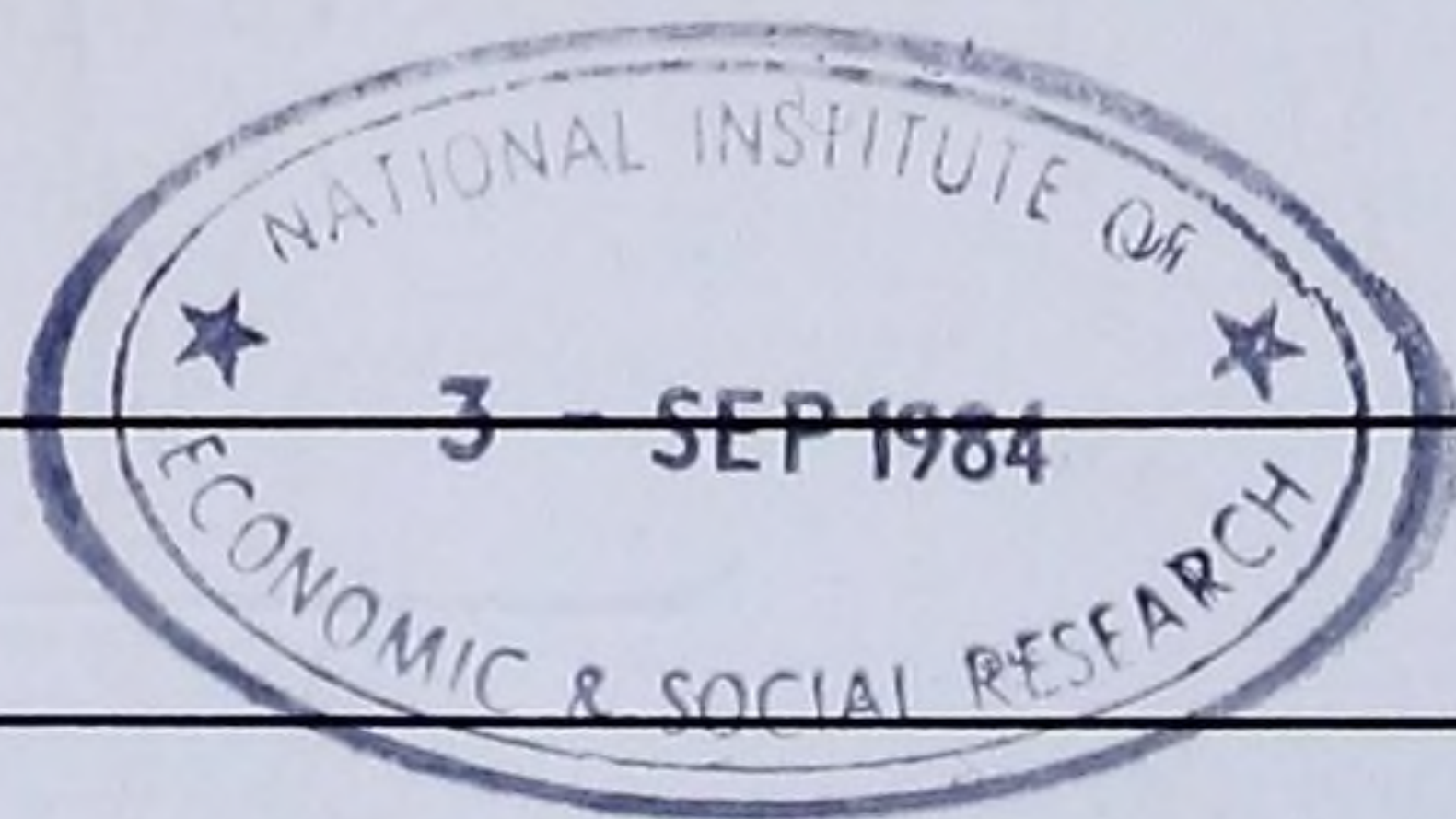


66

August 1984



CSO

HMSO Quarterly

# STATISTICAL NEWS

## Developments in British Official Statistics



A publication of the Government Statistical Service

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## Government Statistical Service

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# Statistical News

Developments in British Official Statistics

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# The Office of Population Censuses and Surveys

**Frank Whitehead, Deputy Director, Office of Population Censuses and Surveys**

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The Office of Population Censuses and Surveys (OPCS) was formed in 1970 when the Government Social Survey Department, which had not long been separated from the Central Office of Information, was merged with the General Register Office for England and Wales. The Head of the Department is Mr A. R. Thatcher, CB, who has the dual title of Director and Registrar General. The General Register Office (GRO) had existed since 1837 when registration of births and deaths was introduced and civil marriage in a superintendent registrar's office was first allowed. Since then it had, from its headquarters in the fine rooms of the North Wing of Somerset House, overseen the registration service, carried out the decennial census of population – including the quasi-census that preceded National Registration in 1939 – and built up a range of population and medical statistics based firmly on the registration and census records. The General Register Officer for Scotland is a quite separate department; there is also a Registrar General for Northern Ireland in the Department of Health and Social Services (NI).

The long tenure of Somerset House – still associated in the public mind with obtaining copies of birth and death certificates – gave GRO a strong sense of continuity and permanence. The Government Social Survey Department was more recent and could trace its history back to the Ministry of Information in the early days of the Second World War when it was formed to collect information by personal interview on the activities and attitudes of the public in relation to many aspects of the war effort. Such an enterprise was initially misunderstood in press and parliament but a debate on the adjournment in July 1941 enabled the activities of 'Cooper's Snoopers', as the press had dubbed the interviewers, to be vigorously defended by Mr Duff Cooper the Minister of Information. In fact by the end of the war the Social Survey had proved so useful that it was decided to keep it going. It had a variety of homes but at the time of the merger with the GRO in 1970 it was based in Atlantic House on Holborn Viaduct and many will still remember its days there.

The main reason for the merger was to bring together the two departments of Government that collected statistical data directly from individuals and households. It was proposed by Professor Claus Moser (now Sir Claus Moser), shortly after he became Director of the Central Statistical Office (CSO), as one of a number of ways of developing and strengthening the Government Statistical Service.

## Location

For a small department it may seem strange that OPCS operates from three parts of the country so distant as London, Southport and Titchfield (near Southampton) but there are historical reasons for this. Up to 1939 the GRO was housed in London. At the outbreak of war it was evacuated to Blackpool and Southport. The 1951 census was processed at Southport but for 1961 a census processing office was needed that was closer to London, and to the Royal Army Pay Corps computers at Worthy Down. Since the early 1960s, therefore, most of the executive, clerical and computing staff employed on population and medical statistics, as well as those employed on the census, have been accommodated at Titchfield. The Southport office houses the National Health Service Central Register.

## Registration

OPCS has a number of administrative functions. The most important of these is responsibility for the Registration Service, and the marriage law, in England and Wales. Although registrars of births and deaths are appointed and paid by local authorities they are responsible to the Registrar General for the performance of their duties and the quality of their work. The OPCS holds copies of all register entries of births, marriages and deaths since 1837 and provides a service to the public by postal application and through the search rooms at St Catherine's House for those who wish to purchase copies of these entries. Such certificates are needed for many official purposes such as obtaining a passport, establishing inheritancy, etc. but they are increasingly sought by those researching family history either for themselves or as agents for others. Consequently, the search rooms are now much busier than they were twenty years ago, particularly in the summer when there are thousands of holiday visitors to London from all parts of the world.

## The NHSCR

Another administrative function is running the National Health Service Central Register at Southport. This register was created in 1939 as the basis for National Registration and the issue of Identity Cards in wartime. When this use ceased in 1952 the register became the Central Register for the NHS and the means by which lists of patients are kept up to date by the Family Practitioner Committees (FPCs). This is important for paying doctors their patient capitation fees and ensuring that when patients move around the United Kingdom



that their medical records are transferred through the appropriate FPCs to the new doctor.

The NHSCR maintains a record of which FPC holds each NHS patient's records. It controls the issue of new NHS numbers and it notifies FPCs when patients die, leave the country, etc. There is also an alphabetical index of patients. The Register is consequently of great use in medical research projects that depend on establishing the eventual cause of death for those people exposed to particular risks in the past. It is also used to control the Longitudinal Study, of which more later, and to prepare annual estimates of internal migration between FPCs that are useful in making the mid-year population estimates.

### **The Parliamentary Boundary Commissions**

The Registrar General is also an 'assessor' (technical adviser) to the Parliamentary Boundary Commissions for England and Wales and OPCS provides the secretariat for these Commissions.

These Commissions completed their general reviews of the parliamentary constituencies early in 1983, just in time for the General Election. They then carried on with reviews of the European Assembly constituencies and completed these in time for the new constituencies to come into being for recent European elections.

### **Statistical tasks**

Even the administrative functions of OPCS, therefore, have important connections with its statistical activities which fall under four broad headings:

- Population statistics
- Census
- Social surveys
- Medical statistics

### **Population statistics**

The work on population statistics centres around the regular production of vital statistics derived from the registration of births, marriages and deaths. These are used in conjunction with data from the census, and other sources such as the NHSCR and the International Passenger Survey to produce national and local mid-year estimates of the population, and as the basis for projections of the future population (in conjunction with the Government Actuary). These figures are of considerable importance for planning and are used widely by central government, local authorities and health authorities. They are used also in the Rate Support Grant formula for allocating funds to local authorities. The OPCS also prepares and publishes analyses of patterns and trends in fertility, marriage, divorce, adoptions of children and of important sub-groups of the population such as ethnic minorities and one-parent families. The department aims not only to publish relevant and timely statistics through Pop-

ulation Monitors and Annual Review Volumes but to comment on, and interpret, the statistics through published reports and articles in its quarterly journal *Population Trends*.

An important special project is the Longitudinal Study (LS) which links together data from the census and vital registration. It is based on a one per cent sample of the population enumerated in the 1971 census (those who reported four selected birth dates in the year) updated to allow for births, deaths and overseas migration since 1971. Data from the 1981 census has now been successfully added to the data set. The LS has already been used for a number of projects, particularly in the field of medical research e.g. in exploring some of the factors associated with differential mortality. A programme of work under the title 'Ten Years On' to analyse linked records from the 1971 and 1981 censuses is developing in co-operation with the Social Statistics Unit at the City University, aided by research council grants.

### **Census**

Apart from 1941, when war prevented it, there has been a census of population every ten years since 1801. The General Register Office has been responsible for the census since 1841. There is, therefore, a Census Division whose job it is to plan, carry out and analyse the decennial censuses of population. It was announced in July 1983 that there will be no mid-term census in 1986, consequently OPCS has to face the run down and subsequent build up of census staff for the first time since the 1950s. (There was a sample census in 1966, a full census at the normal time in 1971 and planning proceeded on the basis that there would be a census in 1976 although this was cancelled as an economy measure at the last minute.)

The 1981 census went smoothly in the field and the results have come out more quickly than from previous censuses. Printed published output has been halved compared with 1971 but unpublished output, mainly on magnetic tape has doubled - principally because of the demand for more statistics for small areas. The publication programme for the main population and housing tabulations has been completed and the last of the special topics - based on an analysis of 10% of the returns - will be published this year. This is a little later than expected but the main 100% volumes were produced on average sixteen months earlier, and the 10% volumes eighteen months earlier, than the corresponding volumes in 1971. Evaluation of the census results and the completion of the General Report are much further advanced than at this stage in the 1971 cycle. A fuller account of the 1981 census is given in the Registrar General's paper to the Royal Statistical Society reproduced in the following article.



Plans are already being developed for the 1991 census—early consideration is being given to automating the procedures for defining the geographical areas that serve as enumeration districts and examination of the options for further uses of new technology to speed up census results and lower costs. These plans, as in previous censuses, will be closely co-ordinated with those of the Registrars General in Scotland and Northern Ireland.

The decennial census has a major impact on the resources of a small department like OPCS. Careful planning is needed to make sure that the remaining functions, many of which are also statutory, carry on while priority has necessarily to be given to this one major project.

### Social surveys

The Social Survey Division (SSD) carries out a wide range of surveys to meet the Government's need for statistics that can best be met by a direct approach to a sample of households or individuals. It is responsible for a number of important continuous surveys.

— The Family Expenditure Survey (FES), started in 1957 provides regular information on the income and expenditure of private households; the sample size is set at about 11,000 households a year. It is used to revise the weights in the Retail Prices Index and to compile the quarterly estimates of personal consumption expenditure. It is also used to assess the impact of changes in Government policy on living standards and to estimate the numbers living on low incomes. OPCS collects the information and codes it but the Department of Employment carries out the computer analysis and publishes the results.

— The General Household Survey (GHS). This is a multi-purpose household survey started in 1970—another initiative of Sir Claus Moser. It now covers about 12,000 households a year and provides a time series of key indicators covering, among other things, the size and structure of the population, housing, employment, educational qualifications and health. The core of the GHS questionnaire does not change from year to year, but special topics are added each year so that the report for any particular year may include analyses on subjects such as, leisure activities, smoking and drinking patterns, household theft, job satisfaction, attitudes to housing, and family planning, to name but a few. OPCS carries out all stages of this survey up to and including the published report. The survey is sponsored each year by the CSO on behalf of all the user departments.

— The National Food Survey (NFS). This is carried out on behalf of the Ministry of Agriculture

Fisheries and Food (MAFF) although OPCS contracts fieldwork and coding to a commercial agency. It provides very detailed estimates of the food consumed by different types of household.

— The International Passenger Survey (IPS). This survey carried out at airports and seaports, covers some 170,000 travellers a year and provides data on tourist flows, immigration and emigration, and the expenditure of foreign tourists in the United Kingdom and of British tourists overseas.

— The Labour Force Surveys (LFS). When the United Kingdom joined the European Community (EC) in 1973 it began to take part in the EC programme of Labour Force Surveys. These were large scale household surveys carried out in the Spring of every other year comprising about half per cent of the population and providing information on the structure of the Labour Force more frequently than the population census—and for much larger samples of the population than the GHS. Since 1983 the Statistical Office of the European Community (SOEC) has required the survey annually. At much the same time, at the request of the Department of Employment, a continuous Labour Force Survey was introduced from October 1983 to provide Government with regular up-to-date data on the labour force. This is based on a sample of 15,000 households 12,000 of which were interviewed in the previous quarter. To meet the SOEC needs there is to be an annual enhancement of the sample for thirteen weeks in the Spring of each year.

In addition to these continuous tasks, the SSD carries out a varied programme of *ad hoc* survey research projects. At any time, there are some 20 to 30 surveys at different stages of completion. The current programme includes the following topics:

- Unemployment and family living standards
- Non-advanced further education
- Smoking and drinking patterns of adolescents
- Circumstances of those living in privately rented accommodation
- National Travel Survey
- Disability
- Disabled job-seekers
- The work of community nurses in the West Midlands
- Consequences of divorce
- Attitudes of parents to schools.

It will be seen that there is a wide range of subject matter but the experience of the Social Survey Division does not depend on research skills alone. Its reputation depends on the consistent quality of the interviewing, much of which is very demanding, the experience and ability of its field branch and also on the work of specialist sampling, coding and computing branches.



## Medical statistics

The Medical Statistics Division is headed by a Chief Medical Statistician (Under Secretary) who reports direct to the Registrar General. The Division employs members of the Statistician class as well as epidemiologists who are in the Medical Officer class.

Traditionally the main task of the Division is to publish and report on the mortality statistics derived from death registration. This builds on the work of William Farr, the Superintendent of Statistics, in the GRO for nearly forty years in the 19th Century (see *Population Trends* 31 for centenary articles). However the role of the medical work has always been wider than that and now covers many aspects of morbidity and health including statistics based on:

- Abortion
- Cancer registration
- Congenital malformation notification
- Hospital inpatient statistics
- Morbidity statistics for general practice
- Notification of infectious diseases

The Medical Statistics Division carries out a number of research projects itself and co-operates with medical researchers outside. Many of these projects are prospective mortality studies based on the NHSCR. Research workers can arrange for the records of a sample of patients exposed to a particular health risk (and/or a control sample) to be flagged. This ensures that, if a member of the sample dies the research worker is notified and that, if a subject is registered as a cancer patient, the doctor in the research team is notified. Mortality rates for special groups can then be compared with those for control groups. The NHSCR can thus keep in touch with samples selected many years ago. This is invaluable because many diseases develop slowly and prospective studies can take many years to complete.

Within the Medical Statistics Division there is a small World Health Organisation (WHO) Centre for the classification of diseases which helps the NHS and research staff with coding diseases.

## Computing

OPCS was one of the first Government departments to use electronic computers for statistics. The 1961 census was processed on the Royal Army Pay Corps computers at Worthy Down near Winchester but by the middle 1960s there were computers at Titchfield; an IBM 1401, for use on vital and medical statistics, and an IBM 705 (similar to the machines at Worthy Down) for use on the 1966 Sample Census.

At the time of the merger in 1970, there were three separate computing systems, one for the census, another for vital and medical statistics and a third (largely at bureaux) for social surveys, but in 1974 a single

computer division was set up to meet all the computing needs of OPCS. The Computer Division has a current complement of over 300 staff and operates two ICL 2966 computers. (There is also an ICL 1906S – but this will be phased out shortly.) Like a number of other departments OPCS has been developing the use of terminals to provide facilities whereby statisticians and social survey officers can have access to the main frame direct from St Catherine's House. Intelligent terminals are being introduced in both London and Titchfield and the department is currently taking part in an evaluation of the Maestro system of personal work stations for programmers.

OPCS has also made a contribution to the policy of common software for statistical purposes. Over the last few years it has developed its own tabulation utility TAU – largely for its own purposes – but this has been adopted also by a number of other Government departments. Computer policy and strategy is reviewed regularly by an Information Processing Policy Committee chaired by the Deputy Director.

## International aspects

Statisticians and Social Survey Officers play an active part in the international statistical work of EC, WHO, the Council of Europe and the United Nations, and keep in touch with practices in other developed countries. Staff from Computer Division have taken a leading role in the UN Statistical Computing project designed to produce common software for use in statistical offices in less developed countries.

OPCS, under the Secretary of State for Social Services, is the lead department for general work on population and represents the United Kingdom on the UN Population Commission and at international population meetings. In August 1984, for example, statisticians from OPCS played an active part at the International Conference on Population in Mexico City convened under UN auspices.

## Publications

The Registrar General has a duty to report on population statistics, and on the decennial censuses, and to lay reports before Parliament. Moreover, many of the statistics are of direct relevance to a wide circle of users e.g. Members of Parliament, local authorities, health authorities, industry, commerce and in universities.

In 1975 the traditional series of Registrar General's quarterly returns that had been published regularly for the previous 126 years was replaced by the present quarterly journal *Population Trends* which summarises the latest statistics and includes commentary on all aspects of OPCS statistical activities including the census and social surveys.



In addition OPCS Population Monitors, designed for the early release of data and short commentary on them are issued regularly on topics such as births, deaths, marriages, infant mortality, infectious diseases and abortions. Census figures for counties and wards, advance GHS and LFS results and key results from *ad hoc* surveys are also sometimes published as Monitors.

Instead of the former annual three-part *Statistical Review*, annual reference volumes of statistics are now published on the main topics. A number of historical volumes are in preparation. Annex B contains a fuller list of OPCS statistical publications.

OPCS regards it important not only to publish a full range of statistics on the work for which it is responsible but to analyse and interpret the results as well. It is, after all, a department which provides a statistical service to others and is not driven by its own administrative aims. Hence the importance attached to reports on *ad hoc* surveys and to articles for *Population Trends*, Occasional Papers, etc. A more recent development has been the publication of reports interpreting and commenting on census results; the first of these will deal with the elderly. When appropriate, statistics are increasingly released in the form of data tapes – to the Economic and Social Research Council Data Archive, for example.

#### The future

Now that the 1981 census is largely completed, and there is time to take stock, it might be thought that OPCS can relax for a year or two; but this is far from the case. We are having to think about whether or not the next census can be processed even more quickly, and at lower cost, than last time. Moreover, the recommendations of the Korner Committee on Health Information (See *Statistical News*, 60.6) if implemented, as seems most likely, will require OPCS to develop by 1988 a new system of hospital discharge statistics. As this article is being written the report is awaited from consultants who have reviewed the working of Family Practitioner Committees including the NHSCR. Some FPCs have already automated their patient registers and it seems probable that the NHSCR, at present a completely clerical system, will need to automate within the

foreseeable future. That would be a mammoth task – like another census. Finally, there may be changes that could be made in the Registration Service; it has continued with its traditional methods of manual record-keeping virtually unchanged since 1837. In all these developments we have to keep up with and take advantage of the possibilities offered by the ever changing computer technology and continue, of course, to safeguard the confidentiality of the personal data held for all purposes.

The barometer seems set to 'change'. OPCS faces a challenging decade ahead.

#### Further reading on the history and functions of OPCS

*The story of the General Register Office and its origins from 1538 to 1937*, compiled by the Registrar General, London: HMSO, 1937. ill.

*Guide to Census Reports, Great Britain 1801-1966*, London, HMSO 1977 (This updates Guides to Official Sources No 2; *Census Reports of Great Britain 1801-1931* published under the auspices of the Interdepartmental Committee on Social and Economic Research, London, HMSO 1951.)

'The Government Social Survey' by Frank Whitehead. [An account of the history and functions of the Social Survey to be included in a forthcoming book, *Essays on the History of British Sociological Research*, Editor Martin Bulmer, to be published by Cambridge University Press.]

*Population and Health Statistics in England and Wales*, Office of Population Censuses and Surveys, London: OPCS, 1980.

*Vital Registration and Marriage in England and Wales*, Office of Population Censuses and Surveys, London: OPCS, 1983.

*This is the second in a series of articles on the structure and functions of the Government Statistical Service. The third in the series, on the Department of Health and Social Security, will appear in the November issue.*



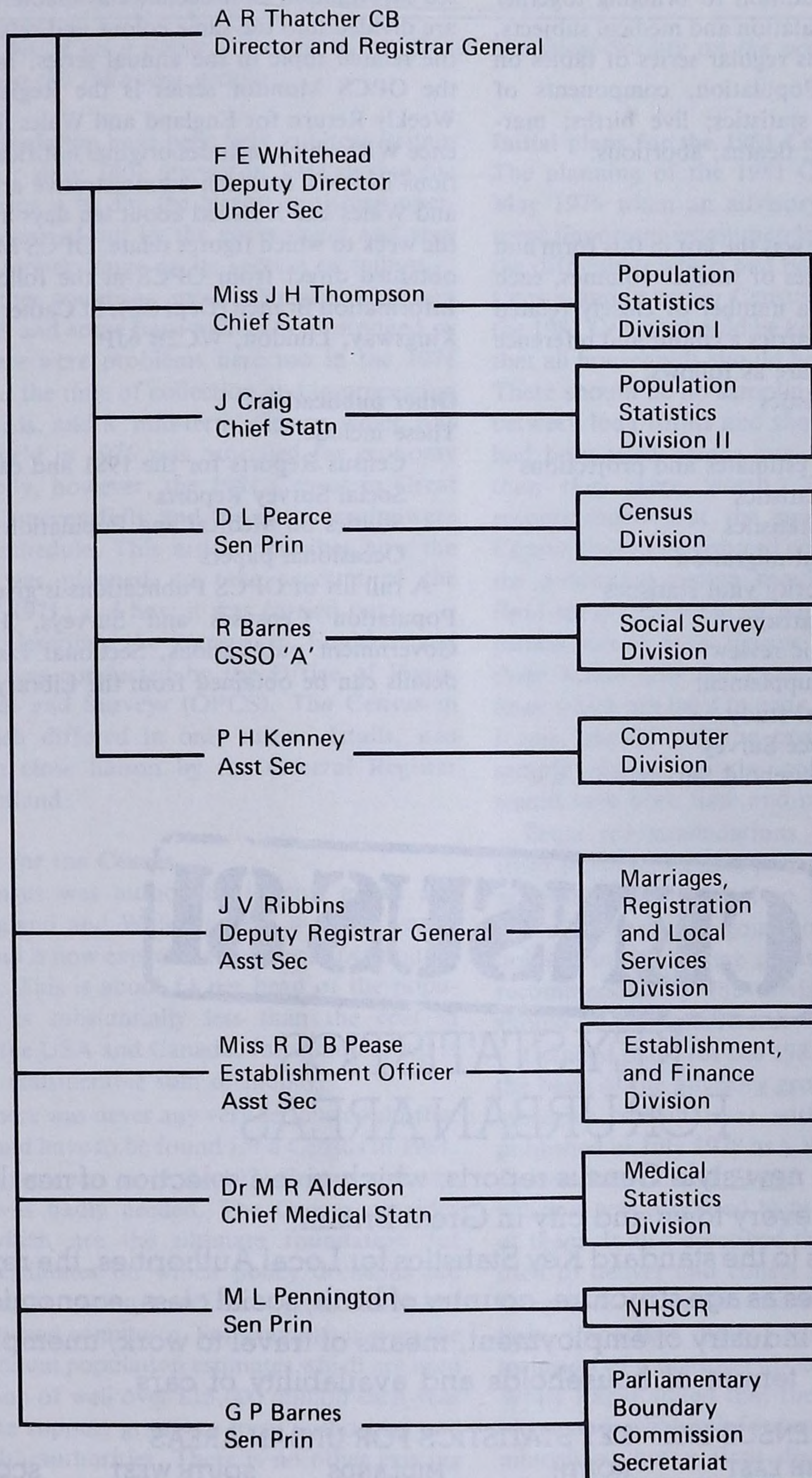


The Director and Registrar General with senior staff of the Office of Population Censuses and Surveys

Left to right: Miss R. D. B. Pease (Principal Finance and Establishment Officer), Mr M. L. Pennington (Head of NHSCR), Miss J. H. Thompson (Head of Population Statistics Division 1), Dr M. R. Alderson (Head of Medical Statistics Division), Mr P. H. Kenney (Head of Computer Division), Mr A. R. Thatcher (Director and Registrar General), Mr R. Barnes (Head of Social Survey Division), Mr J. V. Ribbins (Deputy Registrar General), Mr J. Craig (Head of Population Statistics Division 2), Mr F. E. Whitehead (Deputy Director). Mr D. L. Pearce (Head of Census Division) was absent.



## OPCS ORGANISATION CHART





**Population trends**

*Population Trends* is the Journal of OPCS. It is published quarterly, in September, December, March and June each year. In addition to bringing together articles on a variety of population and medical subjects, *Population Trends* contains regular series of tables on the following subjects: Population, components of population change; vital statistics; live births; marriages; divorces; migration; deaths; abortions.

**Annual reference series**

The 1973 *Statistical Review* was the last in this form and has been replaced by a series of smaller volumes, each dealing with one topic or a number of closely related topics. Each main subject carries a colour and reference code. The reference series are as follows:

Series FM	Family statistics
Series DH	Deaths
Series PP	Population estimates and projections
Series AB	Abortion statistics
Series MB	Morbidity statistics
Series MN	International migration
Series VS	Local authority vital statistics
Series EL	Electoral statistics
Series DR	Demographic review
Series DS	Decennial supplement
Series LS	Longitudinal study
Series LFS	Labour Force Survey
Series GHS	General Household Survey

**OPCS Monitors**

The reference series is supplemented by a series of OPCS Monitors, designed for the quick release of selected information as it becomes available. The Monitors are divided into the same colour and reference codes as the related topic in the annual series. Incorporated in the OPCS Monitor series is the Registrar General's Weekly Return for England and Wales (Monitor reference WR) which includes original notifications of infectious diseases for each administrative area of England and Wales and is issued about ten days after the end of the week to which figures relate. OPCS Monitors can be obtained direct from OPCS at the following address: Information Branch (Dept SL), St Catherines House, 10 Kingsway, London, WC2B 6JP.

**Other publications**

These include:

- Census Reports for the 1981 and earlier censuses
- Social Survey Reports
- Studies on Medical and Population subjects
- Occasional papers

A full list of OPCS Publications is given in Office of Population Censuses and Surveys, HMSO, 1983. Government publications, Sectional List 56. Further details can be obtained from the Library at OPCS.

# CENSUS 81

## KEY STATISTICS FOR URBAN AREAS

This is a series of six new-style Census reports, which give a selection of nearly 100 key Census statistics for every town and city in Great Britain.

Companion volumes to the standard Key Statistics for Local Authorities, the reports will present such variables as age structure, country of birth, social class, economic activity of men and women, industry of employment, means of travel to work, unemployment, types of household, tenure of households and availability of cars.

### CENSUS 1981 – KEY STATISTICS FOR URBAN AREAS

GREAT BRITAIN	SOUTH EAST	NORTH	MIDLANDS	SOUTH WEST and WALES	SCOTLAND
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# The 1981 Census of Population in England and Wales

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*This article is based on a paper presented to the Royal Statistical Society on the occasion of the RSS's 150th Anniversary, see the following article*

Censuses of population have been held in Great Britain every tenth year since 1801 (except in 1941 during the war). The Census is by far the largest statistical operation which is carried out by the government and very large sums of money hinge on its success or failure.

In several other countries, recent Censuses have run into difficulties and some have had to be postponed or cancelled. There were problems here too in the 1971 Census, both at the time of collection and in processing delays afterwards, and a 'mid-term' Census which was to have been held in 1976 was cancelled for economy reasons. Happily, however, the 1981 Census in Great Britain passed uneventfully and the main results were published on schedule. This article describes how the 1981 Census was planned, to take account of the experiences of 1971, and how it was carried out.

The article describes the Census in England and Wales, which was conducted by the Office of Population Censuses and Surveys (OPCS). The Census in Scotland, which differed in only minor details, was carried out in close liaison by the General Register Office for Scotland.

## Cost and case for the Census

The 1981 Census was authorised to cost about £50 million in England and Wales, spread over ten years, and the final bill is now expected to be about £45 million at 1980 prices. This is about £1 per head of the population, which is substantially less than the cost in countries like the USA and Canada, for example, but is nevertheless a considerable sum of money.

However, there was never any very serious doubt that the money would have to be found for a Census in 1981. By then it was ten years since the 1971 Census and new information was badly needed. The Census provides basic data which are the ultimate foundation for innumerable estimates on which policy decisions are based, not only in national and local government but also in industry and commerce. For example, it gives the base for the annual population estimates which are used in the allocation of well over £15,000 million each year by way of rate support grants to local authorities and grants to health authorities. There is no other existing source from which population statistics can be obtained for small areas with the accuracy which is required for these and other purposes.

## Initial plans for the 1981 Census

The planning of the 1981 Census began in earnest in May 1976 when an advisory group of officials made some important recommendations. Taking into account the difficulties which had been encountered in the 1971 Census and in earlier Censuses, they recommended that the 1981 Census should be kept as simple as possible and that all households should be asked the same questions. There should be no sampling in the field or differences between long forms and short forms, as these methods had been tried before but proved to be more trouble than they were worth. The advisory group also recommended that the number of questions in the Census should be reduced compared with 1971 and that the processing system should be designed to produce final results as soon as possible. There should be no production of early figures based on samples, because these would only delay the final results. Certain questions which are hard to code, though included on all the forms, should only be processed for a ten per cent sample chosen on the computer; this arrangement would save both time and money.

These recommendations were a substantial change from previous Census plans<sup>1</sup> which had culminated in an ambitious proposal to have ten different Census questionnaires each going to ten per cent of the households. For 1981 these plans were dropped and it was recommended by the advisory group that simplicity should be the watchword.

Detailed plans for the 1981 Census were drawn up on the basis of the advisory group's recommendations and extensive consultations with users. These plans were published in July 1978 as a White Paper *1981 Census of Population*, (Cmnd 7146)<sup>2</sup>. This set out the questions which it was proposed to ask and the reasons for each of them. It also described the methods which would be used to deliver and collect the Census forms, and the safeguards on confidentiality. However, one particularly important point was left open, namely the inclusion of a question about race or ethnic origin. The White Paper stated that there was a need for authoritative and reliable information about the main ethnic minorities; but a final decision would need to take account of the results of tests and consultations by the Registrars General on the reliability and acceptability of possible forms of a direct question on ethnic origin.



### **The question on race or ethnic origin**

A question on ethnic origin had been evolved by OPCS from extensive work and earlier trials. This had worked successfully in voluntary interview surveys, but it was not clear whether it would be acceptable in a compulsory Census. A modified version of the question was included in the Census test which was held in the London Borough of Haringey in April 1979 but this led to strong opposition. Many people refused to answer the question. Although Haringey may or may not have been typical, it was quite clear that a compulsory ethnic question was highly controversial and also that it did not give usable answers. However, the final decision about the ethnic question did not depend on the Haringey test alone. Working in close collaboration with the Commission for Racial Equality, OPCS also held consultations with more than fifty organisations representing ethnic minority groups. While some were in favour of an ethnic question, others were deeply opposed on principle. It became clear that in the circumstances of 1981 an ethnic question – however worded – was not a practical possibility for the Census and that to include it in the face of such strong opposition would risk the impairment of the rest of the Census. The documents relating to this matter were published and are now conveniently assembled in a report<sup>3</sup> of the Home Affairs Committee of the House of Commons (1983).

### **The final plans and the Census questions**

During 1979 there was concern about the cost of the coming Census and strenuous efforts were made to find economies. The original budget was cut by 16 per cent, by measures such as concentrating the Census processing at two centres instead of at several regional offices and by reducing the tasks of the Census enumerators. For example, it was decided that the enumerators need not make a separate count of the number of dwellings, because this number could be inferred from the answers to the questions on the Census forms.

It was also decided as a matter of policy that questions should only be included in the Census form if they were essential and if their uses could be explained. As a result, the planned number of questions was further reduced and a leaflet was prepared describing how every question would be used. This was a very important decision, which made it much easier to defend the Census against public criticism when the time came. The 21 questions which were finally asked, and the ones which were dropped, are given in an appendix at the end of this article.

Owing to the controversy about the question on race or ethnic origin, the Census form was not finalised until the last minute. The Census Order containing the plans for the Census was laid before Parliament on 20 March 1980. A debate in the House of Lords on 22 April 1980 resulted in the restoration of one of the questions which

was to have been cut (on cars and vans); this was the first time in living memory that Census plans had been altered during their passage through Parliament. The Census Order was then debated by the House of Commons on 29 April 1980. There was a vote on an amendment proposing that a question on race or ethnic origin should be included; this amendment was decisively defeated. After these debates the Census form was sent almost immediately to the printer and the twenty million or more copies were produced just in time for the Census.

It is often asked whether the pruning of the Census questions was justified. The decision on the question about race or ethnic origin was in a class by itself, and was really made inevitable by the reactions of so many of the ethnic minority groups. This did not mean, though, that the Census provided no information whatever on this subject. In 1981 about 90 per cent of the population of New Commonwealth and Pakistan (NCWP) origin were still living in households which were headed by a person who was born in a NCWP country. Counts of the numbers of persons who were living in those households (as shown by the answers to the Census question on country of birth) therefore provided a great deal of useful information about the characteristics and geographical distribution of the NCWP population in 1981. As regards the other questions which were dropped, it has proved possible to obtain information about most of them from other sources and no disasters have ensued. Pruning these questions undoubtedly improved public relations, and this was a very important factor in obtaining the answers to the 21 questions which were really essential.

### **Public relations**

Following the experiences of 1971, OPCS devoted much effort to public relations. Contacts with schools earned good will. There were widespread consultations with the main Census users, including those in industry, local government and the academic world. These consultations included the detailed discussion of plans on how the data would be processed and what tables should be produced. From March 1978 onwards a special series of publications called *Census Monitors* was used to keep the users in touch with developments. In addition, a large stock of *Topic Sheets* were printed giving the answers to many questions, such as the methods which would be used for collecting the Census forms, the arrangements for confidentiality, the purpose of each of the questions, etc. The Census form itself was also designed to be much simpler than on previous occasions, with provision for many of the questions to be answered just by putting ticks in boxes. Special care was taken to cater for the needs of the ethnic minorities and information about the Census, including a translation of the questions, was provided in nine



languages. The co-operation of the Commission for Racial Equality was obtained in testing these translations.

### **Confidentiality**

The arrangements for confidentiality included the adoption of several recommendations made by the Royal Statistical Society following the 1971 Census<sup>4</sup>. In addition, the British Computer Society was invited to report on the security arrangements for the 1981 Census, as they had done in 1971. Their report and government comments were published in the White Paper *1981 Census of Population: Confidentiality and Computing*, (Cmnd 8201)<sup>5</sup>.

One point which proved difficult to resolve was whether anonymised data for a sample of individuals could or should be made available in the form of magnetic tapes known as 'public use tapes', which users could process for themselves in order to produce their own analyses. Proper authority for these might have required new legislation; but quite apart from this difficulty, very strict conditions would have been necessary to ensure confidentiality and these would have required that the tapes should contain no geographical coding which might identify small areas. However, the main customers (who were the only people willing to pay for the production of public use tapes) were only prepared to do so if small areas could be identified. The White Paper invited the bodies concerned to put forward proposals which might resolve this dilemma; but no such proposals were received, so there are no public use tapes for the 1981 Census.

### **Publicity**

A difficult judgement was involved in deciding when to start the main publicity campaign for the Census. There was, of course, publicity when the Census plans were debated by Parliament in April 1980, but after that public interest lapsed. OPCS began publishing articles early in 1981 but still the national press were not interested. It was decided to launch the main publicity campaign at a press conference on 19 March 1981, at which the Secretary of State for Social Services described the 1981 Census as the simplest and shortest for fifty years. Between then and the Census Day on 5 April 1981 there were advertisements in the national press, special advertisements in the ethnic press, a commercial advertisement on ITV, a popular tune (the 'Census jingle') which was played on the radio and many interviews in all the media and particularly local newspapers. Operations rooms were manned to answer telephone calls, of which nearly 25,000 were received.

The publicity campaign cost £660,000 in total, of which about £450,000 was for the press and TV advertisements. This would be regarded in countries like the USA as a cheap and 'low profile' campaign, but it

seemed to work well enough in the circumstances in Britain in 1981. The *Topic Sheets*, given out in reply to questions, proved a highly successful investment. In addition, of course, every household in the land received the Census form, and a leaflet which described why the Census was needed and the arrangements for confidentiality.

### **The collection of Census forms**

For Census purposes, England and Wales is divided into just over 100,000 areas known as 'enumeration districts', each containing on average about 180 households. In each district an enumerator is appointed, who is responsible for delivering the forms to each household and institution and for collecting them. Forms are not delivered or returned by post; in a high density country like ours, it is found that personal delivery and collection is cheaper and also achieves a very high coverage. In addition, many people seek advice from the enumerator and welcome his or her presence.

Separate arrangements were made for enumerating large institutions and a long list of special groups ranging from military establishments and ships down to very small groups such as vagrants and gypsies and those living in lighthouses.

Any person who did not wish other members of his household to see his Census return could place it in a sealed envelope, and if he did not wish the enumerator to see it he could place it in a sealed envelope addressed to the local Census Officer. In 1971 people were allowed to return forms by post but this did not work well; some said that they had posted the return when in fact they had not. In 1981 all forms had to be returned via the enumerator, except in a few cases where the enumerator was unable to make personal contact with anyone in the household.

The 100,000 enumerators were mostly employed for about 60 to 70 hours spread over a period of about two months. They were recruited as follows. OPCS directly appointed and trained some 100 Census supervisors, who each recruited and trained on average twenty Census officers, who in turn each recruited and trained three assistants and, on average, fifty enumerators; the material for training and courses being designed and distributed by OPCS. In 1981 a major effort was made in conjunction with the Manpower Services Commission to recruit unemployed persons as enumerators, but there were limits to what could be done; in some areas not enough suitable unemployed persons applied. Overall about one third of the enumerators were registered unemployed.

### **The Census Day**

The Census Day (5 April 1981) and the subsequent collection of the forms went off far more quietly than had been expected; incredibly, the main concerns at the time



in England and Wales were the number of enumerators who were bitten by guard dogs, and problems of access to certain areas where there was foot and mouth disease. Although there were (as always) some critics of the Census form, the great majority of people completed it without any difficulty.

A striking feature of the 1981 Census was the enormous volume of telephone calls from the public, who rang OPCS in their thousands. This enabled their queries to be settled immediately.

Out of nearly 18 million households, less than 6,000 were reported as having neglected or refused to complete the Census forms. In many of these cases there were mitigating circumstances, and many others sent in their forms after final warnings or even after summonses had been issued. Eventually, about 700 persons were prosecuted for refusal.

Thus almost all the households which were contacted completed their forms; but this did not mean that the coverage of the Census was totally complete. The enumerators had difficulty in identifying all the households in certain areas, particularly in Inner London. Checks on the under-enumeration in these areas are described below.

### **Preliminary Report**

Before the completed Census returns were sent to the processing centres, the enumerators added up the numbers of persons shown on the forms they had collected. Their totals gave a preliminary estimate of the population present in England and Wales on Census Day. The preliminary total came to 49.0 million, which was within 0.1 million of a forecast which had been made beforehand, based on the 1971 Census together with births, deaths and estimated migration since then. This was very re-assuring.

A *Preliminary Report*, giving these preliminary population totals for each area, and also a commentary and maps, was published on 30 June 1981. This showed that while the total population had changed very little between 1971 and 1981, there had been a fall of about 1.7 million in the aggregate population in the conurbations, compared with a rise of 2.0 million elsewhere. Thus there had been a considerable shift of population from the cities into the less urban areas.

### **Processing**

Processing plans were laid well in advance and there was a major effort to ensure that the computer programmes would be ready and tested on time. This was achieved despite the fact that the Census questions and form could not be finalised until May 1980, following the debate in Parliament.

Only a minority of the Census forms could be handled at the permanent OPCS Office at Titchfield. The great majority were processed at a temporary office

at Bootle, largely staffed by about 1,200 local recruits. Input of the data was by program controlled keying (PCK) equipment. The equipment produced magnetic tapes which were transported by road (this being cheaper than landline) to the OPCS computer for processing.

This conventional method of keying was chosen in preference to optical reading devices, which previous tests had shown to cause problems. Optical reading devices have merits when there is a shortage of keying staff, but this was not the situation at Bootle in 1981. Because there were so many unemployed young people in that area, it was decided to employ as many school leavers as possible. They worked with great enthusiasm and speed. However there were keying errors which affected about 100,000 returns, and ways must be found to avoid a repetition of these in future Censuses.

An important innovation for 1981 was an auto-edit system for imputing missing or inconsistent entries on Census forms, using a modified version of the 'hot deck' method which was originally devised in Canada<sup>6</sup>.

A firm target was set, namely that magnetic tapes containing all the data needed by local authorities for the rate support grant calculations must be produced, for the whole country, by May 1982. This greatly concentrated the minds of all concerned in designing the Census processing plans and ruled out many schemes which would have lengthened the timetable. As a result, the reports for counties were published more than 12 months earlier than in 1971. Results for the first county were published in a Monitor in October 1981 and the last in June 1982, with publication in volume form following in a steady stream. The volumes on special topics will be completed in 1984 though of course requests for further analyses will continue to be received for many years after that from individuals, research bodies and so on.

The special analyses include material for the OPCS Longitudinal Study, which *inter alia* will analyse the changes between 1971 and 1981. Many special analyses are also produced on a repayment basis, for local authorities and for the academic community.

The total output of tables may eventually reach 1½ million pages, as it did in 1971; but this time the total will include far more statistics for small areas (eight pages per area compared with three pages in 1981) and fewer unpublished tables.

### **Statistics for small areas**

In England and Wales the administrative boundaries of many local authorities were changed in 1974. The 1971 Census results were published for both the old and new boundaries, but in 1981 the results were published for the new boundaries only (with a few very special exceptions).



However, for many local applications people are interested in much smaller areas than the local authority areas. Accordingly, tables of Census results were prepared for wards and for each of the 100,000 or so enumeration districts. Tables for these small areas were sold in machine-readable form, in microfiche and as printed copy. A consortium of local authorities clubbed together to produce a special software package (known as SASPAC) so that they could produce further analysis for local areas, by combining the results for enumeration districts in different ways.

In 1971 statistics were also prepared for areas as small as one hundred metres square, identified by map references ('grid squares'). Advanced computer techniques and laser beams were used to produce coloured maps for publication. Unfortunately, these techniques were expensive and there was also another problem: in order to preserve confidentiality, the computer was programmed to suppress areas which contained so few people that there was a risk of individuals being identified. As a result, the grid square maps contained many blank squares. In 1981 most Census users preferred to buy the small area statistics for the enumeration districts, although grid square statistics were also provided for users who were prepared to pay the cost of production.

### Definitions of the population

The Census forms completed at a given address obtained information about (a) all persons who spent the Census night at that address, including visitors, together with the usual addresses of the visitors; and (b) all persons who usually lived at that address, including those who did not happen to be there on Census night. This information made it possible to compile three separate sets of population statistics for each area:

- (i) the number of persons who were present in that area on Census night, whether they usually lived there or not;
- (ii) the number of persons who usually lived in that area according to the information supplied by the persons who completed Census forms at the addresses in that area;
- (iii) the number of persons who were usually resident in that area according to the 'usual addresses' which were recorded on the form at the address where the persons concerned happened to be on the Census night, which may of course have been in a different area.

All three sets of population statistics were published. They are compared and described more fully in an article in *Population Trends* 33.

Traditionally, the Censuses in England and Wales have concentrated on (i) above—that is, the numbers present in each area on Census night—though since

1931 there have also been questions on usual residence and population statistics have been produced by method (iii). Although (ii) had been used in a limited way before, it was used much more extensively in the 1981 Census, largely in response to requests by Census users. The statistics (i) became available first and were published in the *Preliminary Report*<sup>7</sup>. The statistics (ii) became available next and filled an urgent need for 'usual residence' and household statistics. These were published area by area as the results emerged from processing. The population statistics (iii) could not be compiled until the whole country had been processed. It was found that the total population given by (ii) was about 1½ per cent below the total given by (i) and (iii) for the country as a whole. Some difference had of course been expected and arose because some households were wholly absent from their usual address on the Census night, so there was no one there to complete a form; but the persons were nevertheless included in (i) and (iii), because they were counted at the address where they happened to be.

There were, of course, others who were not recorded in (i) or (iii) either, for example if a whole household was on holiday abroad on Census night. Estimates of their numbers are, however, included in the *mid-year population estimates* and are also described in *Population Trends* 33. These mid-year estimates also include an allowance for the under-enumeration in the Census, as described below.

### Coverage checks and demographic checks

As a check on the coverage of the Census, a voluntary post-enumeration survey was carried out within three months of the Census Day. Experienced interviewers checked, in about 1,000 enumeration districts, whether addresses or persons had been missed. The result suggested that in net terms about 214,000 people or 0.4 per cent of the population had been missed in the Census. The estimated proportion was higher than this in Inner London, where it was 2½ per cent, and in Outer London where it was 1.0 per cent, but over the remainder of the country it was, of course, less than 0.4 per cent.

As it was possible that persons missed in the Census might have been missed again in the post-enumeration survey, further checks were made against other independent sources. The most obvious check—the comparison with the 1971 Census after allowing for births, deaths and migration—gave the encouraging result which has already been described, differing by only 0.1 per cent from the 1981 Census. There was therefore good reason to suppose that the coverage of the 1981 Census was at least as good as the coverage in 1971. More detailed checks were then made.

Comparison with birth registrations proved to be far from straightforward and various assumptions were



necessary, but the calculations suggested that infants aged 0-1 had been under-recorded in the 1981 Census, by about 2 per cent. This had happened in previous censuses and there are several possible reasons: for example, babies who have not yet been given names may not always be entered on Census forms. On the other hand the Census showed more children born overseas than had been expected, probably because of weaknesses in the methods of estimating migration flows between 1971 and 1981 and partly perhaps because of the movement of families of HM Forces. For children aged 6-15 the number in the Census fell only  $\frac{1}{2}$  per cent short of the numbers on the school rolls, a result consistent with the post-enumeration survey. For old persons, the Census agreed closely with the numbers of pensioners receiving social security payments. For the intermediate age groups as a whole, the Census seemed more complete than the alternative sources and no precise estimate of under-enumeration could be made. Thus there was no clear evidence to suggest any serious deficiencies in the Census beyond the 214,000 estimated from the post-enumeration survey, apart from the apparent under-recording of pre-school children particularly infants aged 0-1. In the light of all these results, for the purposes of the mid-year population estimates the total under-enumeration in the Census was put at 240,000 or just under  $\frac{1}{2}$  per cent.

The results of tests on the quality of the answers to the Census questions (as distinct from the coverage) will be published as soon as evaluation is complete.

#### **Decision on the next Census**

Perusal of the Royal Statistical Society's Journal (for example, volume 63, pages 107-111) shows that at least since 1890 there have been recurrent pressures for Censuses to be held every five years instead of every ten years; though the only 'mid-term' Census which has actually taken place was the so-called 'Sample Census' in 1966. Plans for a mid-term Census in 1976 were cancelled.

Soon after the 1981 Census, local authorities in England and Wales pressed for a 'mid-term' Census to be held in 1986. However, government departments, the National Health Service and local authorities in Scotland felt that they could manage without another Census until 1991. In July 1983 the government decided that the case for a mid-term Census in 1986 in England, Wales and Scotland was not sufficiently strong to justify the cost and burden on the public which would be involved. The announcement added that planning will proceed on the assumption that the next Census will be in 1991.

#### **Further documentation on the 1981 Census**

Further details of the methods used in 1981 will be

found in articles by Boxer<sup>8</sup> and Redfern<sup>9</sup>. A racy account of the British Census for American readers had been given by McAllister<sup>10</sup>.

#### **Conclusions**

In my view, a good deal of the success of the 1981 Census must be attributed to the fact that much of the planning was done by staff who had lived through the Census of 1971 and were able to anticipate the problems which would arise in 1981. The key decision was to keep the Census methods as simple as possible. Also important was the planning of a publicity and public relations campaign which would explain the need for the Census, and provide instantly available answers which could be handed out whenever they were needed to meet queries from the press or public.

The later decision to simplify and shorten the questionnaire was a great help to public relations; and the fact that there was no question on race or ethnic origin avoided what would undoubtedly have been a major controversy in the circumstances of 1981. The early planning of the processing and the target date for producing the results were further important factors. But finally, and perhaps in the last resort more important than anything else, was the fact that the Census was carried out by enthusiastic staff – at all levels from enumerators upwards – who were determined that it should be a success.

We cannot bank on quite such a fortunate combination of circumstances occurring again in the future. However, there are many lessons to be learned from the experiences in England and Wales in 1981 which may be helpful to those planning future Censuses.

Some countries have recently been discouraged by public opposition to their Censuses and are now planning to make use of population registers instead. But population registers can involve even longer delays than Censuses – particularly if they depend in part on information from tax returns – and they do not provide nearly as much information. In any case, this is not an option which is open to us here; for since the abolition of the war-time National Register we have had no central register which records the addresses of everyone in the population. For these reasons, and following the government announcement in July 1983, our planning is proceeding firmly on the assumption that there will be another traditional Census in the United Kingdom in 1991.



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## APPENDIX

### 1981 Census questions

#### The 21 questions in the 1981 Census

##### Population items

- 1 Name
- 2 Sex
- 3 Date of Birth
- 4 Marital status (single, married, remarried, divorced, widowed)
- 5\* Relationships in household (husband/wife/, son/daughter, other: specified)
- 6 Whereabouts on Census night
- 7 Usual address (including postcode)
- 8 Usual address: 1 year ago (including postcode)
- 9 Country of birth (present name of country)
- 10 Whether working, retired, housewife, etc., last week (full-time, part-time)
- 11\* Name and business of employer
- 12\* Occupation (includes description of work)
- 13 Employment status (apprentice, supervisory role, self-employed)
- 14\* Address of place of work (including postcode)
- 15\* Daily journey to work (train, tube, bus, van, foot, etc.)
- 16\* Degrees, professional and vocational qualifications

##### Housing items

- H1 Number of rooms
- H2 Tenure (freehold, leasehold, renting, other)
- H3 Amenities (fixed bath or shower connected, WC)
- H4 Shared household
- H5 Cars and vans (number)

There was an additional question in Wales asking whether people speak Welsh; and, if so, whether they speak English and read or write Welsh.

\* Questions marked with an asterisk were included on all the forms, but only a 10 per cent sample of the replies was processed. This arrangement saved time and money.

### Questions which were dropped

Questions on the following subjects were asked in the 1971 Census but were not included in the plans for 1981 which were published in the White Paper (1978)<sup>2</sup>:

- address five years earlier;
- occupation one year earlier;
- month and year of birth of each child born alive in marriage (for married, widowed or divorced women under 60);
- month and year of first marriage and, where first marriage has ended, the month and year that it ended (for married, widowed or divorced women under 60);
- parents' countries of birth;
- certain household amenities, (cooker, kitchen sink and hot water supply).

The following further questions were proposed in the White Paper (1978)<sup>2</sup> but were later dropped:

- nationality of those born outside the UK;
- year of entry to the UK, for those born outside it;
- race of ethnic origin;
- weekly hours usually worked;
- school qualifications.



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# The 150th Anniversary of the Royal Statistical Society

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The Royal Statistical Society was founded (as the Statistical Society of London) in March 1834. An anniversary such as the present sesquicentenary is a justifiable excuse for a modest degree of retrospection, but the Council of the Society, in its planning which started some five years ago, rightly decided that nostalgia was not enough. The theme of the Anniversary Conference (which occupied four half-day sessions spread over three days in April) was the present and the future of statistics. It was interesting to see, though, how often the early developments in the subject were referred to in discussions of more recent experiences and future prospects.

The Society's royal connection started with the Patronage of Prince Albert in 1840 (the Charter was received in 1887), and the Society was greatly honoured, at the Anniversary Reception, by a visit from the present Patron, HM the Queen, and HRH the Duke of Edinburgh. Another important link is with the Royal Society, whose President, Sir Andrew Huxley, OM, was the principal speaker at the Anniversary Dinner. A special exhibition, partly historical but also demonstrating the variety of current statistical activity, was compiled and is now available for display on other suitable occasions. The Proceedings of the Conference will be published as part of Volume 147 of the *Journal of the Royal Statistical Society*, Series A (1984).

In 1833, the Belgian statistician, Adolphe Quetelet, attended the meeting of the British Association in Cambridge, hoping to present a collection of statistical material concerning crime in France and Belgium. He discovered that there was no suitable section of the British Association for such a presentation, and a group of influential members managed to get a statistical section set up. More importantly, this group of enthusiasts decided to found a permanent body, the Statistical Society of London. Societies of this sort were being set up throughout Europe: the Manchester Statistical Society had already been founded in 1833. The initial aim of the London society was to collect facts and 'exclude carefully all opinions from its transactions'—hence the Society's emblem, the sheaf of wheat, and its original motto *aliis exterendum* ('to be threshed by others'). By 1857 the motto had been abandoned, and thenceforward statisticians made no pretence of hiding their opinions on the data they presented.

Throughout the 19th century the predominant

interest of the Society was in the statistical study of society, and many of its Fellows were men and women of affairs (like Florence Nightingale) who sought to improve social conditions. Two prime ministers (Russell and Gladstone) were Presidents (the only other, in 1972-73, being Sir Harold Wilson). During the early part of the 20th century the Society started to reflect the mathematical developments in statistical theory and the widening range of statistical applications. So, gradually, the Society has assumed its present ecumenical form, with sections for various specialized interests and local groups in many parts of the United Kingdom. The Fellowship, which remained at about 1,000 throughout the inter-war period has now grown to about 5,000. The largest sub-group (40-45 per cent) is that of academic workers, reflecting the remarkable increase in the provisions for teaching statistics in institutes of higher education since the last war. The proportion of Fellows in government departments or other branches of public service is about 20 per cent, about the same proportion as for industry and commerce.

The study and encouragement of official statistics has, of course, always been a major concern of the RSS. One of the 17th century founders of the Royal Society, Sir William Petty (the originator of 'political arithmetic'), was in no doubt about the importance of quantitative information for government: 'God send mee' he wrote 'the use of things, and notions, whose foundations are secure and the superstructures mathematical reasoning; for want of which props so many Governments doe reel and stagger...'. Two hundred years later, Karl Pearson wrote of Florence Nightingale: [to her] '...statistics were more than a study... She believed—and in all the actions of her life acted upon that belief—that the administrator could only be successful if he were guided by statistical knowledge. The legislator—to say nothing of the politician—too often failed for want of this knowledge'. The Society has played an important role in bringing together those who produce and those who use government statistics, in exploring techniques that might be especially useful in this field, and in trying to ensure that the importance of official statistics is kept in the public eye. A recent step has been the setting up of the Government Statistics Study Group, currently under the chairmanship of the Director of the Central Statistical Office and Head of the Government Statistical Service, Sir John Boreham.

The general plan of the Anniversary Conference was





Professor Peter Armitage (*on the right*) with Sir Andrew Huxley at the 150th Anniversary Dinner

to present a series of papers by leading British statisticians, on different aspects of present-day statistics. The main group, entitled 'Present Position and Potential Developments: Some Personal Views' was divided into two sub-groups: nine papers on particular fields of application and eight papers on general methodology. There were two historical papers covering the period 1834-1984, and two papers on topics of public interest: 'The 1981 Census of Population in England and Wales' by the Registrar General, A. R. Thatcher (see the preceding article) and 'Water Quality' by M. B. Beck. Finally, D. V. Lindley and M. J. R. Healy summed up with their views on future prospects.

It would be inappropriate to try to summarize all this material. Of particular interest for those concerned with 'Official Statistics' was a paper with that title by Sir John Boreham. He described the evolution of the present federal structure of the Government Statistical Service, and the way in which priority has recently moved towards service to government rather than to the community at large. Developments in information technology will affect the acquisition of data, particularly in

economic statistics, and in due course the delivery of data through the wider use of databases.

D. J. Newell ('Medical Statistics') emphasized the role of statistical information in the planning and evaluation of health services, and suggested that the major contribution of medical statistics in the near future will be in the third world. H. Goldstein ('Statistics in the Social Sciences') stressed the valuable role that social statisticians can play as investigators in their own right, rather than merely as technical advisors to others. In a paper on 'Statistics in Business and Commerce', P. G. Moore described a wide range of activities – data collection and processing, the planning and analysis of research investigations, and advice to management (for instance in risk analysis). He stressed the increasingly important link between statistics and accountancy, since conclusions have often to be presented in terms of cost savings. A related topic, 'Industrial Statistics and Operational Research', was presented by A. Baines. He identified a growth in the use of statistics by non-specialists, and some discussants took the view that British industry has become dangerously negligent of



statistical methods in production and quality assurance in comparison with, say, USA and Japan.

Some of the papers dealing with specific areas of methodology were of less interest to official statisticians than others; among the more relevant were those by J. A. Nelder ('Statistical Computing'), D. F. Hendry ('Econometrics') and T. M. F. Smith ('Sample Surveys').

In the two final papers, on future prospects, D. V. Lindley stressed the role of probability in measuring uncertainty, and of utility in decision-making, and saw the computer as shifting the technical developments of the subject away from mathematics; M. J. R. Healy discussed the difficult tasks of promoting understanding between varieties of statisticians, and between statisticians and the outside world.

A programme of such diversity might have resulted in rather bland surveys of well-known material. In fact, the speakers generated quite lively, albeit brief, discussions. One implicit lesson to be drawn from the conference is the continued importance for the Society to bring together statisticians in different forms of activity. The International Statistical Institute (ISI) has recently seen this as one of its main tasks, having become aware particularly of the danger of divergence between official and academic statisticians. These, of course, are not the only sub-groups to be considered; for example, statisticians in research and those in industry and commerce equally have a need to maintain contact with others.

A more explicit theme which was raised on a number of occasions is the need for the RSS to take a lead in

showing how statistics can contribute towards the problems of society. This was the main driving force in the Society during the last century, and has remained alive ever since, although it has been overshadowed during the last fifty years by the developments in statistical methodology. The RSS now has a Social Statistics Section, and many speakers at the conference pleaded for better representation of this field of application in the Society's publications. During the last five years or so the Society has taken initiatives on a number of topics of public interest, for example, by the setting up of working parties to report on particular issues. Many of these studies have been carried out in conjunction with the Institute of Statisticians. In most instances the initiatives have been in response to requests for advice, or to rather ephemeral public debate on, for example, proposed government legislation. What is perhaps needed now is a longer-term view of some of the social problems that will be with us for the next decade or two, and an effective system for anticipating the more transient issues so that they can be examined in greater depth, and with a longer lead-time, than has sometimes been possible.

A learned society is wise to avoid too highly formalized a structure or too rigid a programme of future activities, so that it can adapt to circumstances and serve the varied interests of its members as flexibly as possible. Whatever course is charted during the next fifty years we can be certain that the RSS will continue to press for the effective development and use of statistics in all its forms, and of official statistics in particular.

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### **150th Anniversary Issue**

This issue is being sent to all RSS Fellows and to Subscribers who have ordered it. Additional copies are available at £12/US\$16.50 (airmail paid) or £10/US\$14 (surface mail). The issue contains, in particular, papers on:

Statistical Computing (J. A. Nelder); Official Statistics (Sir John Boreham); Medical Statistics (D. J. Newell); Statistics in the Social Sciences (Harvey Goldstein); Statistics in Business and Commerce (Peter G. Moore); Industrial Statistics and Operational Research (A. Baines); Time Series Econometrics (D. F. Hendry); Statistics in the Natural Sciences (B. D. Ripley); Statistics in Biometry and Agriculture (R. N. Curnow); Time Series Analysis (J. Durbin); Multivariate Analysis (Robin Sibson); Sample Surveys (T. M. F. Smith); Probability and Random Processes (J. F. C. Kingman); Bayesian Statistics (A. F. M. Smith); Statistical Theory—The Prequential Approach (A. P. Dawid); Design of Experiments and Regression (D. R. Cox); also papers on the History of the Society (I. D. Hill, R. L. Plackett, S. Rosenbaum) and on Topics of Public Interest: The 1981 Census of Population in England and Wales (A. R. Thatcher); Water Quality (M. B. Beck).

Copies may be ordered from the Secretary, Royal Statistical Society, 25 Enford Street, London W1H 2BH, United Kingdom. Payment should be sent with order.



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# The Disaggregated Information System – experiences with the use of a disaggregated input-output based industrial model of the United Kingdom economy

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## 1. Introduction

The purpose of this paper is to describe the experiences of statistical staff at the Department of Trade and Industry (DTI) in the use of a disaggregated input-output based industrial model of the UK economy. In particular, the paper sets out the results of an exercise undertaken to assess the sensitivity of the model's projections for manufacturing output to changes in selected components of final demand.

The Disaggregated Information System (DIS) is a computerised industrial model of the UK economy being developed at DTI. Its purpose is to provide the facility to assess the industrial implications of a given macro-economic outlook for developments in the UK economy. The system uses an input-output based accounting framework to match final expenditure flows and the associated intermediate demand against supply at an individual commodity level (known as 'commodity balances') in conjunction with a set of estimated equations which disaggregate the final expenditure flows using endogenous links wherever possible so as to maintain internal consistency within the system. In many respects, DIS is closely allied to work pioneered, in the United Kingdom, at the Department of Applied Economics in Cambridge under the Growth Project (the MDM model) though as will be explained in this article, there are important differences in the conceptual backgrounds of the two systems. However both DIS and MDM are radically different to the techniques for projecting industry output on the more traditional type of macro-economic model as used at Treasury and elsewhere.

Experience so far with the trials of DIS has shown that its novel features may lead to a significantly different sectoral outlook for the output side of the economy from that derived from other models for the same set of projections of domestic expenditure and overseas trade developments. In order to analyse these differences further it was decided to conduct a series of simulations on DIS to assess the sensitivity of the manufacturing output projections to changes in final expenditure, and compare these results with similar simulations conducted on an existing large-scale, but more conventional, UK macro-economic model: the Treasury model was chosen as the most convenient and readily available alternative within Government. Any

other accessible macro-economic model with equations for industrial output could have filled this role though the Treasury model provides a useful benchmark.

The rest of this article describes in greater detail the structure of the DIS model and its relationship to other types of economic models (Section 2), aspects of the Treasury model and main differences between the two models from the point of view of projecting manufacturing output (Section 3), the methodology of the simulation study (Section 4), and the results and conclusions of the exercise (Section 5). Finally the future development of DIS, especially the rebasing and reclassification of the model, is outlined in Section 6.

## 2. The structure of DIS

This section provides a summary description of the structure of DIS, highlighting factors which may influence the projections for manufacturing output. Within the context of this article, it is not possible to provide a full description of the model; more complete details are set out in a paper prepared for the seventeenth general conference of the International Association for Research into Income and Wealth (1981) – 'The Disaggregated Information System, an input-output based industrial model' by Peter M. Rees and Richard L. Butchart<sup>1</sup>. However, at the end of this section, the opportunity has been taken to describe the family of industrial models of which DIS represents a particular example.

The structure of DIS is currently based on the 1968 Standard Industrial Classification (SIC), with time series data based at 1975 constant prices. The model identifies ninety industry/commodities, eighty-four of which are within manufacturing (old definition). The terms industry and commodity are used in the same sense as adopted by input-output analysis, and closely follow the conventions of the United Nation's System of National Accounts<sup>2</sup>. The relationships between the demand for the output of commodities and both final and intermediate consumption are described by an input-output accounting framework which can be regarded as a partial social accounting matrix (SAM). The matrix is not fully specified, most notably with respect to financial flows, since DIS is primarily concerned with monitoring the flow of goods and



services. For the historic period, the composition of final expenditure and imports is determined by data available from United Kingdom National Accounts<sup>3</sup> and other official sources. Conceptually this part of the work – the construction of DIS commodity balances – is quite similar to the methodology used by the Central Statistical Office in the compilation of commodity flow accounts (see *Statistical News*, 63.34<sup>4</sup>, November 1983). A set of econometric relationships is used to project this composition of expenditure forward. The relationships tend to be fairly simplistic (e.g. industrial investment is determined by current and lagged levels of domestic activity) since their main function is to disaggregate final expenditure rather than produce free-standing forecasts of the expenditure aggregates. Internal consistency within the disaggregations is promoted through the extensive use of endogenous links within the econometric specifications. The system is both dynamic and simultaneous. Some items are treated exogenously; in particular this treatment is used for overseas trade in services, public sector investment, current government expenditure and investment in dwellings.

The present input-output accounting framework is based on information mainly extracted from the 1974 tables for the United Kingdom (Business Monitor *PA 1004*<sup>5</sup>). A schematic presentation of the framework is provided in Diagram 1 opposite. Government expenditure is analysed by four categories, as published in the 1974 tables, whilst there is a nineteen functional classification for consumers' expenditure based on both the aggregation and further disaggregation of the published analysis in order to reflect the model's needs (for instance clothing and footwear are separate DIS commodities whilst services are currently a single sector). The composition of investment expenditure and stocks of materials and fuels is analysed by ninety categories which correspond to the ninety industries in DIS. The final demand for each DIS commodity from these final expenditure components can be derived by the use of the converters drawn from the input-output tables (Tables O, P, Q and R in the 1974 tables along with the unpublished stocks matrix). In general, stocks of work in progress and finished goods are assumed to be the principal products of each holding industry at the DIS ninety sector level, though in practice each industry may hold stocks of goods for its subsidiary outputs. For some sectors, such as motor traders and distributors, stocks require special treatment since companies here will hold the final output of other industries as stock. Series for exports of goods are available on a principal product basis from DTI (Business Monitor *MQ10*<sup>6</sup>) and therefore require no allocation to commodities. The relationship between commodities and industries is described by the make matrix (Table A in the 1974

input-output tables). Using these estimates of total final demand, intermediate demand can then be calculated from the total absorption matrix (Tables B *plus* C in the 1974 input-output tables) after allowing for imports which are also available from the same source as exports. The coefficients in the absorption matrix are updated using estimated technology trends, which alter the intensity of use of each input in the production process. Although the converters are broadly fixed, individual coefficients are sometimes adjusted (see *ii* in the first paragraph on page 66.22). Gross output for each commodity is derived via a commodity balance taking the sum of final and intermediate demand and deducting imports. These estimates of commodity output are then passed through the make matrix to derive industry gross output. Movements in these estimates of industry output are likely to differ from those used in compiling GDP(O) due to the lack of congruence between expenditure and output data. Across all commodities, the differences will correspond broadly to the divergences between movements in GDP(E) and GDP(O) for the whole economy.

For projection purposes, the system is interlinked by using endogenous estimates of output and demand to drive the expenditure equations. Diagram 2 on page 66.23 shows the simultaneous links that exist in the model. Manufacturing output on a net basis is calculated by weighting together – at the moment by the 1975 net output weights – the movements in gross output of the eighty-four sectors within manufacturing: this implicitly assumes that, at the disaggregated level, gross-net output ratios remain the same as the base year ratios. The model can be run either constrained to total values for each component of final demand and/or imports from a given macro-economic scenario (as represented by the relevant column totals in Diagram 1) or unconstrained though in practice this latter option has been little used. Since the equations in DIS are primarily used to disaggregate expenditure and not model the relationships between final demand aggregates, the system is not designed to produce a free-standing forecast. Although the model is generally run in a constrained mode, it is possible to vary the difference for constraining purposes between the sum of the DIS projections for a particular variable and the pre-determined aggregate value. The main use of the unconstrained mode is for internal purposes as a tool to conduct analyses of model operation and performance.

So far, this section has described the mechanical relationships of the model and these will be the critical features for the simulation exercise described in Sections 4 and 5. It should be emphasised however that in addition to the technical relationships, a high degree of subjective input will inevitably be required in practice, in order to allow both for data weaknesses and to



ACCOUNTING FRAMEWORK IN DIS

OUTPUT SECTORS		CONSUMPTION BY SECTOR				CAPITAL ACCOUNT BY ASSET				
		INDUSTRIAL	PERSONAL	GOVERNMENT	OVERSEAS	FIXED		STOCK		
DOMESTIC	OVERSEAS	INTERMEDIATE DEMAND	CONSUMER DEMAND	GOVERNMENT DEMAND	EXPORT DEMAND	PLANT AND MACHINERY	VEHICLES	BUILDINGS	MATERIALS AND FUELS	WORK IN PROGRESS AND FINISHED GDS
COMMODITY OUTPUT (make matrix)	IMPORTS	(absorption matrix)	(consumers expenditure converter)	(government converter)	(identity matrix)	(plant and machinery converter)	(investment asset converter)		(stocks* matrix)	(identity matrix)
TOTAL OUTPUT	TOTAL IMPORTS	TOTAL FINAL EXPENDITURE (TFE)								

↑  
SUPPLY  
(commodities)

← DEMAND →  
(expenditure categories)

\*DIS uses a hybrid version of the absorption matrix at present

$GDP = TFE - TOTAL\ IMPORTS$



incorporate developments that cannot be predicted readily by analyses of past behaviour. Nevertheless the input-output framework upon which DIS is based will impose accounting constraints that will ensure consistency is maintained. Three main parts of the system are involved in this approach:

- i* initially the technology trends are based on an analysis of historic data but it is unlikely that the speed and complexity of developments in this area can be fully monitored in such a manner (especially in view of weaknesses in matching output and expenditure data). Assistance from industry specialists will therefore be sought in adjusting the formal estimates;
- ii* the fixed final demand converters are likely to change over time as the composition of individual items of expenditure shifts (e.g. computers now form part of household durable expenditure on electrical goods). Coefficients will therefore be over-written on the basis of alternative sources of information;
- iii* equation residuals can be used to alter the composition of final expenditure suggested by the econometric relationships, though this will have no aggregate effect for the variable in question when constraining the model.

Whilst the subjective input plays an important role in DIS, the purpose of the simulation exercise described later on was to discover the underlying properties of the basic model. The exercise therefore did not incorporate any further adjustments from the base run, so that the results of the simulation would be 'neutral' to these aspects.

The environment within which DIS has been developed, and in particular the need to produce detailed industrial projections, has influenced the design of the model. This is reflected in both the similarities and differences between DIS and other approaches to the modelling of industrial output. Its basic design is by no means novel, and closely follows the use made of input-output frameworks in economic models elsewhere. In the United Kingdom, MDM at Cambridge is the most closely related companion (see Barker *et al*, 1976, *Economic Structure and Policy*<sup>7</sup>), though DIS differs in that it does not employ a complete, 'bottom-up' approach. Instead it uses pre-determined projections for final expenditure aggregates and imports – at a broad group level – as well as certain other variables such as consumer prices, rather than deriving its own endogenous results for these variables. DIS is therefore not designed to be used primarily as a free-standing model. However both MDM and DIS do have major differences from the more traditional type of large-scale macro-economic model where output results by broad sector are derived from a single

equation which is usually a combination of estimated parameters and input-output inverse coefficients (see the 1968 input-output tables<sup>8</sup>, especially appendix C and the tables contained in chapter 3, for a more complete discussion of the derivation of input-output inverse coefficients and examples of their computation at a broad sectoral level). This single equation technique is the approach used, for example, in the Treasury model. Despite these differences, all these varying approaches can be regarded as belonging to the same generalised system of model. At one end of the spectrum, there is the approach of MDM where all input-output accounting flows are identified explicitly; macro-economic results are the sum of detailed projections from individual equations specified at a fine level of detail and a minimal amount of exogenous information such as oil prices and exchange rates is used. DIS represents a more mixed approach: the input-output framework is explicit though not fully identified – it concentrates more on the flow of goods rather than financial flows, and whilst detailed endogenous relationships disaggregate both the components of final expenditure and of imports these items in total are pre-specified along with other exogenous variables particularly on the prices and wages side. Finally the single equation approach of the Treasury, which is also evident in other models such as that of the National Institute of Economic and Social Research (see the *National Institute Economic Review*<sup>9</sup> for August 1981), does not have an explicit input-output framework but takes input-output coefficients for final demand components calculated at an aggregate level from the Leontief inverse, and these terms are then driven by endogenous equation values based on highly aggregated expenditure flows. Estimated parameters are included to approximate structural change, along with a facility to manipulate the equation residuals.

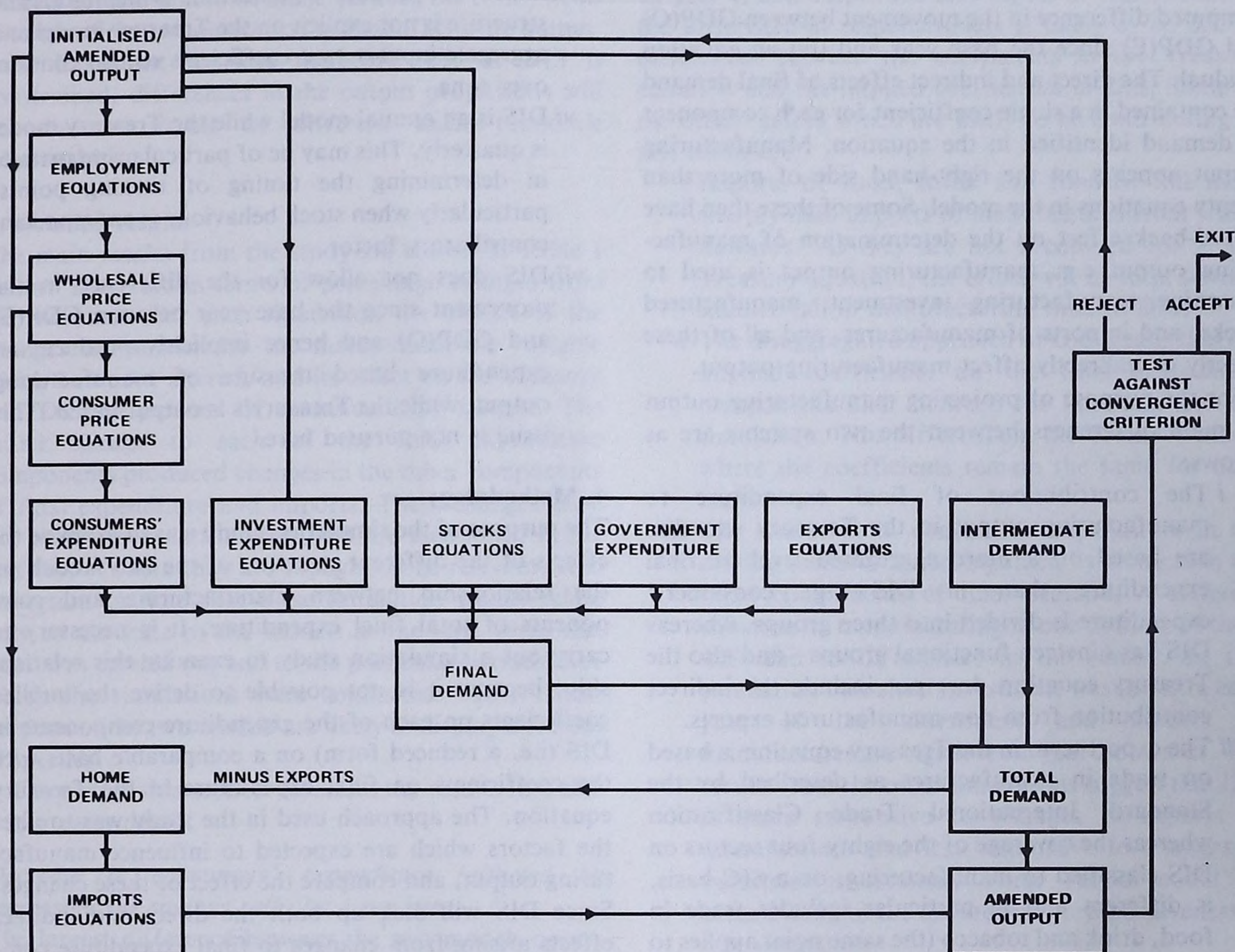
A paper providing a more technical presentation of DIS, and discussing the relationship between the solution of DIS accounting framework and the computation of input-output inverse coefficients, with references to the matrix algebra of the alternative formulations, is available. Copies can be obtained upon request from Statistics Division 1C, Room 1921 Millbank Tower, London SW1P 4QU.

### **3. Projections of manufacturing output on the Treasury model**

The Treasury model consists of more than six hundred equations and identities, and is both dynamic and simultaneous. For the real economy it concentrates on determining final expenditure and imports to derive GDP(E), and obtains GDP(O) after allowing for the measurement error between these two sides of the accounts. A full specification of the model is contained,



DIAGRAM 2



The above diagram shows the simultaneous links that exist in the model. Initialised values of output for each of the DIS industries are used to compute the level of intermediate demand. Output terms also appear on the right hand side of the stocks, investment and employment equations. Output, employment and exogenous wage information determine unit wage costs, which are used as an explanatory variable in the producer price equations (formerly known as wholesale prices). Producer prices feed into the consumer price equations, which in turn drive the consumers' expenditure sub-model where total consumers' expenditure is disaggregated into the component functional categories identified on the model. Government expenditure is treated exogenously whilst the composition of exports is

determined by equations driven by exogenous terms (the level of world trade and relative export prices). Both these sub-models are therefore solved outside the iterative part of the solution loop. Imports at the level of the DIS commodities are a function of home demand and relative prices, where the latter term is computed from endogenous producer prices and exogenous import prices. Amended values of industry output are then derived from the commodity balance framework as described on page 66.20. The system uses a form of Gauss-Seidel solution procedure which tests for convergence by comparing initialised and amended estimates. The system is dynamic and the solved values for any given year are used in the lagged terms for the next year's solution.



for example, in the paper 'HM Treasury macro-economic model: supplement to the 1982 technical manual' (GES working paper number 71<sup>10</sup>). Manufacturing output is derived from a single equation as a function of (i) the direct and indirect effects of final demand, (ii) imports of manufactures, (iii) the computed difference in the movement between GDP(O) and GDP(E) since the base year and (iv) an equation residual. The direct and indirect effects of final demand are contained in a single coefficient for each component of demand identified in the equation. Manufacturing output appears on the right-hand side of more than twenty equations in the model. Some of these then have a feed-back effect on the determination of manufacturing output e.g. manufacturing output is used to determine manufacturing investment, manufactured stocks, and imports of manufactures, and all of these directly or indirectly affect manufacturing output.

For the purpose of projecting manufacturing output the main differences between the two systems are as follows:

- i* The contributions of final expenditure to manufacturing output in the Treasury equation are based on a more aggregated level of final expenditure than in DIS – e.g. consumers' expenditure is divided into three groups, whereas DIS has nineteen functional groups – and also the Treasury equation does not include the indirect contribution from non-manufactured exports.
- ii* The export term in the Treasury equation is based on trade in manufactures as described by the Standard International Trade Classification whereas the coverage of the eighty-four sectors on DIS classified to manufacturing, on a SIC basis, is different and in particular includes trade in food, drink and tobacco (the same point applies to imports).
- iii* The Treasury equation coefficients were based on the 1973 update of the 1968 input-output tables when the simulation was conducted. DIS incorporates details from the 1974 input-output tables. Furthermore, DIS attempts to update the absorption matrix by allowing for changes in the intensity of use of an input into the production process (technological change).
- iv* The two models are different in the way that components of final expenditure determine manufacturing output. In the Treasury equation a coefficient on one of the final expenditure components measures the level of final demand for manufacturing plus the amount of intermediate demand for manufacturing associated with this final demand, *less* intermediate purchases made by the manufacturing sector. DIS derives intermediate demand explicitly from the

levels of industrial output required to meet final demand after allowing for imports and uses a commodity balance framework to derive output.

- v* DIS allows for changing industrial structure by its disaggregated approach, including the structural impact of import penetration, while industrial structure is not explicit on the Treasury model and aggregate input-output coefficients remain constant over time.
- vi* DIS is an annual model while the Treasury model is quarterly. This may be of particular importance in determining the timing of turning points, particularly when stock behaviour is an important contributory factor.
- vii* DIS does not allow for the difference in the movement since the base year between GDP(E) and GDP(O) and hence implicitly produces an expenditure based measure of manufacturing output, while the Treasury's is output-based. This issue is not pursued here.

#### 4. Methodology

The purpose of the simulation study was to examine the effects of the different structure of the two models on the relationship between manufacturing and components of total final expenditure. It is necessary to carry out a simulation study to examine this relationship, because it is not possible to derive the implied coefficients on each of the expenditure components in DIS (i.e. a reduced form) on a comparable basis with the coefficients on final expenditure in the Treasury equation. The approach used in the study was to alter the factors which are expected to influence manufacturing output, and compare the effect of these changes. Since DIS will pick up both the direct and indirect effects arising from changes to final expenditure components, full simulations were conducted on the Treasury model for comparison purposes, rather than simply matching with the single equation coefficients.

Five different macro-economic scenarios were derived on the Treasury model; a base run, and four variants showing the effects of changing each of the following final demand components separately: consumers' expenditure (via a change in the savings ratio of 1 per cent), exports of manufactures, central government expenditure and industrial investment. The results on a full macro-economic model such as this are of course sensitive to the assumptions made about the stance of Government policy during the period. In each simulation, except consumers' expenditure, 5 per cent of the level of the series in the initial year was added to the final demand component being altered in year 1 of the simulation and this additional residual was maintained throughout the simulation period of five years. The results from DIS were then constrained to



each of the five scenarios in turn, by ensuring that the annual growth for each component of final expenditure (including stockbuilding) and imports from DIS aligned with the underlying scenarios, as represented by the relevant column totals in Diagram 1. This action enables a direct comparison to be made between the two systems in terms of the responsiveness of manufacturing output. It is important to note therefore that as DIS is constrained, differences in the output projections will not be the result of different macro-economic relationships.

## 5. Detailed results

The main results from the study are shown in Table 1 below. These are in terms of percentage changes from the base run. For each simulation the impact of the changes are shown for the macro-economic variable which had been altered, and its effect on the Treasury and DIS projections of manufacturing output. The initial change to each of the final expenditure components produced changes in the other components of final expenditure and imports. These changes have not been shown in the table, but are mentioned in the text below where they are thought to be relevant. It is important to note that these simulation results relate only to the state of the models at the time when this work was carried out and to the particular periods over which the simulations were conducted. More recent versions of the two models are likely to display different properties.

The rest of this section discusses the results in Table 1 in greater detail.

### *Decrease in consumers' expenditure (effected by increasing the savings ratio by 1 per cent)*

The largest difference between the two models occurs for the simulation of an increase in the savings ratio, which causes a reduction in consumers' expenditure in

each year of the simulation period. The initial response in the Treasury model is much stronger than in DIS and the simulated values of manufacturing output are below the base run in every year of the simulation. In contrast DIS regains its base run level of manufacturing output by year 4, and output remains higher in year 5. Part of the difference in responsiveness is likely to be due to differences between the coefficients in the Treasury equation and the implied coefficients in DIS. Some of the other factors which are likely to be contributing to this result are:

- i* Imports of food, drink and tobacco fall more sharply than imports of manufactures from year 3 onwards. As they are not accounted for in the Treasury equation, the effect will be to produce a smaller fall in manufacturing than in DIS.
- ii* The disaggregated approach of DIS means that the implied coefficients on the final expenditure components alter between the base run and the simulation. This differs from the Treasury model where the coefficients remain the same for both runs.
- iii* The reduction in consumers' expenditure in the driving scenario is accompanied by changes in the other components of final demand. A different response by manufacturing to one or more of these will lead to differences in the results. In this simulation industrial investment was lower in each year of the assessment and exports of manufactures are higher from year 2 onwards. The results from the other simulations suggest that DIS is more responsive to changes in exports of manufactures and less responsive to changes in industrial investment. These results could be contributing to the differences in responsiveness in this simulation.

### *Increases in the exports of manufactures*

The results suggest that DIS is more responsive to an increase in exports of manufactures, particularly in the latter part of the simulation period. Also exports of food, drink and tobacco are slightly lower in the macro-economic scenario simulated on the Treasury model, while imports of food, drink and tobacco are slightly higher. Hence the inclusion of these two variables in the Treasury equation would have increased the differences in responsiveness between the two systems, as they will have had a direct effect on manufacturing output in DIS.

### *Increase in Government expenditure*

The simulation of an increase in Government expenditure (i.e. current expenditure on goods and services) produced a similar response in manufacturing output in both systems. This is an area where the

**TABLE 1**

### **Simulation results from changes in final demand components**

*Percentage changes from the base run*

	T1	T2	T3	T4	T5
Consumers' Expenditure	-1.1	-1.7	-2.0	-2.0	-1.4
Manufacturing Output (HMT)	-0.8	-1.2	-1.2	-0.7	-0.3
Manufacturing Output (DIS)	-0.1	-0.2	-0.1	0.2	0.4
Export of Manufactures	2.6	2.9	2.6	2.4	2.2
Manufacturing Output (HMT)	1.0	1.1	0.7	0.3	0.2
Manufacturing Output (DIS)	1.1	1.2	0.9	0.7	0.7
Government Expenditure	1.7	2.2	2.1	2.0	2.1
Manufacturing Output (HMT)	0.3	0.3	0.0	-0.4	-0.7
Manufacturing Output (DIS)	0.2	0.2	-0.1	-0.4	-0.7
Industrial Investment	4.6	5.8	5.6	5.5	5.4
Manufacturing Output (HMT)	0.9	0.7	0.5	0.2	0.0
Manufacturing Output (DIS)	0.2	0.1	0.0	-0.3	-0.3



structure of the two models is more similar than elsewhere. The Treasury model has a single coefficient on Government expenditure which determines the contribution of Government demand to manufacturing output. DIS identifies four categories of Government expenditure (although in the absence of any alternative information, three of these categories are assumed to have the same growth rates over the simulation period) and derives Government demand for each industry from the Government expenditure converter (Table P in the 1974 input-output tables). This simulation suggests that the implied coefficient in DIS which would calculate the direct and indirect effects of demand from Government expenditure is of a similar order to the coefficient in the Treasury equation. In view of the high proportion of government expenditure represented by labour costs, and the relatively small indirect flows to the output of goods, this result is to be expected.

#### *Increase in industrial investment*

The simulated increase in industrial investment produced larger initial changes in manufacturing output in the Treasury model compared with the results from DIS. By the end of the simulation period the level is the same as in the base run on the Treasury model, while manufacturing activity in DIS is below its base run level. The first two years of the simulation do not produce changes in any of the other final demand components so the difference in the responsiveness is largely due to differences in the coefficients on investment in the Treasury equation and the implicit aggregate coefficients in DIS.

#### *Interpretation of simulation results*

Interpretation of the simulation results should be undertaken with some caution. The conclusions which can be drawn from the results depend on the precise nature of the implied relationship between manufacturing output and each of the final expenditure components on the two models. Within the range of the simulations, experience suggests that the functional form of the relationship between variables on the Treasury model and DIS is approximately log-linear. This implies that an x per cent change in one variable will lead to a y per cent change in another variable regardless of the levels of the two series. If this is the case then it is possible to infer from the results that if DIS manufacturing output was less responsive to a change in one of the expenditure components in the simulation, then it is generally less responsive to any change for that component of final expenditure. It may be that the assumption of log linearity is invalid and that some other functional form better describes the relationship between one of the components of final demand and manufacturing output. For example the relationship may be linear in both of the systems, in

which case it would still be possible to infer that manufacturing output in one of the systems is more or less responsive to changes in a final demand component, but the size of the difference in responsiveness between the two systems will depend on the level of the series before the change took place. Alternative functional forms could lead to a situation where manufacturing was more responsive in DIS over some of the relevant range and less responsive over the rest of the range than in the Treasury model. A further complication for interpretation is that the responsiveness of manufacturing will change over time due to time trends in equations, lagged relationships and in the case of DIS the updating of the absorption matrix coefficients to allow for technological change. This will also restrict the extent to which conclusions should be drawn about the general responsiveness of the two systems. Finally it has already been noted that any set of simulations are not unique but depend when and from where the simulations are conducted, since the responsiveness of the two models will vary over time as a consequence of the way in which the policy environment is assumed to operate and other judgements are incorporated.

A good deal of development work remains to be done on DIS. In attempting to resolve some problems, the simulation exercise posed a whole new series of questions. The exercise identified areas where further development will reduce the 'loop-holes' which cause some points to be not fully answered. These improvements will be discussed in Section 6. Even then, it is likely that it will never be possible to identify separately the extent to which each of the structural differences noted at the beginning of Section 3 contributes to the differences in responsiveness of manufacturing output to changes in the final expenditure components. However, assuming log-linearity holds in both models, it was concluded that:

- i* the responsiveness of manufacturing output to changes in Government expenditure is similar in both systems;
- ii* DIS is less responsive to changes in consumers' expenditure and industrial investment;

whereas

- iii* the Treasury model is less responsive to changes in exports of manufactures, although the differences are concentrated in the latter part of the simulation period.

Although it may not be possible to quantify the contributions made by the various structural differences that have been noted in this article to the alternative projections presented in the simulations, it is likely that two main factors are especially relevant. A consequence of compiling commodity balances at a finely detailed level is that the impact on the input-output matrix of the changing nature of the economy both in terms of



expenditure patterns and industrial structure is explicitly identified and can be quantified more readily. This means that the implied aggregate input-output coefficients in DIS – say for manufacturing as a whole – are allowed to vary over time. Secondly, differences may also arise through the iteration with other macro-economic variables. Whilst the global aggregates for DIS are pre-determined in most cases, this point is important for imports where the view taken about developments at a disaggregated level may have a substantial impact on the determination of output. The effect on domestic industry of an additional unit of imports depends on the type of product imported and the consequent feedback effect onto other domestic industries arising from the reduced output of that product. Essentially, in terms of the DIS model, by allowing each type of import to vary at different rates, the composition of the Leontief inverse is changing over time.

Experience with DIS so far has shown that if the main focus of attention is on disaggregated projections, the model's structure provides a more rational framework by which these developments can be analysed and that it will tend to lead to more plausible projections for individual sectors in relation to an overall scenario.

## 6. Improvements and future development of DIS

During 1984, DIS is being re-classified to the 1980 SIC. Furthermore, all time series data will be converted to the 1980 price base and the input-output information will be revised to use data from the 1979 tables<sup>11</sup>. This requires a complete re-design of the accounting framework upon which DIS is based and the re-estimation of all the econometric relationships. It also provides an opportune time to incorporate ideas arising from the work conducted for the simulation exercise as well as lessons learnt from the past few years of experience in the trial use of DIS.

One of the main conclusions of the trials with the existing system has been that more attention should be paid to the quality, consistency and accuracy of the data employed in the model – both the time series and cross-sectional information. This holds even if it entails some sacrifices in terms of efforts devoted to the maintenance and development of the econometric relationships because the model is being operated by a small central team on limited resources. Unless steps are taken to ensure that data for all components readily align with National Accounts aggregates and that the best possible use of the available data is being made, it will not be clear how far these factors contribute to the 'differences' in projected values between DIS and other, more aggregated models. This in turn places more emphasis on the design of the accounting framework than the sophistication of the behavioural equations. In

any case, this approach is likely to be more fertile, since it is the disaggregated commodity accounts, which would allow DIS to make a more interesting input into the debate on industrial trends.

Attention is being concentrated on several particular areas in the re-design of the model:

- i* whilst the main interest in DIS has been in the disaggregation of the manufacturing sector (more recently, requests for service sector components have also been made) it is still necessary to cover all other output sectors of the economy. Not only are these sectors important in a model based on inter-relationships like DIS, but they also need to be monitored in order to ensure consistency with totals for the whole economy, especially GDP(O);
- ii* although it is not proposed that DIS should start to cover all economic transactions, it has become apparent that it is important – again for consistency – that some financial flows are covered such as transfers between sectors (e.g. the factor cost adjustment, margins and sales by final buyers). As a result, the assumption of gross-net ratios will also become redundant and comparisons with GDP(I) can be made;
- iii* the computation of the measurement errors between the demand and supply of each commodity will flow from work on points (i) and (ii). This will make it possible to ensure that the sum of the errors on each DIS industry compares historically with the total error for the whole economy. Also, when projecting, a view may be taken about how the aggregate error moves and this can be brought into line with views taken in the driving scenario;
- iv* it has been noticed during recent research that some expenditure flows have either been omitted or not properly covered e.g. distributors' stocks. It is of paramount importance that this type of problem is rectified in the new system and that all GDP(E) transactions enter into the DIS commodity balances.

As a result of work already initiated in these areas, it has become evident that the emphasis of data compilation for DIS should be re-directed. In some areas, a more aggregated approach seems desirable. For example, the assembly of investment and stock expenditure series for all DIS industries seems unwarranted now: indeed recent research has shown that the use of data from the Annual Census of Production to achieve this has little significant effect on the overall results for the model. Even so, there will be increases in data series as well – where disaggregation may be desirable – even though there may be no interest in the additional expenditure series in their own right. On investment again, it is now proposed to identify the



separate categories of asset type and include more detail on service sector investment. Overall, these changes should improve model tracking and increase the simulation capabilities. Additionally, the model design will also have a greater flexibility in order to allow for the introduction of new expenditure categories at some later date.

Finally, the specification of the econometric relationships is being reviewed. More emphasis is being placed on the disaggregation role which the equations play. Whilst it would be possible to make direct estimates of share equations, it is felt that this would complicate the interpretation of results when specialist advice is sought. Simulation work would also be more difficult since the most common transformation is simple additive residuals. Nevertheless, sophistication and aggregate predictive power are not necessary criteria in the selection of equation specifications. It is more important to monitor the significance of the equation choice in terms of the effects on the expenditure disaggregations. Suggested modifications are being tested in the existing system.

The current cycle of development work will culminate in the availability of a rebased and reclassified model later this year. Whilst no model of the real world can remain static for too long, it is hoped the structure of the new system will be somewhat more stable and that it will be possible to analyse more readily the major influences on each set of projections, and the causes of any differences from other macro-economic models, as well as to account for the changing nature of the economic environment.

#### References

1. Enquiries about the availability of this paper to the authors of this article.
2. *A system of National Accounts*, UN Studies in Methods, Series F No. 2, Rev. 3, (United Nations New York 1968).
3. Published in September each year in the CSO Blue Book, up to the 1983 edition titled *National Income and Expenditure*, from the 1984 edition titled *United Kingdom National Accounts*.
4. *Statistical News* No. 63 November 1983 (HMSO) (Price £3.95 net).
5. Business Monitor *PA 1004 Input-output tables for the United Kingdom 1974* (HMSO 1981) (Price £7.10 net).
6. Business Monitor *MQ10 Overseas trade analysed in terms of industries* (HMSO quarterly) (See page 66.52 for availability).
7. *Economic Structure and Policy with applications to the British Economy* edited by T. S. Barker, Cambridge studies in applied econometrics No. 2, (Chapman and Hall 1976).
8. *Input-output tables for the United Kingdom 1968*, Studies in Official Statistics No. 22 (HMSO 1973).
9. *National Institute Economic Review* No. 97, August 1981 (See page 66.61 for availability).
10. *HM Treasury macro-economic model: supplement to the 1982 Technical manual* GES working paper number 71 (Treasury working paper number 31) June 1984, available from Room 74/G, HM Treasury, Parliament Street, SW1P 3AG, price 50p post free.
11. Business Monitor *PA 1004 Input-output tables for the United Kingdom 1979* (HMSO) July 1983 (Price £9.95 net).

## Economic Trends

*Economic Trends* brings together all the main economic indicators. The largest section gives time series and graphs over the last five years or so. It is preceded by several pages of the latest information and followed by an analysis of indicators in relation to the business cycle over the last 20 years. Other articles comment on and analyse economic statistics.

*Economic Trends* is also the primary publication for the quarterly national accounts and balance of payments articles.

*Economic Trends Annual Supplement* is a unique source for long runs of quarterly and annual data for the key series of economic indicators. About half span 25 years or more.

Prices—*Economic Trends* £11.25 net; annual subscription including supplement and postage £149.25. *Annual Supplement 1984 Edition* £13.50 net.

CSO publications are available from the addresses given on the back cover.



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# Data management: recent developments in statistics in the Department of the Environment

**Roger Sellwood, Chief Statistician, Statistics Planning Population and General Division (SPPG), Department of the Environment**

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## Introduction

This article describes some of the ways in which the Statistics Directorate (DSE) is approaching data management in developments associated with the new 'in-house bureau' VAX mini computer and applications of new technology. It draws on experience in the field of planning statistics where many of the basic principles are being tested.

## Principles of data management in DSE

Several of the Department of the Environment's (DOE) policy directorates are seeking facilities to enable them to access computer-held statistical and administrative information and to make use of data available from several sources. A recent Rayner Review of the Department's Regional Offices identified similar needs in the regions, underlining cost effective aspects of data management (including the need to avoid identical information being held in several data sources) and pointing the way towards a strategic approach to information handling generally. Several Directorates, the Department's Regional Offices and others are now embarking on the practical implementations necessary to meet their needs e.g. the provision of VDU's, communication networks, suitable software and training schemes.

The purpose of data management in DSE is to ensure that statistical data are available in a manner which will facilitate more efficient use in accordance with non-statistical Directorates' requirements. Data management in DSE has been allocated about half of a statistician's time. The Data Manager works within the Statistics Planning Population and General Division (SPPG) and is responsible for:

- i identifying the statistical variables* where standard definitions and classifications could be of some benefit, and reviewing the difficulties of achieving standardisation in each case;
- ii keeping an up-to-date record of the current allocation (including costs) of DOE's statistical computing* to DOE computers, outside bureaux, etc and of future plans for this work; providing advice to DOE statistical users on the computing allocation of their work and bringing to their attention any relevant departmental strategic considerations;
- iii keeping under review the allocation of statistical*

*computing* work and proposed changes in order to identify scope for useful standardisation and linkages;

- iv identifying the essential characteristics of data storage* which are required if data are to be linked easily, e.g. in terms of compatibility of hardware and software;
- v through the meetings of the Departments' Statistical Computing Implementation Group, ensuring that all DOE requirements for statistical computing are taken into account,* including the needs of Directorates not otherwise represented in the Group;
- vi contributing to projects on data base management* as required.

The thrust of the Data Manager's work in supporting the more effective use of the Department's information is to build on the experiences gained in the successful joint DOE/DTp pilot use of a VAX mini computer for statistical computing purposes, based on the concept of an 'in-house bureau' which is multi-purpose, and not a dedicated statistics service. The emphasis is on simple practical applications of a few basic concepts:

- i the use, where appropriate, of standard definitions and classifications;*
- ii developing a register of data holdings;*
- iii facilitating the 'linking' of data from several sources and the potential use of standard software;*
- iv ensuring that staff have adequate training in the use of the appropriate software.*

Clearly the Data Manager works in close co-operation with professional staff in the Statistics Directorate, with the policy commands, and with Computing and Organisation and Methods specialists – all of whom have a part to play in any major data management initiative. The Data Manager is currently a catalyst and co-ordinator who needs to keep abreast of developments elsewhere – including the Department of Transport (DTp), Central Statistical Office, etc. The statistician's work in data management is set within the current strategic scene in DOE with an Information Technology Steering Group and several Liaison Groups looking at an overall information technology (IT) strategy of which statistics forms a very important core as far as structured data is concerned. The Data



Manager is expected to respond to the dynamics of user requirements and the fast moving technical developments available to them. The following sections illustrate how the basic ideas are being applied in practice.

#### **Standard definitions and classifications**

A standard computer coding classification of local authorities has been developed in the Department and is being promulgated for all new computer systems. It is held in readily available form on the VAX. This classification is for general use within the Department and has already been adopted for several data holdings. However, it is unlikely that there will be many standardised classifications of this kind which would affect the whole Department so that in most cases the benefit of a particular standardisation will be restricted to a few Directorates. The data manager has also to be aware of relevant classifications in use in other government departments and outside the Government Statistical Service.

The development of a modest set of standards for use in a particular policy area is also underway in the area of planning applications and appeals. The work has been concerned with standardisation in respect of reporting periods, units of measurement, types of development, geocoding conventions and aspects of statistical cartography e.g. standards in 'digitised' boundaries, where it is considered that standardisation would considerably enhance the usefulness of the information in analytical applications.

Classifications for 'clusters' of local authorities for comparative performance analysis are under review. It is likely however that different sets of clusters will be required for different policy purposes, as reflected by the different sets now available.

Information on land use has long been recognised as an area where some standardisation would be helpful. Land use change, landscape change, land registers, derelict land, records of planning appeals, urban/rural surveys and research projects are some of the areas where classifications are being examined at present. In such fields the adoption of some modest statistical standardisation should lead to useful benefits.

#### **'REGISTER' of data holdings**

The Data Manager is developing in conjunction with the Directorate of Administrative Resources a register of data holdings. The Annex illustrates for one policy area (development control) the types of key information that might be available to users to gain access to the information. The register provides a quick 'look-up' of key facts, where and how the data are held, access procedures and software facilities (if held on a computer). Such a Register, which will cover all computerised data, will also be used to inform users of possible future developments, new data holdings, etc.

While the 'master copy' of the register would be held on say the VAX computer – with search and update facilities – many users will probably find it valuable to have paper copies of at least part of the register and it is proposed to establish simple procedures to provide such copies from time to time.

Associated with each information holding it is possible also to provide a data dictionary facility. This will enable unfamiliar users to locate more easily the exact series which they require, with the definitions used. The data dictionary's potential use in planning information holdings is currently under consideration. It does not however seem appropriate at this stage – particularly in view of the variety of computers now in use – to try to introduce a detailed data dictionary facility covering all information held by the department. Text handling software and keyword-search facilities will be examined with a view to use on the register and data dictionaries. The data dictionary approach is an important step on the way to a database management system and the Data Manager's role might evolve towards 'guardian' of standards, etc. leading towards such longer term objectives.

#### **'Linking' of information holdings**

In the short term it is impractical to put all the data holdings (whether on computers or held elsewhere) on one computer and it may never be sensible to do so. However there is a requirement to be able to bring together extracts of data from several data holdings. This can be effected in different ways at modest cost and the Data Manager is contributing to such initiatives.

One solution is to produce a machine-readable output (magnetic tape or floppy disc) of each extract and input all the extracts onto e.g. VAX to carry out the required analyses. This solution is unlikely to be generally acceptable because of resource constraints and practical problems of hardware compatibility.

A second solution is to use appropriate interfaces between the various computers so that data can be transferred between computers as required. The VAX mini computer and a powerful micro being piloted in the Statistics Planning Population and General Division (SPPG) of the Department can operate now in this way and similar linkings between VAX, the Department's local authority housing statistics Computer Bureau and the Regional Offices are currently being examined. The ease of transfer of data between installations is an important consideration now entering into the selection of hardware and/or software for computer operations in statistics.

The statisticians' links with local authorities are being illuminated in a series of practical demonstrations, under the aegis of the joint central and local government Information Development and Liaison Group (which replaced NLGSLC) particularly on two-way direct



transfer of data between authorities and DOE, and more generally on the application of information technology in the area of central/local government data flows and access. The Government Actuary's Department (GAD) recently effected the successful transfer of population projections direct from GAD's micro computer to a VAX computer at the Building Research Establishment via a telephone link which, in turn, was linked with the Department's household projections computer model. Experience is showing that data can be transferred between one computer and another of different design, but some expertise is required. The Data Manager provides general guidance to users who may wish to access statistics on different computers.

Rather than linking computers directly, it is possible (as one of the planning directorates is pursuing) to access various computer data holdings from a terminal. The extracted data could then be held on the central VAX machine and so be available for analysis by one of the software packages e.g. SIR. A crucial point is of course to ensure that the terminal is sufficiently 'intelligent' to be able to work with all the systems which have to be accessed.

A further option might be to have a distributed computer system for all the data holdings where the

computers and terminals would have the equivalent of a 'networked' system of mutual access. While this may be an appropriate long-term goal, it is not an essential requirement for effective data management.

### Training

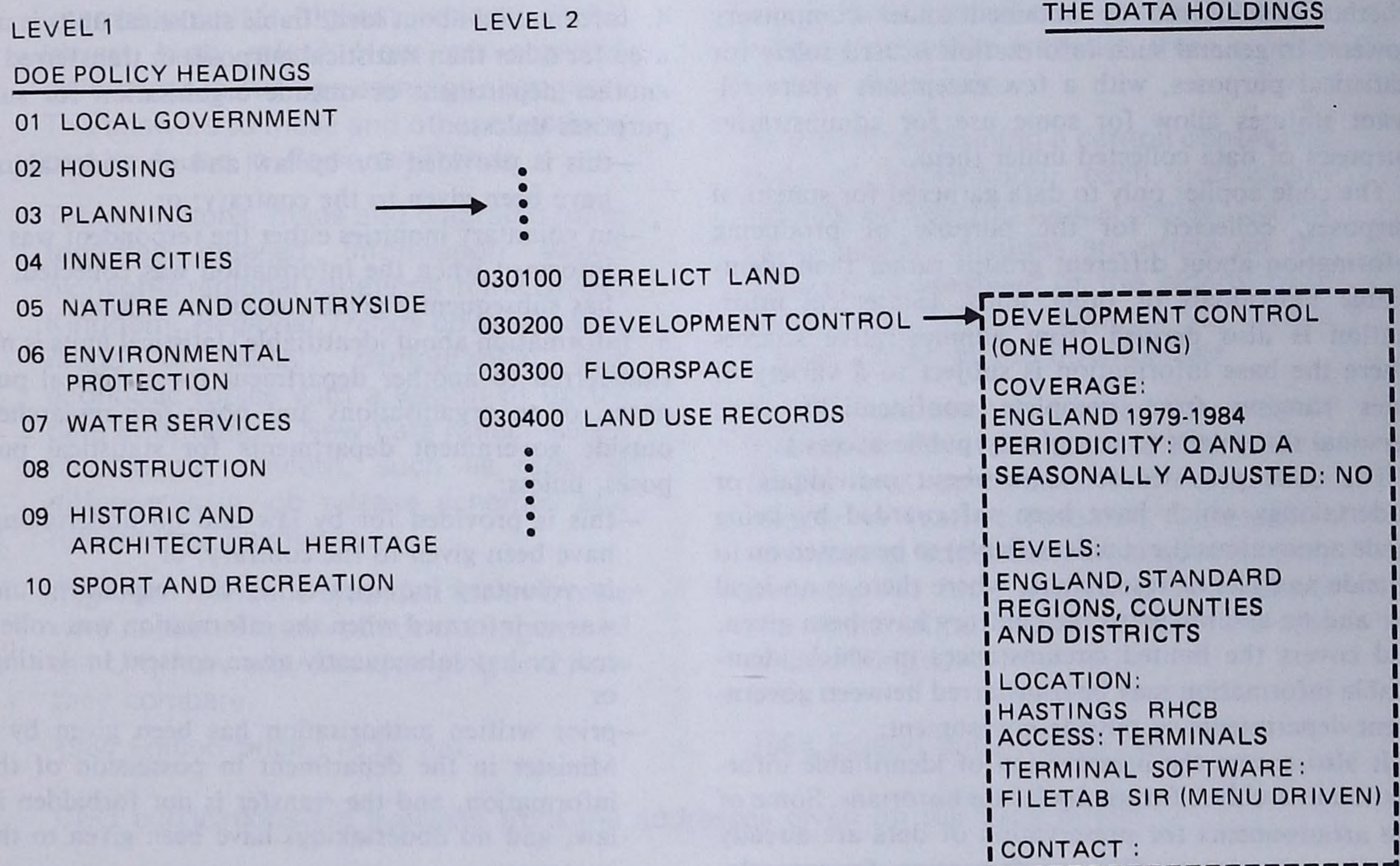
Different grades of staff have developed familiarity with VAX software over the last two years by participating in a wide range of approaches and building up experience on the uses that can be made of the system through the different software. The current emphasis is towards the use of more user-friendly software so that less formal training is needed before practical 'hands-on' experience can be gained. The Data Manager is contributing generally on training developments and several months' experience on the SPPG micro suggests that most staff (of different skills, background and ages) can use a VDU and keyboard with confidence after a minimum of training and experience, given user friendly software and willing initial support.

### Summary

This article has described some of the ways in which the Statisticians are contributing to current developments in data management in responding to the Department's needs and more generally in the take-up of new technology in the Department.

ANNEX

## ILLUSTRATIVE EXAMPLE OF POSSIBLE "REGISTER" (COMPUTERISED FILE) OF INFORMATION HOLDINGS IN DOE





## Guidelines on handling of Government statistical information

Guidelines on the use by government departments of data obtained by government statistical inquiries have been published. In a written reply to a Parliamentary Question by Mr Jerry Hayes, the Minister of State (Mr Barney Hayhoe) answering for the Minister for the Civil Service said:

'A White Paper *The Government Statistical Service Code of Practice on the Handling of Data Obtained from Statistical Inquiries* (Cmnd 9270) is laid by my right hon friend the Prime Minister before the House today 26 June 1984. The Code, which has been approved by Ministers, formalises the existing arrangements for safeguarding the confidentiality of data obtained from statistical inquiries by the Government Statistical Service, and covers clerically handled and automatically processed data concerning both people and undertakings. It has been published to make the public aware of the methods employed in statistical inquiries and to enable more statistical research to be undertaken in the universities and institutes instead of in the Civil Service.'

The eight point Code of Practice follows the recommendation of the Review of the Government Statistical Service (Cmnd 8236) that a code of conduct on the use of data for statistical purposes should be published. It sets out practices to be followed in handling data collected by means of statistical inquiries, whether volunteered or obtained under compulsory powers. In general such information is used solely for statistical purposes, with a few exceptions where relevant statutes allow for some use for administrative purposes of data collected under them.

The code applies only to data gathered for statistical purposes, collected for the purpose of producing information about different groups rather than identifiable individuals or other units. (Statistical information is also derived from administrative sources where the base information is subject to a variety of rules ranging from complete confidentiality e.g. personal tax details to completely public access.)

The code provides for data about individuals or undertakings which have been safeguarded by being made anonymous (i.e. unidentifiable) to be passed on to outside analysts or researchers, where there is no legal bar and no assurances to the contrary have been given, and covers the limited circumstances in which identifiable information may be transferred between government departments or outside government.

It also covers the preservation of identifiable information in archives for use by future historians. Some of the arrangements for preservation of data are already laid down by statute. Census information, for example,

is not released for 100 years.

The code of practice is given below:

1. These guidelines on the handling of data obtained from statistical inquiries by the Government Statistical Service apply equally to information obtained from compulsory (statutory) or voluntary statistical inquiries.
2. Statistical inquiries are identified as such to the respondent, either on the forms to be completed or by the interviewer. Respondents are informed when response to an inquiry is compulsory under statute.
3. Confidentiality during the collection, storing, transferring and processing of information about identifiable statistical units (such as persons, households, firms or public authorities) is safeguarded at all times. If such information is transferred
  - the department that originally collects or, if an outside organisation carries out the collection, sponsors the collection of information, satisfies itself with the safeguards applied to the data both by itself and by those to whom the data must be transferred and
  - the transferring department obtains prior written assurance from the receiving department or outside organisation that it will apply the safeguards in this code, and also accept any limitations that may be imposed concerning the use or further transfer of the information.
4. Information about identifiable statistical units is not used for other than statistical purposes or transferred to another department or outside organisation for such purposes unless:
  - this is provided for by law and no undertakings have been given to the contrary; or
  - in voluntary inquiries either the respondent was so informed when the information was collected, or has subsequently given consent in writing.
5. Information about identifiable statistical units is not transferred to another department for statistical purposes, or to organisations and *bona fide* researchers outside government departments for statistical purposes, unless:
  - this is provided for by law and no undertakings have been given to the contrary, or
  - in voluntary inquiries either the respondent unit was so informed when the information was collected, or has subsequently given consent in writing; or
  - prior written authorisation has been given by a Minister in the department in possession of the information, and the transfer is not forbidden in law, and no undertakings have been given to the contrary.



6. Where it is not forbidden by law and where no commitments have been entered into to the contrary, a department may transfer anonymous information about statistical units to another department or to organisations and *bona fide* researchers outside government departments.

7. All reasonable care is taken that information about identifiable statistical units, or tables or other analyses from which such information can be deduced, is not published or made generally available or otherwise transmitted, except as specified elsewhere in this code, unless the respondent concerned has given consent.

8. Where information about identifiable statistical units may be of interest to future historians and researchers a department may preserve the information in an archive responsible for the preservation of public records, such as, in England and Wales, the Public Record Office or such other place of deposit appointed by the Lord Chancellor, or, in Scotland, the Scottish

Record Office. Arrangements for the long-term preservation of such information in England and Wales are made in accordance with the Public Records Acts of 1958 and 1967, while in Scotland there are analogous non-statutory arrangements. The preservation in such an archive of information about identifiable statistical units only takes place under the following conditions:

- if the information was collected under statute, only as provided for by statute;
- otherwise, only if the preservation is not forbidden by law or where undertakings have not been given to the contrary, and where the department, in the light of any appropriate consultation, no longer considers the information to be sensitive.

#### References

*The Government Statistical Service, Code of Practice on the Handling of Data Obtained from Statistical Inquiries* Cmnd. 9270 (HMSO) June 1984 (Price £1.30 net)

*Government Statistical Services* Cmnd. 8236 (HMSO) April 1981 (Price £2.10 net)

## CSO PUBLICATIONS

### Regional Trends

Which areas have the most unemployment, highest crime rates, lowest birth rates? How are regional differences in average earnings changing? The answers to these and other questions can be found in *Regional Trends*.

Tables, graphs, maps and diagrams bring together detailed information which highlights regional variations in the United Kingdom. *Regional Trends* covers a wide range of social, demographic and economic topics with a wealth of up-to-date information. New data reflect issues of national concern, such as regional differences in job release schemes and redundancy payments.

*Regional Trends* is intended for everyone who needs to know about the regions of the UK, how they are changing and how they compare.

1984 Edition price £18.50 net

### Social Trends

*Social Trends* provides a rounded picture of significant social changes in Britain by bringing together statistics from a wide variety of sources.

As well as containing a central continuing core of information, each publication focuses on specific topical issues. So the latest edition includes an article on the changes in lifestyles of the elderly from 1959, and, in the chapter on social groups, looks at the unemployed.

*Social Trends* serves a broad spectrum of interests while at the same time providing details and up-to-date information for people in market research, journalism, advertising, education, local government, industry—in fact, everyone who needs the facts about social change in the United Kingdom.

1984 Edition price £19.95 net

CSO publications are available from the addresses given on the back cover



## New applied statistics prizes for schools

In a brief ceremony at the Central Statistical Office in the office of the Director, Sir John Boreham, the prizes for the first ever Annual Competition in Applied Statistics for Schools and Colleges of Further Education were presented by Mr Robert Dunn, Parliamentary Under-Secretary of State for Education and Science.

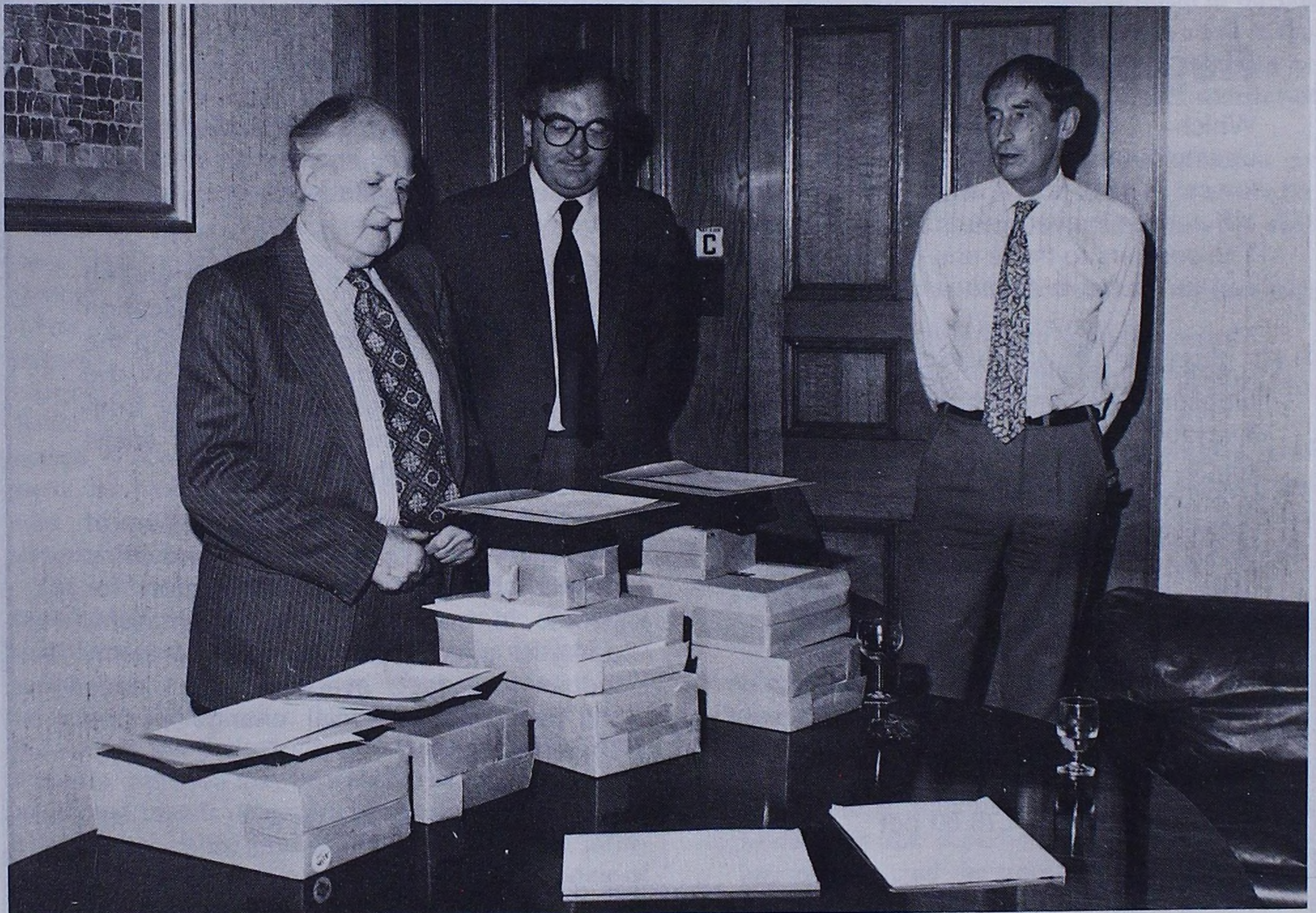
The competition, the first of its kind in the United Kingdom, was established on the initiative of Professor Harvey Goldstein and Anne Hawkins of the Department of Mathematics, Statistics and Computing at the London University Institute of Education and was the result of collaboration between the Department and the Central Statistical Office. Support and prize-money were given by the Institute of Statisticians and the Royal Statistical Society. Prizes of microcomputers were donated by Sinclair Research Ltd, who were represented at the prize-giving by Mr Bill Sinclair, Export Consultant.

The first of what is to be an annual series of competitions, it is intended to stimulate interest in statistics as a practical subject, and to give pupils the chance of discovering the scope and power of statistical reasoning, to learn statistical teamwork and to apply familiar techniques in unfamiliar contexts.

More than sixty teams registered for the competition. Each had to submit a research report on an applied statistics project, preferably based on cross-disciplinary work.

The panel of adjudicators were Sir John Boreham, Director of the Central Statistical Office (Chief Adjudicator), Anne Hawkins of the London University Institute of Education, Peter Holmes, Sheffield University, representing the institute of Statisticians and Professor Peter Moore of the London Business School, for the Royal Statistical Society. They considered that the entries, on a wide variety of topics, confirmed the

*Continued on page 66.35*



(left to right) Mr Bill Sinclair, Mr Robert Dunn and Sir John Boreham at the prize giving ceremony



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## Recently available statistical series and publications

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The following publications containing social statistics have recently, or will soon become available during July to September quarter of 1984. 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*.

### Department of Employment

*Employment Gazette*, published towards the end of each month, regularly contains recent data and time-series on employment, unemployment, earnings, prices, family expenditure and other indicators. In recent months articles have appeared on recent trends in redundancies, first employment of young people (1980 survey), ethnic minorities and unemployment, Labour Force Survey 1983, stoppages caused by industrial disputes in 1983, revised estimates of employment, national labour force estimates for 1983, comparisons of unemployment estimates from the Labour Force Survey and the count of unemployed claimants. A historical supplement on employment statistics is planned for the August *Gazette*. *Employment Gazette* is published monthly by HMSO, price £2.75 net per issue. Annual subscription inclusive of postage £32.76.

### Department of Education and Science

Statistical Bulletin 7/84: *Students from Abroad in Great Britain in 1982/83 and Provisional Information for 1983/84*

Statistical Bulletin 8/84: *Enrolments on Advanced Further Education Courses, October 1983*

Statistical Bulletins are available free of charge from the Department of Education and Science, Room 1/28, Elizabeth House, York Road, London SE1 7PH

### Department of Health and Social Security

The Department of Health and Social Security produce regular monthly and quarterly statistical series on such topics as Unemployment benefit, Child benefit and Sickness, invalidity and injury benefits. Extracts and summaries from these series are eventually published in *Social Security Statistics*.

Further information can be obtained from:

Mr R. V. Easey,  
Department of Health and Social Security,  
Room A2111  
Newcastle Central Office  
Newcastle-upon-Tyne NE98 1YX  
Telephone: Tyneside (091) 2797373

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### New applied statistics prizes for schools (continued from page 66.34)

educational value of the projects, and that the competition had achieved its aim.

First and second prizes were awarded in two age groups, up to 16 years and 16 to 19 years.

*1st prize in each age group:* Sinclair 48K Spectrum Microcomputer plus peripherals and software (approximate value £260) plus £100.

*2nd prize in each age group:* Sinclair 48K Spectrum Microcomputer (approximate value £130) plus £50.

The winners were:

#### up to 16 years:

*1st prize:* Bishop of Llandaff High School, Cardiff, for 'A study of the Afon Kenfig.'

*2nd prize:* Penryn School, Cornwall, for 'A statistical study of the school drink machine.'

#### 16 to 19 years:

*1st prize:* Churchdown School, Gloucester for 'What price an exposed existence? (A study comparing whelks on exposed and sheltered shores.)'

*2nd prize:* Stourport-on-Severn High School, Worcestershire, for 'Smarties', a wide ranging

cross-disciplinary study of the well-known confectionery from various economic and consumer aspects.

Each of the prize-winning schools was represented at the prize-giving by the teacher who led the project, together with some of its team members.

Curriculum changes in secondary schools have ensured that statistics forms part of most children's mathematics courses, and it also features in many other school subjects such as geography, biology and social sciences. The Annual Competition in Applied Statistics for Schools and Colleges of Further Education is intended to give them, in addition, experience of applied statistics as practised by professional statisticians.

The research projects could incorporate either primary or secondary statistical data, and the use of computers was encouraged but not essential. The adjudicators were looking for reports which showed evidence of careful planning and teamwork, sensible choice of methods appropriate to the study undertaken, understanding of the implications and practical applications of the findings, skills in presentation and statistical competence.



## Office of Population Censuses and Surveys

Census 1981

Key statistics for urban areas:

Great Britain

The North

The Midlands

The South East

The South West and Wales

Scotland (produced by General Register Office, Scotland)

Household and family composition, England and Wales

National migration, Great Britain, part 2 (10% Tables)

Regional migration, part 2 (10% Tables) (have been published for each standard region of England and Wales)

Qualified manpower, Great Britain

Workplace and transport to work, Great Britain

European Assembly Constituency Monitor (1984 boundaries), United Kingdom, CEN 81 ECAM (available only from OPCS Information Branch see page 66.40)

Economic Activity: microfiche booklets continue to be published for each county in England and Wales and for the Scottish Regions

OPCS Monitors (available only from OPCS Information Branch see address on page 66.40)

Recorded internal population movements in the United Kingdom, mid-1982 to mid-1983 MN 84/2

Electoral statistics 1984: local government areas EL 84/1

Electoral statistics 1984: Parliamentary constituencies EL 84/2

Electoral statistics 1984: European Assembly constituencies EL 84/3

Mid-1983, final mid-1981 and mid-1982 population estimates for England and Wales PP1 84/3

Mid-1983, final mid-1981 and mid-1982 population estimates for local government and health authority areas of England and Wales PP1 84/4

Deaths by cause, 1983 DH2 84/2

Infant and perinatal mortality, 1981 DH3 84/2

HIPE maternity statistics 1979-81 MB4 84/1

HIPE day case statistics 1981 MB4 84/2

Live births during 1983 by mother's age, legitimacy and birth order FM1 84/4

Labour Force Survey 1983 LFS 84/1

General Household Survey 1983: preliminary results GHS 84/1

Annual Reference Volumes

Abortions 1982 AB no. 9

International migration 1982 MN no. 9

General Household Survey 1982 GHS no. 12

Electoral statistics 1983 EL no. 10

## Home Office

Statistics of experiments on living animals, Great Britain 1983

Prison Statistics, England and Wales 1983

Criminal Statistics, England and Wales 1983

Report on HM Chief Inspector of Fire Services 1983

Tables of persons acquiring citizenship of the United Kingdom and Colonies 1983

Report of HM Chief Inspector of Constabulary 1983

Control of immigration statistics United Kingdom listed in the last issue should have read 1983 not 1982

Statistical Bulletins:

Statistics on the misuse of drugs in the United Kingdom and supplementary tables 1983

Statistics on the prevention of terrorism (Temporary Provisions) Acts 1974 and 1976 2nd quarter 1984

Control of immigration statistics, United Kingdom 2nd quarter 1984

Offences of drunkenness, England and Wales 1983

Offences relating to motor vehicles, England and Wales and supplementary tables 1983

Notifiable offences recorded by the police in England and Wales 2nd quarter 1984

Statistical Bulletins are available from: Home Office, Statistical Department, Room 1813, Tolworth Tower, Surbiton, Surrey KT6 7DS.

## Welsh Office

Staff of Social Services Departments Year Ended 30 September 1983

Road Accidents: Wales No 4 1983

Welsh Agricultural Statistics No 6 1984

Children in Care or Under Supervision Orders in Wales Year Ending 31 March 1983

The above publications are available only from:

Publications Unit

Economic and Statistical Services Division

Welsh Office

Cathays Park

Cardiff CF1 3NQ

Telephone: 0222-82 5054

## Department of the Environment

Commercial and Industrial Floorspace Statistics, England 1980-1983 No. 12.

Housing and Construction Statistics first quarter 1984 Part 1 No 17 and Part 2 No 17

Local Housing Statistics Issue 70, figures for first quarter 1984

The following information is issued in statistical bulletins on a regular basis:

Monthly: Housebuilding, construction new orders, building new orders, building materials and components, brick and cement production, and new orders by type of work.



Quarterly: *Tender price indices, output price indices, construction output and employment, planning applications and decisions: England, renovations*

Half yearly: *Homeless households*

Annually: *Slum clearance*

Statistical bulletins are available from DOE, SPPG4, Room A1.02, Romney House, 43 Marsham Street, London SW1P 3PY.

#### **Department of Transport**

The following statistical bulletins are issued on a regular basis:

Quarterly: *Traffic in Great Britain first quarter 1984*  
*Road Accident and Casualties in Great Britain first quarter 1984*

*Road goods vehicles on roll-on roll-off ferries to mainland Europe first quarter 1984*

*Quarterly Transport Statistics second quarter 1984*

Statistical bulletins are available from DTp, STB4, Room A7.05, Romney House, 43 Marsham Street, London SW1P 3PY.

#### **Scottish Education Department**

Statistical Bulletins on the following subjects:

*Pupils and Teachers in Education Authority Primary and Secondary Schools*

*Pupil Projections*

*Special Schools*

*First Destination of University First Degree Graduates*  
*School Leavers*

*Excess and Deficit of Teachers by Subject*

*Autumn Enrolments of Students in Vocational Further Education*

The Social Work Services Group of the Scottish Education Department have published the following bulletins:

*Children's Hearing Statistics 1982*

*Community Service by Offenders 1982*

*Children in Care or under Supervision as at 31 March 1982*

Copies of the above bulletins may be purchased (price 50p post paid) from:

The Library

Official Publication Sales

Scottish Office

Room 2/65

New St Andrew's House

Edinburgh

EH1 3TG

Telephone: 031-556 8400 Ext. 5901

*Basic Educational Statistics (Scotland) 1984 - Fact Card.*

Copies of the above card may be obtained free from:

Scottish Education Department

43 Jeffrey Street

Edinburgh

EH1 DN

Telephone: 031-556 9233 Ext. 286

#### **Scottish Development Department**

Statistical bulletins on the following subjects:

No 1/1984 *Radioactive waste disposals from nuclear sites in Scotland: 1980 to 1983*

No 2/1984 *Injury Road Accidents—Scotland 1983*

Copies of these bulletins, price 50p post paid, may be obtained from:

The Library

Official Publication Sales

Scottish Office

Room 2/65

New St Andrew's House

Edinburgh

EH1 3TG

Telephone: 031 556 8400 Ext. 5901

Statistical Bulletins on housing:

HS1U No 5 *Housing Trends in Scotland: quarter ended 30 September 1983*

HS1U No 6 *Housing Trends in Scotland: quarter ended 31 December 1983*

Statistical Bulletins price 50p may be obtained from:

Housing Statistics and Intelligence Unit

Scottish Development Department

Room 303

St Andrew's House

Edinburgh EH1 3DD

Telephone: 031-556 8501 Ext. 3191



# New surveys assessed by the Survey Control Unit March to May 1984

For further information on the surveys listed, the appropriate departmental contact may be obtained from Miss Claire Gallagher (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 March to May 1984

Title	Sponsor	Those approached	Approximate number approached	Location	Frequency
<b>Business surveys</b>					
Unfair dismissal audio/visual communication check	COI	Employers	20	SE	AH
BOTB invisibles sector research	COI	Services sector	46	GB	AH
Business Monitors pilot study	COI	Subscribers	35	SE	AH
Employers guide to NI contributions research	COI	Employers	455	GB	AH
Scottish milk production net margins investigation	DAFS	Farmers	115	S	A
Job release scheme, survey of applicants, 1984	DEM	Employers	200	GB	I
Valuation of improvement and repair	DOE	Estate agents	250	EW	AH
Urban regional policies economic development of Newcastle Metropolitan Region	DOE	Manufacturers	200	N	AH
Assessment of the employment effects of economic development projects funded under the urban programme	DOE	Employers	1900	E	AH
Exporters financial procedures	DTI	Exporters	2000	UK	AH
Transport costs in peripheral regions – second stage	IDS	Transport and wholesale distributors	260	UK	AH
Gainful activities of farm families – second stage	MAFF	Farmers	575	E	AH
Urea handling survey	MAFF	Farmers	400	EW	AH
Wider labour market effects of the YTS and YWS	MSC	Employers	1000	GB	AH
Analysis of special terms by manufacturers to retailers	OFT	Manufacturers	168	UK	AH
Other gainful activities of farm families in Wales	WO	Farmers	100	W	AH
<b>Local authority surveys</b>					
Micros in schools	DES	Education authorities	1115	EW/NI	AH
Review of home improvement agencies	DOE	Home improvement agencies	20	EW	AH
Evaluation of environmental projects funded under the urban programme	DOE	Planning departments	10	E	AH
The urban programme: improving effectiveness of projects meeting needs of young unemployed	DOE	Local authorities	7	E	AH
Homes insulation scheme 1984: six month survey	DOE	Housing departments	387	E	AH
Stop notice research project	DOE	Planning departments	100	E	AH
Capital estimates return 1984/85	DOE	Finance departments	412	E	A
1984 feasibility study: national census: community residential facilities	DHSS	Social services	22	EW	AH
Provision in England and Wales for mentally handicapped adults with special needs	DHSS	Social services	851	EW	AH
Survey of licensing provisions Under Civic Government (Scotland) Act 1982	SO	Licensing authorities	56	S	AH
<b>Other surveys</b>					
Womens health care preferences	CABT	Women	NK	GB	AH
Treasury leaflet communication check	COI	Adults	100	E	AH
Treasury leaflet cover design	COI	Adults	100	SE	AH
Youth Training Scheme 1984 advertising pretest	COI	Young unemployed and parents	60	E	AH
RN ratings: careers booklets research	COI	Youths	200	GB	AH
Monitoring blood lead concentrations	DOE	Adults and children	3250	E	AH
Communications between DHSS and the public: research for DHSS Forms Unit	DHSS	Claimants	200	E	AH
Postal claim extension study for supplementary benefit	DHSS	Adults	350	E	AH
Hackney study of benefits: follow-up study among eligible non-claimants	DHSS	Adults	300	SE	AH
A Study of the careers of women pharmacists	DHSS	Women	198	UK	AH



<i>Title</i>	<i>Sponsor</i>	<i>Those approached</i>	<i>Approximate number approached</i>	<i>Location</i>	<i>Frequency</i>
<b>Other surveys (continued)</b>					
The career profiles of chief nursing officers	DHSS	Nurses	235	EW	AH
March advertising survey	DNS	Adults	28	E	AH
Youth cohort study – England & Wales	MSC	School leavers	20000	EW	AH
Jobcentre services for disabled people – jobseeker enquiry	MSC	Disabled	1600	GB	AH
Community programme: follow-up	MSC	Participants	9000	GB	Q
Study of cycling in Scotland	SDD	Adults	5120	S	AH
National survey of tourism in Scotland (NSTS)	STB	Tourists	2700	S	AH
Study of current state of road safety education in schools	TRRL	Headteachers	5220	UK	AH
Different patterns of bus service provision	TRRL	Passengers	1800	E	AH
Greater Manchester PTE/TRRL off bus ticketing study	TRRL	Travel card holders	2000	NW	I
Attitudes to cycling	TRRL	Cyclists	1400	E	AH
Comparative studies of special transport for the disabled	TRRL	Disabled	2000	GB	AH
Fireworks safety campaign research	COI	Children	656	GB	AH
Enveloping monitoring – lampeter	WO	Tenants	59	W	AH
S4C television channel pilot study	WO	Welsh speakers	200	W	AH

#### LIST OF ABBREVIATIONS

##### General

<i>BOTB</i>	<i>British Overseas Trade Board</i>
<i>NI</i>	<i>National insurance</i>
<i>S4C</i>	<i>Welsh Channel 4</i>
<i>YTS</i>	<i>Youth Training Scheme</i>
<i>YWS</i>	<i>Young Workers Scheme</i>

##### Frequencies

<i>A</i>	<i>annual</i>
<i>AH</i>	<i>ad hoc</i>
<i>I</i>	<i>intermittent</i>
<i>Q</i>	<i>quarterly</i>

##### Sponsors

<i>CABT</i>	<i>Cabinet Office</i>
<i>COI</i>	<i>Central Office of Information</i>
<i>DAFS</i>	<i>Department of Agriculture and Fisheries for Scotland</i>
<i>DEM</i>	<i>Department of Employment</i>
<i>DES</i>	<i>Department of Education and Science</i>
<i>DOE</i>	<i>Department of the Environment</i>
<i>DHSS</i>	<i>Department of Health and Social Security</i>
<i>DNS</i>	<i>Department for National Savings</i>
<i>DTI</i>	<i>Department of Trade and Industry</i>
<i>IDS</i>	<i>Industry Department for Scotland</i>
<i>MAFF</i>	<i>Ministry of Agriculture Fisheries and Food</i>
<i>MSC</i>	<i>Manpower Services Commission</i>
<i>OFT</i>	<i>Office of Fair Trading</i>
<i>SDD</i>	<i>Scottish Development Department</i>
<i>SO</i>	<i>Scottish Office</i>
<i>STB</i>	<i>Scottish Tourist Board</i>
<i>TRRL</i>	<i>Transport Road Research Laboratory</i>
<i>WO</i>	<i>Welsh Office</i>

##### Locations

<i>E</i>	<i>England</i>
<i>EW</i>	<i>England and Wales</i>
<i>GB</i>	<i>Great Britain</i>
<i>N</i>	<i>Northern England</i>
<i>NI</i>	<i>Northern Ireland</i>
<i>NW</i>	<i>North West England</i>
<i>S</i>	<i>Scotland</i>
<i>SE</i>	<i>South East England</i>
<i>UK</i>	<i>United Kingdom</i>
<i>W</i>	<i>Wales</i>



### POPULATION AND VITAL STATISTICS

#### 1981 Census results

This autumn will see the completion, on schedule, of the full range of published statistics from the 1981 Census. The 100 per cent data was all completed by the end of 1983 and in recent months OPCS have produced volumes on household and family composition, workplace and transport to work, qualified manpower, and national and regional migration. In addition to these standard census volumes, HMSO have recently published the series of key statistics for urban areas. These reports give a selection of almost 100 key Census statistics for every town and city in Great Britain. These *urban areas* were newly defined after the 1981 Census because of the widespread interest in places recognisable as towns or cities rather than administrative areas. The census variables presented include: age structure, country of birth, social class, economic activity of men and women, industry of employment, means of travel to work, unemployment, types of household, tenure of households and availability of cars.

The urban areas reports (which are published separately for Great Britain, Scotland, The North, The Midlands, The South West and Wales, and the South East) are part of a series of Census publications produced by OPCS to increase the availability of, and interest in, census results and are designed as compact works of reference for both the researcher and the occasional user of statistics. An introduction is provided both to the statistics contained in the report and to sources of census data in general—both *what* is available and *how* they can be obtained. The reports are companion publications to the volume *Census 1981: Key statistics for local authorities, Great Britain*, published by HMSO in February 1984 (see *Statistical News* 63.17).

#### *People in Britain 3: London Wallchart*

The third of a new series of wallcharts (measuring approximately 85cm × 70cm) illustrating some of the main findings from the 1981 Census is now available. It focuses on London and shows the change in the Capital's population since 1801, the percentage gains or losses in each borough's population since 1971, the distribution of built-up areas, of owner-occupied housing, of persons living alone and of the population born outside the United Kingdom, and the availability of cars.

#### *Economic activity reports on microfiche*

The series of economic activity reports on microfiche, reported on in *Statistical News* 65.22 should be completed by the end of September.

#### *Placenames*

It is hoped to publish a complete index of placenames as at the 1981 Census by mid-1985.

#### References

- OPCS *Census 1981 Household and family composition, England and Wales* (HMSO, 1984) (Price £10.00 net)  
OPCS *Census 1981 Workplace and transport to work, England and Wales* (HMSO, 1984) (Price £16.90)  
OPCS *Census 1981 Qualified manpower, Great Britain* (HMSO, 1984) (Price to be announced)  
OPCS *Census 1981 Key statistics for urban areas: Great Britain* (HMSO, 1984) (Price £9.10 net); *The North* (HMSO, 1984) (Price £7.80 net); *The Midlands* (HMSO, 1984) (Price £7.80 net); *The South East* (HMSO, 1984) (Price £7.80 net); *The South West and Wales* (HMSO, 1984) (Price £7.80 net)  
General Register Office, *Scotland Census 1981 Key statistics for urban areas: Scotland* (HMSO, 1984) (Price 6.30 net)  
OPCS *Census 1981 National migration, Great Britain, part 2 (10% Tables)* (HMSO, 1984) (Price £7.40 net) (Reports for each region of England and Wales are also now available from HMSO.)  
OPCS *People in Britain: 3 London Wallchart* (OPCS, 1984) (Price £2.00 from OPCS Information Branch (Dept SN), St Catherines House, 10 Kingsway, WC2B 6JP. An additional charge of £1.00 plus VAT will be made per invoice if payment is not made with the order.)

#### Population Trends

The latest edition of *Population Trends*, the quarterly journal of the Office of Population Censuses and Surveys, was published in July and contains the following articles:

#### *Urban Britain*

From the results of the 1981 Census we have come to discover that almost 90 per cent of people in Britain live in urban areas and just over half the population is in sixty urban areas with populations of 100,000 or more. Key results from the Census have now been published for each urban area—the first time comprehensive Census figures have been presented for places recognisable as towns or cities rather than administrative areas. This article by Chris Denham of OPCS Census Division describes how the urban areas have been defined, with a brief critique of the method, and then summarises the characteristics and distribution of urban and rural populations in Britain.

#### *Population movements measured by the NHS Central Register*

In this paper Tim Devis of OPCS Population Statistics Division considers some recent trends in population movement, based on data from the Central Register, maintained for administrative purposes by the National



Health Service. He describes how patient re-registration data show a steady decline in the amount of population movement in England and Wales since 1971, which is true for moves both between and within regions. At another level, counties with consistently large net migration gains were found along the south coast of England and in the South West, although three other counties (Norfolk, Buckinghamshire and Powys) were also prominent. The most consistent net losses were found in metropolitan counties.

#### *Which local authorities were alike in 1981*

John Craig of OPCS Population Statistics Division discusses the similarity and dissimilarity of local authorities in Great Britain using data from the 1981 Census, continuing a study of the 1971 Census from which a classification was constructed which showed how all the districts of Great Britain could be arranged in a number of relatively homogeneous groups.

#### References

*Population Trends* 36 Summer 1984 (HMSO, 1984) (Price £4.95 net)  
Richard Webber and John Craig, *Socio-economic classification of local authority areas*, OPCS Studies on Medical and Population Subjects No. 35 (HMSO, 1978) (Price £4.75 net)

#### Population estimates and projections

The final estimates of the population of England and Wales by sex and single years of age at 30 June 1981, 1982 and 1983 were published in an OPCS Monitor in May. The mid-1983 estimates are the first such estimates to be published; the mid-1982 estimates are a modest revision of the provisional estimates published in OPCS Monitor PP1 83/3 (May 1983); and the mid-1981 estimates are an extension of the estimates by five-year age-groups previously published. OPCS Monitor PP1 84/1 (January 1984) gave the final mid-1981 and a new re-based series of national population estimates for the period mid-1961 to mid-1980 by sex and five-year age-groups. All these estimates are based on the improved definition of the resident population which includes residents who were outside Great Britain on census night and excludes overseas visitors. An article in *Population Trends* 35 entitled 'Population estimates 1961-81: a new series' summarised the recent definitional changes.

The local government and health authority area populations for the same years were published in a companion Monitor in June.

Following on the publication of the 1981-based national population projections (see *Statistical News* 65.28) OPCS have recently published the projections for the English regions, London boroughs, metropolitan counties and districts and non-metropolitan counties by sex and age for the years 1991 and 2001. Data on births, deaths and assumed migration are also given.

#### References

OPCS *Mid-1983, final mid-1981 and mid-1982 population estimates for England and Wales* OPCS Monitor PP1 84/3 (OPCS, 1984)  
OPCS *Mid-1983, final mid-1981 and mid-1982 population estimates for local government and health authority area of England and Wales* OPCS Monitor PP1 84/4 (OPCS, 1984)  
OPCS *Population projections: area 1981-2001* Series PP3 No. 5 (HMSO, 1984) (Price £5.20)  
OPCS Monitors are available free from OPCS Information Branch at the address given on page 66.40

#### Deaths by cause

The total number of deaths registered in 1983 was 579,608 compared with 581,861 registered in 1982, a decrease of 0.4 per cent. The numbers of deaths were lower in both June and December quarters and this more than offset the very slight increase in the March quarter and a rather more substantial increase in the September quarter when the figure was the highest for that quarter since 1974. For the third successive year there was no influenza epidemic and the crude annual death rate remained constant at 11.7 per 1,000 population compared with 11.7 in 1982 and 11.6 in 1981. These figures summarise the picture of mortality in England and Wales in 1983, which is presented in an OPCS Monitor published in June.

This Monitor reports the number of deaths for the year 1983 analysed by sex, age and cause of death, and for the five quarters December 1982 to December 1983 by sex and cause of death. All figures for 1983 are provisional.

#### Reference

OPCS *Deaths by cause 1983* OPCS Monitor DH2 84/2 (OPCS, 1984) (available free from OPCS Information Branch at the address given on page 66.40)

#### Live Births

The total number of live births in England and Wales in 1983 was half per cent more than in the previous year and though the numbers of births to mothers aged below 25 decreased it was more than compensated by an increase in births to older women, such that the mean age of childbearing increased by 0.1 year to 26.9 years in 1983. These and other details on births in 1983 by age of mother, legitimacy, birth order, mother's marriage order and the trend in the total period fertility rate were published in two recent OPCS Monitors.

A third Monitor presents the trend in conceptions inside and outside marriage over the period 1969-81 as measured by live births, stillbirths and abortions by period of gestation as well as highlighting some of the general trends in fertility patterns over this period.

#### References

OPCS *Live births during 1983 by mothers age, legitimacy and birth order* OPCS Monitor FM1 84/4 (OPCS, 1984)  
OPCS *Live births during the March quarter of 1984* OPCS Monitor FM1 84/5 (OPCS, 1984)  
OPCS *Conceptions inside and outside marriage 1969-81* OPCS Monitor FM1 84/6 (OPCS, 1984)  
(All Monitors are available free from OPCS Information Branch at the address given on page 66.40)



## Migration

The Registrar General's annual review of migration to and from the United Kingdom for the year 1982 was published in July. The report includes data on migration by country of last or next residence, country of birth, occupation, age, sex and marital status and citizenship for the year in question and summary statistics for the preceding decennial period.

Population movement within the United Kingdom for the period mid-1982 to mid-1983 is the subject of an OPCS Monitor published earlier in the year; it contains the latest figures for recorded inter-regional moves in England and moves between Wales, Scotland and Northern Ireland. (An article also appears in the current issue of *Population Trends*.)

### References

OPCS *International migration 1982* Series MN no. 9 (HMSO, 1984) (Price £5.20 net)

OPCS *Recorded internal population movements in the United Kingdom, mid-1982 to mid-1983* OPCS Monitor MN 84/2 (OPCS, 1984). (Available free from OPCS Information Branch at the address given on page 66.40)

Tim Devis, 'Population movements measured by the NHS Central Register' *Population Trends* 36 (HMSO, 1984) (Price £4.90 net)

## Electoral statistics

OPCS have published in April and May two Monitors presenting numbers of electors on the 1983 and 1984 Electoral Register for local government areas in England and Wales and for Parliamentary constituencies in the United Kingdom. The most recent Register came into effect on 16 February and is based on a qualifying date of 10 October 1983 (15 September in Northern Ireland). A third Monitor, also published in May to coincide with the recent European Assembly elections presented total electors, attainers, and Service voters for each European Assembly constituency in Great Britain and in Northern Ireland. Some 1981 Census statistics for these European constituencies were published in an OPCS Monitor also in May.

### References

OPCS *Electoral statistics: local government areas* OPCS Monitor EL 84/1 (OPCS, 1984)

OPCS *Electoral statistics: Parliamentary constituencies* OPCS Monitor EL 84/2 (OPCS, 1984)

OPCS *Electoral statistics: European Assembly constituencies* OPCS Monitor EL 84/3 (OPCS, 1984)

OPCS *European Assembly Constituency Monitor, 1984 boundaries, United Kingdom* OPCS Monitor CEN 81 EACM (OPCS, 1984)

(All Monitors are available free from OPCS Information Branch at the address given on page 66.40)

## Population Estimates – Scotland

*Population Estimates Scotland, 1983* (HMSO, price £1.55 net) was published in July. This booklet contains tables of population by age and sex for Scotland, regions, local government districts and health areas.

The 1983 estimates incorporate 1981 Census information not available at the time of preparing

earlier estimates. Later Census results provided more information about people away from home on Census night and about migration patterns and gave more detailed information on age structure. The previously published estimates for 1981 and 1982 are consequently not consistent with the 1983 estimates.

The Registrar General has, therefore, decided to publish revised estimates for 1981 and 1982 consistent with the 1983 estimates. These are summarised in the booklet and copies of the 1983 and revised earlier estimates by sex, single year of age and area are available for the cost of copying from:

Population Statistics Branch  
GRO (Scotland)  
New Register House  
Edinburgh  
EH1 3YT

## Vital Statistics – Scotland

The *Weekly Return of the Register General for Scotland* has been replaced by a 4-weekly *Vital Statistics Return* showing data for each of the 4 weeks. The new publication was introduced from April 1984 (Weeks 13 to 16).

Tables relating to the first quarter of 1984 appeared in the *Vital Statistics Return* relating to Weeks 21 to 24.

## Runcorn from the 1981 Census

The Warrington and Runcorn Development Corporation have recently published a report *Socio-Economic Profile of Runcorn from the 1981 Census*.

The report is based on the 1981 Census small area statistics (SAS) data, analysed using SASPAC software developed by the Local Authorities Management Services and Computer Committee. The main Census variables are presented for Runcorn New Town and specially-defined areas within. Also included in the report is some analysis for the older parts of Runcorn New Town's Designated Area.

Copies of the report are available free of charge from:

Housing and Social Development Office  
Warrington and Runcorn Development  
Corporation  
Grosvenor House  
Runcorn Shopping City  
Runcorn  
Cheshire  
WA7 2DD  
Telephone: Runcorn (0928) 714444.



## SOCIAL STATISTICS

### The General Household Survey

The General Household Survey (the GHS) is a continuous survey based on a sample of the general population resident in private (that is, non-institutional) households in Great Britain, and has been running since 1971. It aims to provide a means of examining relationships between the most significant variables with which social policy is concerned and, in particular, of monitoring changes in these relationships over time. It is thus of particular importance as a source of background information for central government decisions on resource allocation between social programmes.

Certain subjects are covered periodically by the GHS although not every year. For example, questions on smoking, included each year from 1972 to 1976, have been asked every second year since then and, since 1978, questions on drinking have also been asked in alternate years. Chapters 9 and 10 of the report for 1982 which was published by HMSO in June deal with these subjects and Chapter 11 relates cigarette smoking and drinking habits to self-reported chronic and acute sickness.

The report also includes a chapter on bus travel, a topic introduced for the first time in 1982. It is concerned with physical difficulties which some people experience in travelling by bus and those which prevent other people from using buses at all.

Other new topics and analyses are introduced in chapters dealing with the main subject areas. Chapter 3 presents a new analysis of the household circumstances of the elderly. Chapter 4 includes new analyses of data on pre-marital cohabitation and on fertility patterns among women aged under fifty with different family and educational backgrounds. In Chapter 5 there is a new section on purchase of accommodation by sitting tenants which concentrates mainly on the potential purchase of privately rented and local authority accommodation but includes some data about people who had recently bought their homes as sitting tenants. Chapter 6 explores in greater detail than previously the economic activity of married couples and includes new tables on the composition of the labour force. Some new analyses relating education to socio-economic status and socio-economic background are shown in Chapter 7. Chapter 8 includes a new section on private medical insurance cover which describes the characteristics of people who hold and people who are covered by private medical insurance policies and the relationship between insurance cover and reported ill health. There is also a short section on the use of contact lenses, a topic included for the first time in 1982.

Finally, the report includes a chapter summarising the main research projects undertaken in recent years by non-government researchers in which use is made of GHS data tapes or previously unpublished analyses.

#### Reference

OPCS *General Household Survey 1982 Series GHS No 12* (HMSO June 1984) (Price £13.70 net) ISBN 0 11 691099 2

### Population, pension costs and pensioners' incomes

In November 1983 the Rt. Hon. Norman Fowler, Secretary of State for Social Services set up an Inquiry into Provision for Retirement. Over a period of a few months evidence has been received from a wide range of interests and further public hearings are to be held. This paper aims to provide an informed background to these discussions.

Part one – population and pension costs – is a note by the Government Actuary's Department. It summarises the financial estimates and associated information used by the Inquiry and brings out the nature of the problem facing it.

Part two – pensioners' incomes – a note by the Department of Health and Social Security Economic Advisors' Office. It looks at the resources that determine individual's living standards and in particular compares the spending power of people over pension age with that of people below pension age. A technical annex describes the main features of the methods and assumptions used to estimate levels of pensioners' incomes and compare them with the incomes of the rest of the population. It also gives sources of information used.

#### Reference

*Population, Pension Costs and Pensioners' Incomes A Background Paper for the Inquiry into Provision for Retirement* (HMSO) June 1984 (Price £3.25 net) ISBN 0 11 321003 5

### Projections of trends in the prison population to 1992

The Home Office has recently published a bulletin which presents the results of the latest annual exercise to project the prison population in future years. It is based on information available in the Autumn of 1983 and covers the period up to 1992. The method used to produce the projections is to divide the population into subsets defined by type of custody, age, sex and length of sentence. Projections of historical series on the numbers received are produced and then converted to projections of population by means of 'time served' factors – the average time spent in custody for those in each of the subsets.

#### Reference

*Projections of trends in the prison population to 1992*, Home Office Statistical Bulletin, Issue 8/84, 18 April 1984 (Price £2.50 net), available from the address given on page 66.36.



## **Control of Immigration: Statistics, United Kingdom**

The statistics in this publication relate to people who are subject to immigration control under the Immigration Act 1971, that is, broadly speaking, to people who do not have the right of abode in the United Kingdom. British citizens and those Commonwealth citizens who have the right of abode may freely come into, and go from, the United Kingdom and are not represented in the statistics. Immigration control regulates the entry, and refusal of entry, of passengers into the United Kingdom, the conditions of stay in the United Kingdom, the variation of such conditions following entry, settlement and the deportation of persons under the Act. The administration of immigration control is governed by immigration rules which are laid before Parliament by the Home Secretary from time to time. Changes in the rules have affected the statistics over the years, and an account of the more notable changes and of other developments is also given.

Summary statistics on the control of immigration are also published quarterly, about two months after the end of each quarter, in the form of a Home Office Statistical Bulletin, obtainable (at a current cost of £2.50 per issue)

from:

Statistical Department,  
Home Office,  
Room 1813,  
Tolworth Tower,  
Surbiton, Surrey KT6 7DS.  
Telephone: 01-399 5191 Ext. 298  
or by personal application to:  
Senior Librarian,  
Home Office,  
Queen Anne's Gate,  
London SW1 9AT.

### **Reference**

*Control of Immigration: Statistics, United Kingdom 1983* (Cmnd. 9246) (HMSO) June 1984 (Price £6.80 net)

## **Civil judicial statistics: Scotland**

*Civil Judicial Statistics Scotland 1982* was published in June. This publication is divided into four Chapters: Chapter 2 deals with the Court of Session; Chapter 3 with sherriff courts; and Chapter 4 with other civil business. At the beginning of each chapter there is a short introduction outlining the work of the court, followed by presentation of the statistics. Detailed statistics are contained in the annual tables which follow Chapter 4.

### **Reference**

*Civil Judicial Statistics Scotland 1982* (Cmnd. 9235) (HMSO Edinburgh 1984) (Price £6.35 net)

## **HEALTH**

### **DHSS statistical bulletins**

#### *Hospital activity statistics*

The first Department of Health and Social Security statistical bulletin, *Hospital Activity Statistics for England 1972-82*, was published on 24 May and is available from DHSS Statistics and Research Division 2, Hannibal House, Elephant and Castle, London SE1 6TE, price £1. It is the first of what is expected to be an annual series of bulletins on hospital activity. This series will form part of a wider set of statistical bulletins on important Departmental topics.

#### **In-patient statistics from the mental health enquiry England 1981**

Reports of the in-patient statistics collected in the Mental Health Enquiry have now been published for the years 1964 to 1981; the exceptions being 1972 because of printing restrictions and 1980 because 1981 data was available at the drafting stage.

This latest report published in June 1984 for the Department of Health and Social Security contains detailed tables on admissions, discharges, deaths, resident patients and legal status relating to 1981 and less detailed trend tables giving information for 1970 and 1977 to 1981.

The analyses in the report are only a selection of those available. Requests for further information and any enquiries should be sent to:

Statistics and Research Division 2(C)  
Department of Health and Social Security  
Hannibal House  
Elephant and Castle  
London, SE1 6TE

### **Reference**

*In-patient statistics from the mental health enquiry for England 1981* Statistical and research report series No. 27 (HMSO) June 1984 (Price £6.00 net)

#### **Facilities and services of mental illness and mental handicap hospitals**

This Report presents information about the facilities and services provided by mental illness and mental handicap hospitals and units in England. The Report covers three years 1977, 1978 and 1979, although previous volumes in the series have covered one year only. The more detailed information is provided for 1979 only with summary figures for earlier years. Some of this detailed information is available for 1977 and 1978 and enquiries should be addressed to:

Department of Health and Social Security  
Statistics and Research Division  
Room 7110, North Fylde Central Office  
Norcross, BLACKPOOL  
Lancashire, FY5 3TA



The main source of the information is the statistical return SBH 112 which is completed by each hospital providing a service for the mentally ill or mentally handicapped and submitted to the Department of Health and Social Security annually.

There are three appendices, the first gives a list of official reports on psychiatric statistics since 1949, including those relating to facilities and services. The second and third appendices show the mental illness and mental handicap hospitals and units that each Area Health Authority in England was responsible for in 1979.

One of the purposes of publishing extensive data on the facilities of individual hospitals is to enable Health Authorities and hospital staff to be aware of the differences between hospitals. The statistics are not themselves a sufficient basis for valid comparisons between regions, areas or hospitals but they can act as a starting point for further enquiry.

#### Reference

*The facilities and services of mental illness and mental handicap hospitals in England 1977-1979* Statistical and research report series No. 26 (HMSO 1984) (Price £9.50 net)

## Scottish health

### *Advance Tables*

The fourth edition, published in June 1984, contained a selection of recently-available national and health board figures, most relating to calendar year 1983.

### *Cancer Statistics in Scotland 1971-1980*

The second in the series of cancer registration data on Scotland was published in August. Individual patient data, collected by the regional registries, are summarised to produce national data on registrations by site, sex, and health board area. Age-standardised incidence rates are shown. A small number of maps and time-trend graphs are also shown.

### *Scottish Hospital In-patient Statistics 1982*

The twenty-second in the series, will be published in September 1984. It contains information on patients discharged from Scottish hospitals (except for mental illness, mental deficiency, and maternity hospitals and units). Analyses include discharges, bed days and stay by age, sex and diagnosis; and by area of residence and diagnosis. Cases, mean stay, waiting list cases, and mean wait are shown by area of treatment and operation. Detailed analyses are shown on microfiche: these include discharges and mean stay by specialty, age, and diagnosis/operation.

### *Surveillance Programme for Foodborne Infections and Intoxications, Scotland 1983*

This booklet was published in August 1984. The information on foodborne disease includes analyses by type of outbreak, causative agent, type of food involved and place of consumption.

### *Laboratory Statistics for the year ending 31 March 1984*

The four booklets (pathology, haematology, microbiology and clinical chemistry) have information on staffing and workload for each laboratory and will be published in September 1984.

### *Diagnostic Radiographer and Radiologist Workload Statistics (March 1984)*

These booklets show radiographic work done and available staff in radiology departments during the month of March. Radiographic examinations are sorted into groups of comparable difficulty to which unit-time values are assigned. The tables do not show all work done in these departments, since they exclude all administrative, teaching and other duties. The booklets will be published in September 1984.

### *Fireworks, Injuries Enquiry 1983*

This booklet was published in March 1984. It is a survey in October/November 1983 of injuries caused by fireworks and treated in hospitals in Scotland; showing place of accident, type of fireworks, severity of injury, and age group of injured persons.

Other statistical series published in the period April – September 1984 include:

*Community Nursing Statistics 1983*

*Sexually Transmitted Diseases Statistics 1983*

*Ophthalmic Statistics 1983*

*Chiropody Statistics 1983*

Copies can be obtained from:

Information Services Division

Common Services Agency

Scottish Health Service, Trinity Park House

South Trinity Road, Edinburgh EH5 3SQ.

Telephone: 031-552 6255 Ext. 2707

#### References

Available from address above:

*Advance Tables June 1984*. (Price £1.00) ISSN 0263 8096

*Cancer Statistics in Scotland 1971-1980* (Free)

*Scottish Hospital In-Patient Statistics 1982* (Price £7.50; with Microfiche, £10.37 including VAT)

*Surveillance Programme for Foodborne Infections and Intoxications, Scotland 1983* (Price £1)

*Laboratory Statistics 1984* 4 volumes (*Pathology, Haematology, Microbiology and Clinical Chemistry*) (Price £7.50 per volume)

*Diagnostic Radiographer Workload Statistics* (March 1984) (Price £3)

*Diagnostic Radiologist Workload Statistics* (March 1984) (Price £3)

*Fireworks Injuries Enquiry 1983* (Price £2)

*Community Nursing Statistics 1983* (Price 50p)

*Sexually Transmitted Diseases Statistics 1983* (Price 50p)

*Ophthalmic Statistics 1983* (Price 50p)

*Chiropody Statistics 1983* (Price 50p)



## EDUCATION

### International statistical comparisons in higher education

International comparisons in education always present difficulty, because of organisational and definitional differences between countries. However, with the necessary strong caveats some useful findings can be presented. Department of Education and Science (DES) Statistical Bulletin 9/84 outlines what DES considers can reliably be said about:

- entry to, enrolments in and graduations from higher education
- subjects of study in higher education
- financing of higher education

in the United Kingdom alongside the position in France, Germany, Italy, Japan, the Netherlands and the USA. General conclusions are drawn about the presentation of statistics so that worthwhile comparisons can be made.

The main findings are as follows, but should be set in the context of the caveats in the Bulletin:

- i The participation rate in higher education ranges from 20 per cent in Germany to 36 per cent in Japan and 62 per cent in the USA. These last two figures are believed to include entrants to private educational establishments. An estimated participation rate for the United Kingdom, including entrants to private establishments and correspondence courses, exceeds 40 per cent. New entrants or graduates are preferable measures of participation, because total enrolments are affected by course length.
- ii Participation by women in higher education is low in the United Kingdom in terms of the overall percentage of total enrolments, but in the middle of the range of values in the case of first degree and postgraduate level enrolments alone.
- iii The graduation rate from higher education in the United Kingdom is similar to that for France and Germany, but about half the level found in the USA, which includes graduations from private colleges.
- iv In terms of subjects of study, the United Kingdom produces graduates in a profile close to the average for all the countries.
- v Higher education expenditure in the United Kingdom, at 0.8 per cent of GNP (deducting student support) is higher than in France and Germany.
- vi Student support in the United Kingdom is more generous than in the other countries considered.

Detailed findings are given in seven tables, with commentary. Copies of DES Statistical Bulletins are available, free, from:

Department of Education and Science  
Statistics Branch  
Room 1/28  
Elizabeth House  
York Road  
London SE1 7PH  
Telephone: 01-928 9222 Ext. 2776

### Students from abroad

Department of Education and Science Statistical Bulletin 7/84, *Students from abroad*, formerly entitled *Overseas students*, provides information covering Great Britain about the numbers of students from abroad in the universities, and on advanced and non-advanced courses in maintained colleges of higher and further education. It updates Bulletin 9/83 and includes early estimates for the academic year 1983/84.

The change of title from *Overseas students* follows a recommendation by an Interdepartmental Working Group. To maintain comparability with statistics for other years, a student from abroad is either a. charged a fee at the overseas rate; or b. domiciled in a European Community country other than the United Kingdom and charged the home rate of fee. Home students comprise all other students.

The principal analyses concern both the numbers of new entrants and the total stock of students: by grouped countries of domicile, e.g. European Community, Commonwealth; and also by those individual countries which are the major 'exporters' of students to Great Britain. The total stock is also analysed by main subject of study.

Information is also shown on the numbers of students from abroad at universities under alternative definitions, and in a new table by selected countries of nationality.

Copies of DES Statistical Bulletins are available from the address given above.

### University Grants Committee

The annual report of the University Grants Committee presenting a general survey of its activities during the academic year 1982-83 was published in May 1984. Appendix J gives statistics of students and full-time academic and related staff in Great Britain universities. The seven tables cover full-time students, part-time students on long courses, qualifications obtained by students, first destinations of home-domiciled graduates from United Kingdom universities, full-time academic and related staff, full-time teaching and research staff and the age distribution of full-time non-clinical teaching and research staff, the last two items refer to staff paid wholly from general university funds.

#### Reference

*University Grants Committee Annual Survey Academic Year 1982-83* Cmnd. 9234 (HMSO 1984) (Price £4.50 net)



## Education statistics – Scotland

### *School leavers*

This bulletin gives information about the number of pupils leaving school in Scotland since the raising of the school leaving age to 16: that is, for sessions 1972/73 to 1981/82 inclusive. Details are given of the Scottish Certificate of Education qualifications held by school leavers, term of leaving and the stage of secondary education reached.

### *Excess and deficit of teachers by subject*

This bulletin gives estimates of the net excess or deficit of teachers in each of the main subjects taught in education secondary schools in Scotland at September 1982 and September 1983. It shows the position for Scotland as a whole, for each Region and Islands authority, and for the administrative divisions of Strathclyde.

### *Autumn enrolments of students in vocational further education*

Information on the enrolments of students to vocational further education (excluding students on courses of pre-service teacher training) in Autumn 1983 is contained in this statistical bulletin which provides a comparison with figures for 1980, 1981 and 1982. The bulletin also includes details of new entrants to courses.

### *Basic Educational Statistics (Scotland) 1984*

This fact card (pocket size) which is produced annually gives basic educational statistics for Scotland including numbers of schools, pupils and teachers for 1982/83 along with data for 1981/82 and 1977/78 for comparison purposes.

Copies of the above bulletins may be purchased (price 50p post paid) from:

The Library  
Official Publication Sales  
Scottish Office  
Room 2/65  
New St Andrew's House  
Edinburgh  
EH1 1DN  
Telephone: 031-556 9233 Ext. 286

### *Basic Educational Statistics (Scotland) 1984 – Fact Card*

Copies of the above card may be obtained free from:

Scottish Education Department  
43 Jeffrey Street  
Edinburgh  
EH1 1DN  
Telephone: 031-556 9233 Ext. 286

## MANPOWER AND EARNINGS

### Census of Employment

The next census of employment will be conducted in September 1984. For the first time the census will not attempt to obtain total coverage of employers. Instead information will be sought from all large employers and a sample of the small ones.

### Employed labour force

Estimates of the numbers in employment – both employees and self-employed – have been revised using the results of the 1983 Labour Force Survey.

The employment series, published in *Employment Gazette*, July 1984 show an increase at December 1983 of 94,000 in the employed labour force compared with the previously published figure.

The estimates provide new monthly (for employees in production and construction industries) and quarterly estimates for the period from September 1981. These revised series are given in the labour market data section in table 1.1, and analysed by industry for employees in tables 1.2 to 1.4. Table 1.4 has been expanded to show more industry detail than previously.

Regional analysis for employees will be shown in table 1.5 of the August *Gazette* and longer time series will be given in a supplement.

An article explaining the derivation of the new estimates is included in *Employment Gazette*, July 1984. This article includes tables showing estimates for the period 1971 to 1983 of self-employment by industry division, and by region.

### Reference

*Employment Gazette*, July and August 1984 (HMSO monthly) (Price £2.75 net each)

### 1983 Labour Force Survey – preliminary results

First results of the 1983 Labour Force Survey (LFS) have been published in an article in the July 1984 issue of *Employment Gazette* and in an OPCS Monitor. These publications contain information for Great Britain on economic activity, the industry and occupation of those in employment, the method of seeking work used by the unemployed and the economic activity of ethnic minorities. It is hoped that the complete report on the survey will be published by the end of the year.

The survey which has a sample of about 80 thousand responding private households in the United Kingdom has been conducted every two years in the United Kingdom since 1973. From 1984 onwards the survey in Great Britain has been enhanced and results will be available annually.

In addition to the results shown in the *Employment Gazette* article and the Monitor, the LFS provides information on other topics such as family composition,



education, housing and migration. Tabulations on these topics should become available later in 1984 in advance of the main report.

#### References

- Employment Gazette*, July 1984 (HMSO) (Price £2.75 net)  
*Labour Force Survey 1984* OPCS Monitor LFS 84/1 OPCS (1984) available free of charge from OPCS, St. Catherine's House, 10 Kingsway, London WC2B 6JP.  
*Statistical News* 29.25, 30.31, 47.41, 51.33, 56.17, 58.19, 63.26.

#### Long-term unemployment – labour market aspects

An article in the October 1983 issue of *Employment Gazette* summarized the main findings of an interview survey of the long-term unemployed, conducted by the Policy Studies Institute for the Department of Employment. Separate samples of men and women, drawn from the 'stock' of the long-term unemployed, were selected in February 1980. The samples were interviewed in June 1980, and again in September 1981. The emphasis of the study was on the labour market processes involved in long-term unemployment, rather than on the characteristics of the long-term unemployed, about which much was already known. Similarly, the emphasis of the findings is on structural explanations, rather than in terms of 'personal disadvantages'. While the composition of the long-term unemployed has changed since the interview survey was carried out, with a disproportionate rise in the numbers of young people long-term unemployed, the author argues that in most respects his conclusions remain valid.

#### References

- Michael White 'Long-term unemployment – labour market aspects', *Employment Gazette*, October 1983 (HMSO) (Price £2.35 net).  
Michael White, *Long-Term Unemployment and Labour Markets* (London: Policy Studies Institute), December 1983 (Price £6.50).  
A separate volume of tables arising from the survey will be made available by the Policy Studies Institute later in 1984.

#### The employment of women

##### DE/OPCS 1980 Women and employment survey

The main findings of this survey were published in May by HMSO as *Women and Employment a lifetime perspective*. Details of the survey and a description of the contents of the report can be found in *Statistical News* 65.33.

A number of articles related to the study are planned for publication in the *Employment Gazette*. The two already published are:

May 1984 'Women's employment in the 1980s: evidence from the Women and Employment Survey' by J. Martin and C. Roberts (summary of key findings from the HMSO book).

June 1984 'Non-working women: evidence from the 1980 Women and Employment Survey' by J. Martin and C. Roberts (summary of findings on non-working women from the HMSO book).

Two secondary analyses of the survey have already been completed and the results are available as Department of Employment Research Papers. Heather Joshi has used regression analysis to establish the importance of different factors in determining whether women undertake paid work or not, and to examine the costs to women of family formation. Shirley Dex has constructed a classification of women's work histories based on the sequence and duration of working and not-working periods in the context of other life and family events. Disruptions to women's employment are examined for the occurrence of cumulative effects, and the characteristics of women with different lifetime employment profiles are outlined.

A third Research paper based on a follow-up study of unemployed women identified in the main Survey is also available. This research by Arnold Cragg and Tim Dawson, considers the meaning of unemployment for women – using case study methods – and describes job aspirations, job search behaviour, and the financial and social consequences to women of not working.

#### References

- Jean Martin and Ceridwen Roberts *Women and Employment – a lifetime perspective*, Social Survey Report SS 1143 (HMSO 1984) (Price £9.50 net)  
Jean Martin and Ceridwen Roberts *Women and Employment: Technical report*, Social Survey Report SS 1143 (OPCS 1984) (Price £5.00) available from OPCS, Social Survey Division at the address on page 66.40  
Heather Joshi *Women's participation in paid work: further analysis of the Women and Employment Survey* Department of Employment Research Paper No 45 (London 1984)  
Shirley Dex *Women's work histories: an analysis of the Women and Employment Survey*, Department of Employment Research Paper No 46 (London 1984)  
A. Cragg and T. Dawson *Unemployed women: a study of attitudes and experiences*, Department of Employment Research Paper No 47 (London 1984)  
Copies of DE research papers can be obtained, free of charge, on request from – Department of Employment, Research Administration, Steel House, Tothill Street, London SW1H 9NF (Telephone: 01-213 4662)

#### Women's employment changes in the 1970's

An article in the *Employment Gazette* April 1984, by Shirley Dex and Stephen M. Perry, Economics Department, Keele University, uses Census of Employment data to examine some of the more disaggregated industry-level, year-by-year employment changes for women and men in the 1970s, in an attempt to complement the more aggregate statistical reviews and to see more of the way women's employment varies with fluctuations in the economy. Some of the figures quoted in the article were provisional results from the 1981 Census of Employment; the May 1984 issue of *Employment Gazette*, page 243, provides the equivalent figures from the final results of the 1981 Census of Employment.

#### Reference

- Employment Gazette* (HMSO monthly) (Price £2.75 net)



### First employment of young people

The main results of a sample survey of 16, 17 and 18 year olds in England and Wales who entered their first employment in 1980 (along with certain follow-up results for 1981 and 1982) were published in an article in the May 1984 issue of *Employment Gazette*.

The survey, which was carried out by local authority careers offices, collected information on the industry and occupation of first employment, on training received in this employment and on the educational qualifications of the entrants.

The article includes comparisons with earlier surveys carried out in 1978 and 1979, which were reported in the December 1980 and March 1982 issues of *Employment Gazette*. A later survey of 16 year olds in England and Wales who entered their first employment in 1983 will be reported in *Employment Gazette* shortly.

#### References

- 'First employment of young people: 1980 survey' *Employment Gazette* May 1984 (HMSO) (Price £2.75 net)
- 'First employment of young people' *Employment Gazette* March 1982 (HMSO) (Price £2.25 net)
- 'First Off - 16 year olds entering employment in 1978' *Employment Gazette* December 1980 (HMSO) (Price £1.65 net)

### Patterns of employment among ethnic minority men and women

An article in the July 1984 issue of the *Employment Gazette* presents the results of a 1982 interview survey which provides information on patterns of employment and unemployment among ethnic minority men and women in England and Wales. It shows that ethnic minority men and women experience higher unemployment rates than do white men and women; and they tend to be concentrated in particular industries and particular jobs within industries. The 1982 survey was carried out by the Policy Studies Institute for a consortium of five government departments (Home Office, Department of the Environment, Department of Employment, Manpower Services Commission and the Department of Health and Social Security) together with the Greater London Council and various independent foundations. The results are compared with the previous survey carried out in 1974 by Political and Economic Planning, to show that the pattern of ethnic minority employment has changed little over the period 1974-1982, although there has been a growth of self-employment among people of Asian origin.

#### References

- C. Brown 'Patterns of employment among black and white people in Britain', *Employment Gazette*, July 1984, (HMSO) (price £2.75 net)
- C. Brown, *Black and White Britain: The Third PSI Survey* (London: Heinemann Educational, 1984) (Paperback £7.50 net; Bound £18.50 net)

### National estimates of the homework and outwork labour force

There has been much speculation about the size and significance of the homework labour force. An article in the January 1984 issue of the *Employment Gazette* presents national estimates for England and Wales 1981, on the basis of the various alternative definitions of this labour force. On the widest definition 1.68 million people (7.2 per cent of the labour force) were working at or from home or living at work. On the narrowest definition 72,000 people (less than  $\frac{1}{2}$  per cent of the labour force) were engaged in manufacturing work at home. Whichever definition of the home-based labour force is used, manufacturing homework is a small proportion of the total. Comparisons with an independent survey carried out in 1968/69, and with the 1971 Census, indicate that home-based work generally is increasing rather than declining. The national estimates are obtained from an interview survey carried out by the Office of Population Censuses and Surveys in Autumn 1981 as a follow-up to the 1981 Labour Force Survey.

#### Reference

- C. Hakim, 'Homework and Outwork: national estimates from two surveys', *Employment Gazette*, January 1984, pages 7-12, (HMSO) (Price £2.75 net)

### The use of homework by industry

An article in the April 1984 issue of the *Employment Gazette* presents the key findings from a study of employers' use of homework, outwork and freelances. The study is based on information collected in the 1980 Workplace Industrial Relations Survey which was carried out jointly by the Department of Employment, Policy Studies Institute and Social Science Research Council. It shows that virtually all industries make some use of this type of labour, the incidence ranging from 1 per cent to 50 per cent of plants.

#### References

- C. Hakim, 'Employers' use of homework, outwork and freelances', *Employment Gazette*, April 1984, pages 144-150, (HMSO) (Price £2.75 net)
- W. W. Daniel and N. Millward, *Workplace Industrial Relations in Britain*, The DE/PSI/SSRC Survey, (London: Heinemann Educational 1983) (Paperback £8.50 net; Bound £20 net)

### Top salaries

Report No. 21 of the Review Body on Top Salaries (Chairman, Lord Plowden) was published in June 1984. The report deals with the salaries of the higher judiciary and certain other judicial appointments, senior civil servants and senior officers in the armed forces, and makes recommendations. (The Government has announced that an increase of 3 per cent would be paid from 1 April 1984 and that the recommended rates would be paid in full from 1 November 1984.)

Appendix C contains the results obtained from a survey carried out by the Office of Manpower Economics



(OME), which provides the secretariat for the Review Body. The survey covered salaries and other direct remuneration, such as bonus, commission and profit-sharing, of Board members and senior executives in the private sector relating to the period 1 September 1982 to 1 October 1983. Information was provided by 128 organisations covering 2,146 posts. Table A and Table 1 show the response rate (over 87 per cent of the organisations approached) and coverage of the survey, while Table B compares the results from 1 September 1982 with those obtained for the same date in the previous survey. The remaining tables in Appendix C (Tables 2 to 5) contain detailed results on pay.

#### Reference

*Review Body on Top Salaries, Report No 21, Seventh Report on Top Salaries* (Cmnd. 9254) (HMSO June 1984) (Price £5.55 net)

### Armed forces pay

The Thirteenth Report by the Review Body on Armed Forces Pay (Chairman, Sir David Orr) was published in June 1984 and recommends pay, accommodation and food charges for Services ranks up to and including Brigadier (and equivalent), to apply from 1 April 1984. A full list of the Review Body's reports is in Appendix 1.

Details of the main recommended levels of military salary (in Army terms) are in Tables 1-3, and of accommodation charges in Tables 4-5. (The Government has announced that an increase of 3 per cent would be paid from 1 April 1984 and that the recommended rates would be paid in full from 1 November 1984.) Equivalent levels of 1 April 1983 military salaries and accommodation charges are in Appendices 2 and 3 respectively.

The results of four remuneration surveys – covering officers, corporals, and warrant officers and senior non-commission officers – which are not published were used by the Review Body as a guide to judgement in determining appropriate levels of military salary.

#### Reference

*Review Body on Armed Forces Pay, Thirteenth Report 1984* (Cmnd. 9255) (HMSO June 1984) (Price £4.15 net)

### Doctors' and dentists' remuneration

The Fourteenth Report by the Review Body on Doctors' and Dentists' Remuneration (Chairman, Sir Robert Clark) was published in June 1984: it recommends pay levels, for the year from 1 April 1984, for doctors and dentists in the National Health Service.

Details of recommendations are in Appendix B. (The Government has announced that an increase of 3 per cent would be paid from 1 April 1984 and that the recommended rates would be paid in full from 1 November 1984.) Appendix C compares movements in earnings in the year April 1982 to April 1983, while Appendix D gives the numbers of doctors and dentists

in the National Health Service (Great Britain) at September 1982 and 1983.

#### Reference

*Review Body on Doctors' and Dentists' Remuneration Fourteenth Report* (Cmnd. 9256) (HMSO June 1984) (Price £5.90 net)

### Pay of professions allied to medicine

The First Report on Professions Allied to Medicine by the Review Body for Nursing Staff, Midwives, Health Visitors and Professions Allied to Medicine (Chairman, Sir John Hedley Greenborough) was published in June 1984 and recommends pay levels, for the year from 1 April 1984, for chiropodists, dietitians, occupational therapists, orthoptists, physiotherapists, radiographers, remedial gymnasts and related grades in the National Health Service. Details of the numbers covered and paybill are in text Tables 1 and 2 respectively, and current and recommended pay scale minima and maxima in Appendix B.

#### Reference

*Review Body for Nursing Staff, Midwives, Health Visitors and Professions Allied to Medicine, First Report on Professions Allied to Medicine 1984* (Cmnd. 9257) (HMSO June 1984) (Price £3.00 net)

### Pay of nursing staff, midwives and health visitors

The First Report on Nursing Staff, Midwives and Health Visitors by the Review Body for Nursing Staff, Midwives, Health Visitors and Professions Allied to Medicine (Chairman, Sir John Hedley Greenborough) was published in June 1984 and recommends pay levels, for the year from 1 April 1984, for nursing staff, midwives and health visitors in the National Health Service. Details of the numbers covered and paybill are in text Tables 1 and 2 respectively, and current and recommended pay scale minima and maxima in Appendix B.

#### Reference

*Review Body for Nursing Staff, Midwives, Health Visitors and Professions Allied to Medicine, First Report on Nursing Staff, Midwives and Health Visitors 1984* (Cmnd. 9258) (HMSO June 1984) (Price £3.50 net)

### Agricultural workers' earnings and hours

The *Employment Gazette* for June 1984 includes the latest in the series of articles on the earnings and hours of agricultural workers in Great Britain. The article gives details, for 1983, of whole-time workers employed on a regular basis. It is based upon results of continuous surveys carried out by the Ministry of Agriculture, Fisheries and Food (MAFF) and the Department of Agriculture and Fisheries for Scotland.

More detailed information for England and Wales is contained in a booklet *Earnings and hours and numbers of agricultural workers 1983 including the Report of the Wages and Employment Enquiry* published by MAFF, price £3 plus 50 pence postage and packing. Copies can



be obtained from:

MAFF Publications, Lion House,  
Willowburn Estate, Alnwick,  
Northumberland, NE66 2PF.

Separate information for Scotland can be found in the *Economic Report for Scottish Agriculture*.

#### References

*Employment Gazette*, June 1984 (HMSO) (Price £2.75 net)  
*Economic Report for Scottish Agriculture 1983* (HMSO) (forthcoming)

## AGRICULTURE

### Farm management survey in England

*Supplementary Analyses 1982/83* – This booklet contains a range of analyses of physical and financial data by farm type and size of business which supplements the main results of the Survey of some 2000 full time farms recorded in the report *Farm Incomes in England 1982/83*.

*Report on the Liabilities and Assets Survey 1982/83* – This report is based on a sub-sample of farms participating in the main Survey and sets out detailed results of the survey of farm balance sheets including analyses of the sources and disposition of funds, business ratios, percentage distributions of various items from the closing balance sheets and changes in net worth.

These reports are published by HMSO (Prices £6.00 net and £10.00 net respectively).

#### Reference

*Farm Incomes in England 1982/83* (HMSO) (Price £7.25 net).

### Basic horticultural statistics for the United Kingdom – 1974-1983

This annual booklet (free of charge) contains a ten-year time series of data on the cropped area, gross yield, gross production, output, monthly marketing patterns, average ex-farm gate price and value of all home-produced fruit, vegetable and potato crops in the United Kingdom. It also provides data on the area and value of output of hops and flowers and nursery stock and details of international trade and quantities sold into intervention.

Enquiries should be addressed to:

Ministry of Agriculture, Fisheries and Food,  
Room 500A, Great Westminster House,  
Horseferry Road, London SW1P 2AE.  
Telephone: 01-216 6763

### Potato crisps and snack foods

Results of the third quarter 1983 were published in Statistical Information Notice STATS 28/84 on 31 January 1984 and for the fourth quarter 1983 in Statistical Information Notice STATS 100/84 on 24 April 1984.

### Canned and bottled fruit and vegetables

Revised results from a MAFF survey on the production of canned and bottled fruit and vegetables have now been published in a Statistical Information Notice STATS 187/84. This survey shows the total estimated volume of each fruit and vegetable canned or bottled in Great Britain. The revised figures are for 1981, 1982, each of the four quarters of 1983 and the first quarter of 1984. Future results will be published quarterly.

Copies of the Statistical Information Notice can be obtained, free of charge, from:

Ministry of Agriculture, Fisheries and Food,  
Room 500A,  
Great Westminster House,  
Horseferry Road, London SW1P 2AE.  
Telephone: 01-216 6763

### Northern Ireland agriculture – capital consumption for fixed assets

In an article in *Economic Trends*, May 1984 current methods of estimating depreciation of fixed assets employed in Northern Ireland agriculture have been reviewed and current estimates compared with those derived from a perpetual inventory model (PIM).

The PIM approach has been used to generate estimates of the capital stock and of its depreciation. The structure of the inventory model is described and its application to investment in buildings and works and plant, machinery and vehicles in Northern Ireland agriculture is considered in the remainder of the article.

#### Reference

'Estimating capital consumption for fixed assets employed in Northern Ireland agriculture' by T. F. Stainer and J. R. Templeton, *Economic Trends*, May 1984 (HMSO) (Price £11.25 net)

## INDUSTRIAL STATISTICS

### Business Monitors – Annual Census of Production 1982

Readers of *Statistical News* are made aware of the results of the 1982 Census of Production as the Business Monitors become available. The following table lists the monitors published since notification in the last number of *Statistical News*:

Business Monitor Number	Description	Standard Industrial Classification 1980 Group
PA 111	Coal extraction and manufacture of solid fuels	111
PA 120	Coke ovens	120
PA 170	Water supply industry	170
PA 210	Extraction and preparation of metalliferous ores	210
PA 221	Iron and steel industry	221
PA 222	Steel tubes	222
PA 224	Non-ferrous metals industry	224
PA 241	Structural clay products	241
PA 242	Cement, lime and plaster	242
PA 244	Asbestos goods	244
PA 246	Abrasive products	246
PA 247	Glass and glassware	247



<i>Business Monitor Number</i>	<i>Description</i>	<i>Standard Industrial Classification 1980 Group</i>
PA 251	Basic industrial chemicals	251
PA 255	Paints, varnishes and printing ink	255
PA 256	Specialised chemical products mainly for industrial and agricultural purposes	256
PA 258	Soap and toilet preparations	258
PA 259	Specialised chemical products mainly for household and office use	259
PA 260	Production of man-made fibres	260
PA 311	Foundries	311
PA 312	Forging, pressing and stamping	312
PA 313	Bolts, nuts, etc: springs: non-precision chains: metals treatment	313
PA 314	Metal doors, windows, etc.	314
PA 321	Agricultural machinery and tractors	321
PA 322	Metal-working machine tools and engineer's tools	322
PA 323	Textile machinery	323
PA 325	Mining machinery, construction and mechanical handling equipment	325
PA 326	Mechanical power transmission equipment	326
PA 328	Miscellaneous machinery and mechanical equipment	328
PA 330	Manufacture of office machinery and data processing equipment	330
PA 344	Telecommunication equipment, electrical measuring equipment, electronic capital goods and passive electronic components	344
PA 346	Domestic-type electric appliances	346
PA 351	Motor vehicles and their engines	351
PA 352	Motor vehicle bodies, trailers and caravans	352
PA 361	Shipbuilding and repairing	361
PA 363	Cycles and motor cycles	363
PA 364	Aerospace equipment manufacturing and repairing	364
PA 371	Measuring, checking and precision instruments and apparatus	371
PA 373	Optical precision instruments and photographic equipment	373
PA 412	Processing of bacon, meat and poultry	412
PA 413	Preparation of milk and milk products	413
PA 414	Processing of fruit and vegetables	414
PA 421	Ice-cream, cocoa, chocolate and sugar confectionery	421
PA 423	Starch and miscellaneous foods	423
PA 424	Spirit distilling and compounding	424
PA 427	Brewing and malting	427
PA 431	Woollen and worsted industry	431
PA 433	Throwing, texturing, etc. of continuous filament yarn	433
PA 436	Hosiery and other knitted goods	436
PA 437	Textile finishing	437
PA 438	Carpets and other textile floorcoverings	438
PA 439	Miscellaneous textiles	439
PA 441	Leather (Tanning and dressing) and fellmongery	441
PA 442	Leather goods	442
PA 451	Footwear	451
PA 462	Manufacture of semi-finished wood products and further processing and treatment of wood	462
PA 464	Wooden containers	464
PA 465	Miscellaneous wooden articles	465
PA 467	Wooden and upholstered furniture and shop and office fittings	467
PA 472	Conversion of paper and board	472
PA 475	Printing and publishing	475
PA 483	Processing of plastics	483
PA 491	Jewellery and coins	491
PA 494	Toys and sports goods	494
PA 495	Miscellaneous manufacturing industries	495

Copies of these Business Monitors are available on standing order from Her Majesty's Stationery Office, PO Box 276, London, SW8 5DT (Telephone: 01-622 3316) or through any Government Bookshop.

Further information on the PA series of Business

Monitors and Censuses generally can be obtained from:

Mr J Dowsell  
Business Statistics Office  
Government Buildings  
Cardiff Road, Newport,  
Gwent  
NPT 1XG  
Telephone: Newport 56111 (STD Code 0633) Ext. 2973

Individual monitors or a free brochure describing the full range of Monitors with prices and order form may be obtained from:

The Librarian  
Business Statistics Office  
Government Buildings  
Cardiff Road, Newport,  
Gwent  
NPT 1XG  
Telephone: Newport 56111 (STD Code 0633) Ext. 2973

### **Classified List of Manufacturing Businesses 1984 (PO 1007)**

A second Business Monitor in the *PO 1007* series is to be published in November. As previously the Classified List has been compiled from the register of manufacturing businesses in the United Kingdom maintained by the Business Statistics Office for conducting statistical inquiries. The List sets out the names and addresses of each manufacturing local unit of contributors to the annual census of production who have consented to publication and in the main reflects information obtained in the annual census for 1982.

The List is based for the first time on Divisions 2 to 4 of the 1980 revision of the Standard Industrial Classification. Classification to the appropriate Activity Heading is generally based on the value of sales as reported quarterly by establishments to the BSO.

The List is in six parts covering more than 17,000 units arranged alphabetically by the name of the business within each activity heading.

The Classified List will also be available in magnetic tape format. Price of the Business Monitor and magnetic tape will be published in the November issue of *Statistical News*.

### **Scottish input - output tables 1979**

Input-output tables for Scotland for 1979 have been constructed by the Industry Department for Scotland. The project was supported by survey work sponsored jointly by Economic and Social Research Council (ESRC) and the Department. ESRC, the Fraser of Allander Institute and the Scottish Council (Development and Industry) were also involved in steering the project. Four volumes describing the 1979 Scottish



tables are planned. Volume 1 is now available, and provides an introduction to the tables and summary results. Volume 2 will contain the basic input-output tables and the derived commodity-by-commodity and industry-by-industry matrices and will identify over 80 separate industry/commodity groupings. Volume 3 will provide detailed analyses of final demand by sector and a range of coefficient tables including the Leontief inverse and multiplier tables. Volume 4 will describe the sources and methods used in the project.

The volumes are published by the Economics and Statistics Unit of the Industry Department for Scotland, 1984, and available from Room 5/31, New St Andrew's House, St James Centre, Edinburgh EH1 3TA price:

Volume 1: nil

Volume 2: £5 (to be published)

Volume 3: £5 (to be published)

Volume 4: £5 (to be published)

### Commercial and industrial floorspace statistics

The latest issue of *Commercial and Industrial Floorspace Statistics* was published in June 1984.

The information is provided to the Department of the Environment by the Inland Revenue Valuation Offices and contains details for each local authority on the number of non-domestic properties and their floorspace area. Information on the latest annual changes are given at regional level.

The three previous issues are available at HMSO bookshops. More detailed information can be obtained from: Statistics Planning, Population and General Division, Department of the Environment, Room 518, Kingsgate House, 66-74 Victoria Street, London SW1E 6SJ. Telephone: 01-212 8473.

#### References

*Commercial and Industrial Floorspace Statistics No. 12—England 1980-1983* (HMSO 1984) (Price £5.50 net) ISBN 0 11 751961 8

*Commercial and Industrial Floorspace Statistics No. 11—England 1979-1982* (HMSO 1983) (Price £4.40 net)

*Commercial and Industrial Floorspace Statistics No. 10—England 1978-1981* (HMSO 1982) (Price £4.00 net)

*Commercial and Industrial Floorspace Statistics No. 9—England 1977-1980* (HMSO 1981) (Price £5.60 net)

### Business starts and stops

An article in *British business*, 18 May 1984, by Pom Ganguly, statistician in the Department of Trade and Industry's Small Firms Division, provides details of the stocks, starts and stops of firms by size-band of turnover and sector of trade for the United Kingdom 1980-83. Some changes in definitions leading to revisions to some earlier figures are also discussed.

Previous articles in *British business* (covered in *Statistical News* 56.29, 57.26, 58.32, 59.45, 61.24, 63.36, 64.29, and 65.36) have provided regional analyses of the stocks of businesses and of births and

deaths of firms in the United Kingdom based on VAT data.

Inquiries about, but not requests for, the articles should be addressed to:

Mr Pom Ganguly, Small Firms Division,  
DTI, Room 214, Ashdown House  
123 Victoria Street, London, SW1E 6RB

#### Reference

*British business* (HMSO weekly) (Price £1.10 net)

### Mechanical engineering: decade of change

Some of the mechanical engineering industries have experienced considerable contraction over the past decade, but for others the decline has been marginal, and the outlook affords grounds for cautious optimism. The industries retain an important role in the United Kingdom's manufacturing capability. The crude balance of trade has remained in surplus. An article in *British business*, 25 May 1984 by the Department of Trade and Industry's Statistics Division 1 brings together and reviews some of the indicators covering the last ten years or so: in particular, output, trade balance, employment, and investment.

#### Reference

*British business* (HMSO weekly) (Price £1.10 net)

### Non-ferrous foundries

*British business*, 29 June 1984, contained results of the 1982 inquiry into non-ferrous foundries—output by process and end-use. There is a commentary and six tables covering production by employment size; output size; region; method of manufacture and metal type; and end-use, and output per man by type of non-ferrous metal.

A benchmark inquiry into ferrous foundries, in respect of 1983, is currently being conducted by the Business Statistics Office, and when the results of this inquiry are available, around the end of this year, it should be possible to describe the relationship between non-ferrous and ferrous foundries.

#### Reference

*British business* (HMSO weekly) (Price £1.10 net)

### Industry statistics

The *Series and weights used in the output-based estimate of Gross Domestic Product at constant factor cost: (1980 = 100)* are given in a new Industry Statistics Occasional Paper (No 20) which also includes a background note by Branch 4 of the Central Statistical Office. Occasional Papers are available at £2.50 each, cash with order, from Mr F. Shean, Room 71C/3 Central Statistical Office, Great George Street, London, SW1P 3AQ (cheques should be made payable to the Cabinet Office).



## DISTRIBUTION

### Retail Prices Indices 1914-83

The latest retail prices index and its component indices (for groups and sub-groups) are published each month in *Employment Gazette* and other periodicals, but long time series of these figures have not been readily available in recent years. Her Majesty's Stationery Office has now published an historical abstract giving runs of group and sub-group indices and weights back to 1974, group indices back to 1956 and 'all items' indices back to 1947, together with cost of living indices (on a more restricted basis) as far back as 1914. By linking the different series it is therefore possible to make price comparisons over a period of nearly 70 years using this volume alone.

#### Reference

*Retail Prices Indices 1914-83* (HMSO) July 1984 (Price £4.50 net)

### Retail Prices Index Advisory Committee

It was announced on 6 June that the Retail Prices Index Advisory Committee is to be reconvened shortly to re-examine the treatment of housing costs, to consider the possibility of rebasing the index and to review certain points on its coverage and construction.

The Committee which is convened from time to time to advise the Secretary of State for Employment, consists of representatives of both sides of industry, trade and consumer interests, academic experts and government departments. It first met in 1947, when the present index was initiated, and has had eight series of meetings since then, most recently in 1977.

## ENERGY

### Digest of United Kingdom Energy Statistics 1984

The latest edition of this series, prepared by the Economics and Statistics Division in the Department of Energy, was published at the end of July. It contains 76 tables and four pages of maps and charts.

The first section covers general energy statistics and includes tables showing inland consumption of fuels on a primary fuel input basis (in coal equivalent, in oil equivalent and in terms of the thermal content of fuels). Other tables show the estimated value of purchases of fuels, energy consumption by final users and an analysis of consumption by main industrial groups. The section also contains charts showing trends in the inland consumption of primary fuels and equivalents.

The other sections deal separately with individual fuels, prices and values of fuels and foreign trade in fuels. Fuel production and consumption statistics are derived mainly from the records of fuel producers and suppliers. Foreign trade statistics are derived from

returns made to HM Customs and Excise and published in the *Overseas Trade Statistics*.

#### Reference

*Digest of United Kingdom Energy Statistics 1984* (HMSO) July 1984 (Price: £11.95 net).

### UK oil and gas resources

*Development of the Oil and Gas resources of the United Kingdom 1984* is the latest of a series of annual reports to Parliament by the Secretary of State for Energy.

It charts the development of the United Kingdom's oil and gas resources during 1983 and also includes several significant events in early 1984. Exploitation, development and production aspects, as well as the economic, industrial and environmental impact on the United Kingdom of oil and gas production are covered.

There is a summary, six parts and seventeen appendices (including statistical tables and charts). The last appendix is a map of the United Kingdom Continental Shelf, Spring 1984.

#### Reference

*Development of the Oil and Gas resources of the United Kingdom 1984* (HMSO) May 1984 (Price £8.50 net) ISBN 0 11 411382 3

## TRANSPORT

### UK Shipping industry – international earnings

Every year the General Council of British Shipping (GCBS) conduct, on behalf of the Government Statistical Service, a sample survey of their members' international earnings and expenses. The data collected distinguishes between the various types of earnings and expenditure (e.g. freight revenue, passenger revenue, charter receipts and payments) for a number of different vessel types. However, once every four years the GCBS conduct a bench-mark census. From these the data collected also provide geographical detail.

Data from the latest census, in respect of 1982, are now available and an article in *British business* of 13 July 1984 gave brief details of the main results.

The article described the industry's earnings and expenditure in the context of recent trends and looked at the freight earnings by broad geographical routes; comparisons with 1978, the most recent year for which geographical detail was available, were made where appropriate.

More detailed figures are available, subject to commercial confidentiality constraints, from:

Mr P. Capell  
Department of Transport  
Room A606  
Romney House  
43 Marsham Street  
London SW1P 3PY



### **Injury road accidents – Scotland 1983**

The latest in the series of statistical bulletins published by the Scottish Development Department summarises injury road accident figures for Scotland in 1983. The bulletin deals with the number of and trends in accidents over the past few years, the number of vehicles involved, and casualties by road user category.

Copies of the above bulletin may be purchased (price 50p post paid) from:

The Library  
Official Publication Sales  
Scottish Office  
Room 2/65  
New St Andrew's House  
Edinburgh  
EH1 3TG  
Telephone: 031-556 8400 Ext. 5901

### **International road haulage**

The Department of Transport has recently issued two Statistical Bulletins concerning international road haulage.

The first – *International road haulage by United Kingdom registered vehicles* contains provisional results from the Department's Survey of International Road Haulage (IRHS) in 1983. Results show that tonnes of goods carried in UK registered vehicles have risen by about 11 per cent over the 1982 level. In the three years up to 1982 there had been very little change in the amount of traffic carried by UK hauliers. The Bulletin contains ten tables of statistics. These break down total traffic by foreign country, region of loading or unloading in the United Kingdom, whether on own account or for hire and reward, and type of commodity. A full report on the survey, covering relevant statistics from other sources, such as ports statistics and Customs, will be available in the autumn. Details of the IRHS survey methodology can be found in the latest annual report (on 1982 results) which was published by the Department of Transport last September, price £10.00.

The second – *Road goods vehicles on roll-on roll-off ferries to mainland Europe* gives results for the first quarter of 1984 from a Department of Transport quarterly survey. The survey collects data of total numbers of vehicles, including unaccompanied trailers, travelling from Great Britain to mainland Europe. It shows that traffic in the first quarter of 1984 was 14 per cent higher than in the corresponding period of 1983. However, it also demonstrates that movements of foreign registered vehicles increased more than those of UK registered vehicles. Although the survey does not cover details of goods movements, it is an effective monitor of overall activity in the international road haulage business. The Bulletin comprises four tables which break down the

results according to country of registration of powered vehicles, country of disembarkation and port group (English Channel, Dover Strait or North Sea) of embarkation in Great Britain.

The Bulletins, price £5.00 each, are available from:

Department of Transport,  
STB Division,  
Room A631,  
Romney House,  
43 Marsham Street,  
London SW1P 3PY  
Telephone: 01-212 3229

### **Heavy goods vehicles**

The latest statistics on heavy goods vehicles reflect recent changes in the classification used for excise duty purposes and in weight limits.

Firstly, from 1 October 1982 goods vehicles greater than 1,525 kgs unladen weight have been taxed according to their gross vehicle weight and axle configuration, whereas prior to this date they were taxed only according to their unladen weight. This change in taxation was made so that tax levels could be more closely related to the road cost imposed by different groups of vehicles.

Secondly, following the *Armitage Report of the inquiry into lorries, people and the environment* (HMSO 1980, price £8.50 net), the maximum weight limit for articulated vehicles was increased from 32.5 tonnes gross vehicle weight, to 38 tonnes gross vehicle weight. This became effective from 1 May 1983.

These two changes in the legislation concerning heavy goods vehicles will lead to changes in the structure of the heavy goods vehicle stock, and its freight activity. The initial effect is discussed in the annual report *Heavy Goods Vehicles in Great Britain: 1983*, price £8.00, available from the Department of Transport, Telephone: 01-212 3749 or at the address given above.

### **Waterborne freight in the United Kingdom**

The first issue of a new series of reports, published jointly by the Department of Transport and the Marine Transport Centre, University of Liverpool, appeared in April. This gives estimates of tonnes lifted and tonne-kilometres moved by coastal shipping and on inland waterways in 1981 and 1982, with summary time series back to 1972. Traffic is analysed by mode of appearance, principal commodities, and type of movement (coastwise, special, foreign or internal). Port groups of origin and destination are given for coastal traffic, while for waterway traffic the analysis is by port group and waterway capacity.

The information on waterway traffic updates the findings of an earlier survey described in *Statistical News* 59.41. The new estimates of both coastal shipping



and waterway traffic were discussed in an article in *Transport Statistics Great Britain 1972-1982* (HMSO October 1983, price £19.00 net), which publication also included some preliminary results of the new research.

*Waterborne Freight in the UK 1981 and 1982* may be purchased (at £10 per copy including postage) from the Marine Transport Centre, University of Liverpool, PO Box 147, Liverpool, L69 3BX.

### Cycling

As a follow up to *National Travel Survey: 1978/9* (HMSO May 1983, price £13.95 net) a statistical bulletin *Cycling: an analysis of the 1978/79 National Travel Survey* has been issued, price £5.00. Copies are available from:

Department of Transport  
Room A608  
Romney House  
43 Marsham Street  
London SW1P 3PY  
Telephone: 01-212 3762

## INCOME AND WEALTH

### The distribution of income in the United Kingdom 1981/82

The latest estimates of the distribution of personal income in the United Kingdom for the year 1981/82 were published in the July issue of *Economic Trends*. They aim to cover the whole of the income-receiving population and all sources of income for a full year, and are thus much more comprehensive than other information available in the field of income distribution statistics. The income-receiving unit throughout is the tax-unit, which is either a married couple or an unmarried individual who has left school. This analysis was last carried out for 1978/79, since when the frequency of production has been reduced.

The 1981/82 estimates show that the top 10 per cent of tax-units increased their share of pre-tax income from 26.1 per cent in 1978/79 to 28.3 per cent in 1981/82. Over the same period the share of pre-tax income of the lower half of the distribution fell from 23.5 per cent to 22.7 per cent. In 1981/82 payment of income tax reduced the share of the top 10 per cent of tax-units to 25.6 per cent of after-tax income and increased the share of the lowest decile group from 2.0 per cent to 2.4 per cent.

Income tax as a percentage of pre-tax income in the lower half of the distribution fell between 1978/79 and 1981/82, from 7.2 per cent to 6.2 per cent. It also fell for the top decile group, from 40.0 per cent to 37.1 per cent, but rose slightly in the remainder of the upper half of the distribution.

Further details can be obtained from:

Miss J. Church  
Branch 8  
Central Statistical Office  
Great George Street  
London SW1P 3AQ  
Telephone: 01-233 8078/8300

### Reference

*Economic Trends*, No 369, July 1984 (HMSO) (Price £11.25 net)

## NATIONAL ACCOUNTS

### United Kingdom National Accounts 1984 Edition

The 1984 edition of *United Kingdom National Accounts* – the CSO Blue Book – (formerly entitled *National Income and Expenditure*) is due to be published on September 13 1984.

One major change to the content of the Blue Book is being introduced this year. The tables of derived percentages and growth triangles which were normally published in the October issue of *Economic Trends* each year as 'Additional tables on national income and expenditure' are now incorporated in the Blue Book.

Quarterly figures for the latest ten years consistent with the annual figures in the Blue Book will be published as usual in the October issue of *Economic Trends* together with a table giving financial year totals for gross domestic and gross national product at factor cost and market prices for the years 1974/75 – 1983/84.

### References

*United Kingdom National Accounts 1984 Edition* (HMSO) (Price £13.95 net)  
*Economic Trends* No. 372, October 1984 (HMSO) (Price £11.75 net)

## HOME FINANCE

### Company finance

The Fifteenth Issue of Business Monitor *MA3* (HMSO, price £8.95 net) is now available. It contains information derived from the published annual accounts of a representative sample of about 2,600 industrial and commercial company groups and independent companies registered in Great Britain. As in the Twelfth (February 1982), Thirteenth (November 1982) and Fourteenth (April 1983) Issues, there are standardised and aggregated balance sheets, income and appropriation accounts, statements of sources and uses of funds and various miscellaneous information such as exports, turnover, UK employment, remuneration, capital spending and political and charitable contributions where these have been reported in the accounts. Information is given for all companies in respect of standardised accounting year 1980 (i.e. any



twelve month accounting period which ended between 1 April 1980 and 31 March 1981) with provisional figures for 1981. Provisional figures are also given for large companies for 1982. The latest Monitor also contains a new table comparing accounting ratios for those large companies which have compiled accounts both on the traditional book value basis and on the new current cost accounting (CCA) basis prescribed by Statement of Standard Accounting Practice (SSAP)16.

As in previous Monitors, analyses are made by size of company, area of operation (i.e. mainly UK or mainly overseas), whether or not listed on a stock exchange, nationality of ultimate control and by about two dozen industry groupings based on the current Standard Industrial Classification. The company accounts analysis system developed by the Department of Trade and Industry in recent years is capable of generating more combinations of data than can feasibly be included in the Monitor and much information is also available for individual companies in the sample. Readers who want to know more or who would like details of the composition of the sample itself are invited to address their enquiries to:

Company Accounts Analysis Section,  
Dept of Trade & Industry (S1B2),  
Government Buildings,  
Cardiff Road,  
Newport,  
Gwent NP1 1XG.

It is hoped that the Sixteenth Issue of the Monitor will be published in March or April 1985.

### Company sector finances

An article in *Economic Progress Report* No. 169 July 1984, published by HM Treasury discusses how companies' profits and their general finances have improved strongly over the last two years, against a background of steady growth in the British economy, recovery in overseas markets, and some easing of cost pressures. The article describes how industrial companies have rebuilt their profits and improved their financial position since 1981, and how this improvement is being reflected in increased business investment.

#### Reference

*Economic Progress Report* is available from Publications Division, Central Office of Information, Hercules Road, London, SE1 7DU (free)

### All stocks index

The finance bill now before parliament contains proposals to abolish stock relief in respect of price increases after March 1984: as part of this the requirement on the Department of Trade and Industry to prepare and publish values of the 'all stocks' index for April 1984 and subsequent months is being removed.

The index was published for the last time in *British business*, 29 June 1984. It will continue to be published for some time in Business Monitor *MM17 Priced index numbers for current cost accounting (monthly supplement)*.

From August 1983 the index has been switched from an end-1974 to an end-1979 base period in order that its future movements reflect a more up-to-date pattern of industry's stockholding. The index continues to be referenced on 1975 = 100.

A brief explanation of the method of compilation of the 'all stocks' index appeared in *British business*, 26 June 1981. A detailed description of the statistical methodology of the index was published in the August 1981 edition of *Statistical News*.

#### References

Business Monitor *MM17 Price index numbers for current cost accounting (monthly supplement)* (HMSO) (See page 66.52 for availability)

*British business* 26 June 1981 'The all stocks index' by Martin Stevenson, (HMSO)  
*Statistical News* No 54 (HMSO) (Price £2.95 net)

## OVERSEAS FINANCE AND TRADE

### United Kingdom Balance of Payments 1984 Edition The CSO Pink Book

The 1984 edition of the CSO Pink Book, containing detailed balance of payments figures for the last eleven years and summary figures from 1962 for the current account, and from 1963 for capital transactions, was published on 30 August. The Pink Book contains revisions to previously published figures reflecting mainly the incorporation of later information although some changes result from improvements in the methods of estimating certain series. The Pink Book also presents more complete information than is published elsewhere and is the source for estimates of UK transactions with the countries and institutions of the European Community and the overseas earnings of UK financial institutions ('City' earnings). The annual data are consistent with the quarterly series which will be published in the September issue of *Economic Trends*.

As in previous years the Pink Book is divided into sections e.g. visible trade, services, transfers, etc. with each section containing explanatory notes on the series covered and the sources of the data.

#### Reference

*United Kingdom Balance of Payments 1984 Edition* (HMSO) (Price £9.95 net)  
ISBN 011 620148 7

### Overseas direct investment 1982

The main results from the Department of Trade and Industry's detailed inquiry into the annual flows of overseas direct investment and the earnings on it in 1982 were given in a *British business* article 18 May 1984.



Detailed results, giving figures for each main country and industry, will be published in *Business Monitor MA4 Overseas transactions 1982* (HMSO) later this year.

Quarterly estimates of overseas direct investment and earnings for 1982 and the most recent quarters are given in the balance of payments accounts published in the March, June, September and December issues of *Economic Trends*

#### References

*British business* (HMSO weekly) (Price £1.10 net)  
*Economic Trends* (HMSO monthly) (Price £11.25 net)

#### Overseas earnings

*British business* article of 25 May 1984 presents figures of overseas royalty transactions in 1982, obtained for the invisibles account of the United Kingdom balance of payments from the Department of Trade and Industry's overseas transactions inquiry for that year. More detailed figures from the inquiry will be published later this year in *Business Monitor MA4 Overseas transactions 1982*, obtainable by standing order from HMSO, or separate copies from the Librarian, Business Statistics Office, Cardiff Road, Newport, Gwent NPT 1XG. The results of the inquiry for 1981 appeared in *British business*, 27 May 1983. Transactions covered include royalties, licences, patents, trade marks, designs, copyrights, manufacturing rights and the like. Overseas transactions relating to film and television rights are not included here, but figures for 1982 were published in *British business*, 16 September 1983.

The inquiry does not cover all companies with royalty transactions, though estimates are made for all firms in the first table in the article.

The other tables report only the transactions of companies responding to the inquiry. These concerns account for nearly 80 per cent of total receipts and over 90 per cent of total payments.

#### Reference

*British business* (HMSO weekly) (Price £1.10 net)

## ENVIRONMENT

### Radioactive waste disposals from nuclear sites in Scotland: 1980 to 1983

This statistical bulletin, published by the Scottish Development Department, deals with liquid, atmospheric and solid radioactive waste disposals from nuclear sites in Scotland over the past four years and compares the amounts discharged with the authorised limits. The bulletin also outlines the basis for the control of radioactive waste disposals.

Copies of the above bulletin may be purchased (price 50p post paid) from:

The Library  
Official Publication Sales  
Scottish Office  
Room 2/65  
New St Andrew's House  
Edinburgh, EH1 3TG  
Telephone: 031-556 8400 Ext. 5901

#### Land use change statistics

The Department of the Environment have announced the introduction from January 1985 of a new system of land use change statistics. This follows on from pilot work undertaken by the Ordnance Survey and a consultancy project commissioned by the Department from Roger Tym and Partners. The system is designed to make use of data collected by Ordnance Survey as part of their ongoing map revision programme.

The key new statistics will indicate the amount of land mapped by Ordnance Survey where changes in use have taken place e.g. transfer between agricultural land and other land uses. Initially the statistics will be made available annually for national and regional uses with statistics at individual local authority district level also available in due course. Cartographic output is also envisaged as is the need to be able to relate these statistics to those on landscape change, development control, etc.

A detailed article on the statistical aspects of this new service and the role of the Government Statistical Service in collecting, analysing and presenting the results will appear in a future issue of *Statistical News*. In the meantime, any inquiries should be directed to:

Mrs Sue Toland  
SPPG Division  
Department of the Environment  
2 Marsham Street  
London  
SW1P 3EB  
Telephone: 01-212 8538.

## RESEARCH AND DEVELOPMENT

### Research and Development Statistics

An article in the August issue of *Economic Trends* discusses the level of research and development (R&D) expenditure and employment in 1981. This is part of an annual series of articles, the last of which appeared in September 1983. There are two main inquiries into R&D carried out in the United Kingdom. An inquiry into government spending is carried out annually and, until 1981, an inquiry into industrial spending was carried out every three years. As a result, it has been possible to make estimates for R&D performed throughout the UK economy only triennially. 1978 was the last year when this was possible and a similar article on the 1978



inquiries was published in 1981. The initial results of the survey of expenditure in industry in 1981 were published in *British business* dated 9 December 1983; these complement the annual inquiry into government spending.

The most significant point to emerge is that R&D worth nearly £6 billion was performed in 1981, of which two thirds occurred within private industry and the public corporations. This compares with £3.5 billion in 1978, showing an increase of rather more than fifty per cent. However, despite the rise in prices between these two years there was, nevertheless, a real increase in the volume of R&D performed, of about nine per cent.

Funding of this expenditure is divided almost equally between government and the rest of the economy. Government provided forty eight per cent of the total in 1981, and industry forty three per cent. Most of the remainder came from overseas, in the form of contributions from the parent companies of UK subsidiaries.

Further information can be obtained from:

Department of Trade and Industry,  
(S2C), Room 343,  
Sanctuary Buildings,  
16-20 Great Smith Street,  
London SW1P 3DB  
Telephone: 01-215 3177 or 3413.

#### References

*British business*, 9 December 1983 (HMSO) (Price £1.10 net)  
*Economic Trends*, August 1981 and 1984, September 1983 (HMSO) (Prices £8.50, £11.25 and £10.75 net respectively)

## PUBLICATIONS

### Civil Service Statistics

*Civil Service Statistics 1984* was published in July by HMSO for HM Treasury. An introductory article explains how the government's planned reduction of 100,000 civil servants between 1979 and 1984 has been effected. Half of the savings in staff resulted from the introduction of more efficient methods of working and a quarter by dropping or curtailing functions. Most departments and grades have been affected by the reductions. There have been 15,000 redundancies of industrial staff over the five years but very few amongst non-industrial staff. The article also describes the recent unification of a diversity of senior grades and charts career progression and staff turnover in the administration group.

Statistical tables show where civil servants are located, both in terms of their government departments and the region of the country where they serve, and display the numbers in each of the major grades. One table notes all the significant changes in the allocation of functions between departments over the last eight years.

Other tables cover the distribution of entrants and leavers by grade, age and sex.

To help bring forward the date of publication (three months earlier this year than last), HM Treasury used the Xerox Integrated Composition System (XICS) on the Central Statistical Office's Univac computer to produce camera-ready copy on a Xerox 9700 laser printer. For further details contact John Watkins, Statistics and Computing Services Division, HM Treasury, Parliament Street, London SW1P 3AG (Telephone: 01-233 4078).

#### Reference

*Civil Service Statistics 1984* (HMSO) (Price £7.00 net) ISBN 0 11 630484 7

### Bank of England Quarterly Bulletin

In addition to regular articles providing commentary on recent developments in the UK economy, and on domestic and international financial markets, the June issue of Bank's *Quarterly Bulletin* contains the following items:

#### *Venture capital in the United Kingdom*

This article describes the provision of venture capital, taken to mean the application of equity finance, entrepreneurial talent and business skills to exploit market opportunities and thus obtain long-term capital gains. The article considers the statistical and definitional problems involved and assesses recent developments in the United Kingdom venture capital industry, including the provision of finance for research and development.

#### *Sector financing: 1983*

This note updates the Bank's flow of funds matrices, setting out some of the main financial transactions between the principal sectors of the economy in 1983. Rather than just looking at these figures in isolation, it compares them with earlier data which help to put current developments into context. In order to do this the flows are scaled by expressing them in 1983 prices to allow for the effects of inflation.

#### *Inflation-adjusted saving and sectoral balances*

This note presents revised and updated estimates of sectoral saving and financial balances adjusted for the effects of price inflation on monetary assets and liabilities. The decline in inflation since 1980 has had a marked effect on inflation-adjusted saving and financial balances of the major sectors, as did its earlier rise. In particular, the less rapid erosion by inflation of the real value of personal sector monetary assets is thought to be a significant factor underlying the strong recovery in consumption in a period when conventionally measured real personal disposable income was little better than flat.



### *The external balance sheet of the United Kingdom: developments to end-1983*

This article, which continues an annual series, describes the main changes in external assets and liabilities recorded during 1983. It focusses first on the relationship between the build-up of the United Kingdom's net external assets since the mid-seventies and the net flow of overseas investment income – interest, profits and dividends – recorded in the current account, suggesting that the latter considerably understates the overall return. The linkages between changes in net external assets, investment abroad, and total saving are also examined.

### *The future of the securities market*

In this speech, the Governor reviews developments in the securities markets that have followed the announcement last July by the Secretary of State for Trade and Industry of an agreement on the basis of which the Stock Exchange might be removed from the ambit of the Restrictive Practices Court. The Bank wishes to see a stock exchange which offers maximum liquidity and investor protection and plays its full part in a vigorous, competitive UK securities industry capable of gaining a significantly larger share of the total world market. The Governor announces the formation of an advisory group of senior City figures and practitioners to advise on the structure and operation of self-regulatory groupings which could in practice be formed in the near future.

### *Other speeches*

The theme of change in the securities industry is also taken up in a recent speech to the British Insurance Brokers Association also reprinted in the June *Bulletin*. In a speech to the National Association of Pension Funds investment conference, the Governor discusses how institutional investors can make a larger contribution to improving the economic performance of the companies in which they invest. A speech by Mr Brian Quinn, head of the Bank's Banking Supervision Division, considers some supervisory aspects of country risk, including associated questions of provisioning and capital adequacy.

The Bank's *Quarterly Bulletin* (at £7.50 per copy) may be obtained from:

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

### **Scottish Abstract of Statistics**

The thirteenth edition of the *Scottish Abstract of Statistics* was published in May 1984. The volume contains statistical tables for Scotland on Population, Social Security, Health, Social Work, Housing, Law enforcement, Education, Leisure, Labour, Personal Income and Expenditure, Regional Accounts, Industrial Activity, Transport and Communication, Trade and Finance.

Section 8 Leisure which last appeared in issue No. 9 has been reinstated. It now consists of three tables – 8.1 Cinemas; 8.2 Scottish Arts Council: Art, music and dance; and 8.3 Scottish Arts Council: Income and expenditure.

The following tables have been deleted (table numbers refer to the twelfth issue) 10.17 Family Expenditure Survey: Expenditure of households by occupation of the head of household; and 13.14 Inland waterways.

#### **Reference**

*Scottish Abstract of Statistics No.13 1984* (HMSO Edinburgh) May 1984 (Price £24.50 net) ISBN 0 11 492375 2

### **Scottish Economic Bulletin**

The latest edition of the *Scottish Economic Bulletin* published in July contains an economic review, three articles and revised and updated charts and statistics.

The economic review which takes account of data available up to mid-May indicates that while trends in employment and unemployment are similar to those in the United Kingdom as a whole manufacturing output fell sharply in Scotland during 1983. It considers Scotland should benefit as the United Kingdom recovery broadens over the coming year and investment and exports pick up.

The first article is by P A A Scrimgeour 'Employment in industrial research and development in Scotland and the UK' and shows that reported employment in Scotland is 3.4 per cent of the UK total. It provides an analysis by industry, type of respondent and occupation.

The second article is by D S Henderson 'Input-output tables for Scotland for 1979: Initial results'. This gives some summary results of a project to construct input-output tables for Scotland for 1979 and gives details of the four volumes describing the tables which are planned.

The third article by Miss J. Polley 'Index of industrial production for Scotland – reclassification and rebasing' outlines the changes involved in the rebasing (from 1975 to 1980) and reclassification (from the 1968 to 1980 Standard Industrial Classification (SIC)) of the index. It describes the effects of these changes on the movement of output and provides details of the new indicators and weights used.



The main developments in the charts and statistics are the adjustment to the 1980 SIC, seasonally adjusted employment estimates and the development of analyses of investment and output in manufacturing industry and of investment and employment in assisted areas in Great Britain.

**Reference**

*Scottish Economic Bulletin* No. 29/1984 (HMSO) July 1984 (Price £6.00 net)

**Monthly Digest of Statistics**

Recent changes to the contents of the Digest include:

In the May edition (No. 461) Table 13.8 was reduced to show British Rail freight traffic only, as the Waterways Board data only represented a small percentage of total waterways traffic.

In the June edition, Table 11.8 on paper and board was revised to show production, imports and stocks of paper and board. Import and export figures being taken from the monthly *Overseas Trade Statistics*.

**Reference**

*Monthly Digest of Statistics* (HMSO) (Price £6.30 net).

**United Kingdom Mineral Statistics 1983**

This edition is the tenth in the annual series of *United Kingdom Mineral Statistics* which was first published in 1973. There are five sections with explanatory notes which cover – Minerals in the economy; Mineral production; UK overseas trade in minerals and mineral-based products; Commodity reviews; and Commodity summaries: UK production, consumption and trade 1976-1982. Maps and diagrams are also included. The data are obtained from a wide variety of published and unpublished sources.

Compared with the preceding edition, all the contents have been systematically updated by one year and revisions for earlier years have been made whenever more up-to-date information has become available. In addition, a number of new headings have been introduced in the import and export tables, mainly with respect to trade in gold.

**Reference**

*United Kingdom Mineral Statistics 1983*  
(HMSO) June 1984 (Price £13.50 net) ISBN 0 11 884280 3

**National Institute Economic Review**

The latest issue of the National Institute Economic Review contains three articles:

*The growth of government expenditure*

This article by M S Levitt considers that the increased government GDP share from 1962-82 is mainly due to relative prices and cash transfers – important for financing burdens – not a greater share in real resource use. By average conventional standards UK spending on

cash benefits is relatively low and defence spending relatively high. UK public consumption, especially manpower, seems relatively cheap; its GDP share is high in relation to our GDP per head especially at common international prices.

*The roles of output expectations and liquidity in explaining recent productivity movements*

The second article by S Wren-Lewis estimates a model of UK manufacturing employment in which disequilibrium in liquidity and output expectations play major roles. Output expectations depend on past movements in fiscal policy, the real exchange rate, real oil prices and output itself, and this expectations model is estimated using an Instrumental Variable application of the Rational Expectations Hypothesis. The estimated equations outperform conventional models of employment, and account for most of the recent movements in manufacturing productivity.

*The effects of economic policy in 1979-82*

The third article by M J Artis, R Bladen-Hovell, E Karakitsos and B Dwolatzky provides measures of the effect of fiscal and monetary policies for the period 1979-82, using simulations of two macroeconomic models of the British economy, those of HM Treasury and the National Institute of Economic and Social Research. The period under consideration had been marked by a severe recession, to which domestic economic policy has not been the only contributor; the additional influence of world factors is also considered.

**Reference**

*National Institute Economic Review* No. 108. May, 1984, available from the National Institute of Economic and Social Research, 2 Dean Trench Street, Smith Square, London, SW1P 3HE (Price £8.50 including postage)

**International publications**

The following have recently been published and are available from HMSO:

United Nations

*Yearbook of Industrial Statistics 1981*, Vol. 1 *General Industrial Statistics*, price £40.50 net, Vol. 2 *Commodity Production Data 1972-1981*, price £40.50 net.

Dag Hammarskjold Library (UNBIS)

*Yearbook of National Accounts Statistics 1981*, Vol. 1 *Individual country data*, in two parts, Vol. 2 *International tables*, price bound £112.50 net.

Department of International Economic and Social Affairs

*Demographic Yearbook 1982*, 34th edition, price £67.50 net.

Statistical Papers Series M No. 48 Rev. 1 *International Recommendations for Industrial Statistics*, price £7.65 net.



Economic Commission for Europe (ECE)

*Annual Bulletin of Electrical Energy Statistics for Europe 1982* Vol. XXVIII, price £11.25 net.

*Annual Bulletin of Gas Statistics for Europe 1982* Vol. XXXVIII, price £9.90 net.

*Statistics of Road Accidents in Europe 1982*, Vol. XXIX, price £12.15 net.

*Annual Bulletin of Transport Statistics for Europe 1982*, Vol. XXXIV, price £22.50 net.

International Narcotics Control Board

*Comparative Statement of Estimates and Statistics on Narcotic Drugs for 1982*, price £4.50 net.

*Statistics on Narcotic Drugs for 1982*, price £14.85 net.

*Statistics of Psychotropic Substances for 1982*, price £9.90 net.

UNESCO

*Statistical Digest 1983*. A statistical summary of data on education, science and technology, culture and communication by country, price £5.40 net.

Food and Agriculture Organisation (FAO)

FAO Statistics Series

No. 52 *1982 Yearbook of fishery statistics, catches and landings*, Vol. 54, price £18.80 net.

No. 53 *1982 Yearbook of fishery statistics, fishery commodities*, Vol. 55, price £12.60 net.

No. 54 *1982 Yearbook of forest products 1971-1982*, price £17.60 net.

International Monetary Fund (IMF)

*International Financial Statistics*, Supplement Series No. 6 *Supplement on International Reserves*, price £4.80 net.

World Health Organisation (WHO)

Public Health in Europe 21, *The elderly in eleven countries*. A sociomedical survey, price £8.00 net.

*World Health Statistics Annual 1983*, price £22.80 net.

OECD

*The Employment and Unemployment of Women in OECD Countries* by Liba Paukert, price £5.60 net.

*Energy Balances of Developing Countries 1971/82*, price £15.00 net.

European Conference of Ministers of Transport, Vol. 11 *Trends in Transport, Investment and Performance in 1980. Statistical Report on Road Accidents in 1981*, price £5.00 net.

External Debt of Developing Countries 1983 Survey, price £9.00 net.

*Geographical Distribution of Financial Flows to Developing Countries. Disbursements, Commitments, External Debt, Economic Indicators 1979/82*, price £14.00 net.

*Industrial Structure Statistics 1982*, price £7.00 net.

OECD economic outlooks, *Historical Statistics 1960-1982*, price £7.50 net.

*The non-ferrous metals industry 1982*, price £4.20 net.

Department of Economics and Statistics

*Consumer Price Indices, Sources and Methods and Historical Statistics*, Special issue March 1984, price £9.50 net.

International Energy Agency

*Energy Balances of OECD Countries 1970/1982*, price £15.80 net.

Statistical Office of the European Community (SOEC)

*Balance of Payments, Global data 1971-1982*, price £4.40 net.

*The balance of payments statistics of the Federal Republic of Germany*, price £10.50 net.

*Community Survey on the Structure of Agricultural Holdings 1979/80*, Volume 1 *Introduction and methodological basis*, price £4.40 net.

*Employment and Unemployment 1984*, price £8.80 net.

*Energy statistics yearbook 1982*, price £9.40 net.

*Forestry Statistics 1976-1980*, price £9.60 net.

*Labour costs*, Volume 1 *Principal Results 1981*, price £1.90 net, Volume 2 *Results by Size Classes and by Regions*, price £2.50 net.

*National Accounts ESA Detailed tables by branch 1970-1981*, price £7.80 net.

*Structure and Activity of Industry 1979/1980*, price £11.30 net.

*Trends in the Public Finances of the Member States (1970-1981)* Studies of national accounts No. 3, price £1.90 net.

Readers should note that publications of international organisations are subject to price changes.

## CONFERENCES AND MEETINGS

### Directors General, National Statistical Institutes

The 1984 Spring Conference of Directors-General of National Statistical Institutes of the European Community was held in Wiesbaden, Germany, from 15 to 18 May. Sir John Boreham, Deo Ramprakash and Mrs Bates of the Central Statistical Office and Roger Thatcher of the Office of Population Censuses and Surveys attended. The chief items discussed were the Population Census and a revised work programme for Eurostat for the period 1985-87. For further information please contact Miss Kathy Marsh, Central Statistical Office, Telephone: 01-233 7088.



## European Statisticians

The Thirty-Second Conference of European Statisticians was held in Geneva on 18 to 22 June 1984. The United Kingdom delegates were Sir John Boreham and Deo Ramprakash. The main purpose of the Conference was to review the statistical programme of the Economic Commission for Europe (ECE) Secretariat for the period 1983/84 to 1987/88. There were also in-depth discussions on:

- organisation of electronic data processing in statistical offices;
- training programmes in the light of new technological developments; and
- international comparisons.

The Report of the Conference will be sent to the Central Statistical Office in due course. For further details, please contact Miss Kathy Marsh of the CSO, Telephone: 01-233 7088.

## INSTITUTE OF STATISTICIANS NEWS

### Sir Maurice Kendall Memorial Lecture

The Institute is organising a Memorial Lecture to its former President, the late Sir Maurice Kendall. The Lecture will take place at 6.30 p.m. on Wednesday 31st October 1984, at the Connaught Rooms, Great Queen Street, London. The speaker is Professor E M L Beale, FRS.

Further details may be obtained from the address given below.

### Statistical Modelling Conference

The Conference to be held at St. John's College, Cambridge from 26 to 29 June 1985 will be devoted to a survey of the major aspects of statistical modelling including choice of model, model fitting and validation, improving and applying models.

Contributions of papers, case studies and ideas for Poster Session material are invited. Please send a short abstract, as soon as possible, to the

Conference Secretary,  
The Institute of Statisticians,  
36 Churchgate Street,  
Bury St. Edmunds,  
Suffolk, IP33 1RD.  
Telephone: (0284) 63660.

### Graduate Diploma in Statistics

The Council of The Institute of Statisticians has recently approved a new structure for the Institute's examination system. The present four stages of the examinations will be replaced by three 'tiers', each designed to provide both a stand-alone qualification and to act as a stepping-stone to further study. Certificates and

Diplomas will be awarded to successful candidates at each level – the 'Ordinary Certificate in Statistics' at tier 1, 'Advanced Certificate in Statistics' at tier 2, and the 'Graduate Diploma in Statistics' at tier 3. Much of the syllabus will remain the same, but the number of papers at each level is likely to change. A pass in the final tier, leading to the 'Graduate Diploma in Statistics' will continue to be equivalent to a good UK Honours degree in Statistics, as is a pass in the present Final IoS examinations. Some retrospective awarding of the 'Graduate Diploma in Statistics' to candidates who have passed Final IoS examinations in previous years, has also been approved. It is hoped that the new examination structure will be introduced in 1986, following full consultation with interested parties on the detail of the new syllabus. Further information may be obtained from The Institute of Statisticians at the address given above.

## EUROSTAT

### Appointments and changes

Mr Pieter de Geus, Director-General, Statistical Office of the European Communities (EUROSTAT) has resigned his post from 31 August to become Director of a scientific research establishment in Holland. The European Commission has appointed Mr Silvio Ronchetti, currently Director of Directorate C in Eurostat, to be Director-General *ad interim* with effect from 1 September 1984.

## GOVERNMENT STATISTICAL SERVICE

### Obituary

Readers will learn with regret of the death on 11 May 1984 of *Mr P. D. E. Arkell*, Statistician in the Welsh Office.

### Appointments and changes

*Miss G. P. Ford*, Chief Statistician, Department of Transport retired on 23 May 1984.

*Miss M. Robson*, Chief Statistician, Department of Health and Social Security retired on 1 June 1984.

### Reviews of regular surveys

As part of the system for reviewing all regular statistical surveys to businesses and local authorities every five years, two reports of completed reviews are summarised below. The procedure for reviewing surveys was set out in *Statistical News*, May 1983 (61.33).



*Construction Industry Training Board Statutory Return*  
Under the Industry Training Act 1982 Industrial Training Boards (ITB's) must seek approval from the Secretary of State for Employment for the format and content of the returns which they wish employers in their industries to make. The Survey Control Unit reviewed the Construction ITB's amended Statutory Return in order to consider whether the amount of information requested was necessary and whether the return could be simplified.

The primary purpose of the Statutory Return is to enable the Board to assess employers in the Construction Industry for levy and to provide information for the purposes of planning training requirements. The review found that the content and format of the return was largely dictated by the complexities of the levy/grant system and that the statistical information produced was a by-product of the administrative system. The differing views of the industry on the levy system reflected the diverse nature of the industry but, in general, employers found the return quite straightforward to complete. The return was found to be important in providing basic information for the assessment of training needs. Several options for simplifying the return were considered in the review. The radical options would have involved a major recasting of the return system, and it was not clear that they would produce a saving which would justify the upheaval. Of the options for less substantial changes, the Board have adopted for 1984 one which reduces the number of columns in the main Table of the return from six to four by eliminating some less important details.

Any enquiries regarding this review should be made to:

T. E. Procter  
Survey Control Unit  
Central Statistical Office  
Government Offices  
Great George Street  
London  
SW1

#### *Review of the Inquiry into Steel Stocks and Consumption*

The inquiry, which is a voluntary one conducted by the Department of Trade and Industry (DTI), seeks quarterly information from steel stockholders and from users, on their consumption and stocks of steel. The sample size has declined over the years to a current figure of about 600 consumers of steel and 150 stockholders. The sample includes most of the major consumers and users; very small consumers are excluded. The contributors to the inquiry represent

about 30 per cent of total steel deliveries to consumers and 25 per cent of total steel deliveries to merchants. Accurate information about the total deliveries of steel by steel producers is available from the Iron and Steel Statistics Bureau (ISSB), thus making it possible to obtain good quality results with the relatively low coverage of the inquiry.

The joint review by DTI and the Survey Control Unit examined the uses of the inquiry by DTI and others, its costs, and the burden on contributors. The main conclusion was that there is a requirement for this data on the steel industry, and that the current method for carrying out the inquiry is on the whole both sensible and cost effective.

Provisional results of the inquiry are published in *British business* about seven weeks after the end of the quarter to which they relate, with the full results being published about sixteen weeks after the end of the quarter. The results are used by DTI in the compilation of forecasts of the future demand for, and supply of, steel, and as part of the assessment of the British Steel Corporation's (BSC) corporate plan. The results are also used by the steel industry, in particular by BSC and the ISSB, who also advise on and provide information for the conduct of the inquiry. The results are also used by some consumers and stockholders for planning future strategy and marketing.

The cost of the inquiry to government is about £50,000 per annum. The cost to industry is estimated to be about 2,200 man hours per annum in total (about £24,000 per annum). A sample survey conducted as part of the review showed that, in general, contributors had no problems with the return and the required data was readily available, usually as a by-product of management information systems.

The review considered some possible improvements and/or further simplifications which might be made to the inquiry. It concluded that, although no major changes are called for, the recruitment of some additional contributors is urgently needed to try to overcome the deficiency in coverage in certain product areas. This and other proposals concerning the possibility of improving some of the product definitions further, and on possible further computerisation to speed up the production and publication of the results, are being actively pursued by the DTI.

Any enquiries about this report or the review should be directed to:

Mr G. Fogg  
Department of Trade and Industry  
Millbank Tower  
Millbank  
London SW1



### Other surveys

Below is a recently completed category B review. Surveys to businesses are subject to an internal departmental review and a report which is monitored by the Survey Control Unit. Any enquiries concerning this survey or its review should be made to the departmental contact point given below:

Monthly Survey of Tree and Shrub Wholesale Prices  
D. Williams  
Department of the Environment  
Romney House  
43 Marsham Street  
London SW1 3PY

## LATE ITEMS

### National Food Survey

The National Food Survey Committee's recently published Annual Report for 1982 presents extensive analyses of data obtained from the National Food Survey about household food consumption, expenditure and nutritional levels in Great Britain in 1982. A commentary on the Survey's findings is also provided. The data included in the Report are considerably more detailed than those presented in the Ministry of Agriculture, Fisheries and Food's *Food Facts* series.

The data on food consumption, expenditure and nutrient intakes are analysed at both national and regional level as well as according to household composition and the income group of the head of the household. The report also includes analyses of consumption by groups of households classified by age of the housewife, by housing tenure, and by freezer-ownership.

Appendix A of the Report describes the structure and methodology of the Survey and Appendix B gives estimates of income and price elasticities of demand for food and of other demand parameters derived using the Survey data.

Summarised quarterly results are released to the press as soon as they become available and a commentary is published in *British business*. Detailed monthly, quarterly, and other unpublished data are also available on a subscription basis. For details contact:

National Food Survey Branch  
Ministry of Agriculture, Fisheries and Food  
Room 419  
Whitehall Place (West Block)  
London SW1A 2HH  
Telephone: 01-233 5088

#### References

*Household Food Consumption and Expenditure: 1982* (HMSO July 1984) (Price £16.50 net).

*British business* (HMSO weekly) (Price £1.10 net).

### New Earnings Survey 1984

The results of the 1984 Survey giving information on earnings and hours of work in April 1984, will be published in a series of six booklets from October 1984. The publication time-table will be similar to the accelerated time-table introduced last year: booklets will appear at three-weekly intervals, so that the complete series will be available by the end of January.

As announced in the February 1983 issue of *Employment Gazette* (page 75), tables giving results for adult employees will relate to males and females on adult rates, instead of men aged 21 and over and women aged 18 and over. Also Part F will contain information on the earnings of apprentices and other trainees. Otherwise the contents of the booklets will be similar to those of the 1983 Survey.

Planned publication dates are as follows: part A (streamlined analyses and key analyses by agreement), October 11; Part B (report, summary analyses and other analyses by agreement), November 1; Part C (industry analyses), November 22; Part D (analyses by occupation), December 13; Part E (analyses by region and age group), January 17 1985; and Part F (analyses of hours of work, earnings of part-time women employees, and earnings of trainees, January 31, 1985.

An article containing results of the survey will appear in the October issue of *Employment Gazette*.

#### Reference

*Employment Gazette* (HMSO monthly) (Price £2.75 net)

### 1982 Retailing Inquiry

Summary final results from the retailing inquiry for 1982 are presented in an article in *British business*. The full set of results will be published in *Business Monitor SDO 25* later this year.

The 1982 retailing inquiry was a 'full' inquiry and is broadly comparable in terms of the range of data collected to those taken in respect of 1976 to 1980. Full retailing inquiries are now carried out every second year and alternate with 'slimline' inquiries, which only collect data on turnover, stocks and capital expenditure.

A change in methodology has been made for the final results of the 1982 inquiry. The accompanying notes and definitions to the article give details of the new hybrid method of grossing. The most marked effect of this change is to increase the estimates of the number of retail businesses. Tables included in the article show revised data for 1980 based on the hybrid grossing method and hence fully comparable with the 1982 data.

#### Reference

*British business* 24 July 1984 (HMSO weekly) (Price £1.10 net)



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## Alphabetical Index

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The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number, e.g. 64.18 signifies number 64, page 18.

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.

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