery Office, PO Box 569, London SE1 9NH (telephone 01-928 1321), or through any Government Bookshop. They are not, however, included in the global subscription arrangements of the Business Monitor series.

Further information on the PA series of Business Monitors and Censuses generally can be obtained from:

Mr R J Egerton,  
Business Statistics Office,  
Cardiff Road,  
NEWPORT,  
Gwent,  
NPT 1XG.  
Telephone Newport 56111 (STD code 0633) Ext 2455

## HOME FINANCE

### National Income and Expenditure 1980 Edition

The 1980 edition of *National Income and Expenditure* (the Blue Book) was published on 17 September.

A number of changes have been introduced this year. Details are now given of the total United Kingdom population, and an analysis of employees in employment by broad industry group. The constant price components of the expenditure-based measure of the gross domestic product are shown in index number form as well as in value terms. Because of difficulties in producing reliable

estimates for the transactions of private non-profit-making bodies, the separate income and expenditure accounts for these bodies and for the rest of the personal sector have been discontinued. The table showing categories of household income has been expanded and now shows both income and expenditure of households. Also included for the first time is an alphabetical index to the Blue Book tables.

Quarterly figures for the last 10 years consistent with those in the Blue Book were published as usual in the October issue of *Economic Trends*, which also contained tables of percentages derived from the Blue Book relating to the composition of total final expenditure, total domestic income and total personal income. Also given here are growth triangles (which show the annual rates of change between any given pair of years) for gross domestic product at constant factor cost and real personal disposable income in the years 1948 to 1979. A new table has been introduced this year giving figures for gross domestic and gross national product at factor cost and at market prices on a financial year basis for the period 1970/71 to 1979/80.

### Amendment to Blue Book

The following amendment should be made in the 1980 edition:

Table 1.1 Gross national product by category of expenditure

At market prices: Total domestic expenditure  
1979 **Delete** 189 257 **Insert** 189 527

### Reference

*National Income and Expenditure 1980 Edition* (HMSO) (Price £10.50 net)

### Equipment leasing

An article in the Bank of England's September 1980 *Quarterly Bulletin* surveys the development of equipment leasing, explains some of the reasons for its growth and discusses recent market trends. A distinction is drawn between 'operating leasing', which is akin to hiring and is most suitable for assets which are moveable, readily insured and can easily be resold or re-leased, such as computers, containers and cars, and 'financial leasing' – the main subject of the article – where equipment is leased as an alternative to outright purchase, with the period of the lease coinciding with the useful life of the equipment. The modern development of leasing began in the 1960's but a switch in tax policy, from investment grants to first year allowances in 1970, sparked off a rapid growth in leasing business. The method of 'pricing' the lease is described, along with the influences of timing, alternative funding costs and the size of leases. As more lessors have entered the market margins have declined. Changes in tax policy have also radically altered the leasing market as has the impact of



the 1980 Finance Act. The article concludes that leasing provides a good example of a competitive financial market providing a form of finance that is cheaper for non-tax-paying companies than instalment credit.

The Bank's *Quarterly Bulletin* (at £4 per copy†) and off-prints of the article (at 50p per copy) may be obtained from:

Bulletin Group,  
Economics Division,  
Bank of England,  
Threadneedle Street,  
London,  
EC2R 8AH

### Financing British industry

An article in the Bank of England's September 1980 *Quarterly Bulletin* is the first in a series of background briefing articles to be produced by the Bank which are intended to give an account of some aspects of financial developments and policy in non-technical terms. This article describes companies' financing needs, discusses balance sheet and income gearing and outlines some of the main ways in which companies are financed. Before discussing company finance in detail, a broad outline of the financial needs of companies is given, distinguishing between internal and external sources of funds. On average during the past ten years around 70 per cent of company needs were met from internal sources, although roughly 10 per cent of this was accounted for by stock appreciation. However, in recent years, inflationary pressures have reduced the real level of profits and so squeezed the level of internal funds available for investment. The concept of gearing (i.e. the proportion of assets financed by debt rather than shareholders' funds) is described in some detail and the gearing characteristics of companies in different countries outlined. The various influences on external debt incurred by companies are examined, particularly the impact of high interest rates and stock market trends. Whilst banks, both domestic and foreign, remain the principal source of borrowed funds the role of specialist financial institutions (FFI, ICFC, etc.) is increasing steadily. Finally, the article considers the growing importance of tax policy and planning and the emergence of leasing in company finance.

The Bank's *Quarterly Bulletin* (at £4 per copy) may be obtained from the above address.

### The measurement of capital

A paper issued by the Bank of England on 5 September is reproduced in the Bank of England's September 1980 *Quarterly Bulletin*. It incorporates the results of recent consultation with the banking community and establishes, for the purpose of the Bank's continuing supervision under the Banking Act, a basis for assessing the

adequacy of capital of all deposit-taking institutions as protection against the risk of loss.

There are changes to two tables in the Statistical Annex to the September 1980 issue of the Bank of England's *Quarterly Bulletin*.

(1) *Table 12* (Table 20 in the June issue): Components of private sector liquidity

The table now includes figures for calendar quarters as well as for mid-months and shows changes as well as levels. Also, two summary measures, PSL1 and PSL2, are shown and the additional notes have been revised accordingly.

(2) *Table 14*: Maturity analysis

This table has been re-organised and slightly expanded.

The Bank's *Quarterly Bulletin* (at £4 per copy) may be obtained from the above address.

### Insolvencies in England and Wales – monthly figures

The detailed quarterly series of insolvencies which appear regularly in *British business* are now supplemented by the publication of summary monthly figures. A short article in *British business* of 22 August introduced the new series of bankruptcies and company liquidations and these are updated each month. The monthly figures are – not unexpectedly – more volatile than the quarterly ones, so three-month moving averages of seasonally adjusted figures are also provided in order to help the reader to assess the underlying trend.

**Inquiries:** Departments of Industry and Trade,  
Economics and Statistics Division 6A,  
Room 648,  
Sanctuary Buildings,  
20 Great Smith Street,  
London SW1P 3DB.  
Telephone 01-215 5538/3356

### Reference

*British business* 22 August 1980 (HMSO) (Price 75p net)

### Profitability in UK and other countries

An article giving international comparisons of the share of profits in value added and of the rates of return on capital was published in *British business* 29 August 1980. It gave estimates for manufacturing industry and for a broader group of industries over the period 1955 to 1978.

An article giving estimates of rates of return for companies in the UK up to 1979 was published in *British business* 3 October 1980. This covered industrial and commercial companies both before and after deducting the effect of North Sea exploration and production activities and gave separate estimates for companies mainly engaged in manufacturing.

†The *Quarterly Bulletin* is price £4 in the United Kingdom. Overseas prices are available from the Bank on request.



**Inquiries:** Departments of Industry and Trade,  
Economics and Statistics Division 6A,  
Room 648,  
Sanctuary Buildings,  
20 Great Smith Street,  
London SW1P 3DB.  
Telephone 01-215 5538/3356

**Reference**

*British business*, 29 August and 3 October 1980 (HMSO) (Price 75p net each)

## OVERSEAS FINANCE

### United Kingdom Balance of Payments 1980 Edition (the Pink Book)

Detailed figures for each of the last eleven years were published on 1 September in the latest Pink Book. Although there are no new tables in this edition, there are a number of new series. These include receipts by UK companies for research and development work and earnings from consultancy work not previously covered. An index has been added giving table references for key items. The section dealing with private investment – its financing and effect on the balance of payments (previously section 9) – has been dropped. This is primarily because of the abolition of exchange controls during 1979 which resulted in a change between the first and second halves of the year in the circumstances governing financing.

There have been fairly extensive revisions to the figures previously published. To some extent this has been due to new series or improvements in the methods of estimating certain existing series and such changes extend back over a number of years. Revisions have also resulted from later and more complete information.

**Reference**

*United Kingdom Balance of Payments 1980 Edition* (HMSO) (Price £7.00 net)

### Conditions in the syndicated medium-term euro-credit market

An article in the Bank of England's September 1980 *Quarterly Bulletin* describes the method of operation and trends in this important channel for the international flow of capital. The article is in three sections. The first describes the evolution of the syndicated loan market, particularly since formal statistics were first collected in 1973, these statistics show that publicised credits totalling US \$72 billion were arranged in 1979, 25 per cent up on 1978's level. This section also describes conditions in the market over this period, how market conditions are defined and in particular assesses the spread as an indicator of conditions. The second section outlines some of the hypotheses that have been put forward to explain the developments of the market. These can be divided into

those which emphasise the role of demand by borrowers and those which concentrate on factors influencing the supply of loans by banks. The impact of oil money on both these hypotheses is considered, along with the 'recycling' role of the Euro-credit market, the nature of the US balance of payments, the structure of bank portfolios and the level of interest rates. The third section describes an approach that has been found useful for analysing the behaviour of the market and for examining the alternative hypotheses. This section also draws out the implications of the preferred approach for the validity of these hypotheses as well as explaining the historical development of the market. Over the period 1973–1979 there has been a pattern in conditions, to the advantage of the borrowers in 1973–74 and 1978–79, and to the advantage of the banks in the intermediate years.

The Bank's *Quarterly Bulletin* (at £4 per copy) may be obtained at the address given on page 37.

## OVERSEAS AID

### British Aid Statistics 1975–1979

The 1980 edition of *British Aid Statistics* will be published shortly. The volume contains 35 tables showing many different analyses of Britain's aid flows to developing countries.

The text in this year's issue has been extensively revised and interspersed with small illustrative tables. It introduces the reader to the different concepts that are used in measuring aid and shows the relationship between these concepts.

The terms used in the tables are clearly defined and the different ways in which aid can be categorised are described. The text discusses the problem of allocating *financial aid* according to a country's need for aid as indicated by its income level and population. It goes on to describe the *flows of people* to provide technical co-operation through the posting of advisers overseas and the training of developing country nationals in their own countries or abroad. The text concludes by pointing out where readers may find statistics of British aid in other publications.

The tables in the body of the publication follow the same pattern, initially showing aid according to the international basis of 'official development, assistance' and relating this to the concept used for most of the figures, namely public expenditure. Public expenditure on overseas aid is then broken down into bilateral (direct to recipient countries) and multilateral (channelled through institutions such as the UN, the World Bank and the EC); project and non-project; grants and loans; commitments and expenditure; financial aid and technical co-operation; purposes of financial aid and



economic sector. Tables showing the geographical distribution of these major types of expenditure follow.

The number of people working overseas who are financed by the aid programme is shown by country and field of activity. There are similar tables giving the number of students and vocational trainees receiving specialised training outside their own country. The volume concludes by giving three tables of comparative figures for other aid donors who are members of the OECD Development Assistance Committee.

#### Reference

*British Aid Statistics 1975-1979* (HMSO) (forthcoming)

## INTERNATIONAL

### International unemployment statistics

An article in the August 1980 issue of *Employment Gazette* gives details of the variations in definitions and coverage of unemployment statistics in different countries and explains the problems of drawing international comparisons.

Broad trends can generally be assessed readily from the individual countries' series based on national definitions; for several years a table in the *Gazette* has provided the most recently available national unemployment figures for member states of the European Community and a wide range of other industrial countries.

Because of the different sizes of the labour force in different countries, internationally comparable unemployment figures are best expressed in rates. Adjustments have to be made for the differences of coverage and definition and this is not an easy task. Where countries obtain their statistics as a by-product of a state employment service or unemployment insurance scheme, conversion is dependent on a secondary source of unemployment statistics, such as the United Kingdom General Household Survey. The article summarises the work done by different organisations towards making comparable estimates, in particular the United States Bureau of Labor Statistics (BLS) and the Organisation of Economic co-operation and Development (OECD).

#### Reference

*Employment Gazette*, August 1980 (HMSO) (Price £1.65 net)

### International road haulage survey

A new sample survey of International Road Haulage was initiated by the Department of Transport in July 1979. The survey covers international journeys carried out by the British road goods vehicles and parallels the Department's well established survey of domestic journeys 'The continuing survey of Road Goods Transport'. Information is collected from road hauliers about a sample of journeys including: place of loading and unloading;

distance travelled; and weight and type of goods carried.

The Road Haulage Association and the Freight Transport Association were consulted during the initial planning for the survey and both indicated their approval. The survey is also being carried out with the help of Ro/Ro ferry operators, who supply the sample of registration numbers for vehicles travelling abroad. Their co-operation is gratefully acknowledged by the Department. One of the reasons for conducting this new survey is to provide statistics required by the European Community under Directive 78/546 'Statistical returns in respect of carriage of goods by road, as part of regional statistics'. The Community will be making a financial contribution to the cost of carrying out this survey for the first three years.

A report has been prepared presenting the results from the survey in respect of the six-month period July-December 1979. This report also contains a detailed description of the methodology of the survey. Copies can be obtained from the following address at a cost of £4.50 plus postage and packing.

Statistics Transport and General Division,  
Room S12/02A,  
Department of Transport,  
2 Marsham Street,  
LONDON SW1P 3EB.  
Telephone 01-212 3229

### United Kingdom air transport

An article in the September issue of *Economic Trends* gives a breakdown of the areas of revenue of the UK airlines, on international flights only, and their relevance to the balance of payments.

In the years 1972 to 1978 the growth of the UK industry was slightly less than the world total, with that of developing nations being higher. The UK airlines rely more heavily upon passenger flights for revenue than average ( $\frac{3}{4}$  as opposed to  $\frac{2}{3}$ ). Passengers are drawn roughly in equal proportions from UK residents and non-residents. Throughout the period the UK airlines have held a consistent 50 per cent market share from routes to and from the UK, although their share is greatest on the shorter routes.

The Balance of payments accounts include only flows between foreign residents or airlines and a UK airline and until 1978 the surplus steadily increased. The Civil Aviation account also includes disbursements by UK airlines abroad and by foreign airlines in the UK for such items as airport charges, purchases of fuel and stores charter payments. The largest of these for UK airlines in 1979 was expenditure on fuel and oil.

#### Reference

'United Kingdom air transport: an international industry' by Graeme Walker, *Economic Trends*, September 1980 (HMSO) (Price £6.45 net)



## ENVIRONMENT

### Environmental pollution

A third issue of the *Digest of Environmental Pollution and Water Statistics* will be published by HMSO for the Department of the Environment. This updates the information contained in the 1979 edition (described in *Statistical News* No 48). The statistics are grouped by type of environmental pollution: air, fresh water, marine and noise. There is a separate section on waste, and for the first time, a section on water supply and use, and includes data previously published in the 'Water Data' series. The air pollution section updates the range of data on smoke, sulphur dioxide, nitrogen oxide, carbon monoxide, hydrocarbon, radioactive substances, lead and trace elements including zinc, arsenic, iron and vanadium. In the marine section it has been possible to include detailed and up-to-date statistics on sewage sludge, industrial waste and dredgings dumped at sea, and results of the 1978 'mussel watch' survey carried out to assess the concentrations of trace metals and other substances. Preliminary results from the UK part of the 1979 EC blood-lead survey are also presented.

Queries about the publication should be addressed to:

Department of the Environment,  
Room S13/09,  
2 Marsham Street,  
LONDON SW1P 3EB

#### Reference

*Digest of Environmental Pollution and Water Statistics* (HMSO 1980) (Forthcoming)

## RESEARCH AND DEVELOPMENT

### Research and development statistics

Expenditure and employment on research and development by British industry in 1978 formed the subject of a recent survey by the Department of Industry which updates the results of the 1975 survey. An article in *British business* dated 8 August gives an outline of the results.

The survey covered private industry, public corporations, research associations and private research laboratories. Information was collected on expenditure and employment for the calendar year 1978 or an appropriate financial year. Analyses have been made by type of expenditure (current or capital), the product group of the research, the type of research (basic, applied or development), and other factors.

Price indices which proxy the cost of research and development were used to deflate expenditure figures to constant 1975 prices thus facilitating comparisons between different years. This shows that, overall, there was a 17 per cent rise between 1975 and 1978 to the highest

recorded level. The increase was not uniform across all product groups, of course, and in particular the increase for electronics was very much above the average.

Full information about earlier surveys can be found in *Business Monitor* MO 14, 1975, *Industrial Research and Development Expenditure and Employment* (HMSO) (Price £2.00 net). A further edition of the *Business Monitor*, planned to appear later this year, will give the 1978 results in greater detail.

Further information about statistics of R&D may be obtained from:

Economics and Statistics 6B,  
Department of Industry,  
Room 106,  
Abell House,  
John Islip Street,  
London,  
SW1P 4LN.  
Telephone: 01-211 7152 or 01-211 5156

#### Reference

*British business*, 8 August 1980 (HMSO) (Price 75p net)

## CONFERENCES AND MEETINGS

### Institute of Statisticians Conference 1980

#### *Censuses and Sample Surveys*

This conference was an international affair with almost half the delegates coming from abroad. It attracted people from North and Latin America, from many European countries, from Africa, the Middle East, from Asia and from Australia. In the UK, central government sent a number of delegates of which the majority (9) were from OPCS, the department that is the most closely connected with the subjects of the conference. With such a heterogeneous conference, not all of the sessions could be of interest to everyone. The talks of particular interest to governmental work in the UK were by Barbara Bailar and Ivan Fellege who described the census evaluation programmes of the US and Canada respectively, and by Seymour Sudman who gave a wide ranging review of the work done to measure and reduce survey response errors, i.e. errors in answers obtained which may be due to the informant misremembering, giving different answers dependent on question wording etc. It is intended that these three papers together with Frank Whitehead's illuminating review of the management and methodological problems connected with the government social survey and the two other *invited* papers should be published in December's issue of the *Statistician*, the Institute's quarterly journal. The other, *contributed*, papers will be published, if accepted, in later issues. Three of the nine delegates from Social Survey Division gave (contributed) papers; there was one by Paul Wilson



which analysed and discussed the under estimation of alcohol consumption from various surveys compared with estimates from Customs and Excise, and another which was written jointly by Jean Martin and Bob Butcher, that presented the results of a methodological study by Social Survey Division into the quality of proxy information, i.e. information collected from one household member about another. As with most conferences, much of the benefit arises from discussions outside the lecture hall. Two examples of projects that may be altered as a result of discussions at the conference are the Iranian household expenditure survey and the British Labour Force Survey.

#### **Time series and forecasting special interest group**

This now has 2,300 members from 61 countries, who subscribe to the quarterly newsletter *TSA&F News* (see *Statistical News* 43.43). An inner core of 140 especially motivated people provides a world-wide network for information collection and distribution, which spans much of the globe and a great many parent subject disciplines. This is expected to form the basis for a future TSA&F Society. Help from other volunteers will always be very welcome.

Recently, a monthly broadsheet (the *TSA&F Flyer*) has been introduced to supplement the newsletter and allow the speedy spread of more pressing news. This currently has a circulation of 3,500 copies going to 68 countries. An academic journal of the highest standard started production in October 1980 – its editorial board consists of Dr H. Akaike, Professors T. W. Anderson, D. R. Brillinger, C. W. J. Granger, E. J. Hannan, P. Newbold, E. Parzen, M. B. Priestley, Dr E. A. Robinson and Professors M. Rosenblatt, G. C. Tiao and A. M. Yaglom.

More concrete services for those interested include TSA&F Instructional Courses, of which 10 have been offered so far – in the United Kingdom, Spain and Norway – and a series of major International Conferences. These have been held at Cambridge, Nottingham, on Guernsey and at Houston (USA). The next 3 planned are for Valencia (Spain), Detroit (USA) and Amsterdam (Holland). So far, all the Proceedings have been published.

TSA&F Seminars have also been given in Austria, Belgium, Czechoslovakia, Finland, Holland, Norway, Spain, West Germany, United Kingdom and the USA, and future ones are scheduled for Argentina, Canada, Brazil, Poland and Venezuela.

For all further details of these various activities, please write to:

O. D. Anderson,  
TSA&F Special Interest Group,  
9 Ingham Grove,  
Lenton Gardens,  
Nottingham NG7 2LQ,  
Telephone (0602) 708085,  
international code (44602)

## **GOVERNMENT STATISTICAL SERVICE**

### **Computing support for statistical divisions in the Departments of Environment (DOE) and Transport (DTp)**

A major review of statistical computing services in the Departments of Environment and Transport took place between January and June 1980.

Statistical computing services had grown in a fragmented fashion since 1970 when DOE was formed. A degree of tension had developed between statisticians and management services who were responsible for providing computing services. The study team found that services were being provided from a wide range of machines located both inside and outside of government; supported by DP staff in a variety of organisations; and funded from a number of sources. The total spent in 1979 was £2¼ million. There was clear scope for rationalisation and improvement.

Statistical services in DOE and DTp cover a wide range of subjects reflecting the scope of the Departments' work. Some 80 separate jobs using computer support were identified. Their scale varied dramatically. The major departmental uses of statistics were in connection with policy formation and control. Otherwise uses and users, both inside and outside the departments, were varied and extensive.

Major points arising from the study were as follows: The need for statistical analysis software was not so pressing as that for data management software linked with report generation facilities.

All facilities should be user-orientated and available through high level, non-procedural, commands.

There was a case for a phased introduction of in-house mini-computers, operated under statistics management, backed up by a possible residual mainframe and commercial bureau use; subject to central standards and support.

Project and systems support should be provided by an in-house capability working closely with the statisticians concerned.

A training and development programme was necessary to equip the departments in deciding the correct DP tools to tackle each job.

A pre-requisite for all of this was the need for an information (data) strategy – a statistician data manager



should be appointed to develop and control this aspect. Statistical systems were essentially information systems – unlike administrative data processing systems. Skills in information system analysis and design should be acquired by a statistician and a DP specialist both working from within the DP organisation.

More consistent and comprehensive measurement and control systems were required.

Close co-operation between statisticians, DP specialists and end users of statistics was essential.

A shortened version of the Study Report is available for use within government. Enquiries to:

Mrs S W Ross,  
CCTA/SSS,  
Riverwalk House,  
Telephone 01-211 7754

#### **New head of information for Department of Employment**

*Mr Brian L Mower* has been appointed Head of Information for the Department of Employment following the retirement of *Mr Dick Seaman* the present Director.

*Mr Mower* is presently Deputy Head of Information at HM Treasury, prior to which he was head of the Central Statistical Office's publications and information branch.

## **OTHER PUBLICATIONS**

#### **National Institute Economic Review No 93**

Four articles of note appeared in the August issue of the *National Institute Economic Review* (Price £4.00 net). The first is by *Jenny Morel* and is entitled 'Real Prices of Energy'.

During the last eight years there have been dramatic increases in the world price of oil. However, the incentive to use less energy comes from increases in the 'real' prices paid by consumers for fuel and the increases in these prices have been far smaller. This note examines the changes since 1973 in real prices for different fuels in different sectors in the United Kingdom and compares these price movements with those in some other Western developed countries.

The second article by *R. A. Batchelor*, *R. L. Major* and *A. D. Morgan* and entitled 'Industrialisation and the Basis for Trade', outlines the principal results of an exhaustive study of Industrialisation and the Basis for Trade which will be published by Cambridge University Press later this year.

The third article, by *C. F. J. Brown* is entitled 'Industrial Policy and Economic Planning in Japan and France'. The relative decline of British industry has prompted some suggestions that Britain should model its planning and industrial policies on Japanese and French experience. This article considers the role of the Ministry

of International Trade and Industry (MITI) in Japan and the Commissariat General du Plan in France and examines the mechanisms through which planning and industrial policy have operated. It concludes with a discussion of the relevance of this experience for the UK where government policy appears to have been less successful.

The fourth article, by *G. F. Ray* and *H. J. Timm*, is entitled 'Forecasting Commodity Prices'. After a brief description of the National Institute's approach to forecasting the price development of the major commodities in world trade this note presents a simple method for checking the aggregate outcome of that exercise.

#### **World Fertility Survey**

Three more in the series of Annual Reports on this world-wide survey have recently been published.

No 24 The Flemish Survey on Family Development, 1975–1976: A Summary of Findings (June 1980);

No 26 The Kenya Fertility Survey 1978: A Summary of Findings;

No 27 The Jamaica Fertility Survey, 1975–76: A Summary of Findings (July 1978).

Further information may be obtained from:

Publications Office,  
International Statistical Institute,  
428 Prinses Beatrixlaan,  
2270 AZ Voorburg,  
Netherlands

## **LATE ITEMS**

#### **Revisions to index numbers of industrial production**

The first estimates of the monthly index of industrial production are published six weeks after the end of the month to which they relate. In achieving this, the provisional index numbers are based on partial information and are subject to revision as more complete information becomes available. *Output Measures: Occasional Paper No 12 – 'Revisions to index numbers of industrial production'* explains the reasons for revisions and describes the extent to which the aggregate index numbers and the major published components have been revised since the introduction of the 1975-based estimates in September 1978. It concludes that initial assessments of industrial activity are rarely affected by subsequent revisions to provisional estimates. Copies of the Occasional Paper are available, on request, from:



Branch 5,  
Central Statistical Office,  
Great George Street,  
London,  
SW1P 3AQ.

### **Survey of inland origins and destinations of UK international trade in 1978**

A report of this survey has been published jointly by the Department of Transport and the National Ports Council. It contains over eighty tables describing in detail the inland origins of exports and destinations of imports passing through UK sea ports, the modes of transport used in moving these goods to and from the ports, and the through transport routes used between the UK and overseas countries. This information is expected to be of particular interest to shippers, shipping companies, forwarding agents and transport operators.

The survey was carried out by HM Customs and Excise for the Department of Transport and the National Ports Council. The method adopted was to take a sample of items from Customs' main computer files of imports and exports. These files are compiled from returns from traders and contain much of the information required. Further information, including the place of origin or destination of the goods within the UK and the mode of transport to and from the port, was obtained by sending a simple postal questionnaire to the organisation that had completed the original Customs return. Response to the postal survey was excellent with about 80 per cent of questionnaires returned fully completed and a further 10 per cent partly completed. Just over 1 per cent of items were sampled (about 80,000); but by designing the sample carefully it was possible to obtain coverage of about 50 per cent of import and export tonnage. The survey covers all trade through UK sea ports in 1978 excluding fuels. The report contains a fuller description of the survey methods.

Further information about the survey and copies of the report (price £35, including postage and packing) are available from:

Statistics Transport B Division,  
Room S19/19,  
Department of Transport,  
2 Marsham Street,  
London SW1P 3EB.  
Telephone: 01-212 7513

or

Director of Economics and Statistics,  
National Ports Council,  
Commonwealth House,  
1-19 New Oxford Street,  
London, WC1A 1DZ.  
Telephone: 01-242 1200 Ext 273



---

# Alphabetical Index

---

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number, e.g. 49.30 signifies number 49, page 30.

Generally speaking articles relating to the United Kingdom, Great Britain, England and Wales or covering several geographical groups are not indexed under these groups, but topics with a significant regional interest are indicated, e.g. regional earnings. Articles and notes dealing particularly with Scottish statistics are indexed under 'Scotland' as well as the topic, e.g. 'Scotland, population projections', and similarly for Wales and Northern Ireland.

The following conventions have been observed in printing this index: references to items appearing in articles are shown by (A); italics are used for the titles of published books or papers.

- abortion statistics, 50.21
- accommodation
  - Scottish secondary school model, 44.30 (A)
- agricultural census and surveys
  - April sample pig enquiry, 50.24
  - August 1979 sample pig census—Scotland, 48.31
  - December census, 45.31, 49.25, 50.24, 51.34
  - December, 1978 glasshouse census, 49.25, 1979, 51.34
  - December, Scottish, 46.29, 49.26, 50.24, 51.35
  - estimated yields and production of crops, 1979 harvest, 51.35
  - The Hardy Nursery Stock Survey, 49.25
  - in Scotland, 43.36, 44.46, 46.29
  - irrigation survey, 45.31
  - June census, 43.35
  - June 1978 agricultural census, 47.40
  - June 1979 agricultural census 47.40, 48.30, 49.25, 50.24
  - June 1980 agricultural census, 51.35
  - June 1979 glasshouse census, 50.24
  - June 1980 horticultural census, 51.35
  - June 1979, Scottish agricultural census, 47.41; final results, 48.30
  - June 1980, Scottish agricultural census, provisional results, 51.35
  - October census of vegetables and flowers, 46.29, 49.25
  - pig census, August 1978, Scotland, 44.46
  - sample pig enquiry, April 1980, 51.35, Scotland, 51.35
- agricultural land: its ownership, price and rent, 48.31
- agricultural land prices, 50.24
- agricultural landscapes, new, 46.29
- agricultural price indices, UK, 48.30
- Agricultural Statistics for the United Kingdom*, 51.35
- aid to developing countries, 44.58, 46.37
- air transport, United Kingdom, 51.39
- ambulancemen, pay, 47.38
- analysis, hospital activity, 44.41
- analysis of UK manufacturing (local units by employment size, 50.25
- animals, experiments on living, 43.36, 47.40
- Annual Abstract of Statistics*, 1978 and 1979, 44.59, 48.42
  - amendments to, 44.59, 48.42, 49.37
- armed forces pay, 51.31
- ASLIB, 53rd annual conference of, 46.39
- Attitudes to Letting*, 43.41
- balance of payments
  - North sea oil and gas, 47.47
  - United Kingdom Balance of Payments 1967-77*, 43.43
  - United Kingdom Balance of Payments 1968-78*, 47.46
- balances, commodity, construction and use of, 44.52
- balance sheets, personal sector, 47.45
- Bank of England notes, 43.42
- Bank of England Quarterly Bulletin*, 44.56, 46.36, 47.47, 49.32, 49.34, 50.29
- benefits and taxes, effect on household income, 44.53
- benefits, invalidity rise in expenditure, 47.3 (A)
- birth statistics, 51.28
- blindness and partial sight, 45.29
- Boards of Directors in British industry, 47.41
- British Aid Statistics*, 44.58, 48.40, 51.38
- British Gas Corporation 78/79 Report, 46.32, 79/80, 50.26
- British Labour Statistics*, 44.42
- British Waterways Board manual workers—pay, 50.22
- Business Monitor series, 43.37, 44.44, 44.60, 45.31, 46.30, 46.38, 47.42, 48.34, 49.26, 50.25
- capital, measurement of, 51.37
- capital gains survey, 46.34
- Cancer Statistics: survival*, 49.24
- Census of Employment, 46.27, 49.25



- Census of Population 1981, 43.27, 49.03, 50.18
  - census test, 1979, 46.19
  - dwelling stock estimates, 49.01 (A)
  - postcodes in Scotland, 47.21 (A)
  - White Paper, 43.27
- Census of Production
  - historical record 1907–1970, 43.39
  - industry monitors
    - 1974 and 1975, 43.46, 44.50, 45.31, 46.30
    - 1976, 46.31, 47.42, 48.34
    - 1977, 48.34, 49.26, 50.25
    - 1978, 51.35
  - provisional results
    - 1977, 44.51
    - 1978, 48.35
  - Summary volumes
    - 1973, 43.37
    - 1974 and 1975, 44.50, 46.31
    - 1976, 48.36
    - 1977, 51.35
- child poisoning, 48.28
- cigarette smoking, 43.32
- Civil Service Statistics*, 46.29, 50.23
- classification, socio-economic of census enumeration districts, 46.20
- closed shop agreements, 48.31
- commercial companies, financial balances, 44.55
- commercial and industrial floorspace statistics, 43.39, 44.47, 45.33, 48.32
- commercial and industrial property, 48.32
- Committee
  - National and Local Government statistical liaison, 43.24
  - Production Statistics Advisory, 46.30
  - Wilson, 43.42
- commodities, index of, 48.33
- commodity balances, construction, 44.52
- Common Customs Tariff, see European Community
- companies
  - industrial and commercial, 43.15 (A)
  - constructing a sampling frame of industrial and commercial, 44.6 (A)
  - survey of shareholdings in, 45.35
- company
  - boards, composition of, 48.38
  - boards of directors in British industry, 47.41
  - finance, and profitability, 44.54, 48.39
  - liquidity survey, 50.28
  - organisation and worker participation, 47.39
  - profitability, 48.39
  - reports for national statistics, 44.3 (A)
- computer output microform (COM), 45.18 (A)
- computing, see data processing
- concentration ratios, 43.36, 48.33
- conference
  - ASLIB, 53rd annual, 46.39
  - COMPSTAT 1980, 49.35
  - European statisticians' working party, 45.06 (A), 46.38
  - Fourth International Time Series Meeting, 50.32
  - Government Statistical Service Senior Staff Conference, 48.42
  - Institute of Statisticians, 49.36, 51.40
  - statistics' users, 44.1 (A)
  - Third International Conference for Public Utilities, 48.41
  - Time series and forecasting special interest group, 51.41
  - visiting fellowship scheme, 47.48
  - W F S, 1980, 46.39
- construction industry
  - contractors' census 1977, 43.44, 1978, 48.33
  - materials price index, 44.51
  - Statistics collected by the Ministry of Works 1941-1956*, 48.31, 49.27
- consumer
  - credit, 44.55, 47.45
  - purchasing power parities, EEC, 48.40
- consumer durables, stock of, 45.31, 47.41
- Courrier des statistiques*, 43.43
- convictions, sentence, etc., 46.26
- criminal statistics
  - Home Office bulletin, 45.27 (A)
  - offences relating to drunkenness, 43.30
  - Statistics of the Criminal Justice System, England and Wales, 1968-78*, 48.26
  - Criminal Statistics, England and Wales* 1978, 47.36
- Current Cost Accounting, price index numbers for, 49.33
- data bank, regional highway traffic model, 46.32
- data processing
  - COMPSTAT 78 symposium, 43.1 (A)
  - COMPSTAT 1980, conference, 45.38
  - computer output microform (COM), application of, 45.18 (A)
  - computing support for statistical divisions in the Departments of Environment and Transport 51.41
  - conference of European Statisticians' Working Party, 45.06 (A), 46.38
- Defence
  - Employment and defence, 51.15 (A)
- Defence Estimates, statement on, 49.29
- Defence Statistics and NATO, 45.12 (A)
- dental health, adult, 50.20
- dentists' remuneration, 50.22



- developing countries, budgetry structure in, 49.34
- Digest of United Kingdom Energy Statistics*, 50.26
- Digest of Welsh Statistics*, 44.38
- dissemination of statistics: Statistics Users' Conference 1978, 44.1 (A)
- distribution of income and wealth,
  - Royal Commission, 48.37
- diversification and competition*, 47.43
- dividend payments: some recent trends, 49.32
- dockyard factory, scheduling, 44.12 (A)
- drawing rights, recent developments, 46.37
- drinking in England and Wales, 51.29
- drownings in Scotland, 51.29
- drugs, misuse of, 43.32, 46.27, 51.29
- drunkenness, 43.30
- Dwelling and Housing Survey,
  - National, 42.8 (A)
  - Second Report, 51.27
  - Welsh, 50.19
- dwelling stock estimates, 49.1 (A)
- earnings
  - and hours by occupation, 51.32
  - employees, regional and sub-regional, 46.28
  - indices, seasonal adjustment of, 50.23
  - New Earnings Survey, 1978*, 43.34, 1980, 48.29
  - Survey into Earnings and Hours by Occupation, 48.29
  - Survey of the Earnings of Manual Workers in Certain Industries, 49.24
- econometric model forecasts, a comparison of two, 46.37
- Economic Trends Annual Supplement*, 44.59, 48.42
- Economic Trends*, 43.41, 47.47
- Economic Trends, Welsh*, 46.19
- economy
  - a glimpse of the hidden economy in the national accounts, 49.32
  - cyclical indicators for the UK economy: some changes, 50.28
- education
  - Adult, 51.29
  - destination of teachers, 47.36
  - further education students, 1979-80, 51.30
  - primary in England, 44.25 (A)
  - Scottish secondary school accommodation model, 44.30 (A)
  - Scottish teacher demand model, 48.28
  - Secondary education in England, 48.5 (A)
  - 16-19 Participation rates and socio-economic background, 48.28
  - SED statistical bulletins, 47.37, 51.30
  - trends in entry to higher education, 51.29
  - University statistics, 51.30
- EEC, see European Community
- Election expenses*, 48.43
- electoral register, extension of the canvass of, 50.32
- electoral registration and students, 47.14 (A)
- electoral statistics 1979, 49.21
- employment
  - and defence, 51.15 (A)
  - census of, 46.27, 49.25
  - Department of, statistics, 51.32
  - EEC labour force survey, 46.22, 51.33
  - Equal Opportunities Commission, 45.30
  - industrial disputes, 45.30
  - job seekers and the employment service, 49.29
  - manpower planning, 42.26, 46.28, 49.24
  - manufacturing (local) units, UK, 44.51
  - Monthly and quarterly series of employees in, 49.25
  - public and private sectors, 48.43
  - sector and industry analysis, 44.44
  - women and shift work, 45.30
- empty housing in England, 49.23
- energy
  - UK statistics, 46.32
  - British Gas Corporation, 46.32
  - Energy forecasting methodology*, 43.40
  - Energy Projections 1979*, 48.36
  - Energy Statistics, Digest of United Kingdom*, 50.26
- engagements and vacancies, national survey of, 45.29
- engineering
  - in Britain, West Germany and France, 45.33
- engineering industry, Training Board publications, 49.38
- England, empty housing in, 49.23
- environmental pollution, 44.58, 48.41
- Equal Opportunities Commission, 45.30
- equipment leasing, 51.36
- estimates, population, 44.36, 49.22
- euro-currency interest rates, 45.36
- European Community
  - consumer purchasing power parities, 48.40
  - labour force survey, 47.47
  - statistical publications, selected bibliography, 44.58
- European Monetary system, intervention arrangements in, 46.37
- European Statisticians' Working Party, conference, 45.06 (A), 46.38
- expenditure, government's plans,
  - 1979-80 to 1982-83, 44.56
  - 1980-81, 48.39
  - 1980-81 to 1983-84, 49.30
- expenditure, shortfall in public, 46.36
- expenditure, undergraduate income and, 46.34
- experiments on living animals, 46.36, 47.40
- export credit, 43.43
- export prices of primary products, 45.37



- factory, scheduling a dockyard, 44.12 (A)  
*Facts in Focus*, fifth edition, 49.36  
*Family Expenditure Survey*  
 1977 Report, 44.43  
 1978 Report, 47.40  
 response rate, 46.22, 1979, 51.28  
 year ending June 1978, 45.34  
 family formation, 47.40
- farm classification in England and Wales 1976-77, 49.25
- fellowships visiting scheme, 47.48
- fertility  
 world survey, 46.39, 46.40, 49.36
- financial information guide to Public Sector, 44.56
- financial statement and budget report, 46.35, 49.33
- Financial statistics (see statistics users' conference)  
 (also see local government)
- Financial Statistics*, 46.35, 47.46, 48.38, 50.30  
*Explanatory handbook*, 46.35, 49.33  
 improvements to, 43.42, 44.54, 45.36
- Fire Statistics*, 49.22
- floorspace statistics, 43.39, 44.47, 49.28
- food  
 consumption, 43.35  
 (see also agricultural and food statistics)  
 processing cost, and self-sufficiency, 47.41  
 self-sufficiency in the United Kingdom, 44.45
- footwear, surgical National Health, 44.42
- forecasting methodology, energy, 43.40
- forecasts, comparison of two econometric, 46.37
- fuel  
 British Gas Corporation, 1977 Report, 42.30, 46.32  
*United Kingdom Energy Statistics, Digest of*,  
 1979, 46.32
- gambling statistics, 50.19
- gas  
 British, Corporation, 78/79, 46.32, 79/80, 50.26
- General Household Survey, 46.23, 49.23  
 summary of questionnaire content, 46.23
- goods by road, transport of, 47.44
- government expenditure plans, 44.56, 48.39
- Government Statistical Service, appointments and  
 changes, 49.38, 50.32
- Government Statistical Service Senior Staff Conference,  
 48.42
- Government statistical services, Review by  
 Sir Derek Rayner, 48.44
- Guide to Official Statistics No 3*, 49.37
- Health and personal social services for Wales, 47.33  
*Health and Safety Statistics, 1976*, 45.29, 50.19
- health and safety at work—health risks in the rubber  
 industry, 48.35
- Health and Social Security, Department of, in-patient  
 statistics, mental illness, 47.37
- health risks at work, method for surveying, 47.23 (A)
- Home Office statistical bulletin, 45.27
- hospital activity analysis, 44.41
- hospital in-patient figures for England and Wales, 50.20
- hours and earnings, Survey, by occupation, 48.29
- housebuilding, Price index of public sector, 48.31
- households  
 effects of rising prices on, 45.33  
 prices and different types of, 43.41  
 Runcorn new town survey, 47.49
- Housing and construction statistics: new publications,  
 49.27, 50.25
- housing,  
*Attitudes to Letting*, 43.30  
 empty housing in England, 49.23  
 Welsh housing and dwelling survey, 50.19  
*Housing Statistics, Scottish*, 43.30, 45.26, 49.23, 50.19
- immigration  
*Immigration Statistics*, 46.21
- imports and exports  
 of finished manufactures, 46.30
- Income  
 distribution of, 1976/77, 45.34  
 1977/78, 49.31  
 effects of taxes and benefits on households, 44.53  
 a follow-up survey of, 51.02 (A)  
 personal, survey of, 45.34, 49.31  
 postgraduate, and expenditure, 45.35  
 undergraduate, and expenditure, 46.34
- Income and wealth, Royal Commission, 48.37
- industrial and commercial companies, 43.15 (A),  
 44.6 (A), 44.47
- industrial disputes and visible trade figures, 47.47
- industrial production, index of, for Wales, 45.32
- industrial sectors, the profitability of UK, 48.39
- industry  
 analysis of imports and exports, increased detail,  
 45.36  
 Boards of Directors, British, 47.41  
 British, joint consultations in, 51.34  
 closed shop agreements in British industry, 48.31  
 the closed shop arrangements in British industry,  
 49.28  
 financing British, 51.37  
 method of deflating manufacturing stocks, 44.52  
 employment analysed by, 44.44  
 Survey of the Earnings of Manual Workers in  
 Certain Industries, 49.24



- Infant and perinatal statistics, 51.28
- infant mortality, 43.28
- infectious diseases, statistics of, 49.24
- inflation and management accounting, 50.29
- Inland Revenue
  - publications of, 46.34, 50.27
  - Statistics, 1978, 45.34
- in-patient statistics, mental illness, 47.37
- insolvencies in England and Wales, monthly figures, 51.37
- Insurance Business Statistics*, 49.32
- insurance companies balance sheets, 43.42
- International comparison of labour statistics, 48.43
- international comparison of profits, 47.48
- international comparisons of public sector employment, 50.12 (A)
- international comparisons, taxes and social security contributions, 44.58, 48.41
- international migration, 48.25
- international time series meeting, 46.39
- invalidity benefit, rise in expenditure, 47.3 (A)
- investment intentions, surveys by Department of Industry, 44.47
  
- Kenya, Discussion of a Social Accounting Matrix in, 49.06 (A)
  
- labour
  - costs, survey of, 51.33
  - human resources in statistical services, 46.1 (A)
  - regional civilian projections, 43.27
  - sexual, divisions within, 44.44
  - Statistics, international comparisons, 48.43
- labour force survey, EEC, 47.47, 51.33
- Labour Statistics, British*, 44.42
- land and buildings, trends in sales, 45.35, 49.31
- landlords, attitudes to letting, 43.31
- land prices and rents: decentralisation to Wales, 44.46
- library manpower statistics, 46.11 (A)
- Life tables, 46.20
- Liquor licensing statistics*, 49.22
- local authority borrowing, 48.38
- local authority manual workers pay, 51.31
- local authority personal social services summary of planning returns 1977-78 to 1980-81, 48.29
- local authority survey of housing and population, 45.28
- local authority vital statistics, 50.18
- local government
  - financial statistics, 43.42, 46.36
  - statistical liaison committee, 43.24
- local government financial statistics, 43.42, 46.36
  
- manpower
  - Civil Service Statistics*, 46.29
  - planning, 43.34, 44.43, 45.30, 46.28, 48.29, 49.24, 50.23, 51.30
  - newly qualified scientists, engineers and technologists, 48.29
  - Royal Navy, 47.18 (A)
  - the second generation of MOD manpower models, 51.11 (A)
- manufacturing businesses 1979, classified list of, 48.33
- manufacturing industry
  - apprentices and trainees, 51.11
  - international integration and trade performance, 49.34
  - local units by employment size, 44.51
  - method of deflating stocks, 44.52
- marital condition, projections of population by, 44.17 (A)
- marriage and divorce, 46.20
- maternity rights, women's experience of, 51.34
- mental illness
  - and mental handicap statistics, 44.42
  - care of the mentally handicapped, 45.29
  - in-patient statistics, 47.37
  - Welsh statistics, 44.38
- migration
  - migration assumptions for sub-national population projections, 48.13 (A)
  - migration assumptions for the 1979-based sub-national population projections, 51.6 (A)
  - international, 48.25
  - inter-regional, since 1971, 49.21
- Ministers and MPs—remuneration, 47.37
- model structural, of retail trade, 47.44
- Monthly Digest of Statistics*, 49.36
- mortality
  - infant, 43.28
  - rubber industries, 48.35
  - statistics: accidents and violence 1978, 51.29
  - statistics: area, 1978, 50.20
  - statistics: cause 1978, 49.21
  - statistics: childhood and maternity, 1978, 50.20
- motor vehicles
  - offences relating to, 43.40
- multivariate analysis course, 46.39
- Municipal airport manual workers—pay, 50.22
  
- national accounting and pension funds, 47.7 (A)



- National debt  
distribution of, 48.38
- National and Local Government Statistical liaison committee, 43.24
- National Dwelling and Housing Survey, 44.40, 45.28
- National Food Survey*,  
Reports for 1975, 1977, 44.44, 1978, 45.31, 1979, 50.24
- National Health Service  
misuse of drugs, 43.32, 46.27
- National Health surgical footwear, 44.42
- National Income and Expenditure*  
1967-77, 43.41, 1980, 50.33, 51.36
- National Institute Economic Review*, 44.57, 46.35, 47.46,  
49.39, 50.26, 51.42
- National Institute, gross output forecasts, 46.35
- national saving  
real national saving and its sectoral composition, 50.29
- NATO and defence statistics, 45.12 (A)
- NEDO's data bank, 43.4 (A)
- needs assessment study, 48.39
- New Earnings Survey*  
1978, 43.34, 45.30  
1979, 44.43, 47.40  
1980, 48.29, 51.32
- NHS ancillary staff, pay, 47.38
- NIESR, econometric model forecasts, assessment and  
comparison of, 46.37
- North Sea oil and gas, 45.36, 47.47
- nurses and residential care staff caring for the mentally  
handicapped, 45.29
- nurses and midwives pay, 48.43
- occupational pensions schemes, 43.34
- Occupational Segregation*, 48.30
- occupational segregation: sexual divisions within the  
labour force, 44.44
- offences relating to motor vehicles, 1977*, 43.40
- Office of Population Censuses and Surveys  
occasional papers, 44.39
- oil exporters, surplus of the, 50.30
- Older workers and retirement*, 49.23
- OPCS and the 1981 Census, 50.5 (A)
- Organisation for Economic Co-operation and Develop-  
ment, trade data and industrial strategy, 43.4 (A)
- output  
by insurance, banking, finance and business services,  
46.30  
measures, MLH 104, 45.31  
statistics, recent improvements, 44.47
- overseas aid, 44.58, 46.37, 50.31
- overseas trade  
technical note, 47.47
- Patients' attitudes, Hospital Service, 44.41
- Pay  
ambulancemen, 47.38  
British Waterways Board salaried staff, 50.22  
Doctors' and dentists' remuneration, 50.22  
LA and university manual workers, 47.38  
Ministers and MPs, 47.37  
Municipal Airport manual workers, 50.22  
NHS ancillary staffs, 47.38  
nurses and midwives, 48.43  
Professions supplementary to medicine, 50.21  
university technicians, 47.38
- Pension funds and national accounting, 47.7 (A)
- pensions, occupational schemes, 43.34
- People and their families*, 49.38
- People as Pedestrians*, 51.28
- Perinatal and infant mortality : a new study, 50.21
- personal sector balance sheets, 47.45
- personal wealth  
distribution of, 43.41
- petroleum and natural gas, output measures MLH 104,  
45.31
- planning in social services departments, 43.31
- pollution, environmental, 44.58, 48.41, 51.40
- population  
and vital statistics, GRO(S), 43.29, 45.26, 46.22,  
47.34, 48.26, 49.20, 51.27  
census, GRO(S), 46.22  
census tests 1979, 46.19  
1981 census, 51.24  
White Paper, 43.27  
estimates, new series, 44.38, 49.21  
estimates, methodology, 49.22  
estimates, mid-1978, 46.21  
*Trends*, 43.28, 44.38, 45.26, 46.22, 47.35, 48.25, 49.20,  
50.18, 51.24  
immigration statistics, 46.21  
implications of current demographic trends in the UK  
for social and economic policy, 51.25  
infant mortality, 43.28  
life tables, 46.20  
people in Britain, 48.25  
population projections, 46.20, 47.34, 51.24  
by marital condition, 44.17 (A)  
England—area—1975-1991, 43.27  
migration assumptions for sub-national population  
projections, 48.13 (A)  
seminars, 45.27  
sub-national, 43.27, 46.21, 47.34, 51.25
- postcodes, use in statistical work, 47.21 (A)
- postgraduate income, 45.35
- price index for construction materials, 44.51
- price index number for Current Cost Accounting, 49.33
- price indices



- agricultural price indices, UK, 48.30
- and different types of household, 43.41
- export, 49.29
- public sector housing, 48.31
- retail prices, 49.29
- retail sales, 49.30
- Tax and price Index, 47.43
- wholesale, rebased, 43.41
- prices, rising, effect on households, 45.33
- primary education in England, 44.25 (A)
- prison statistics, 43.30
- Privacy and Access to Government Data for Research*, 49.37
- private sector liquidity, 47.46
- probation and after-care statistics, 45.27, 48.26
- product concentration, UK manufacturers
  - 1963, 1968 and 1975, 43.36
  - 1975, 1976 and 1977, 48.33
- Production, Census of—see Census of Production
- production statistics, advisory committee, 46.30
- productivity comparisons, 43.9 (A)
- profitability,
  - in companies, 50.29
  - in UK and other countries, 51.37
  - UK industrial sector, 48.39
- property: *Commercial and Industrial Property Statistics*, 48.32
- publications, Inland Revenue, 46.34
- publications statistical, of the European communities, 44.58
- public and private sector employment, 48.43
- public expenditure
  - outturn compared with plans, 49.32
  - White Paper, 44.56, 49.30
  - shortfall in, 46.36
  - territorial analysis of, 47.33
- public sector
  - guide to financial information, 44.56, 45.36
  - housebuilding, price index, 48.31
- public service employment, international comparisons of, 50.12 (A)
- public utilities, third international conference, 48.41
- purchases inquiry, 1979, 43.37
- purchasing power parities, EEC consumer, 48.40
  
- qualified manpower
  - library manpower statistics, 46.11
  - human resources in statistical services, 46.1 (A)
  
- rates and rateable values, 43.42
- reconvictions, 46.26
- Regional Accounts*, 46.19, 49.33
  
- regional civilian labour force projections, 43.27
- regional earnings of employees, 46.28
- regional highway traffic model, data bank, 46.32
- Regional Statistics*,
  - No. 14, 1979, 43.24,
  - No. 15, 1980, 49.22
- remuneration, doctors' and dentists', 46.28
  - Ministers and MPs, 47.47
- reports, use of company for national statistics, 44.3 (A)
- research and development
  - expenditure, 45.37
  - expenditure and employment, 47.48
  - Business Monitor*, 46.38
  - statistics, 51.40
- retail trade, a structural model, 47.44
- retailing annual, inquiries 1976 and 1977, 48.36
- retailing inquiries: field follow-up surveys, 45.15 (A)
  - footnote 1979, 50.00
- retirement, older workers and, 49.23
- Road Accidents: Great Britain*, 48.37
- road haulage survey, international, 51.39
- Royal Navy, managing the manpower, 47.18 (A)
- rubber industry, health risks in, 48.35
- Runcorn new town household survey, 47.49
  
- salaries
  - armed forces pay, 51.31
  - doctors' and dentists' remuneration, 46.28
  - incomes policies and differentials, 43.32
  - incomes policy and wage inflation, 43.33
  - local authority manual workers, 51.31
  - top, 43.33, 46.28, 51.00
  - Ministers and MPs, 47.37
  - teachers, 51.32
  - university technicians, 51.31
- sampling frame of industrial and commercial companies, 44.6 (A)
- Scotland
  - agricultural census
    - December, 46.29, 49.26
    - June, 47.41
    - August pig sample census, 44.46, 50.24
  - drownings in Scotland, 51.28
  - population and vital statistics—see under population
  - SED statistical bulletins, 47.37, 51.00
  - 1981 census of population, use of postcodes, 47.21 (A)
- Scottish drinking, 51.29
- Scottish drinking habits, changes in, 48.8 (A)
- Scottish Economic Bulletin*, 49.39
- Scottish Housing Statistics*, 43.30, 44.41, 45.26, 47.33, 49.23, 50.19
- Scottish secondary school accommodation model, 44.30 (A)



- Scottish teacher demand model, 48.28
- seasonal adjustment unemployment, 47.37
- sector financing, 50.29
- self-sufficiency in food, 47.41
- shareholding in companies, survey of, 45.35
- shipping, new business monitor on, 50.27
- shops enquiry 1977, 47.44; 1981, 47.43
- shortages, skill, 51.33
- smoking, cigarette, 43.32
- social accounting matrix, discussion of, Kenya, 49.06 (A)
- SSRC Survey Archive Data Catalogue, 49.37
- Social security claimants*, 44.42
- social security contributions and taxes, international comparisons, 44.58
- social services departments, Planning in, 43.31
- social services statistics for Wales, 47.33
- social statistics
- National Dwelling and Housing Survey, 44.40
  - misuse of drugs, 43.32
  - Probation and after-care statistics, England and Wales, 1978*, 48.26
  - Statistics of the Criminal Justice System, England and Wales, 1968-78*, 48.26
  - Town and country planning—*Development control statistics*, 48.26
- social survey report, housing, 43.30
- Social Trends*, 43.29, 47.35
- amendments to, 46.27, 48.27, 48.44
- Social Trends, Welsh*, 45.26
- socio-economic classification of census enumeration districts, 46.20
- special drawing rights, 46.37
- SSRC survey archive, 45.08 (A)
- Standard Industrial Classification, 47.1 (A)
- Revised 1980, 50.32
- statistical computing
- COMPSTAT 78 symposium, 43.1 (A)
  - European statisticians' working party, 45.06 (A), 46.38
  - statistical services, human resources in, 46.1 (A)
- Statistical News*, classified index of articles, 46.41
- amendments to, 49.37
- statistics, course, 46.39
- Statistical Reference Index*, 49.38
- statistical service, a slimmer, 49.26
- statistical sources, Reviews of UK, 43.29
- statistics, immigration, 46.21
- statistics of environmental pollution, 44.58(A)
- Statistics of the Criminal Justice System, England and Wales 1968-78*, 48.26
- statistics, library manpower, 46.11 (A)
- statistics national, use of company reports, 44.3 (A)
- Statistics users' conference 1978, 44.1 (A)
- sterling
- revised arrangements for medium and long-term sterling export and home shipbuilding credits, 49.34
- stocks of consumer durables, 47.41
- stoppages, industrial, 51.34
- students, electoral registration amongst, 47.14 (A)
- survey, capital gains, 46.34
- Survey Control Unit, CSO, 43.21, 44.35, 45.23, 46.16, 47.30, 48.23, 49.18, 50.16
- evaluation of past surveys, 44.40, 48.19 (A)
  - measuring the effectiveness of, 45.01 (A)
  - work of, in 1979, 50.1 (A)
- survey of Local Authority housing and population, 45.28
- symposium, COMPSTAT 78, 43.1 (A)
- Tax and price Index, 47.43
- taxes and social security contributions, international comparisons, 44.38, 48.41
- taxes and benefits, effects on household income 1977, 44.53, 1978, 48.40
- teacher destination, 47.36
- teachers' pay, 51.32
- terrorism, prevention of, 46.26
- Thailand
- World Fertility Survey, 49.36
- time series analysis and forecasting,
- Journal of, 43.43
  - meetings at Nottingham University, 43.44, 45.38
- top salaries, 46.28, 51.31
- town and country planning—*Development control statistics*, 48.26
- Trade and Industry/British business*, 48.44
- trade, terms of, 43.43
- trade statistics, monthly review of external, 49.35
- trade union membership, 44.44
- rules on admission, discipline and expulsion, 51.34
- traffic census, Benchmark, 43.40
- transport
- bussing of service school children in Germany, 46.33
  - goods by road, 47.44
  - statistics, Great Britain, 48.37
  - statistics, inland historical abstract, 44.53
  - statistics, 1977, 44.53
- travel, national survey 1975/6 report, 46.33
- travel and tourism, overseas, 49.35
- travel-to-work areas, 46.6 (A)
- undergraduate, income and expenditure, 46.34
- Unemployment and vacancy statistics, 50.22
- Unemployment
- analysis by age and duration, 46.28
  - duration of, 43.34



- international statistics, 51.32
  - seasonal adjustment, 47.37
  - young and out of work, 43.34
  - United Kingdom Balance of Payments*  
1976-77, 43.43, 1980, 50.33, 51.38
  - United Kingdom Energy Statistics, Digest of*, 42.29
  - UK external assets and liabilities: end 1979, an inventory  
of, 50.30
  - United Kingdom, self-sufficiency for food, 44.45
  - United Kingdom statistical sources, Review of, 43.29
  - United Kingdom trade competitiveness—technical note,  
50.31
  - United Kingdom trade in 1978, survey of inland origins  
and destinations of, 50.31
  - university manual workers, pay, 47.38
  - university statistics, 51.30
  - university technicians, pay, 47.38, 51.31
- vacancies and engagements, national survey of, 45.29
- vehicles
- new registration, 47.44
  - offences relating to motor, 43.40
- visible trade figures and industrial disputes, 47.47
- wage rates, indices of, 43.33, 44.43
- wages
- reform of bargaining system, 43.32
- Wales
- Digest of Welsh Statistics*, 44.38
  - mental illness and mental handicap hospitals and  
units in, 44.42
  - decentralisation to, land prices and rents, 44.46
  - health and personal social services for, 44.42
  - index of industrial production for, 45.32
  - Welsh housing and dwelling survey, 50.19
- wealth personal, Distribution of, 43.41
- Wealth Survey, investigations into the feasibility of,  
48.1 (A)
- Welsh Economic Trends*, 46.19
- Welsh local government financial statistics*, 46.19
- Welsh Social Trends*, 45.26
- Welsh Statistics, Digest of*, 44.38
- White Paper, 1981 census, 43.27
- Government's expenditure plans  
1979-80 to 1982-83, 44.56
  - 1980-81, 48.39, 49.30
- Wholesale price index: principles and procedures, 50.26
- Wholesale price indices, 43.40
- Wilson Committee, 43.42, 50.30
- women and shiftwork, 45.30
- worker participation and company organisation, 47.40
- work health risks, methods for surveying, 47.23 (A)
- world fertility survey, 45.26, 49.36
- conference, 46.39
  - publications, 46.40, 51.42
- youth unemployment, 43.34



CENTRAL STATISTICAL OFFICE

# **Standard Industrial Classification Revised 1980**

A detailed reconciliation between the *Standard Industrial Classification Revised 1980* (HMSO 1979 – Price £2.50 net) and the *Standard Industrial Classification Revised 1968* is now available.

It will help people to prepare for the transition to the revised classification before it is generally adopted in 1983. An alphabetical index to the revised classification will be available later.

The booklet which has been produced by the Central Statistical Office also has a brief summary of some of the major differences between the two classifications.

Copies of the booklet are available from the Central Statistical Office (Room 131/2, Great George Street, London, SW1P 3AQ Telephone 01-233 7180).

**Price £1.20 including postage**

*All remittances should be made payable to the Cabinet Office.*



CENTRAL STATISTICAL OFFICE

# You want the figures We have the facts

When you need facts and figures fast, the Central Statistical Office's **Guide to Official Statistics** tells you where to find them.

Four years' practical experience have proved previous editions of the **Guide to Official Statistics** invaluable to librarians and fact-finders in business, industry, education, journalism, and public and social life at every level.

Published biennially, the **Guide** is unique. Its accuracy is ensured by continuous computer up-dating. The 1980 edition is bigger and better with thousands of amendments and extra entries.

As well as sources of government and non-government statistics, it notes occasional and regular reports and articles which can be useful additional sources of information.

Whether you are a first-timer or already a regular user, if it is important to keep reference sources up-to-date send for the 1980 edition. And be sure to order enough – the **Guide** is one of the most frequently used office or library references.

## **Guide to Official Statistics No. 3**

**Price £18.50 net (£19.71 including postage)**

ISBN 0 11 630753 6\*

Obtainable direct from HMSO Bookshops

Also available from HMSO Agents



HER MAJESTY'S STATIONERY OFFICE

*Government Bookshops*

49 High Holborn, London WC1V 6HB

13a Castle Street, Edinburgh EH2 3AR

41 The Hayes, Cardiff CF1 1JW

Brazenose Street, Manchester M60 8AS

Southey House, Wine Street, Bristol BS1 2BQ

258 Broad Street, Birmingham B1 2HE

80 Chichester Street, Belfast BT1 4JY

*Government publications are also available  
through booksellers*

£2.25 net

annual subscription £9.66 including postage