

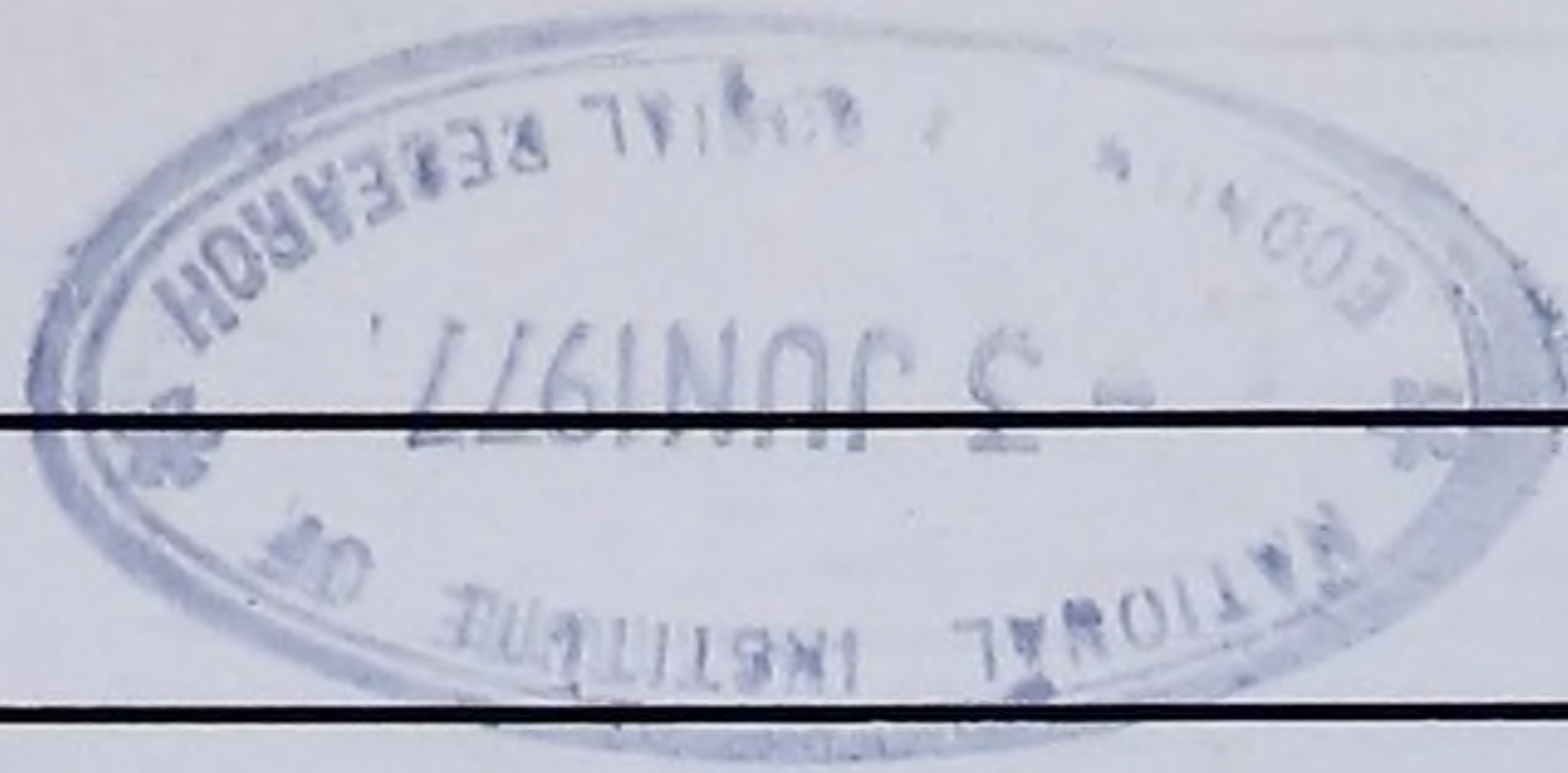
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STATISTICAL NEWS

**Developments
in British Official
Statistics**



A publication of the Government Statistical Service

Note by the Editor

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

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

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

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

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

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

CENTRAL
STATISTICAL
OFFICE

MAY 1977

Statistical News

No. 37

**Developments
in
British
Official
Statistics**

LONDON
HER MAJESTY'S STATIONERY OFFICE

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First published 1977

LONDON
HER MAJESTY'S STATIONERY OFFICE
ISBN 0 11 723291 2

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TOM PILLING

A personal tribute from Sir Claus Moser

As readers will have learnt from the last issue of *Statistical News*, Tom Pilling, an under-secretary at the Department of Industry and a senior member of the Government Statistical Service, died suddenly on January 9 at the age of 55. I should like to pay a personal tribute to him, though no words can adequately convey the deep sense of loss that I, and very many others will always feel.

Tom was the sort of person who attracted respect and affection wherever he went. This was partly because he gave abundantly of these qualities himself. He liked people and had a true gift for friendship. He was always ready to listen to problems and to offer advice. He once said that he enjoyed interviewing assistant statisticians because he wanted to understand about what young people were thinking, what their attitudes were towards things.

But then he was interested in so much that he came into contact with, and never in a passing, dilettante way. If his nagging curiosity was hooked by a new subject he would want to understand it fully and deeply. This was well illustrated by his study of industrial archaeology which he started during his post-war work in the wool industry. He was a founder member of an evening class group and regularly attended its meetings up to the time of his death. Brunel was one of his heroes.

Tom was a wise man whom people felt they could turn to and whose judgement they could trust. A revealing example of this was his work for the Associa-

tion of First Division Civil Servants. He was co-opted to the Executive Committee in 1963 to represent the statistician class and made such an impression that, when a new chairman was wanted, it was to him the other members turned. He was the only non-administrative civil servant ever to have held this post and it was with great regret that he had to resign it after being promoted. As with everything else he touched, his enthusiasm never faded in subsequent years and he would enter eagerly into any debate about FDA affairs.

I first came to know him well when I joined the CSO in 1967, quite new to the ways of the civil service. I had to rest heavily on many good colleagues at that time and Tom's wise advice and insights – into issues and people – were invaluable. From that day onwards, I turned to him on innumerable occasions for guidance, knowing it would be given with scrupulous care and total lack of self-interest.

At the time I came to the CSO, he was engaged very largely in the absorbing new task of developing and strengthening central management of the statistician class following the recently published report of the Estimates Committee. Indeed it was he who coined the name Government Statistical Service during this period and that alone gives us a lot to remember him by.

His contribution to the public service however was very much more than this. He was a devoted civil servant and will always be remembered as an exception-

ally good economic statistician. The most tangible memorial to his work is provided by the balance of payments accounts as we now know them. It was he, who developed the quarterly accounts to their present form and pioneered the annual Pink Book.

But he made his mark most indelibly with his skill in economic interpretation. Starting from a deep understanding of how the economy worked, he was able – sometimes very quickly, sometimes after long consideration – to extract from the data a perception of what was happening and what was going to happen. And he was not often wrong. Throughout his service career, from his early work on world economic forecasts, to his more recent involvement in the CSO Economic Group and his responsibility for interpreting trade figures, he was regarded as someone whose views were worth listening to.

I often have to discuss inside the service and with friends in universities what it is that I want government statisticians to be – what special qualities I am looking for. In many respects Tom personified what it is all about. I doubt if he regarded himself as a great theoretical statistician. What he could do, backed by a confident knowledge of applied statistics and economics, was to squeeze out every ounce of useful information from the often incomplete and imprecise data that – in the real world – we actually have to work from. He set an example which I shall often quote when I am speaking to young entrants to the service in future.

His interest in economic affairs brought to light another of his characteristics, his real concern for the affairs of the nation. It is sometimes suggested that if one is working near the centre of things one becomes slightly blasé, or cynical, about the way things are going. If this were ever true of anyone, it could certainly never be said of Tom. He cared. On occasions when he felt that the wrong policies were being pursued, that the nation's economic health was imperilled, his concern showed through. Like everything else about him, it was sincere and transparent.

Tom pursued life outside the office just as vigorously and as variedly as in it. He did not talk a lot about his outside life. If anything he was a private man. But one could not help but be aware, from the many personal friendships that he had throughout the service, of his wide ranging activities. He was a great walker, often showing up younger men with his speed and stamina. His holidays were almost invariably spent on foot and often in his native Yorkshire. Cricket was another of his passions and the Leeds Test Match an annual pilgrimage for him. Membership of Yorkshire CCC was supplemented by those of Kent and Surrey. They were the highlights, but he was never

the sort of man to become engrossed in one or a few interests to the exclusion of all else. Above all he was a true family man, and his devotion to his wife, who shared his life so much, and to his two daughters was always evident.

And despite his serious application to work and leisure he had with it all an endearing sense of fun: the fun of knowing new people, the fun of getting something worthwhile out of statistics, the fun of having a close family relationship. His dry sense of humour was constantly breaking through the sober surface. Tom was someone one tried to sit next to at lunch or to get to at a party, just because he was such an enjoyable and stimulating person to be with.

How can I sum up all the facets of his character; everything that I and so many others have now tragically lost? He was an intensely warm and loveable man, a man whose judgement commanded great respect and whom all of us trusted in every way; a man of wide interests and knowledge, and the most unpompous and unaffected person I have ever met. I can think of nothing more appropriate than to borrow and adapt from another great lover of the countryside, Thomas Hardy. Tom Pilling was a good man and did good things.

Statistics on industrial and commercial companies

Nicholas Rudoë, *Senior Assistant Statistician, Central Statistical Office*

Introduction

Public interest in the economic activities of industrial and commercial (I and C) companies has been growing recently, and has been matched by the increasing attention paid to the available statistics. The financing of the activities of I and C companies (which have a significant impact on the economy) is currently of particular interest to the Committee, under the chairmanship of The Rt Hon Sir Harold Wilson, reviewing the functioning of financial institutions. The purpose of this article is to describe the structure of the national accounts estimates and other major statistical series relating to I and C companies in terms of their availability, coverage, methodology and limitations. After focussing on the position of I and C companies in the economy, the article goes on to outline the scope of the sector and the framework of the national income accounts in the context of I and C companies. A further section, on publication media, reviews the available statistics and deals with both the national accounts estimates (which relate to all I and C companies) and those compiled from the annual statements of certain large companies, which are issued by Economics and Statistics Division 6A of the Departments of Industry, Trade and Prices and Consumer Protection. Later sections discuss the sources and methods used to construct the national accounts estimates and developments that are expected to improve the estimates.

I and C companies and the economy

A primary feature of the system of national income accounts is the division of the economy into sectors, each sector corresponding to a group of entities similar to one another in terms of their economic behaviour. For many purposes the economy is divided into these sectors; persons, companies, public corporations, government and overseas, although this is not the only possible choice. The personal sector covers households, but it also includes the economic activities of the self-employed (unincorporated businesses) as well as private non-profit-making bodies and private trusts. In the company sector there are about 600,000

registered private and public companies, all of which are obliged under the Companies Acts of 1948 and 1967 to lodge their annual financial statements with the Registrar of Companies. Private companies are much more numerous than public companies and are distinguished by the fact that they restrict the right to transfer their shares, limit the number of members to 50 and prohibit any invitation to the public to subscribe to their shares or debentures. There are about 16,000 public companies, of which about 3,000 are listed on the Stock Exchange, and these hold a substantial portion of the total net assets of the company sector. Also included for statistical purposes in the companies sub-division of the enterprise sector are nearly 1,000 co-operative societies, and private non-profit-making bodies serving companies, such as trade associations.

In the national accounts I and C companies are distinguished from financial companies, because their economic functions are quite different. Financial companies are perhaps best labelled 'financial institutions' as they include bodies – such as building societies – which are not companies; while their income is derived mainly from interest and dividends on, or transactions in, financial assets, I and C companies primarily generate profits from manufacturing and other activities in the United Kingdom, including the provision of non-financial services.

I and C companies provide employment to the major part of the working population employed outside the public sector; the goods exported by I and C companies are vital to the health of the economy, and these companies accounted in 1976 for about 41 per cent of new investment in the United Kingdom in fixed assets other than dwellings. The United Kingdom economy has for a long time relied on the conversion of imported materials into manufactured goods, and the need to sustain the strength of I and C companies has become a key issue, particularly since the liquidity squeeze which faced companies in 1974, and in view of the long-term decline in the share of profits in total domestic income. Another important area of I and C company

sector activity is the operations of oil companies in the North Sea; profits from these activities are expected soon to make a significant contribution to gross domestic product, and it is important to be able to distinguish them from the profits of other I and C companies. The CSO is currently preparing separate estimates of this growing contribution.⁽¹⁾

Scope of the I and C company sector

Whilst the company sector as a whole is clearly defined in the national accounts the distinction in the statistics between I and C companies on the one hand and financial institutions on the other is slightly blurred. There is a very large number of companies involved, so it is necessary to make estimates by residual for a number of I and C company sector series, by subtracting figures for financial institutions from estimates covering the whole company sector. Financial institutions provide figures for their financial transactions by direct reporting but there is little direct information, particularly financial information, available from I and C companies. For statistical purposes financial institutions comprise those groups of institutions which are covered by statistical enquiries,⁽²⁾ some companies whose activities are really financial (e.g. factoring companies) at present fall by default into the I and C company sector. Consequently some of the published figures for I and C companies are of low quality and there are difficulties in achieving consistency of timing and coverage between series.

The industrial composition of I and C companies can be broadly described in terms of the Standard Industrial Classification (SIC). In the 1968 SIC, I and C companies are included in Orders II to XX, XXIII, and parts of Orders I, XXII, XXV and XXVI – that is, forestry and fishing, mining and quarrying (which covers North Sea oil activities); manufacturing industry; construction; transport and communication; retail and wholesale distribution; professional and scientific services and other miscellaneous services. However, these categories also include unincorporated businesses and public sector bodies. In the industrial analysis, the SIC Order XXIV, 'Insurance, banking, finance and business services' includes property companies, but in the sector analysis they are regarded as I and C companies.

Since I and C companies supply little information (for statistical purposes) about their transactions directly to government departments, national accounts estimates for these companies are to a large extent compiled from indirect information. The reasons for relying on indirect information are best explained by describing the most important sources of direct information and discussing their shortcomings. The first source of

direct information stems from the legal obligation on companies to file annual accounts. This creates a readymade source of statistics which are analysed by the Departments of Industry, Trade and Prices and Consumer Protection (see section on Publication media). This analysis of company accounts figures is broken down by industry, but rather imprecisely. As it is based on companies' published, consolidated group, accounts the data available are more detailed than in the national accounts and also in a form more familiar to company accountants. The analysis provides most importantly a full balance sheet, which is not yet available from the national accounts (see section on Types of account). However, annual accounts are at present only used to a limited extent in compiling the national accounts, since the figures are subject to a number of disadvantages. First, the resources available to the Departments of Industry, Trade and Prices and Consumer Protection at present are sufficient to analyse the accounts of some 1,700 of the larger companies only. Also, though they are estimated to cover over 60 per cent of the net assets of the whole of the I and C company sector, this sample is not statistically representative of the I and C company sector, partly because there is at present no appropriate sampling frame for the whole sector that would allow this group to be made representative. Secondly, the companies compile their accounts annually using different accounting periods, whereas the national accounts ideally need data for the standard calendar quarters. Thirdly, company accounts do not distinguish sufficiently the results of activities at home from those of activities overseas. The analysis therefore covers companies operating mainly in the United Kingdom only, which means that it includes the overseas activities of those companies which operate both in the United Kingdom and overseas (but mainly in the United Kingdom), and excludes the UK activities of those companies which operate mainly overseas. For national accounts purposes an analysis covering all UK activities (including those of UK-based subsidiaries) irrespective of the domicile of parent companies is required. Fourthly, the figures are consolidated to the extent that they are taken from the consolidated accounts of individual company groups, so that, for example, dividends passing between companies within a group are netted out, but those passing between groups are not. For national accounts purposes all transactions between I and C companies should be netted out. Finally, companies whose main interests are in mining and quarrying (which includes oil extraction) and shipping are at present excluded from the Departments of Industry, Trade and Prices and Consumer Protection's analysis of company accounts.

Another source of direct information is the annual Census of Production (ACOP), its main purpose is to determine the structure of industry, its size and pattern, and the relative importance of different activities. Although the ACOP provides benchmark figures of expenditure on fixed assets and stocks which form the basis of part of the estimates for the I and C company sector (see later), it is not designed to provide financial figures on a sector basis because finance is usually arranged at group level whereas the ACOP is based on establishment level reporting. The ACOP covers UK establishments – generally with 20 or more employees – engaged in manufacturing, mining and quarrying, electricity, gas and water supply (and construction since 1974), so its coverage does not correspond to the scope of the whole I and C company sector. Since the ACOP figures relate to establishments, the smallest unit which can provide a full range of data, they include duplication to the extent that intra-company transactions (i.e. between establishments) take place.

Because of drawbacks to using directly-obtained series of statistics for national accounts purposes, it is necessary to estimate statistics for I and C companies by a variety of indirect methods; these are described in the section on Sources and methods below.

The types of account

Five main types of account are in principle appropriate to I and C companies in national income accounting – production accounts, appropriation accounts, capital accounts, financial accounts and balance sheets. The first four types of account are consolidated for the I and C companies sector – that is, all transactions between companies within the sector are netted out. For example, in the appropriation account, dividend payments are those made by I and C companies to other sectors, and therefore exclude payments made by one I and C company to another. However, flows of dividend and interest between I and C companies and financial institutions *do* appear. As regards the balance sheets, the extent of consolidation might be different; for instance the United Nations guidelines on sector balance sheets suggest that consolidation should take place only within groups of companies and that claims between different groups should be shown in the sector balance sheet.

i. *The production account* shows principally the receipts from current sales and any additions to the value of stocks, and the costs incurred in production (wages and salaries and purchases of materials and services). In practice, a production account is not constructed for the I and C company sector mainly because informa-

tion needed for it is lacking. However, in the *input-output tables*⁽³⁾ the CSO brings together estimates for individual industries that permit examination of the inter-industry transactions in goods and services.

ii. The opening entry in the I and C company *appropriation account*, and the chief source of income, is the gross trading profit of the companies, which would correspond to the balance of a production account if there were one. Other items on the income side are rent and non-trading income and income from abroad (after overseas tax). The other side of the account shows how the total income of I and C companies is allocated between dividends, interest payments, profits due abroad and United Kingdom taxes on income. The balance of the appropriation account, undistributed income, is the saving of the sector, and is carried forward and appears as the opening item on the receipts side of the capital account.

iii. In addition to saving, the *capital account* shows certain capital transfers, that is, investment grants and allowances, as receipts. The principal items on the expenditure side relate to physical assets: they are gross domestic fixed capital formation – that is, all investment in fixed assets gross of depreciation – and the increase in the value of stocks and work-in-progress. The balance of the account (saving *plus* other capital receipts *over* capital expenditure on physical assets) must in principle be reflected in the net balance of all I and C companies' transactions in financial assets and is therefore termed 'net acquisition of financial assets' (NAFA).

iv. *The financial account* of the I and C company sector shows in detail the receipts of funds from external sources used to finance the sector's investment in physical assets; it is part of an integrated set of estimates covering all identified transactions in financial assets (such as bank deposits and Treasury bills) and in financial liabilities (such as capital issues and borrowing from banks) in the economy. If all transactions are accurately recorded then for each sector the net balance between transactions in financial assets (which are claims on other sectors) and transactions in financial liabilities incurred to other sectors is equivalent in concept to the NAFA. In practice the estimates of NAFA obtained as the balance of the capital account differ substantially from the net result of the identified transactions in financial assets and liabilities and there is a balancing item (termed 'unidentified transactions') which, by convention, is entered in the financial accounts. However, it arises from errors, omissions and timing differences in the appropriation and capital accounts as well as in the financial accounts. The size of the unidentified item for I and C companies and the

fluctuations in it reflect all the gaps and inadequacies in the data. The concept of the NAFA has come to be used as a general indicator of changes in the financial position of the sector. Broadly speaking, I and C companies' NAFA, as measured by the national income statistics, tends to be negative, that is, they are net borrowers from the other sectors.

v. The UK national accounts have not yet been extended to provide national and sector *balance sheets*, which are needed in order to make the national income accounts into a comprehensive accounting system. These would show each sector's holdings of physical assets, financial assets and financial liabilities at the beginning and end of the period of account. The capital and financial accounts show changes resulting from transactions between opening and closing balance sheets; changes resulting from movements in the value of assets held and other changes that do not result from transactions are recorded in a reconciliation account. Balance sheet estimates for I and C companies are part of a system being developed covering all sectors, ⁽⁴⁾ and will be published in due course. The main obstacle to an I and C company sector balance sheet at present is the lack of comprehensive data but it is hoped that this will be rectified when the work extending the Departments of Industry, Trade and Prices and Consumer Protection's analysis of company accounts comes to fruition (see section on 'Current developments').

For some purposes it is also useful to compile a table, showing an alternative presentation of capital and financial transactions, known as a sources and uses of funds statement. For I and C companies it shows the flows during a period of their main sources of finance (such as undistributed income, bank borrowing and share issues) and how the funds have been employed in the purchase of fixed assets, stocks and financial claims. The statement can be regarded as measuring in flow terms the items that in commercial accounts are presented in balance sheets. It highlights I and C companies' methods of borrowing and the disposition of the money raised.

Some national accounts concepts

It is important to bear in mind that in the national income accounts the I and C company sector includes only units resident in the United Kingdom, so that it excludes the overseas branches and subsidiaries of UK companies but includes UK branches and subsidiaries of overseas companies: this definition affects the presentation of financial transactions between UK parent companies and their overseas branches and subsidiaries, which are not netted out by consolidation but are shown

separately. Similarly the activities of the UK branches and subsidiaries of overseas parent companies are shown separately. This conceptual framework affects the content of all the accounts. In the appropriation account, the gross trading profits of I and C companies are defined to include the profits of UK companies and those of UK subsidiaries of overseas parent companies arising in the United Kingdom. The profits (remitted and unremitted) of the overseas branches and subsidiaries of UK parent companies, and earnings of other overseas affiliates, are classified as 'income from abroad', while the total of the profits of the UK subsidiaries of overseas parent companies, and earnings of other UK affiliates, are included in the allocation of income as 'profits due abroad'. Both these items affect the NAFA – the balance on capital account. However, capital expenditure relates solely to outlays by UK resident companies and therefore the balance of receipts over expenditure (NAFA) does not charge net investment abroad as expenditure; this is classified as a financial asset. Thus the unremitted profits of the overseas subsidiaries of UK parent companies, which represent an increase in the parent company's stake in its subsidiary, are included in the financial accounts, classified as part of intra-company investment overseas by UK companies. There is comparable treatment of the unremitted profits of the UK subsidiaries of overseas companies.

It is worth mentioning here two important national accounts concepts which particularly affect I and C companies' accounts – capital consumption and stock appreciation. For national accounts purposes the consumption of fixed assets (depreciation) is measured by the estimated current replacement cost of the assets consumed in any period. This means that the depreciation charges presently shown in individual company accounts are unsuitable for the national accounts because they are based on the book value of assets and are usually measured in historical cost terms. The national accounts estimates of gross trading profits for I and C companies are published before providing for depreciation (because this tallies with the concept of gross product) but estimates of total income and saving after providing for depreciation at replacement cost (as calculated by the CSO) are also published in *National Income and Expenditure*. (In addition, estimates of capital consumption at historical cost for I and C companies are compiled by CSO; these estimates are not published in *National Income and Expenditure* but have appeared in the articles on companies' rates of return on capital employed published in *Economic Trends* and in *Trade and Industry*).

That part of profits, measured on the historical cost convention, which is due to the effect of price changes

between the dates of purchase and use of stocks – stock appreciation – should in principle be excluded from gross trading profits. An adjustment is required because it is considered that the appreciation over a period in the value of stocks held by a business does not arise from economic activity during that period. Stock appreciation should be included on the expenditure side of the operating (or production) account as an addition to expenditure recorded at historical cost, so that profit is the balance between revenue and current costs, where current costs reflect historical costs *plus* stock appreciation. In practice, however, the balance taken into the appropriation account is shown before deducting stock appreciation; but supplementary figures of gross trading profits after deducting stock appreciation are published. The undistributed income (or saving) of I and C companies is similarly shown in the appropriation account before providing for depreciation and stock appreciation, but estimates of saving net of stock appreciation and net of both stock appreciation and capital consumption are also published in *National Income and Expenditure*.

Another way of regarding stock appreciation is that it represents the expenditure that would be required by a company to pay for the increased cost of replacing a fixed quantity of stocks (what is charged at present in commercial accounts is usually the expenditure required to maintain the money value of stocks irrespective of price changes). The estimates of stock appreciation are not considered to be very reliable, but the amounts have been so large in recent years of rapid inflation that they have been a significant part of the gross trading profits of I and C companies.

Publication media

This section indicates where the main series appear in publications and lists the major articles dealing with company statistics. Detailed references to table numbers and further articles are listed separately at the end of this article.

i. The national accounts estimates

Annual series of the appropriation, capital and financial accounts appear in *National Income and Expenditure*.⁽⁵⁾ The quarterly appropriation, capital and financial accounts are published in *Financial Statistics*,⁽⁶⁾ which also contains the tables showing the sources and uses of capital funds of I and C companies and their holdings of selected liquid assets at the end of each quarter. The appropriation, capital and financial accounts for a particular quarter first appear in the issue of *Financial Statistics* published four months after the end of that quarter, eg the data for the first calendar quarter appear in the July issue, published at the end of July.

Each issue of *Economic Trends*⁽⁷⁾ contains the quarterly appropriation and capital accounts and the tables showing the sources and uses of funds and selected liquid assets. The quarterly National Income and Expenditure article in the January, April, July and October issues of *Economic Trends* contains the appropriation account and there is an associated commentary on the I and C company sector. Much of the data is released by press notice in advance of its appearance in these publications. The *Bank of England Quarterly Bulletin*⁽⁸⁾ contains quarterly figures of financial transactions presented in a form which gives the total financing requirement and the ways in which it is met, eg, from capital issues, bank borrowing and changes in liquid assets. While the CSO does not seasonally adjust its financial accounts, the Bank of England's financial accounts (which the Bank refers to as flow of funds accounts) *are* seasonally adjusted. The Bank's flow of funds accounts provide seasonally-adjusted figures for I and C companies and there is an article on the annual accounts of the flow of funds in the June Bulletin.

ii. Other publications with incomplete coverage

Economics and Statistics Division 6A of the Departments of Industry, Trade and Prices and Consumer Protection analyse the published annual consolidated accounts of large, listed and non-listed industrial and commercial groups operating mainly in the United Kingdom in certain industries, and publishes the results in *Business Monitor M3 – Company Finance*.⁽⁹⁾ The figures relate to companies' accounting years ending between 6 April of the year shown and 5 April of the following year, so that the time period covered ranges over nearly two years. Most accounts relate to the calendar year, or end in the first calendar quarter. *Business Monitor M3* contains a balance sheet, income and appropriation account and a sources and uses of funds table, and accounts are analysed according to whether the companies are listed or unlisted, and grouped by broad industry of main activity. It also contains tables giving historical series of various accounting ratios and other statistics. The population of companies covered by this analysis is revised from time to time. From 1975, i.e. for the analysis of accounts ending in the fiscal year 1975/76, it will cover companies with net assets of £5 million or more or a gross income of £500,000 or more in 1974. For this analysis *Financial Statistics*⁽⁶⁾ contains a cumulative series of annual figures for companies whose reports have been analysed up to the end of each quarter, and comparable figures for the same companies in the previous year.

An article in *Economic Trends* for September 1975 entitled the 'Structure of company financing' discussed the problems involved in presenting data on the sources

and uses of funds of I and C companies. It included tables based on the Departments of Industry, Trade and Prices and Consumer Protection's analysis of company accounts and also on the quarterly national accounts data for I and C companies. The statistics in the article have been updated in *Trade and Industry*.⁽¹⁰⁾ *Economic Trends* for November 1974 contained an article entitled 'Estimating companies' rate of return on capital employed', which describes a number of different measures of rates of return. The article included tables showing the rates of return derived from the national accounts data and from the Departments of Industry, Trade and Prices and Consumer Protection's analysis of company accounts. The 'rate of return' article is updated annually in *Trade and Industry*.⁽¹⁰⁾

The Departments of Industry, Trade and Prices and Consumer Protection also conduct a quarterly survey of the liquidity of about 200 of the largest I and C companies. The survey covers selected current assets and liabilities in the United Kingdom that can be realised or are due to be paid within 12 months. The results for each quarter are published in *Trade and Industry*⁽¹⁰⁾, with a short commentary, about 10 weeks after the quarter to which they relate. They show the combined holdings by the survey companies, at the end of the quarter, of the current assets and liabilities covered by the survey, together with the holdings for the preceding 8 quarters. These figures also appear in summary in *Financial Statistics*.⁽⁶⁾ In addition, the quarterly article in *Trade and Industry* includes figures showing the subdivision of the total current assets and total current liabilities between the survey companies that are engaged mainly in manufacturing and those that are engaged mainly in non-manufacturing. An article describing the background to this survey since its start at the beginning of 1970, and comparing the survey results with the financial accounts, was published in *Economic Trends* for November 1974. An article bringing the comparison with the financial accounts up-to-date is to be published in the May issue of *Economic Trends*.

The national accounts estimates – sources and methods

i. The appropriation account

Gross trading profits is the largest component and also one of the statistically weakest areas of the accounts. The I and C company figures are mainly based on Inland Revenue statistics. The data are subject to revision for several years as preliminary assessments are replaced by final ones agreed with the taxpayer. Estimates must be included to take account of reporting deficiencies in respect of cases where there is no administrative (as distinct from statistical) need for full information.

These include trading losses incurred in the year concerned (as distinct from those set against that year's income for tax purposes) and cases not assessed (some of the simpler cases with losses or with profits extinguished by capital allowances or stock relief). The time-lags mean that the assessment base has to be projected forward one to three years by the use of sample data – a large sample for which special reports are made by tax offices and a small sample of company groups reporting directly on quarterly profits. Both these sources are also subject to deficiencies. Finally, adjustments are necessary to convert trading profits as defined for tax purposes to the national accounts definition, particularly as regards the treatment of short-term interest.

Non-trading income is estimated by relating appropriate rates of interest to estimated holdings of various financial assets such as bank deposits, Treasury bills, British government securities and deposits with local authorities. For example, the quarterly interest accruing to I and C companies on their deposits with banks is calculated by multiplying the average levels of their interest bearing deposits – derived from figures supplied by banks on returns they make to the Bank of England – by suitable bank deposit rates. The sources of figures for other financial assets are described in section iii below; with the exception of those for British government and local authority securities they form the basis for the table in *Financial Statistics* that presents end-quarter levels of selected liquid assets.

Income from abroad consists mainly of direct investment income, and sample information is collected by the Departments of Industry, Trade and Prices and Consumer Protection by annual direct enquiry to about 1,000 companies. The I and C company estimates are derived by grossing up the sample using weights obtained from the Census of Overseas Assets, conducted every three years.

The estimates of quarterly payments of *ordinary dividends* by I and C companies to other sectors are calculated as follows. Inland Revenue provides annual figures of ordinary dividend payments for all companies which are net of inter-company payments; these are based on tax data. In addition the Stock Exchange compiles quarterly information on dividend payments by listed companies but this is gross of inter-company payments. The quarterly figure for payments by listed companies is grossed up to obtain an estimate of payments outside the sector by all companies. The grossing factor, which is the same for each quarter, is the ratio of the latest annual estimate for all companies, provided by Inland Revenue (which is net of inter-company payments) to the corresponding calendar year total, of the quarterly payments by listed com-

panies (gross of inter-company payments). Payments by financial companies to shareholders outside the company sector are deducted from the payments by all companies, and an amount is added for payments by I and C companies to financial companies.

Other interest payments are obtained in the same way as interest receipts, that is, by applying appropriate interest rates to levels of liabilities, which are mainly bank advances. *Profits due abroad* consists largely of direct investment income, and estimates are derived in a similar way to those for direct investment income from abroad. The estimates of *UK tax payments* by I and C companies are not good. Annual estimates of taxes paid by all companies are obtained as a residual from receipts of tax by central government and the total of payments by other sectors. The subdivision of the quarterly seasonally adjusted payments series for all companies between I and C companies and financial companies is obtained pro-rata to the corresponding subdivision of the calendar year estimates. Inland Revenue estimate taxes accruing for all companies and CSO carry out a similar calculation for financial companies. The difference between the two estimates of tax accruals are attributed to I and C companies.

ii. The capital account

The main items in the capital account are the capital expenditure and stocks figures. Quarterly sample inquiries conducted by the Departments of Industry, Trade and Prices and Consumer Protection are addressed to establishments in manufacturing industry, wholesale and retail distribution, construction, and to leasing companies. These form the basis of the quarterly estimates. The annual Census of Production provides benchmark information for the Index of Production industries (Orders II to XXI of the 1968 SIC), and there are supplementary annual inquiries to certain industries not in the Index. Separate figures for I and C companies are obtained by aggregating the relevant components within each industry. In some instances the industries are self-classifying; where the individual components relevant to I and C companies cannot be allocated in this way, use is made of the occasional very detailed Censuses of Production and Distribution.

iii. The financial account

It has already been observed that very little information on transactions in financial assets by I and C companies is collected directly from these companies; for example, transactions in British government securities are derived from the holdings figures reported by those larger companies which respond to the Departments of Industry, Trade and Prices and Consumer Protection's survey of company liquidity, and the estimates of

intra-company investment overseas are obtained by direct enquiry to companies. The Bank of England, in its analysis of capital issued by UK listed public companies distinguishes I and C companies, and figures of cash expenditure on acquiring subsidiaries and on trade investments are compiled by the Departments of Industry, Trade and Prices and Consumer Protection largely from reports of bids and deals published in the Press. The estimates of transactions in other financial assets and liabilities are obtained from counterpart sources or by residual. Examples of counterpart figures are the banks' analysis by sector of their advances and deposits, the sector analysis of deposits with building societies and with other financial institutions, and the local authorities' analysis of their debt. I and C companies' transactions in Treasury bills are obtained as differences between consecutive figures of end-period holdings which are estimated by residual; holdings by the banking, overseas and other financial institutions sectors are deducted from total market holdings, persons' holdings being assumed to be negligible.

Current developments

The methods used to construct the national accounts estimates for I and C companies are kept under review, and opportunities for improving the figures and removing some of their more obvious weaknesses are continually being sought. The possibility of making more direct use of company accounts is being explored. In particular it is hoped that the coverage of the Departments of Industry, Trade and Prices and Consumer Protection's analysis of company accounts can be extended to a representative sample of all I and C companies including those operating mainly overseas. It has already been mentioned that one reason why this analysis is unrepresentative of all I and C companies is because there is no suitable sampling frame from which a representative sample could be drawn; one object of the Departments of Industry, Trade and Prices and Consumer Protection's project is to produce such a frame. This source will not provide a subdivision of the accounts between home and overseas activities in the case of company groups operating both at home and overseas; but the figures will be analysed so far as possible according to the degree of activity overseas. The analysis of company accounts will be used in the development of national and sector balance sheets. A balance sheet for the I and C company sector is necessary in explaining companies' behaviour in terms of the sector's portfolio – that is, the composition of its balance sheet between different types of assets and liabilities – and its liquidity. The sector balance sheet will also lead to improvements in the

quality of the flow information. For example, a better knowledge of sector holdings of property and financial claims would lead to better allocation of the corresponding rent, dividend and interest flows on these assets. Complete balance sheet information may also help to reduce the 'unidentified items' in the accounts.

Another development in train is to obtain extra information from the large companies that already reply to the Departments of Industry, Trade and Prices and Consumer Protection's quarterly survey of company liquidity so as to provide a complete sources and uses of funds statement each quarter for those companies. Approaches to the companies, asking them to co-operate, began in March 1976 and are now complete. The liquidity survey will continue as at present. It takes companies longer to provide the information covering the rest of their sources and uses of funds, so that information is to be collected separately. It is hoped to publish the results once the series has been well established.

The contribution of each industry to the gross domestic product, its 'net output', is defined as the value of its gross output (sales) less its input of materials and services. Net output corresponds to the economists' concept of 'value added', that is, the value added to materials purchased by the application of the factors of production. 'Value added' is a basic concept of national income accounting and figures are published in *National Income and Expenditure*⁽⁵⁾, showing the industry components of total value added in the economy by type of income. Value added can also be regarded as a measure of the wealth that is created by a company or an industry, and some countries, Japan in particular, produce analyses for manufacturing industry which show how value added per employee is distributed between wages and salaries, welfare and pensions contributions, rent and financial costs, taxes, depreciation and net profit after tax. A growing interest is being shown in this country in measures of value added generated by the activities of I and C companies, and some individual companies have produced value added statements on an experimental basis. Estimates can be derived from the Census of Production sources as well as the national accounts. However, the Census of Production concept of net output is greater than 'value added', because the census data are inflated by an element of double-counting and purchases of many services from other businesses are not subtracted from gross output. In the last year or so the Census of Production has collected more information on purchases of services and the Business Statistics Office intends to publish a statistic called 'gross value added' which will be nearer to the national accounts concept.

An area which is receiving a lot of attention at the moment is current cost accounting. The usefulness of company accounts, which traditionally have been prepared on the basis of historical cost, has been reduced by the absence from published accounts of figures which allow for the effects of inflation on costs. Business managements and investors need to make decisions based on relevant information so it is imperative that more realistic information is available to them. The recommendation in the Sandilands Committee's report published in September 1975 for the introduction of a system of Current Cost Accounting (CCA) were broadly accepted by the government, and an Exposure Draft (ED18) incorporating the accountancy profession's proposals was published by the Inflation Accounting Steering Group at the beginning of December 1976. In times of rapid inflation the implementation of these proposals will clearly have a major effect on the measurement of industrial performance. Amongst the proposals are three changes that will increase the usefulness of published accounts as a statistical source for the national accounts estimates:

- i. Depreciation will be calculated on the basis of value to the business of the assets consumed during the period; for fixed assets the value to the business will in general be written down current replacement cost, so that the commercial concept of depreciation will conform to the concepts that have always been used in the national accounts, provided that the periods after which the assets are written off correspond to the assumed useful life underlying the estimates in the national accounts.
- ii. operating profit will be arrived at after charging the current (rather than the historical) cost of materials used, i.e. after deducting the equivalent of stock appreciation.
- iii. the balance sheet will show current values to the business.

Responsibility for statistics of I and C companies is spread over several Departments, and I am grateful to my colleagues throughout the Government Statistical Service for their help and comments in the preparation of this article.

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Tables 3.1 - gross domestic product by industry and type of income (the 'value added' of each industry)

5.4 - appropriation and capital account of I and C companies

14.4 - financial account of I and C companies

(6) *Financial Statistics*, monthly, CSO (HMSO) (Price £3.20 net).

Tables 1.1 - summary capital account of I and C companies

1.6 - financial account of I and C companies

9.1 - appropriation account of I and C companies

9.2 - sources and uses of capital funds of I and C companies

9.3 - selected liquid assets of I and C companies

9.5 - selected current assets and liabilities of large I and C companies (Departments of Industry, Trade and Prices and Consumer Protection)

9.8 to 9.10 - income and finance of listed companies (Departments of Industry, Trade and Prices and Consumer Protection)

(7) *Economic Trends*, monthly, CSO (HMSO) (Price £1.95 net)

Page 56 - capital account of I and C companies

Page 58 - appropriation account of I and C companies

Page 60 - { sources and uses of capital funds of I and C companies
selected liquid assets of I and C companies

(8) *Bank of England Quarterly Bulletin*, Economic Intelligence Department, Bank of England, March, June, September, December.

Table 14 - capital issues on the UK market

Table 30/7 - flow of funds: I and C companies

Articles - Trends in company profitability - Bulletin for March 1976
The cost of capital, finance and investment - Bulletin for June 1976.

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Statistics on company income, capital allowances, distributions and taxation by industry.

The development of automatic editing for the next Census of Population

Barry Werner, *Statistician, Office of Population Censuses and Surveys*

History of the method

Methods for speeding up the production of results from the next Census of Population have been under consideration by statistical, processing and computer staff in OPCS, for some time. One technique of particular statistical interest is known as 'automatic editing'. The method was first used by the US Bureau of the Census in processing the 1960 census returns and was designed to exploit the full potential of the computer to control and correct census data, as well as to tabulate them.

Following the US lead in 1960 much discussion of the virtues of using computers for all stages of census processing took place. Even before the 1960 Procedural History of the US Census (1966)⁽¹⁾ was published, a special report was issued by the United Nations (1963)⁽²⁾ and a later meeting of the Conference of European Statisticians, held in Washington in 1968,⁽³⁾ was devoted to the subject. By the end of the decade virtually all Census organisations in other countries, in possession of the necessary resources in personnel and equipment, had adopted broadly similar techniques to those used by the Americans. More recently an important refinement of the technique has been described in a paper by Fellegi and Holt (1976)⁽⁴⁾ of Statistics Canada, and a useful practical handbook has been written by J I Naus (1975).⁽⁵⁾

In this article I set out to give a brief description of the 'automatic editing' system, which is being developed for processing census returns for Great Britain, and to summarise some new results on the quality of statistics produced by using it. These results were obtained from a survey which was carried out by OPCS in connection with the 1974 Test Census.

The method

The need for checking and correcting census data before tabulation is well established; tables which contained inconsistencies and multiple 'not known' categories would be difficult to produce and inconvenient to use. The adoption of a fully computerised census processing system, by changing or entirely replacing more

lengthy clerical procedures, leads to the possibility of significant savings in time and cost. The procedure discussed here has two main components. First, a batch quality control system, in which blocks of returns for about 150 households (enumeration districts) are accepted or rejected as a whole, enables clerical checks to be concentrated on data which are in most need of attention. Second, an automatic imputation system, in which the computer replaces the clerk in supplying values for missing data items, removes the need for an entire clerical operation.

The quality control system, referred to in North American literature as 'Diary 1', operates by setting tolerance levels, for each enumeration district (ED), on the percentage of invalid or missing data for each census variable, and by calling for clerical intervention when tolerance limits are exceeded. A further very tight or zero tolerance is set for each ED on the discrepancy between a clerically produced 'population control' and the actual number of personal records present in the computer.

An application of the theoretical method described by Fellegi and Holt, is used to detect and eliminate any inconsistencies between the variables referring to a given person or household. This method makes possible considerable savings in computer time by replacing a set of separate inconsistency edits by a single unified 'edit elimination matrix'.

The procedure used for providing imputations for missing data items is referred to as the 'hot-deck' method. This operates by storing a representative set of values for each census variable, obtaining these from records which have already been checked and found to be complete and consistent. The stored values for each variable are classified by reference to other characteristics of the person or household from which they are taken. When a value is required for imputation, it is obtained by considering the characteristics of the deficient record, and by extracting, from a computer store, the value corresponding to the geographically nearest person or household with the same characteristics. A measure of geographical proximity is achieved

by arranging the order in which households and enumeration districts are fed into the computer.

The classification of stored values by other characteristics is arranged in such a way as to obtain the greatest possible degree of homogeneity within each category. In the limit, this can result in very accurate imputations; for example, the marital condition of a person known to be less than 16 years of age is almost certain to be 'single'. In other cases a high probability of success can be achieved; for example, since over 80 per cent of households containing only 1 person have no car, imputed values for the number of cars and vans available to such households are usually correct. Other situations are not as favourable as these but, in general, all the known correlations between census items are utilised to lead to the best possible success rate in imputing missing values. An additional advantage of the 'hot-deck' method is that, by replacing the representative stored values by new ones throughout the processing operation, and by using the latest available value for each imputation, it is possible to reflect local variations in the imputed values. This can be particularly beneficial in achieving correct imputations for housing items, because of the known tendency for houses to be concentrated in clusters of similar tenure and type.

Follow-up survey on quality

Although the US bureau of the Census publishes tables showing the distributions of census variables before and after imputations have been made (e.g. *Summary of General Population Characteristics (1972)*⁽⁶⁾), no investigation of the accuracy of individual imputations has been carried out. In order to fill this gap in the assessment of the 'hot-deck' imputation method a field follow-up survey, on items missing from the 1974 Test Census forms, was designed and carried out by the Census Division of OPCS.

The aim of the survey was to match values imputed

for items missing, from otherwise completed census returns, with the true values. In order to achieve this aim, all missing items were first listed and subjected to clerical scrutiny to detect and eliminate cases of error occurring within the office, or for which follow-up was unnecessary. The remaining forms with missing items were referred to Census Office staff for interview with the households concerned, to discover the correct values of the missing items. These values were then matched with the values imputed by the computer system.

A total of 996 personal items and 904 housing items were referred to field staff for interview, and for 845 (85 per cent) of the personal items and 849 (94 per cent) of the housing items a successful result was obtained. Of the 206 (11 per cent) unsuccessful interviews, 185 (10 per cent) were due to no contact being made with a representative of the relevant household, and only 21 (1 per cent) to a refusal to supply the information.

Cases of no contact were studied and found to be mainly due to migration during the period between the Test census and the follow-up. The characteristics of the individuals and households concerned could be ascertained from the original test forms (apart from the missing items), and it was decided that the assessment of the imputation technique would not be seriously affected by leaving them out of the analysis.

Results of the follow-up survey: accuracy of individual imputations

Before addresses with missing data were sent into the field for follow-up, missing values which could be deduced from other items on the form were inserted; an example of this was the deduction of a person's sex from his or her forenames. These cases and also cases where values on the form were acceptable, but had not been properly fed into the computer due to clerical error, are included in the following comparisons of true and imputed values.

Table 1

Item	Total number of imputations	Number of correct imputations	Number correct expected by chance
Household items			
Tenure	792	628	132
Number of rooms	284	160	47
Number of cars and vans available	723	393	181
Availability of fixed bath or shower	594	518	198
Availability of inside WC	819	631	273
All household items	3,212	2,330	831
Personal items			
Sex	997	719	498
Marital condition	1,379	1,233	276
Age (5 year bands)	847	316	59
Economic position (status in labour market)	1,071	562	118
All personal items	4,294	2,830	951
All items	7,506	5,160	1,782

Table 1 shows, for each item included in the survey, how many of the computer imputations were correct (in the case of age, values within the same five year age band are counted as correct). For comparison the number of correct imputations which would have been expected by chance is shown.

Statistical analysis is hardly necessary to prove that the results obtained by automatic imputation are significantly better than those which could reasonably have been expected by chance. Even in the worst case, the probability of imputing the number of rooms correctly by chance, in 160 out of 284 cases, is negligibly small (less than 10^{-6}).

Modifications made to the imputation system, following detailed analysis of the 1974 Test results, should lead to a further improvement in imputational accuracy.

Distributional effects

The following tables show the differences between the distributions of the original valid response to the Test Census and the distributions of the missing values. For each item, the true distribution of the missing values, found by office checking and field follow-up, is compared with the distribution of the imputed values. Separate totals comparing the effects of including follow-up results and imputed results are also given. The base populations for different items vary due to the exclusion of 'no contacts' in the field follow-up, and to refusals to complete particular parts of the Test Census form. The analysis by economic position includes only persons aged 16 years and over.

Tables 2 and 3 clearly illustrate two general points. First, that for most items the distribution of the followed up values for missing data differs from the

Table 2

Household items: percentage distributions

Item	Valid response to Test Census	Follow-up values for missing items	Imputed values for items followed up	Total (with follow-up values)	Total (with imputed values)
Tenure					
Owner occupied	59	26	30	58	58
Council rented	24	55	56	24	24
Rented - furnished	4	3	4	4	4
With a job - furnished	0	1	0	0	0
Rented - unfurnished	12	11	9	12	12
With a job - unfurnished	1	4	2	1	1
Base population	73,257	792	792	74,049	74,049
Number of rooms					
1	1	3	2	1	1
2	4	3	1	4	4
3	8	5	6	8	8
4	26	29	31	26	26
5	29	23	28	29	29
6+	32	38	32	32	32
Base population	73,889	284	284	74,173	74,173
Number of cars and vans					
0	48	63	52	48	48
1	43	31	41	43	43
2	8	5	6	8	8
3+	1	1	2	1	1
Base population	73,211	723	723	73,934	73,934
Availability of bath or shower					
Exclusive use	90	88	89	90	90
Shared use	2	4	2	2	2
None	7	8	9	7	7
Base population	73,411	594	594	74,005	74,005
Availability of inside WC					
Exclusive use	88	66	52	87	87
Shared use	2	2	2	2	2
None	10	31	47	10	10
Base population	73,080	819	819	73,899	73,899

Table 3

Personal items: percentage distributions

Item	Valid response to Test Census	Follow-up values for missing items	Imputed values for items followed up	Total (with follow-up values)	Total (with imputed values)
Sex					
Male	48	46	49	48	48
Female	52	54	51	52	52
Base population	201,326	997	997	202,323	202,323
Marital condition					
Single	38	70	72	38	38
Married	52	22	21	51	51
Separated	1	2	1	1	1
Divorced	1	1	1	1	1
Widowed	8	5	5	8	8
Base population	200,745	1,379	1,379	202,124	202,124
Age					
0-4	7	10	6	7	7
5-9	8	6	5	8	8
10-14	8	7	5	8	8
15-19	7	6	8	7	7
20-24	7	6	7	7	7
25-29	7	7	7	7	7
30-34	5	6	5	5	5
35-39	5	6	6	5	5
40-44	5	7	7	5	5
45-49	6	6	8	6	6
50-54	7	7	7	7	7
55-59	6	6	6	6	6
60-64	6	6	6	6	6
65+	17	16	17	17	17
Base population	200,536	847	847	201,383	201,383
Economic position					
In a job	55	44	53	55	55
Waiting to take up job	0	1	1	0	0
Seeking work	1	1	1	1	1
Intending to seek work but sick	1	1	1	1	1
Wholly retired	15	12	17	15	15
Student	4	6	5	4	4
Housewife	22	23	21	22	22
Other	1	13	1	1	1
Base population	153,791	1,071	1,071	154,862	154,862

distribution of the valid response to the Test Census. Second, that the distributions in total, rounded to the nearest one per cent, are the same whether true values, from the follow-up, or imputed values are included.

The first result is as expected and reflects the differing ways in which different groups respond to census questions. It is important that the imputed values should properly reflect the true distribution of the missing values and not the overall distribution. In general, the results in Tables 2 and 3 show that this was the case, although for cars and vans, inside WC and economic position some improvement is seen to be necessary.

The difficulty with the cars question was caused by the high rate of non-response for households with no car. A modified question is now being developed to

overcome this problem. Response to the inside WC question was affected by a similar question on outside WC. Since this complication is likely to be removed in future, some improvement is to be expected here as well. Finally, it is hoped that the availability of census data on employment status and hours worked, on a 100 per cent basis (instead of 10 per cent) in the future, will lead to an improvement in the imputation of economic position.

The fact that the true overall distribution (including follow-up values) and the overall distribution (including imputed values) are identical, shows that imputation does not damage the data. In fact, if fractions of one per cent, which are often important in dealing with census data for the whole population of Great Britain,

are considered, it is found that the overall distribution (including imputed values) is closer than the distribution of the valid response (excluding imputed values) to the true overall distribution. This indicates, therefore, that in a full census, where it is impossible to establish the values of missing items by follow-up, automatic imputation would be a more useful technique than proportional distribution of missing values, which simply duplicates the known distribution of the response. However, this sort of advantage is more clearly demonstrated in the previous section on imputational accuracy.

Future work

Results from the 1974 Test Census have demonstrated that 'automatic editing' is a practical and statistically sound method for use in census processing. Further testing to refine the method is planned, and it is intended that the 'automatic editing' routines should then be integrated into a complete system, for use in processing results collected in a census test which will, as far as possible, simulate the conditions of a real census. All this attention to the planning of the processing system is thought to be well worthwhile, particularly if the objective, of producing results from the next Census of Population with the greatest possible speed and accuracy, is achieved.

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Publications of the Central Statistical Office

A. A. Sorrell, *Assistant Director, Central Statistical Office*

The primary function of the Government Statistical Service (GSS) is to provide the statistics – and the analysis and interpretation of them – that governments need in order to formulate and monitor policy. But a great deal of the statistics that are compiled for these purposes are of considerable interest and value outside Whitehall, to businesses, local authorities, the press, universities, market researchers and so on. Apart from figures which might be identified with individual firms or persons, there is relatively little statistical information that government has in its keeping that it regards as confidential and cannot release. So the GSS has increasingly regarded its role as providing a statistical service to the nation and not just to the government. It is right that it should, as compiling statistics is a costly business, both to those who collect and process them as well as to those who have to provide them. The more widely the statistics are used the better value the nation gets for this expenditure.

The purpose of this article is to describe briefly the part that we in the CSO play in publishing official statistics. We are about to undertake a review of all our publications and would very much welcome readers' views and comments.

A great many of the statistics that the government makes available are issued by the departments responsible for the subjects to which they relate. This derives from the fact that each department has its own statistics division which is responsible for providing the statistics and statistical advice that it needs. Thus, statistics of employment, unemployment, earnings, etc are made public by the Department of Employment. The Department of the Environment issue statistics of housing and construction, and the Home Office produce statistics of crime, and so on. Speedy availability of key statistics, usually in fairly summary form, is achieved by press notices. But these, by their nature, have a relatively restricted circulation, and the means by which statistics are published in a more generally accessible form are basically two-fold. First, the house journals of some departments – notably the *Department of Employment Gazette*, and *Trade and Industry* – are vehicles for presenting many regular statistics quickly after they are available. Secondly,

there is a great diversity of specialist publications, usually but not always, designed specifically to present statistics; these are a major means of making statistics publicly available. Examples of these are *Energy Trends*, issued by the Department of Energy, *Housing and Construction Statistics* issued by the Department of the Environment; and of particular importance are the many and varied publications of the two large statistics collecting agencies, the Office of Population Censuses and Surveys, and the Business Statistics Office.

Thus the activity of departments in disseminating statistics is substantial, wide ranging and diverse. The particular feature of most of it is that it represents the primary means of making basic statistics publicly available. Virtually all of the basic figures that the government published first appear at least in summary form in one or other of these ways. The CSO itself collects hardly any statistics, so it has no need, as departments have, for a publication to provide the primary source for basic statistics. But a substantial part of its work consists of compiling syntheses of statistics that involve the bringing together of an immense range of statistical series from almost all other government departments and, indeed, from many semi- and non-official bodies, and that result in substantial and often detailed tables; the national accounts, balance of payments, input-output tables and the index of industrial production are well-known examples of these syntheses. Thus it needs outlets for these statistics and is also better placed than any single department to compile any general reference books of basic statistics for which there may be a demand.

The present range of CSO publications has developed in this way from its central position and co-ordinating role in the Government Statistical Service. Very crudely, the range can be divided into three broad categories; the presentation of the syntheses; reference books; and the rest. But this is a crude trichotomy as the categories overlap and increasingly publications do not fall comfortably into them.

CSO Statistics

Two regular annual publications that do fall easily into the first category are *National Income and Expendi-*

ture (the Blue Book) and *United Kingdom Balance of Payments* (the Pink Book). Both give long runs of detailed annual figures in their respective fields and are keystones for those tracing long term changes in the economy. *Input-output tables for the United Kingdom* present, no less than the two publications just mentioned, the results of very substantial compilations in the CSO, but it has a less neat publication history. The definitive tables which have been compiled for 1954, 1963 and 1968 appeared as volumes in a much wider CSO series of publications (*Studies in Official Statistics*) that will be discussed below but the annual updated tables, which started with 1970, have, for various reasons, been published in the BSO's Business Monitor series and are no longer, strictly speaking, CSO publications.

Reference books

In a similar way two of our publications are straightforward reference books. The *Monthly Digest of Statistics*, which is over 30 years old, gives a selection of mainly monthly or quarterly series over the whole range of official statistics, with some non-official statistics to fill the gaps; and the Annual Abstract, whose origins go back over 100 years provides a very similar sort of service to the Monthly Digest, but with annual figures instead of those for shorter periods. Another monthly publication, *Financial Statistics*, is also a compendium of information, although for a narrower field, but is also the primary medium for presenting data on financial flows. Finally, as a service to businesses in experimenting with, and in due course implementating current cost accounting, the CSO last year started a new publication *Price Index Numbers for Current Cost Accounting* (PINCCA) which presents a wide range of wholesale, retail and other price indices for use in estimating the current replacement cost of fixed assets and stocks. For the same purpose a guide to price indices for some overseas countries is in preparation.⁽¹⁾ The aim of all of these publications is basically to provide a convenient means by which users can quickly identify a figure, and get some impression of the movements of series over time, without having to keep at hand a large number of original sources. They are time and space savers.

This function is true, too, of the other regular CSO publications that can be put in this category, but in varying degrees they go beyond being simply numerical *Who's Who* or *Whitaker's*. They give more help to the user in interpreting the significance of the figures, by being much more selective, by assembling related figures together to make comparisons easier, by giving derived statistics, and by presenting them in diagrammatic form. Of the two annual publications,

Social Trends, started in 1970, goes further in this direction and its interpretative role is emphasised by the regular inclusion of a social commentary and articles on subjects of current interest in the social field. Its role was described in the editorial of last year's edition.

'Its main purpose is to provide essential background data needed by those concerned with policy formulation and monitoring. It aims to show where society has got to and how it is changing: and it tries wherever possible to highlight interactions and changes in relationships. *Social Trends* is thus designed to present a wide range of information which all sides in the political arena can accept as setting the factual context within which divergent political forces and pressure groups can argue about policy'.

The other annual, *Regional Statistics*, has expanded rapidly in recent years, with the growth of interest in the regional aspects of the country's affairs, and its purpose is still substantially to present, in one place, the basic statistics relevant to the discussion of regional problems. But increasing emphasis has been put on highlighting regional comparisons – for example with the inclusion of regional and county profiles – and our intention is to move much further in this direction.

The CSO publication that goes furthest away from the presentation of undigested figures – and consequently away from being simply a reference book – is the monthly *Economic Trends*. The core of the regular sections of *Economic Trends* comprises charts and graphs showing recent movements in the various aspects of the economy for which the statistical tables provide a numerical backing rather than reference material in their own right. This, and the including each month of the results of the CSO's work on cyclical indicators, stresses the almost entirely analytical and interpretative nature of the regular contents of *Economic Trends*. But it also serves two other functions. It is the vehicle for the presentation of some of the economic statistics that the CSO itself compiles – for example the quarterly estimates of national income and balance of payments and the annual compilations of the distribution of personal incomes, public and private sector employment – and for *ad hoc* articles on recent developments in economic statistics throughout the GSS. The *Annual Supplement to Economic Trends*, on the other hand is confined to presenting long runs and greater detail of the figures analysed in *Economic Trends* itself, and is a straightforward, if selective, reference book.

Other publications

Of the rest of our publications a significant block is the series *Studies in Official Statistics*. This includes a

diverse range of studies mainly concerned with the methodology and occasionally analysis, of major areas of government statistics. Some have described successive developments of particular series, for example, the method of construction of the index of industrial production and the output measure of GDP when they have been reweighted and rebased. And as mentioned above, the series has been the outlet for the firmly-based input-output tables prepared by the CSO, although each volume has also included substantial sections describing the methodology of the construction of the tables. This series also includes the CSO's only hard-back, *National Accounts Statistics: Sources and Methods*, first published in 1956 and revised in 1968. Other volumes in this series and in associated Research Series have covered a wide variety of subjects such as the seasonal adjustment of the unemployment statistics, technical aspects of the index of retail prices, and qualified manpower.

Finally, we have the users' guides – specifically the *Guide to Official Statistics*, revived recently, after 40 years, in a much expanded form to help users to find their way through the great mass of available statistics and the periodical you are now reading, which started in 1968 and is designed to keep users, both inside and outside Whitehall, up to date with developments in official statistics.

The future

The range of publications has grown up, very largely over the thirty or so years since the end of the war, to meet needs as they have arisen and to cope with the tremendous growth in the statistics that have become available. The contents of all the regular publications have changed over time – some substantially and some relatively little – and some, for example *Economic Trends*, have been subjected from time to time to major reviews of their contents. What we have not so far done is to review the range of our publications as a group to see whether it is the most suitable for meeting the needs of users and supplementing the publications of departments. This is what we now propose to do. Inevitably the broad nature of the contents of individual publications will be considered, but this is not the primary purpose of the review. Some of the aspects that will need to be looked at are set out in the following paragraphs.

We shall particularly need to consider the range and the contents of our general reference publications, such as the *Monthly Digest* and the *Annual Abstract*. There has been such an expansion in GSS statistics, in departmental publications, and in the size and diversity of user needs, that what was appropriate some years ago may no longer be so. There might be

a place for a wider range of more specialist reference publications, on the lines of *Financial Statistics*; PINCCA, for example might be developed into a general reference book for price statistics, as well as simply meeting the needs of current cost accounting. Perhaps, also, we should be including series for other countries, alongside our own, for comparative purposes, in more of our publications.

An important consideration is the extent to which the analytical and interpretative content of our publications should be developed. Not only are there now vastly more statistics available, but the users themselves are both more numerous and more sophisticated and may welcome the presentation of data in a more helpful and assimilable form. *Economic Trends* has gone a good way in this direction and perhaps other publications should be similarly developed. It is still true, we think, that by far the greater part of the readership of our publications consists of specialists – statisticians, economists, market researchers, and so on – in business and other organisations. We should carefully consider whether there is a place for publications which would help the generalists and administrators in middle and senior management both in the public and private sectors to obtain directly a clear picture of current economic and social trends. A small step in the direction of reaching a wider audience – wider even than general management – is *Facts in Focus*, a paper back first published in 1972 and now approaching its 4th edition. This is compiled by the CSO and published by Penguin Books. It is interesting that a somewhat similar 'pocket-book' published in Holland now sells nearly 30,000 annually. A most interesting development in the United States during the past year has been the experimental publication *Status* (Statistics USA). This is based directly on briefing material for the President and presents, mainly in diagrammatic and pictorial form, and very attractively, a digest of recent and historical social and economic trends. After a pilot run of monthly issues of *Status* towards the end of last year the Americans are considering the future of this publication. The need for, and the practicability of, a publication on similar lines is something that we shall be thinking about.

Another aspect of our publications that needs a good deal of thought is the way in which we present new technological and methodological and other advances in official statistics. The ways in which these see the light of day is not very tidy or systematic and must be somewhat confusing to users. Some appear in *Economic Trends*, others in the *Studies in Official Statistics* (SOS) series and there is not always a very clear distinction between what is appropriate

for those media and what should be included in *Statistical News*. As we have seen, the range of the SOS series has become very diverse and hybrid over the years, some volumes being the primary source of statistics (e.g. the firmly-based input-output tables), while others present or update methodological and technical changes in which there is in some cases a very wide, and in others a quite narrow, interest.

These are some of the major aspects of our range of publications that we shall be looking at during the next year to eighteen months. The review will, of course, take account of technical changes that are being made in printing and publishing, such as the increasing use of computer printout as copy for publications. Here, an important aspect is the trade off between speed and quality. A development with a possibly even more wide ranging impact on the dissemination of statistics, with implications for the range of conventional statistical publications, is the Post Office's Viewdata system. This system is at an early experimental and pilot stage at present but if it becomes commercially operative information could be called by telephone on to the screen of an adapted TV set. The CSO is taking part in these experiments, for which it is providing a range of statistical tables.

Increasingly our statistical data are stored and processed by computer. Apart from their availability in a consistent and up-to-date form for publication, this allows the data to be easily accessed for other analysis purposes; for economic modelling work for example. At the present time we distribute on a monthly basis for a subscription, a magnetic tape containing a selection of our published time series information, for use by any government or non-government organisation. When our developments in this area are complete, it will be possible to offer a rather more comprehensive abstraction service using computer media, to cover more or less the whole range of information for which the CSO is primarily responsible.

The aim of the review is to give a better statistical service by adopting the range and contents of our publications so that users can get access to the figures they want, and guidance in understanding them, as conveniently and as cheaply as possible. It is important that we do this by supplementing, and not duplicating, the publications of departments. An absolutely vital part of the review will be to consult users as widely and thoroughly as we can with the relatively limited resources we shall have available for the purpose. A valuable start on this is the results of a survey we recently conducted jointly with the Organisation of Professional Users of Statistics and we intend to extend the systematic consultation of users in this way as part of the review.

But we don't want to limit our review to a 'don't ring us, we'll ring you' approach. We should be very grateful for any comments, views or proposals that readers of *Statistical News* or their colleagues or contacts would like to send us. Peter Brierley, a Statistician in the CSO (telephone 01-233 7277), will be in charge of the review under the general direction of Brian Mower, Head of Publications and Information Branch. Either of them, or myself, would be glad to hear from you.

Reference

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The National road traffic censuses (Great Britain)

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Introduction

The national road traffic censuses are those traffic counts that are required by central government and therefore have enumeration sites representing different road classes in all parts of the country. Local counts are carried out by individual local authorities and Department of Transport Regional Offices and Road Construction Units to meet their own particular needs.

At present there are three national censuses that are run either at regular intervals or intermittently. They are the '1,300-point' Benchmark Censuses (1,300 enumeration sites) for estimating absolute traffic levels, the '200-point' Monthly Sample Census, which monitors national traffic trends, and the General Traffic Census, which is related to particular road sections and has complete coverage of the motorway, all-purpose trunk and principal road network. In addition to these periodic manual censuses, which provide vehicle classification, there is a national 50-point continuous automatic census and various regular automatic counts at a number of sites on the motorway network. None of these automatic counters are at present equipped to identify vehicle types.

The 50 points are mainly a sub-set of the 200 points, and these in turn form a sub-set of the 1,300 points in the Benchmark Census. The aim in each case is to use a random selection of counting sites stratified to reflect the national road classification picture. The results from individual sites are aggregated by road class to form the basis of the traffic mileage statistics for Great Britain as a whole. Separate figures are derived for the different classes of road and for a wide range of vehicle types.

Benchmark Censuses

This is a type of census which has a very wide coverage in terms of numbers of counting points but is very short in duration. It is in effect a set of multiple snapshots of the traffic situation over a short period of time at representative points throughout Great Britain. Points are selected randomly within each class of road (including unclassified) with proportionate samples

for urban and rural areas and as far as possible representing geographically every part of the road network. The first of these censuses involved about 1,100 census points where counts were taken manually for two to four 8-hour periods in May/June and September/October 1960. The second census covered 1,300 points, again manually counted to obtain vehicle classification, for 16 hours on each of a Saturday, Sunday and one weekday in either September/October 1966 or April/May 1967. The most recent Benchmark Census was conducted in October 1973 and April/May 1974 also at 1,300 random points with very similar enumerating characteristics but with the additional facility of separate classifications for both rigid and articulated vehicles with 4 or more axles. The main function of the Benchmark Census is:

- a. To obtain reliable estimates of the annual average daily flow of vehicles on given classes of road.
- b. To obtain reliable estimates of the vehicle mileage travelled in a year on each class of road.

Both of the above types of data are derived either on a national or regional basis from traffic counts taken at sets of randomly selected points within eleven road strata. Because the counts are undertaken over only a few days in the year, the data have to be scaled to annual data by factors derived from the counts described below. Work is in hand to link traffic flow data to road characteristics (such as widths, road surface, lighting, etc) obtained through separate visual surveys at the 1,300-point sites.

Monthly Sample Census

As mentioned above the enumeration points in this census are a sub-set of the points in the Benchmark Census. However, unclassified roads are not included in the monthly counts. This census provides a system for monitoring traffic changes throughout the year and from year to year.

Monthly manual counting on a national basis was begun in 1958 although it was instituted on a quarterly basis in 1957. From 1958 until 1971 counting was carried out at all sites for 16 hours on a consecutive

Friday, Saturday and Sunday each month. The counts were distributed throughout the month so that approximately an equal number of sites are enumerated each weekend. From May 1971 each non-motorway site has normally been counted in only two months each quarter as an economy measure, but each month is covered by two-thirds of the sites. Between 1957 and 1965 there were 50 census points, and from 1966 onwards the census was expanded to 200 points on all-purpose roads with an additional motorway point for every 50 miles constructed. Used in conjunction with the most recent Benchmark Census as a base, the prime function of the Monthly Sample Census is to provide a basis for estimates of vehicle mileage by each class of vehicle month by month for the country as a whole.

These vehicle mileage estimates obtained from the Monthly Sample Census (or a Benchmark Census) have a number of important uses as follows:

- i. They are essential as a basis for the projections of traffic flow volume used in cost-benefit calculations when planning the forward road programme. The motorway, trunk and principal roads programme alone costs around £700 million per annum in Great Britain.
- ii. They are used extensively, especially when classified by vehicle type, in the analysis and interpretation of road accident data when devising safety measures and when assessing the efficacy of road safety legislation. Road accidents are currently estimated to be costing the nation about £1,000 million per annum.
- iii. They are used, when combined with passenger occupancy factors, as a measure of trends in passenger travel on the roads as a background to the consideration of public transport policies.
- iv. They are useful basic data for estimating the revenue to be expected when fuel taxation changes are being considered.
- v. The classified vehicle mileage series is useful in forecasts of future oil requirements.
- vi. A monthly series is essential when monitoring the effects in the short term of external events on road traffic, for example fuel price changes, the three-day working week in 1974, steep rises in unemployment, etc.
- vii. Annual data are needed in meeting statistical obligations to international organisations. Membership of EEC, for example, imposes a statutory requirement to supply a great deal of data on road usage.
- viii. The data from the Monthly Sample Census are valuable for producing various statistical scaling factors to obtain estimates of annual average daily

traffic for censuses which are short in duration. Because of the structured and repetitive nature of the census, it may also be used for estimation of many of the errors inherent in sample counting.

50-point Automatic Census

This was started in 1956 by the Road Research Laboratory (now TRRL) for their research projects, and is the only truly continuous national census. No motorway sites are included. Many of the sites are still served by pneumatic tubes, although the TRRL are in the process of converting to inductive loop operation. Thirty seven of the Monthly Sample Census sites are coincident with automatic counter locations of this census. Although the conversion to inductive loops will not immediately enable vehicle classification counts to be obtained automatically, there is the potential for this with the more sophisticated loop systems and counting equipment now being developed.

General Traffic Census (GTC)

The GTC sites are non-random, being specifically selected to represent particular stretches of road. This type of census began in the 1920s and post-war censuses were conducted in 1954, 1961, 1962 and 1965. In 1969 the GTC was established by the Road Traffic Census Unit (as part of the Ministry of Transport's Statistics Directorate) and some 6,300 points on motorways, all-purpose trunk roads and principal roads throughout Great Britain were covered in a four-year period between August 1969 and August 1972. A further four-year cycle began in 1974. There is a counting point for every motorway section and every section of trunk or principal road between major intersections. Counting takes place on a consecutive Sunday and Monday in late July or August and a quarter of the points are counted again in the following April or May. The census on the Scottish sections is now carried out by the Scottish Development Department and constitutes the Scottish GTC. The counting in both GTCs is manual and the results provide a data bank to aid assessment of the comparative need for improvement in any given sections. Data from the Monthly Sample Census in July/August and April/May are used to enhance the GTC. Data from the motorway and trunk road points in the GTC enable the Department of Transport to fulfil UK obligations regarding UN/ECE's 'E'-route census.

Some problems in using the data

Without exception all the national censuses are measuring in one sense or another a sample (random or non-random) of the traffic on the road system. The 50-point Automatic Census, although continuous in time, is

operated on a representative sample of the network, motorway and unclassified roads being excluded. The Benchmark and Monthly Sample Censuses are samples in time as well as space, the latter excluding unclassified roads. The GTC is concerned with the traffic on particular stretches of road and is not a sample of the network, but it is a sample in time, and at a time of the year when traffic at many, if not most, sites is at its peak. For traffic at individual sites, there is therefore the problem of scaling the data from 16 hours to 24 hours, from a day to a week, and from a week in one part of the year to an average week throughout the year. All of these scaling factors may be estimated (after running occasional 24-hour counts, 7-day counts, etc.) but they are all subject to sampling errors. National estimates of vehicle-mileages are derived from those censuses which involve counting points randomly selected across the whole network and these estimates are subject to sampling errors in respect of road class average flows and the derived vehicle mileages. Work is now being carried out to estimate the size of each of these errors.

Manual counting is labour intensive and therefore very costly but to date, pending technical developments yet to be perfected, it has been the only means of collecting the required vehicle-classified data. The costs of the censuses could be cut by reducing the number of counting points or by reducing the frequency at which enumeration is carried out. But the inevitable result of this would be to increase the sampling error and lessen users' confidence in the statistics.

The tubes used for the automatic census and elsewhere are not entirely satisfactory for two reasons. First, on heavily used roads they quickly become lacerated and unserviceable. Secondly they count axles rather than vehicles. There would be no problem, if one were measuring only the flow of cars, but on most roads there is often a constantly changing proportion of multi-axled lorries. Therefore inaccuracies result, if the number of axles counted is merely halved in order to represent numbers of vehicles. However, the gradual replacement of tubes by inductive loops should solve both these problems, although a simple loop system is again unable to classify vehicles.

Some recent developments

Technical developments are now well advanced in classifying vehicles automatically by their length and also by their number of axles. This would have the effect of separately identifying some, but not all, types of vehicle. Modifications of this equipment may be used for measuring vehicle speeds and headways. On the motorways 'responders' have been installed which can link the traffic measuring equipment to a

computer. Work is in hand to enable data to be retrieved from the computer by means of on-line print-outs at a remote terminal.

Recently work has been started to take censuses of axle weights of vehicles and a pilot study has been carried out to assess the feasibility of using dynamic weighbridges to meet EEC statistical requirements. At this stage the number of sites with this equipment is limited, but there are possibilities of development for this or similar equipment, given enough demand for the type of data, particularly if the weighbridges can be linked to other automatic census equipment at representative sites on the road network.

Officer manpower planning in the Royal Air Force

M. W. Marland, *Statistician, Ministry of Defence*

Introduction

Manpower levels in each branch of the Royal Air Force are governed by recruitment, retirements and stochastic wastage (ie deaths, premature voluntary retirements, medical discharge etc).

In order to evaluate manning policy decisions in these branches quantitatively, manpower models have been developed to relate the averages of recruitment levels, promotion quotas, wastage, retirements and their corresponding age distributions with the resulting strength of each rank within the branch.

When all the parameters are set at their desired level, the branch is said to exhibit an ideal structure, and is in equilibrium with respect to time.

Currently, most of the branches are not in their ideal state, and the mechanism for progressing from the current state to one which is ideal is by means of a manning plan which spans a 10 year forecast of strength (LTC period).

Over this period, recruitment and promotions, in conjunction with estimated wastage and retirements are planned in such a way as to achieve progressive convergence of the forecast strength of the branch to its ideal state. Linear programming is currently being investigated as a means of maximising the rate of convergence, subject to all the required rank strengths being met throughout the LTC period.

However to enable the Royal Air Force manpower policy planners to use the ensuing estimates of intakes, strengths, and promotion quotas as meaningfully as possible, it is necessary to estimate their standard error, so that the relative risks of over/under manning in a rank and/or branch can be quantitatively evaluated. This is a most important principle when manpower planning decisions have to be taken under the discipline of cash limits.

Stochastic wastage is the factor that is considered to exert the greatest influence on the standard error of future intakes, strengths, and promotion quotas and the various models that have been developed have concentrated on this factor.

The models

The following models have been developed:

- A standard model for predicting future wastage.
- A model for transforming uncertainty in wastage into uncertainty in future strengths (all other policy parameters such as recruitment, promotions, etc remaining at their anticipated levels).
- A model for transforming the uncertainty in future strength into the corresponding uncertainty in promotion quotas and intakes.

The development of these models has involved much statistical theory and details will be supplied on request.

Results

For convenience the resulting analysis of a typical branch of the RAF has been summarised at the 4 and 10 year points.

After 4 years Officers	Expected strength	Standard deviation	Credibility interval (95%)
All	3,000	34.37	±68
Senior officers	1,200	15.39	±31
Junior officers	1,800	30.72	±61
Wing commanders	500	8.6	±17
Specialists	1,000	26.06	±52

Total intake over the first 4 years was estimated as 754 officers, with SD=34.

After 10 years Officers	Expected strength	Standard deviation	Credibility interval (95%)
All	2,500	49.62	±98
Senior officers	1,000	26.93	±53
Junior officers	1,500	41.68	±82
Wing commanders	500	12.53	±25
Specialists	900	35.30	±70

Total intake over the first 10 years was estimated as 2244 officers, with SD=49.

Manning policy development

The above results can be interpreted quite simply in that after 4 years (if all manning parameters are held at their anticipated levels) the total strength of the branch will lie in the range $3,000 \pm 68$ officers with a probability of 95 per cent. This is of course, standard statistical inference and similarly applies to the 10 year point

also. However, if this estimate of 3000 officers also happens to be the equivalent cash limit in manpower terms for the branch then the chance of exceeding it is of course 50 per cent, and clearly a situation such as this is contrary to the principles of the cash limits discipline.

Consequently a more realistic approach to manpower planning might be to decide on a manning policy (e.g. a reduction in intakes) such that the resulting upper confidence limit on the forecast of strength in any year coincided with the cash limit. In this way the chance of having to make short-term and probably disruptive reductions in strength to restrain expenditure within the cash limit would be relatively small (2½ per cent in the case of a 95 per cent confidence limit) but over the whole period of the forecast the expected manpower level would on average be considerably below that permitted by the cash limit. However, the length of the period over which forecasts extend might allow some flexibility to be introduced into the manpower policies pursued, in that longer term and less disruptive actions might be taken to make strengths approximate more closely to the permitted levels. Thus in the example given of the 4-year forecast, stock could be taken during the second year and, if the forecast strength was at an unacceptable low level, action might be taken which would lead to its increase in the last year of the period.

Another area in which the principle of estimating the error of wastage forecasts could be applied is in setting the level of intakes to training courses. For those courses where it is important to achieve a given level of output, intakes could be set so that there is a high probability of doing so. If the forecasts of wastage used prove to have been too high some of the intake might be transferred in the later stages of training to courses from which a more flexible level of output is permissible.

Work is still progressing and further information may be obtained from:

Defence Statistics (M) 4
Ministry of Defence
Astral House
Theobalds Road
London, WC1X 8RU
Tel. 01-430 5555 ext. 7389

Food and farming 'Go Metric' - Progress Report

Note by the Ministry of Agriculture, Fisheries and Food

There was no 'M-day' imposed by MAFF on the agricultural and food industries. The Ministry's policy has been that the industries concerned should take the lead and MAFF statistical practice would follow. Thus, as soon as the farming organisations announced their intention to 'go metric', a co-ordinated programme for metrication in agriculture, horticulture and associated industries was drawn up in consultation with them by the Metrication Board centred around the farming year 1975/76. The following paragraphs describe the progress so far.

The Annual Review and Agricultural Census

The Annual Reviews of Agriculture for 1976 and 1977 were conducted and published in metric terms, figures for the forecast year being shown in both metric and imperial units for comparison purposes.

The first agricultural census to be completed in metric terms was in June 1976. To assist farmers in making their first census returns in metric, a small pilot survey was held in the Autumn of 1975 which tested the effectiveness of the conversion table provided. This table was made available to all participants in the June census (and indeed will be at future censuses involving area, as long as needed). Despite a much slower response than normal initially, overall it was slightly better than average with the quality of the returns surprisingly good. However such a changeover necessarily evoked some small manifestations of national pride with added comments such as 'God save the Queen' and 'long live the British way of life'.

UK Food and Farming in Figures

An extended metric version of the Ministry's pocket hand-out reference card of statistics, first published in 1975, appeared in 1976. It is proposed to issue this card at two-yearly intervals.

Regular statistical series

Many regular statistical series are now published in metric units with earlier years' figures converted from imperial for ease of comparison. Good progress

is being made particularly with those series produced within MAFF, such as the *Output and Utilisation of Farm Produce* (annual); the new 'Quarterly Supplies and Offtake' in the UK Statistical Information notice series for meat, milk, milk products and eggs; *Horticultural Crop Intelligence Reports* (fortnightly) and many others. Many tables published in the *Monthly Digest of Statistics* (and later the *Annual Abstract of Statistics*) have been 'changed over'. This will accelerate as more respondents to statistical inquiries report in metric; this of course is determined by industry target dates.

Agricultural Market Report (AMR)

This is an area where 'follow the trade' is inevitably the rule. Since the advent of metrication for the corn trade (first week in August 1976) market information (prices and quantities) has been collected and published weekly in metric terms for home grown and imported grain and feedingstuffs. From the same date home grown hay and straw have also been reported in prices per tonne. The fatstock trade went metric from 3 January 1977 and the Meat and Livestock Commission now provide prices on a metric basis for inclusion in the AMR. (Store livestock is unaffected, being on a per head basis).

The Potato Marketing Board reported producer and wholesale prices in metric for the 1976 crop and the AMR followed suit. Collection and publication in the AMR of wholesale prices of horticultural produce changed over from imperial to metric terms (where applicable) in the first week of January 1977.

Corn returns

The cereals trade 'went metric' at the start of the cereals year in the first week of August 1976, since when the weekly returns of British corn bought from growers made under the Corn Returns Act 1882 (as amended) have been made in metric units. Two statutory instruments were made in connection with the change:

- (a) The Corn Returns Act 1882 (Amendment of Units) Order 1976 required that as from 4 August 1976

computations of corn in returns under the Corn Returns Act 1882 (as amended) should be in tonnes of 1,000 kilograms.

- (b) The Corn Returns Regulations 1976 authorised the use of metric tonnes on the form of return and at the same time made certain improvements to the design of the form and changes in the headings for wheat.

Food Facts

(a) Food supplies moving into consumption

A combined metric/imperial version of the Consumption Levels Estimates enquiry (CLE) covering the 4 years 1972 to 1975 was published in August last. The provisional estimate published in March 1977 was in metric units only. The table for the *Annual Abstract of Statistics* 1976 is in imperial units but in the 1977 edition results for the most recent year and the previous 10 years will be metricated. It is hoped to include a long run of CLE in *Economic Trends* later this year, probably in metric units.

(b) Sources of Supply

The 1976 Sources of Supply tables were published in March, using metric units covering the years 1974, 1975 and 1976 (provisional) together with averages for the three year period 1964-1966.

(c) National Food Survey (NFS)

Although provision has been made for some time in the record documents for entries by housewives to be made in either metric or imperial measures, entries in imperial still predominate. So long as this situation continues, the basic survey data will continue to be processed on the computer in imperial measures. However, publication of results can be converted to metric at any time deemed appropriate.

Land prices areas and rents

The hectare is now the unit of area used in most official MAFF publications. Information on the sale of agricultural land, derived from returns made to the Board of Inland Revenue, is now published in metric units. The Ministry's Agricultural Development and Advisory Service (ADAS), in co-operation with the Agricultural Mortgage Corporation (AMC), also publish a series of land prices. The information for this series is now collected and published in metric units although imperial equivalents are also given in the monthly Press Notices. The Agricultural Rent Enquiry was conducted in metric units for the first time in 1976.

Fisheries

Monthly statistics have been prepared in metric terms since January 1976 and the 1975 issue of *Sea Fisheries*

Statistical Tables contained figures of landings, imports and exports on a metric basis for the first time.

Meat

Metrication of all sales except poultry, up to and including sales to wholesalers, was completed at the beginning of January 1977. Further metrication up to retail sales is under discussion with the trade. Statutory orders have also come into effect to enable payments under the Fat Sheep Guarantee, Beef Premium and Calf Subsidy (stage B) Schemes to be made per metric unit.

Milk and milk products

Milk production in England and Wales and Northern Ireland 'went metric' on 1 October 1976, from which date all ex-farm milk has been delivered to dairies in litres. There are however no plans at present to change from the pint bottle. Scottish producers reached this stage earlier, on 1 April 1976.

Sugar

The sugar industry is now fully metricated. Contracts between farmers and the British Sugar Corporation are in metric as are those between cane refiners and producers, and the first metric retail packs appeared in the shops last year. Sugar Division does not issue any regular statistical series, but most information provided is now metricated (with imperial equivalents if required).

Seeds

The changeover to the use of metric units during 1976, as agreed with the trade organisation proceeded smoothly, the two major statistical enquiries being returned by merchants in metric units with no apparent difficulties.

Agricultural Development and Advisory Service (ADAS)

1 January 1976 was 'M-day' for ADAS. From that date all advice and technical recommendations were put out in metric with imperial equivalents. ADAS staff are supplied with a metrication reference book and are fully equipped to deal with all enquiries.

Pesticides

The effects of metrication here are seen in the labelling of products where good progress is being made in changing from imperial to metric units of measurement.

Pest control

Among new regulations introducing metric measures are the Mink (Keeping) Regulations 1975 and the Prevention of Damage by Pests (Threshing and Dismantling) (Amendment) Regulation 1976.

Legislation

The metric system has been legal in the United Kingdom for most purposes since 1897; and in the majority of cases compliance with existing legislation relating to agriculture/horticulture could, if necessary, be proved by use of conversion factors. But in accordance with the Government's undertaking to give all necessary support to facilitate the industry's change to the metric system, imperial units are now being replaced in legislation under existing powers where available and an additional power to amend the remainder was obtained in the Agriculture (Miscellaneous Provisions) Act 1976.

Currently, 23 Acts and some 40 Statutory Instruments remain in which metric will be substituted for existing imperial units. This will follow consultations with the individual interests concerned on the choice of unit (rounding up or down will take place as necessary) and about the precise date of introduction. The latter will reflect the crop year pattern of the agricultural change and, as far as possible, changes will also be made when there are other reasons for so doing, whilst still reflecting the degree of urgency in each case. However, under the provisions of Council Directive 76/770, the United Kingdom is under an obligation to phase out most imperial units by an agreed date, or, in default of agreement, by the end of 1979. The phased programme of amendment of legislation will of course comply with this requirement. Community legislation naturally already embodies the international system (SI) of units of measurement.

Miscellaneous

Data processing Division of MAFF has of course been heavily engaged in these 'changeover' activities in carrying out the necessary changes to computer systems and programmes.

Metrication of Customs and Excise Tariff Rates has broadly followed the timetable of metrication of agriculture domestically. The larger part of these rates were metricated from 1 January 1976, but metrication of the meat sector was put back to 1 January 1977 and of the wine sector to 1 July 1977.

Notes on current developments

POPULATION AND VITAL STATISTICS

1971 Census, small area statistics – sample of enumeration districts and of wards/parishes

A recent innovation has been the production of a national sample of Enumeration District and Ward/Parish statistics from the 1971 Census. This sample with a projected maximum size of 5,000 of each of the above areal units was required to carry out work on the classification of areas (see *Population Trends 5/Statistical News No. 35*). It was recognised that this might well be of use to others and some interest has already been expressed in it. It is now available for general use and this note gives the key features. The sample data are in the same form as the standard Census SAS output so that users of the latter should find the sample data easy to handle. The possible uses envisaged are in applying statistical techniques (correlation, multivariate analyses, etc.) to any set of areas for which the complete data are unwieldy. But as well as statistical analyses the sample could also be used as the basis for more intensive analysis – for example by adding data of a cross sectional or historical nature. Sub-sampling could be used to reduce the number of areas still further – either for ease of handling or to produce special sampling fractions.

The sample of enumeration districts was compiled by taking every thirtieth district from the standard census ordering of areas. Hence the sample is a geographically balanced one and for many purposes its sampling errors will be less than those for a strictly random sample of the same size. All enumeration districts in Great Britain were included in the sampling frame but in the sample tapes information for certain types of enumeration districts has been suppressed. These are special (mainly institutions), shipping, and enumeration districts with less than 70 persons enumerated in private households. Such areas number 210 out of the total sample of 4175 for Great Britain. A leaflet is available setting out the number of enumeration districts in each county and therefore the approximate sample size for any particular sub set of areas can be estimated. By assuming that there are an average of about 450 persons per enumeration district in urban areas and 350 in rural areas the population contained in the sample areas can be estimated.

For wards and parishes the sample design was similar but the sampling fractions were 1 in 2 for wards and 1 in 5 for parishes (County Council Electoral Divisions (CCEDs) in Scotland). This gives 2,957 wards and 1,939 parishes and CCEDs for which full SAS details are included; the same exclusions were made as with enumeration districts but for the larger units the proportionate effect is much less. The reason for the differential sampling fractions was that the average population of wards is much greater than that of parishes. However probabilities proportional to population would have led to the number of parishes being very few and the fractions chosen were a compromise.

Both of these sets of sample statistics can be obtained on magnetic tape from Office of Population Censuses and Surveys or General Register Office (Scotland) from the addresses quoted below at the specially discounted price of £250 (+VAT) each. Each sample is contained on 3 magnetic tapes and further details about record structure, tape specification, delivery dates, etc., can be obtained from:

Census Customer Services
Office of Population Censuses and Surveys
Titchfield
Fareham
Hants
Telephone: Titchfield 42511 Ext: 231/296

Census Customer Services
General Register Office for Scotland
Ladywell House
Ladywell Road
Edinburgh
Telephone: 031-334-6854

1981 Census of Population

At the end of December the Minister of Health in answer to a parliamentary question announced that the next Census of Population would take place in the Spring of 1981. The content of the census will conform with Directive 73/403/EEC of the Council of the European Communities, under which member states are called upon to take a Census of Population in 1981 and to prepare tables from the census on a number of topics. Discussions have been taking place

between officials of the member states on how to harmonise the censuses. The census will of course include questions to meet the needs of central and local government as well as those of the EEC.

The Registrars General are consulting local authorities and other users of census statistics to determine their needs, and to this end two advisory committees have already been set up and have started work. The Local Government Advisory Committee consists of representatives of the local authorities associations, the health authorities, the water authorities as well as representatives from central government departments and the census organisations of the Registrars General. The second advisory committee represents research and academic interests and consists of representatives of various learned societies and organisations such as the Social Science Research Council and the Medical Research Council who deal directly with individual research workers.

In addition to these advisory groups, the census organisations will also be consulting numerous individual users of census statistics with whom they have direct contacts.

Planning the 1981 Census will involve a number of large and small tests, the first having already taken place. The Census Offices have already conducted a voluntary test in a number of areas in which new procedures and question wording have been tried out and the public's views sought on various matters. Further large scale tests in England are planned and it is expected there will be a number of small surveys to test the relative efficiency of various forms of wording for particular questions.

Grid references of local authorities and other areal units

The 1971 Population Census was the first in which grid references were included as part of the basic Census record. A booklet in preparation by OPCS provides a list of the grid references of the population centres for various sets of areal units in Great Britain. The units included are the local authorities – as constituted both before and after local government reorganisation – and the new and old regions and sub-regions as well as the individual countries. These grid references are derived from the 1971 Census records by calculating weighted averages using the enumeration district as the basic building block. Although they relate to the population distribution in 1971 changes over time are small. For the countries of Great Britain, and for the pre-1974 regions, comparable results for 1951 and 1961 are given. Possible uses of these centres of population are:

(a) as a summary statistic, for example changes over time in the location of the centre of population of

an area provide a summary measure of the overall change in the direction of movement of the population;

(b) as a convenient way of calculating straight line distances (when it is satisfactory to use the same 'average' distance for all of the population of an area);

(c) as an aid to preparing maps and diagrams.

As well as the data the booklet includes a detailed account of the derivation of grid references including a summary account of the Census procedures. There is also some written comment on the concepts, methods and results.

This booklet is the first in a new OPCS series of Occasional Papers which are designed to make available material of interest to a limited readership. It is obtainable only from OPCS Library, St Catherines House, 10 Kingsway, London WC2B 6JP. Orders will be despatched as soon as the booklet is available.

Reference

OPCS Occasional Paper No. 1 *Grid reference of centres of population, Great Britain, 1971.*

Mortality surveillance

Health care systems require considerable information to outline their operation and to judge how effectively they provide treatment. Some of the statistics are collected specifically to provide health administrators with information upon which policies may be evaluated. Other important statistics are obtained as a by-product of administrative procedures and supplement the overall picture. Mortality data are obtained from the registration of deaths.

With the large volume of figures to analyse and interpret it is very useful to have statistical techniques which allow automatic scanning of the data. Surveillance fulfils this role; it provides a comprehensive system which indicates those series showing particular types of change. Analysis of time trends in mortality is desirable both to alert researchers and epidemiologists of recent changes and suggest aspects requiring closer investigation or preventive action.

OPCS published a set of mortality surveillance results in 1976 covering the period 1968–74. An updated set of analyses of cause of death statistics for England and Wales for 1968–75 is being published in 1977. The analyses indicate those causes with statistically significant changes in annual death rates by age and sex over the six years 1970–75. Three statistical tests have been used. Each analysis sheet contains numbers of deaths and rates for one cause of death (an 'A' list cause as recommended by the World Health Organisation, for example A83 – Ischaemic heart disease).

An additional sheet is available for all causes of death.

Numbers of deaths and rates are given for males and females separately. Indicators show the results of statistical tests for each five year age group.

Individual cause analysis sheets may be ordered. The complete set is also available as a bound volume. A microfilm version of the complete set is also available. Full details of the statistical tests used are provided together with a sheet giving the population figures.

(a) individual analysis sheets 12½p each (plus VAT+10p p+p)

(b) complete bound set £14.50 (plus VAT+50p p+p)

(c) complete set, microfilm version (35 or 16 mm) £2.50 (plus VAT+20p p+p)

Further information may be obtained from:

John Haskey

Office of Population Censuses and Surveys

Medical Statistics Division

Room 512, St. Catherines House

10 Kingsway

London WC2B 6JP

Telephone: 01-242 0262 Ext 2202)

Population Trends

The latest edition of *Population Trends*, the journal of the Office of Population Censuses and Surveys was published in March. The editorial draws attention to 1976 being the first calendar year since records have been kept when there were fewer births than deaths. The flu epidemic in the first quarter of 1976 was a major factor in the increase of deaths (sixteen thousand over the total of deaths for 1975) which coupled with the continuing fall in births resulted in a natural decline of some thirteen thousand. On the evidence available on migration it looks as though the population of England and Wales declined by some 30,000 (less than 0.1 per cent) in the calendar year 1976.

The first of the feature articles in *Population Trends 7* describes the information system established and used by Oxfordshire County Council to provide locally based population forecasts. An indication is given of its principal application in educational planning and the savings which can result from the use of reliable locally based forecasts.

Data from censuses, surveys and birth registrations are used in an article examining the contribution different social groups may have had on the decline in the numbers of births in the period 1970 to 1975. Social Classes I and II taken together show virtually no change in the overall number of births. In contrast births to Social Classes IV and V fell by about one third. The article concludes that the average family size in each social class is declining.

A third article outlines the history, structure and results of the UK's participation in the EEC Labour Force Survey in 1973 and 1975. An illustration from the results of the Survey demonstrates the marked difference between the United Kingdom and the other EEC countries in the proportion of women in each age-group who were in a job or seeking a job. In the 40-54 age-group 66 per cent of all women were economically active in the United Kingdom in 1975 compared with an EEC average of 45 per cent and figures under 30 per cent for each of Italy, Netherlands, Luxembourg and Ireland.

There are two articles of medical interest. A continuation of the discussion of alcoholism and mortality started in *Population Trends 6* shows that the problem of alcoholism is increasing even more rapidly for women than for men and concludes that there are at least 500,000 people in England and Wales with a serious drinking problem. A second article investigates why slightly more deaths from heart attacks occur on Mondays than on any other day of the week and puts forward a possible explanation that the return to work triggers a fatal attack on an already vulnerable heart.

The regular series of tables continues, brought up-to-date with the latest available figures.

Population Trends 8 due for publication in June 1977 will include a discussion on the generation effects of tuberculosis, together with an article on the methods used in producing the population estimates and an analysis of the demographic and occupational characteristics of migrants.

References

Population Trends 7 (HMSO) March 1977 (Price £2.00 net).

Population Trends 8 (HMSO) due in June 1977 (Price £2.00 net).

Population projections for regions and counties

The mid-1974 based sub-national population projections (see *Statistical News* Number 34, page 34.29) are being updated by OPCS. The new projections will take the mid-1975 home population estimates as their starting point and incorporate the latest views on future fertility, mortality and migration. Abridged results for each region and county in England will appear in *OPCS Monitor Reference PP3 77/1* available direct from:

Information Branch (Dept SN)

OPCS

St Catherines House

10 Kingsway

London WC2B 6JP

More detailed results will appear in the booklet *Population projections: area 1975-1991 Series PP3 No. 2*

to be published by HMSO later this year.

Enquiries about these projections to:

01-242 0262 extension 2183

References

OPCS Monitor Reference PP3 77/1 available direct from OPCS (forthcoming).

Population projections: area Series PP3 No. 2 (HMSO forthcoming).

Scotland

The 1971 Census

Two further volumes of 1971 census tables have been published.

	<i>Publi- cation</i>	<i>Cost</i>
Fertility II (Social class, migration, academic level related to fertility. Recent fertility and birth spacing)	Feb 77	£7.70
Migration III (one and five year migrants by family status and birthplace)	Feb 77	£6.80

A further volume on the occupation, industry and socio-economic class of migrants is due for publication shortly; and unpublished tables (by sex, age and birthplace) of one and five year migrants between the re-organised local government regions and districts are available from the census office.

The Registrar General's quarterly return

The Registrar General's fourth quarterly return for 1976 is due for publication in June, containing provisional 1976 tables for deaths by cause, age and sex, and local birth death and marriage data in addition to the usual quarterly tables.

OPCS library

The library of the Office of Population Censuses and Surveys has a comprehensive stock of statistical data which they would like to see more widely used.

They have the only accessible complete set of all published reports for each population census since 1801. Since 1961 an increasing amount of census results are in unpublished form (e.g. computer printout and microfilm) and the library holds reference volumes and indices which will assist researchers in locating the statistics they require from the 1961, 1966 and 1971 censuses.

The library contains many historical books and papers illustrating the role played by vital statistics in the 17th, 18th and 19th centuries in the improvement of public health. The works of people such as John Graunt and Florence Nightingale are available.

The library has a great many periodicals such as the *American Journal of Sociology* and *Operational Research Quarterly*.

There is also a comprehensive selection of demographic data, some dating back to the 19th century covering other countries.

The library is open from 9 to 4, Monday to Friday, and is in St Catherine's House, 10 Kingsway, London WC2B 6JP.

For further information telephone 01-242-0262 extension 2235/7.

SOCIAL STATISTICS

A classification of the English personal social services authorities

In April 1977, the Department of Health and Social Security published Number 16 in their *Statistical and Research Report Series* 'A Classification of the English Personal Social Services Authorities' by Valerie Imber. The report describes an analysis of twenty-three social indicators derived from the 1971 Census of Population and attempts to classify the 108 authorities both in terms of their general social conditions and in terms of their relative 'need' for personal social services. The statistics have not been used as precise enumerators of the number of people in need of personal social services, or even of those likely to be in need, but as a means of identifying areas likely to have relatively high levels of such needs. For example, it is not suggested that all of those living in privately rented furnished accommodation need the help of the Social Services Department, but that in areas where there is a high proportion of such people there is likely to be a high need for the personal social services.

The analysis began with the examination of measures of central tendency and dispersion of the twenty-three variables, including a detailed scrutiny of the rank order of the 108 local authorities on each of the variables. The correlation matrix was then examined as a means of reducing the number of variables with minimum loss of information: the variables were grouped using McQuitty cluster analysis which yielded four major groups of variables indicative of (1) rural areas, (2) inner city areas, (3) older parts of towns and cities and (4) areas with high concentrations of council housing. Two subsets of ten variables were chosen for, firstly, a general social area analysis and, secondly, an analysis of need: as far as possible those variables were selected, from each cluster, which had the highest within cluster correlation and the lowest between cluster correlation.

A principal component analysis was performed on each of these subsets of variables and in each the first three components accounted for over three-quarters of the total variance. The authorities were plotted in

the space described by these first three components and a number of distinct clusters of authorities was apparent.

Finally, a formal cluster analysis was performed using Wards method with relocation on a similarity matrix of squared Euclidean distances. The robustness of the final clusters was examined by applying the relocation procedure to fourteen clusters formed by random allocation of authorities: from the 11 cluster stage the analysis was identical to that obtained using the fourteen clusters generated by Ward's method.

The results have subsequently been used within the Department to examine the relationship between the classification of authorities and their provision of the Personal Social Services. It is hoped to publish the results of these analyses shortly.

Reference

Statistical and research report series No. 16 (DHSS), *A classification of the English personal social services authorities* (HMSO) April 1977 (Price £2.10 net).

Sharing Resources for Health in England

An important development in the use of statistical information in determining financial allocations to National Health Service authorities for Hospital and Community Health Services is being introduced following the report *Sharing Resources for Health in England*. The report is the outcome of a study by the Resources Allocation Working Party of arrangements for distributing NHS capital and revenue funds by the Department of Health and Social Security to the regional health authorities and successively within regions to the constituent areas and to the health districts in order 'to secure a pattern of distribution responsive objectively, equitably and efficiently to relative need'. The revised methods are shown in the Working Party's report and are basically similar for allocation to the successive levels of authorities.

The use made of statistical information can be illustrated in the method of determining revenue allocations to health regions. Each year the first step is to calculate for each region a target to show its needs for health care resources relative to other regions. One of the main innovations is the use of Standardised Mortality Ratios (SMRs) in the calculation of the targets. The method of calculating targets varies for different parts of the service but for the important non-psychiatric in-patient services the method can be outlined as follows.

Stage 1 The OPCS population estimate for the region disaggregated into 18 age and sex groups is used as a population base.

Stage 2 For each group of conditions included in a chapter of the International Classification of Diseases, a national in-patient bed utilisation rate is calculated for each age and sex group to reflect the different use of in-patient services for each group of conditions by the population in the age and sex groups.

Stage 3 The products of the age/sex/condition bed-utilisation rates and the population of the region are calculated to give a 'weighted population' for each sex and group of conditions; this takes account of differential usage by the age and sex groups.

Stage 4 These weighted population are then multiplied by the condition-specific SMR for the region to allow for relative differences in health care needs between regions apart from the age/sex factors already taken into account.

For conditions relating to maternity services fertility ratios are used instead of SMRs and for diseases of the skin, which cause very few deaths, no SMR adjustment is made. These adjusted weighted populations for the groups of conditions are then summed to produce a total for each region.

The adjusted weighted populations for the different parts of the hospital and community health services are then combined into a single weighted population for each region and further adjustments are made to take account of patients who receive treatment in a region other than that in which they are resident. The revenue funds available for distribution to regions are then apportioned to each region in proportion to the total adjusted weighted populations to provide targets.

The actual revenue allocation to be made to a region has to take account of several factors including its allocation for the previous year, the extent to which that allocation exceeds or falls short of the target for the year, and the extent to which it is practicable within constraints of the available resources, planning and priorities to move in any year from existing allocations to the targets, without putting important services at risk. With the present limits on the additional funds available to the NHS, the redistribution of resources will take a number of years to achieve.

There are some difficulties in obtaining satisfactory statistical information and the problems are most apparent in relation to the smaller areas and districts. For example, in a small Health District the number of deaths each year from some causes will be small and thus SMRs may be unstable, but accumulation of the mortality data over time will help overcome the

problem. Despite the difficulties involved, the use of relevant demographic and vital statistics to measure differential need is regarded as a more satisfactory approach than the former allocation method which was more closely related to demand and existing provision of service.

Reference

Sharing Resources for Health in England (HMSO) 1976 (Price £1.70 net).

New statistical series from DHSS

The following series, although not yet published, have recently become available from the Department of Health and Social Security.

Unemployment benefit

Quarterly analysis of decisions of Insurance Officers:

Quarter ended 31 March 1977

Widows and retirement pensions

Six-monthly analysis of additions and cessations:

Six months ended 31 December 1976

Retirement trends – survivors to successive ages who had retired on reaching those ages:

Up to 1 January 1977

Death grant

Analysis of grants paid by sex of deceased, age and date of death, country, amount, reason for reduction and whether incapacitated:

Quarter ended 30 September 1976

Attendance allowance

Quarterly analysis of allowances current and awards and cessations in period by age, cause and area separately for Higher and Lower rates:

Quarter ended 31 March 1977

Prescribed diseases (Diagnosis and recrudescence questions)

Quarterly analysis of references and appeals to Medical Boards by disease and area:

Quarter ended 31 March 1977

Supplementary benefit

Analysis of the characteristics of persons in receipt of a regular weekly award of supplementary pension/allowance on a day in November/December each year:

November/December 1976

Family income supplement

Number and characteristics:

February 1977

Adjudication

Quarterly analysis of appeals and reference to local NI and II appeal tribunals:

Quarter ended 31 March 1977

War pensions

Quarterly analysis of pensions in payment by war, residence, awards and rejections:

Quarter ended 25 March 1977

Guardian's allowance

Quarterly number of children for whom allowance in payment:

March 1977

Pneumoconiosis and byssinosis

Quarterly analysis of Pneumoconiosis Medical Panel boardings analysed by age, percentage assessment and industry, etc. (Coal mining and other mining and quarrying). Details of newly diagnosed cases in industries other than coal mining:

Quarter ended 31 March 1977

All the above are obtainable from:

Mr D Smith

Statistics and Research Division 3B

Department of Health and Social Security

10 John Adam Street

London WC2N 6HD

MANPOWER AND EARNINGS

Articles on manpower planning

Recent issues of the *Department of Employment Gazette* contained further articles in the manpower planning series (*Statistical News* 36.29 etc). The January 1977 issue had two articles, one describing a study of employers' responses to shortages of bus drivers and draughtsmen, and the other an inquiry into the causes of voluntary labour separations, or quits, for four London employers in the public sector. The February 1977 issue contained an assessment of the likely graduate supply and demand situation in 1977, when the gap between supply and demand is expected to become even wider than in 1976, a difficult year.

Reference

Department of Employment Gazette, January and February 1977 (HMSO) (Price £1.20 net).

The role of immigrants in the labour market

Over the past two or three years the Department of Employment's Unit for Manpower Studies has been

engaged on an examination of the role of immigrant workers in the labour market, paying particular attention to those areas of employment where immigrants form a large part of labour supply. The project covered immigrants from the Irish Republic, foreign countries and Commonwealth, but there was rather more emphasis on New Commonwealth immigrants than on those from other sources.

The Unit has prepared a report on the main findings which brings together a large amount of relevant statistical and other information. For example, special tabulations from the 1971 Census of Population have been used to show how the geographical, industrial and occupational distributions of immigrant workers differ from those of other members of the labour force. The role of immigrant workers in a number of industries, including foundries, textiles and the National Health Service, in which they account for an appreciable part of labour supply is examined. The report also includes some comparisons with migrant workers in other European countries and earlier migrants to Britain, and a fairly extensive bibliography.

Copies of the report are available from:

Unit for Manpower Studies
Department of Employment
Steel House
11 Tothill Street
London SW1H 9LN
Telephone: 01-273 3488

Employment in the public and private sectors

An analysis of employment in the United Kingdom by sector and by broad industry group at June each year from 1971 to 1975 was published in the February issue of *Economic Trends*. Corresponding estimates back to 1959 were published in the February 1976 issue. Out of a total employed labour force of 24,968,000 in June 1975, 7,242,000 (29 per cent) were employed in the public sector. Of these almost 2¼ million were employed in central government, 3 million in local authorities, and the remaining 2 million in public corporations.

Reference

'Employment in the public and private sectors 1971-75' *Economic Trends* No. 280, February 1977 (HMSO £1.95 net).

Concentration of industrial stoppages in manufacturing industries

An article in the February 1977 issue of the *Department of Employment Gazette* presents some of the results of a departmental research project on work stoppages as a result of industrial disputes in the United Kingdom

(See also February and November 1976 Gazettes – *Statistical News* 36.29). It looked at the distribution and concentration of industrial stoppages in individual manufacturing establishments grouped by industry in the period 1971 to 1973 – a period of above average unrest. The analysis was undertaken to determine whether stoppages are widespread over the majority of plants in certain manufacturing industries and concentrated in a minority in others. The results suggest that in the majority of industries, stoppages are concentrated in a minority of plants.

Reference

Department of Employment Gazette, February 1977, Pages 111 to 115. (HMSO) (Price £1.20 net).

New Earnings Survey 1977

In the New Earnings Survey 1977, information will again be obtained from employers, about the earnings and hours for one pay-period of a one per cent random sample of employees in employment of all kinds in Great Britain in April. The survey questions are essentially the same as in 1976, except that the question on length of service is replaced by one about types of incentive payments received for the period by the employee.

How individual people's earnings change

A substantial proportion of individuals remain in the New Earnings Survey sample from year to year and their experience over the years can therefore be analysed. An article in the April 1973 issue of the *Department of Employment Gazette* (*Statistical News* 22.29) analysed the changes in earnings of those in the survey sample in 1970, 1971 and 1972. A further study has been made of those in each of the five surveys from 1970 to 1974: the results are given in an article in the January 1977 issue of the *Department of Employment Gazette*. They show how the movements in the earnings of individual people show a wide diversity of experience very different from the smoother progression of overall averages.

Reference

Department of Employment Gazette, January 1977, pages 19 to 24 (HMSO) (Price £1.20 net).

Indices of wage rates and earnings

Now that the Equal Pay Act 1970 and the Sex Discrimination Act 1975 are in force, no rates of wages in national collective agreements and wages orders are specific to men or to women. Also the age at which adult rates become payable under agreements and

orders is increasingly no longer definable as, for example, 21 years for males and 18 for females. As a result the publication of separate indices of nationally-negotiated basic wage rates for men, for women and for juveniles is no longer justified and has been discontinued. Relevant tables in the *Department of Employment Gazette* and the *Monthly Digest of Statistics* have been redesigned accordingly. For a limited period, however, the separate indices will continue to be compiled by the Department of Employment and made available on request.

Now that the newly extended series of monthly indices of average earnings (*Statistical News* 32.27 and 33.22) are available for more than 12 months, increases over the previous twelve months are now presented in the *Department of Employment Gazette*. These are given for the whole-economy index in a new Table 129 in the *Department of Employment Gazette* along with the index numbers. The table also gives from January 1967 onwards index numbers and percentage increases over the previous twelve months in the seasonally adjusted indices for all industries covered and all manufacturing industries covered by the associated monthly survey before its extension in January 1976.

Reference

Department of Employment Gazette (HMSO) (Price £1.20 net).

INCOME

Distribution of income

Estimates of the distribution of personal incomes before and after tax, for the United Kingdom, together with a brief description of the data, are published in the April issue of *Economic Trends*. These estimates will also appear later this year in *National Income and Expenditure 1966-76* (Blue Book) and in *Social Trends* No. 8. More detailed descriptions of the methodology used were published with the estimates for 1972/73 and 1973/74 in *Economic Trends* No. 262, August 1975 and No. 272 June 1976 respectively.

As for 1972/73 and 1973/74, the current results relate to total income including non-taxable social security benefits, some income in kind and income below the tax threshold. The unit of observation is the tax-unit. A summary of the results in terms of percentage shares received by given quantile groups is:

Quantile group per cent	Before tax per cent	After tax per cent
Top 1	6.2	4.0
2-5	10.6	9.7
6-10	9.8	9.5
Top 20	42.4	39.0
21-40	24.1	24.6
41-60	16.9	17.2
61-80	10.4	11.7
81-100	6.2	7.5
Median £	1,913	1,604
Mean £	2,287	1,868
Total £ million	64,675	52,828
Total number (thousands)	28,274	28,274

Unpublished and provisional estimates of the distribution of income for 1971/72, and for 1973/74 including (i) imputed rent, (ii) employees' superannuation contributions, and (iii) separate estimates of the distributions for the economically active and inactive populations, are available and can be obtained from:

Mr T G Brennan
Central Statistical Office
Great George Street
London
SW1P 3AQ
Telephone: 01-233 7666

References

Economic Trends April 1977 (HMSO) (Price £1.95 net).

National Income and Expenditure 1966-76 (HMSO) (Forthcoming)

The development of an income surrogate: A report by James Rothman

A research project to try out and test a method of estimating average household incomes for wards and parishes, commissioned by the Department of the Environment, at the request of the National and Local Government Statistical Liaison Committee (previously mentioned in *Statistical News* 32.25), has now been completed.

A summary report may be obtained on request to Mr R H Jenkinson, Department of the Environment, Room S13/03, 2 Marsham Street, London SW1P 3EB. Please enclose an A4 size (21 cm × 30 cm/8¼ in × 11¾ in) stamped addressed envelope – the present postal charge is 14p 2nd class and 18½p 1st class.

PRICES

Family Expenditure Survey and the retail prices indices
The annual article, usually in the December issue of the

Department of Employment Gazette, giving information from the Family Expenditure Survey to be used as a basis for calculating weights for the retail prices Indices for the following year, was delayed last year by the industrial action of certain Department of Employment staff.

The article has since been combined with the other regular article usually appearing in the March issue giving the index weights and was published in the March 1977 issue of the *Gazette*. It shows average weekly expenditure in the year ended June 1976 for all households, general index households, and one-person and two-person pensioner index households, and the general index weights to be used from February 1977.

Reference

Department of Employment Gazette, March 1977, pages 223-236 (HMSO) Price £1.20 net).

ENERGY

Two new *Energy Papers* have recently been published by the Department of Energy.

Energy Paper No. 17. Report of the Working Group on Energy Elasticities.

This is a report of the results of an examination by a Working Group, drawn from several Departments, of the available evidence and state of knowledge in the field of energy elasticities.

The development of OPEC (Organisation of Petroleum Exporting Countries) and, in the United Kingdom, the effect on the electricity industry of expanded gas supplies, have led to greatly increased interest in the extent to which prices affect energy consumption. Since the major escalation in oil prices took place in 1973/74, and the readjustment of nationalised industry prices to more economic levels, attention has been particularly focused on the behaviour of consumers in response to these price changes.

The present working group on energy elasticities was, therefore, set up to review more widely the Department's state of understanding and methods of handling the relationships between energy consumption and price. The report of the working group reaches no clear-cut or generalised answers. Indeed, it recognises the formidable difficulties in the way of establishing relative price changes and in distinguishing their effect from those of changes in technology, market structure and other aspects of energy supply. The report is, therefore, presented as a contribution to the discussion of energy problems and policies in the hope that it will be of interest to other workers in the field.

Energy Paper No. 19. Energy Balances – some problems and recent developments.

This is an extended version of the article 'Energy balances – some recent developments' which appeared in *Statistical News* No. 35, November 1976.

An energy balance is a supply and use account in which coal, other solid fuels, oil, gases and electricity are all expressed in terms of a common accounting unit. This unit is generally not money, but coal or oil equivalent or some large multiple of therms or calories.

Such a balance provides an accounting framework for tracing the relationship between supplies of indigenous or imported primary fuels, their use by power stations, oil refineries and other secondary fuel producers, and consumption of primary and secondary fuels by final users (industry, transport, households etc).

This paper considers a number of conceptual and practical problems in the construction of energy balances at the national and international level. It describes the methodology used by the Department of Energy in its published energy balances for the United Kingdom and sets out some aspirations for the future. The conventions used by the major international organisations, and by a number of other countries, are also described.

References

Energy Paper No. 17 (HMSO) February 1977 (Price £2.00 net).
Energy Paper No. 19 (HMSO) March 1977 (Price £1.75 net).

FOOD AND AGRICULTURE

Agricultural censuses and surveys

The December 1976 Agricultural Census

The main results of this sample census in England and Wales were published in a Press Notice on 21 February 1977⁽¹⁾.

These show that dairy cows increased, but beef cows fell in number over the year. There was little change in the total pig breeding herd. There were more breeding sheep, and more lambs were retained for breeding than a year previously. The egg-laying flock, growing pullets, breeding fowls and broilers all showed increases. About 930,000 hectares of wheat were sown by December 1, some 200,000 hectares less than at the same time in 1975, but 250,000 more than in 1974. Farmers were, nevertheless, expecting about the same total cereal area at June 1977 as a year before.

The results of the December census in the United Kingdom were published in April.

The October 1976 Census of Vegetables and Flowers

The results of this census in England and Wales were

published in a Statistical Information Notice.⁽²⁾

Agricultural Statistics for England and Wales 1974⁽³⁾

This recently published volume gives for agriculture and horticulture in England and Wales details of the acreage of crops and the numbers of livestock, workers and holdings at June 1974; the production of crops from the 1974 harvest; agricultural machinery and implements returned during 1974; and prices of agricultural products, livestock, fruit and vegetables, feedingstuffs and fertilisers for the calendar year 1973 and the harvest year 1973/74.

Agricultural Statistics for the United Kingdom 1974⁽⁴⁾

This volume, also recently published, is similar to the England and Wales volume but gives results for the UK together with separate figures for England and Wales, Scotland and Northern Ireland.

References

- (1) Press Notice No. 64 issued by the Ministry of Agriculture, Fisheries and Food.
- (2) Statistical Information Notice, Stats 82/77 issued by the Ministry of Agriculture, Fisheries and Food.
- (3) *Agricultural Statistics for England and Wales 1974* (HMSO 1976) (Price £3.75 net).
- (4) *Agricultural Statistics for the United Kingdom 1974* (HMSO 1977) (Price £2.25 net).

Final results of the December 1976 Scottish Agricultural Census

Final results of the Scottish Agricultural Census held on 1 December 1976 were published as a Scottish Office Press Notice on 30 March 1977 (Press Notice No. 312/77).

Cattle numbers fell by 1½ per cent compared with December 1975 but the decline was only about half that recorded in the previous year. Beef cow numbers declined by 2 per cent but the numbers of dairy cows remained virtually unchanged. The size of the sheep flock fell by 1 per cent but the pig herd increased by 2 per cent compared with a year earlier. Total poultry numbers increased by 5 per cent. The main recovery was in broiler numbers which increased by 12 per cent. For the first time in six years the area cut for hay showed a significant increase of 9 per cent and production increased by 5 per cent. The area cut for silage also increased (by 5 per cent) but production actually fell by 1 per cent. For the first time for many years there was no decline in the regular labour force.

Orchard Fruit Census 1977

An orchard fruit census has been undertaken in England and Wales at four-yearly intervals since 1962, the last one being in the Spring of 1974. The next one, due in 1978, has been brought forward to the Spring of 1977 to meet Community obligations under EEC Directive 71/286, which required member countries to hold an

orchard fruit census at five-yearly intervals, starting in 1972.

The Ministry census is being conducted, as usual, by post and information will be collected on the areas planted out to the principal species and varieties of top fruit (by five age-of-tree groups), on harvested production and on the total capacity of refrigerated storage on holdings. The EEC survey on the other hand – restricted in the United Kingdom to the area of dessert apples and dessert pears – requires more extensive information on the age of trees and their planting densities. Such data are too detailed for collection in a postal survey and are being obtained from field visits to a stratified sample of about 750 growers of dessert apples and pears. The field survey data will be used to disaggregate the postal census data.

It is hoped to have provisional results for England and Wales by late 1977 or early 1978. The results for the European Statistical Office will be sent to Luxembourg on magnetic tape; they will be summarised results and data for individual holdings will not be revealed.

Improvements to monthly engineering statistics

Changes are being made to the engineering output indicators used in the index of industrial production, as a result of which the monthly series have been revised back to 1970. The changes have arisen from improvements in the processing of information obtained from the monthly inquiry to establishments in the mechanical, instrument and electrical engineering industries (SIC Orders VII, VIII and IX). Following a survey into pricing methods in these industries, it has been possible to construct from the wholesale prices indices (which mainly reflect new order prices), deflators which by appropriate lagging and averaging are more suitable than those used previously for application to the value of sales. The use of these new deflators will remove much of the uncertainty that has developed in recent years in connection with the deflation of the current price figures to constant price volume series. The commentary released each month with the index of production figures warns of the problems associated with such revaluations.

In addition to the improvements to the deflation of the data, the series have been revised as a result of modifications to the data handling system. These include: the achievement of better agreement between the monthly and quarterly inquiries at the MLH industry level; some reclassification of responding establishments to the separate industries; and the re-estimation of linking factors between the present (BSO) and former (KS Engineering) quarterly inquiry informa-

tion. As a result of all these developments, index numbers of production will for the first time become available for each MLH industry. It will also be possible later, after some further work, for volume index numbers of engineering sales and orders to be made available for each MLH industry.

These changes will be described in more detail in an article in the May 1977 issue of *Economic Trends*, which will give the revised basic index of production series for the three Orders, quarterly from 1970. The revised series will be incorporated into the all-industries index of production published on 16 June 1977 and seasonally adjusted series at MLH level will then be available from:

Mr G A Robinson
Central Statistical Office
Great George Street
London SW1P 3AQ
Telephone: 01-233 8310

Market sector analysis for Scotland

The *Scottish Economic Bulletin No. 11/Winter 1977*, published in March 1977, introduces a market sector analysis of Scottish industrial production which is comparable with the market sector analyses produced for Wales and the United Kingdom.

This analysis will in future appear regularly in the *Scottish Economic Bulletin* and also in the quarterly press notices for the Scottish index of industrial production.

Reference

Scottish Economic Bulletin, No. 11 (HMSO March 1977) (Price £1.75 net).

Standard Industrial Classification – revised 1968

It was reported in *Statistical News* 34.44 that owing to severe limitations on staff resources the introduction of a fully revised Standard Industrial Classification (SIC) had been postponed; but that some early minor modifications to the present (1968) SIC would be considered. It has now been decided that the only immediate revisions necessary are an expansion of the description of MLH 104, petroleum and natural gas, and consequential additions to the alphabetical list of industries.

The amendments to the description and to the existing alphabetical list are shown below. The amendments take effect immediately.

MLH 104 petroleum and natural gas

Revised description:

Exploration for and extraction of petroleum on land and offshore; 'petroleum' in this context includes mineral oil, natural gas and natural gas condensates. The Heading includes the activities of holders of petro-

leum exploration and production licences. Also included are the activities of licensees' contractors and agents providing services unique to this industry and not allocable to any other Heading in the classification e.g. well drilling, seismic surveying specifically for petroleum deposits and offshore pipelaying (The provision of other services, e.g. manufacturing, repairing, catering, transport, procurement or hiring should be included in the appropriate Headings elsewhere in the classification.)

Mining and retorting of oil shale are included under this heading. Also included is the operation of land terminals for stabilisation, separation and storage, and of offshore or land pipelines between well-head and terminal. Other land pipelines are classified to Heading 262 if feeding a refinery. Heading 601 if part of the distribution of gas or Heading 811 if part of the distribution of fuel.

Reference

Standard Industrial Classification – Revised 1968. Amendment List 1 (HMSO May 1977) (Price 10p) ISBN 0 11 630166.

Alphabetical list of industries (Incorporating Amendment No. 1 – Reprinted 1974)

Additional entries:

	<i>MLH</i>
Drilling for oil or gas well	104
Floating drilling rig operation (for petroleum or natural gas exploration or production)	104
Geological surveying for petroleum or natural gas (not geological consultancy)	104
Module manufacture for oil platform or oil rig	341/5
Natural gas:	
separation plant operation	104
Offshore pipeline (from petroleum or gas well):	
installation	104
operation	104
Oil production platform (fabrications for) manufacturing:	
of iron and steel	341/5
other (concrete or composite steel/concrete)	500
Oil production well or platform operation	104
Oil stabilisation plant operation	104
Seismic surveying for petroleum	104
Separation terminal operation (natural gas)	104
Well drilling (petroleum)	104
Well-head units (oil or natural gas):	
manufacture (including remotely controlled and serviced satellites)	341/2
Well logging (petroleum)	104

Reference

Standard Industrial Classification – Revised 1968. Alphabetical List of industries, Amendment List 2 (HMSO May 1977) (Price 10p) ISBN 0 11 630167 8

Annual Census of Production 1973

As the Business Monitors reporting the results of the 1973 Census of Production become available they will be brought to the attention of the readers of *Statistical News*. A list of the first of these Monitors to be published appeared in Issue No. 36. Those published since then are listed below. They can be obtained on Standing Order from Her Majesty's Stationery Office, PO Box 569, London SE1 9NH (Telephone: 01-928-6977), although they are not

included in the global subscription arrangements for the Business Monitor Series.

<i>Business Monitor Number</i>	<i>Description</i>	<i>Standard Industrial Classification Minimum List Heading</i>
PA229.1	Margarine	229/1
PA 313	Iron castings, etc.	313
PA 363	Telegraph and telephone apparatus and equipment	363
PA 380	Wheeled tractor manufacturing	380
PA 433	Fur	433
PA 444	Overalls and men's shirts, underwear, etc.	444
PA 446	Hats, caps and millinery	446

Further information on these Business Monitors and on the Census generally can be obtained from:

Mr R J Egerton
Business Statistics Office
Cardiff Road
Newport
Gwent
NPT 1XG
Telephone: Newport 56111 (STD Code 0633)
Ext 2455

Construction industry contractors' census 1975

The annual census relating to the output and employment of private contractors in the construction industry in 1975 was published in February 1977 by HMSO. The report contains seven historical tables showing the number of firms with their employment and output, from 1969 to 1975. Also included are thirty-four detailed tables relating to employment in October 1975 and output in the third quarter of 1975. These tables present analyses by firms' size, trade and region of registration, by type of work and by craft of operative.

Reference
Private Contractors' Construction Census 1975(HMSO) (Price £1.50 net).

THE ENVIRONMENT

Digest of Environmental Statistics: Environmental Protection and Conservation 1976

A new digest of environmental statistics has recently been produced by the Department of the Environment. The digest attempts to indicate the present state of, and reflect recent trends in, the quality of the environment by bringing together in a single volume a range of environmental statistics, most of which are published elsewhere in a variety of sources. It contains approximately 70 tables and 12 figures arranged into 5 sections entitled 'Air', 'Water', 'Land and Waste Disposal', 'Conservation' and 'Background and Related Tables'. A statistical summary introduces each section.

The first edition has been produced by DOE for limited circulation to those particularly concerned with environmental problems. Copies may be obtained, free of charge, from:

Room N8/04,
Department of the Environment
2 Marsham Street
London SW1P 3EB

It is proposed that future editions of the digest will be published annually by HMSO.

TRANSPORT

The Department of Transport together with the Scottish Development Department and the Welsh Office have just produced the latest edition of *Transport Statistics Great Britain*.

Data covered include the effects of car ownership on people's travel habits; the amount of public expenditure used for road and rail investment; and road accidents.

Tables appearing for the first time deal with employment in the transport industry; offences relating to motor vehicles; and visitors to and from the United Kingdom.

Reference
Transport Statistics Great Britain 1965-75 (HMSO 1977) (Price £5.50 net).

NATIONAL ACCOUNTS

An article in the March edition of *Economic Trends* explains a change in presentation of government income and expenditure in the national income accounts. A new term 'general government' has been introduced to replace the old 'public authorities' to denote the combined central government and local authority sector and 'general government' will no longer be consolidated with public corporations, except in the financial accounts. The change will bring the UK accounts more closely into line with international practice, where a clearer distinction is drawn between government and enterprise than has been customary in recent UK practice. The UK central and local government accounts, however, cover certain trading activities – e.g. forestry and housing which would, under the UN System of National accounts, be included with the corporate enterprise sector. There are difficulties in effecting this further separation but the question of whether to undertake it is under consideration.

Reference
Economic Trends No. 281 March 1977 (HMSO) (Price £1.95 net).

HOME FINANCE

DCE and the money supply – a statistical note

A note in the Bank of England's March 1977 Bulletin explains some changes that have been made in that issue in the statistical presentation of Domestic credit expansion (DCE) and the broader version of the money supply (M_3). DCE has been redefined, and the sterling component of M_3 (sterling M_3) is now presented as an alternative definition of the money stock. The note also describes the statistical relationship between these two aggregates.

The personal sector 1966-1975

An article in the Bank of England's March 1977 Bulletin surveys developments over the ten years to 1975 affecting the saving ratio and the personal sector surplus.

The article discusses in turn: saving by the sector; its capital expenditure; the surplus resulting from the excess of saving over capital expenditure; the interaction of the surplus with the deficits of other sectors; borrowing by the sector; and the use of the surplus and borrowed funds to acquire financial assets.

Copies of the Bank's Bulletin and offprints of these articles may be obtained, free of charge, from:

The Economic Intelligence Department
Bank of England
London
EC2R 8AH

Company finance and profitability

The eighth issue of the annual Business Monitor M3 – Company finance (price £1.35 available, on subscription, from HMSO, PO Box 569, London SE1 9NH) was published in January. The Business Monitor provides summaries, in a standardised form, of the balance sheets, appropriation accounts and the sources and uses of company funds, both in total and by a number of broad industrial groups, for some 1,700 large listed and non-listed industrial and commercial companies operating mainly in the United Kingdom. It also contains tables of certain accounting ratios and size distributions.

Trade and Industry

An article 'Structure of company financing' appeared in the 4 February 1977 issue of *Trade and Industry* (pages 330–335), updating the statistics of the sources and uses of funds of industrial and commercial companies presented in an article in *Economic Trends* No. 263 September 1975 – 'Structure of company financing' – a shortened version of which appeared in *Trade and Industry* for 10 October 1975 (pages 110 to 113). The recent article gives figures for large listed and unlisted companies in manufacturing, distribution and certain other services (1970–1974), large listed and unlisted companies in manufacturing (1970–1974); large listed

companies (only) in manufacturing, distribution and certain other services (1970–1975 provisional); and all industrial and commercial companies (1964–1975). Figures back to 1964 for the first two groups of companies were published in the *Economic Trends* November 1974 article; earlier figures for the third group are available on request (see article). The figures for the first three groups of companies are based on the Department of Industry analysis of the published, consolidated accounts of companies as published in Business Monitor M3; those for all industrial and commercial companies form part of the national accounts, published quarterly in *Financial Statistics* and annually in the National Income and Expenditure Blue Book.

Another article – 'Companies' rate of return on capital employed, 1960 to 1975' – appeared in *Trade and Industry* on 8 October 1976. This was the second of an annual series of articles bringing together the latest information on various measures of the rate of return on capital employed by companies. The accounting rates of return given in the article include the ratio of net trading income to net capital stock *plus* book value of stocks for all companies and, separately, industrial and commercial companies with capital stock and depreciation valued (a) at historic cost and (b) at replacement cost, and stock appreciation deducted from net trading income with assets valued at replacement cost.

Equivalent figures for large listed companies in manufacturing industry based on Department of Industry analysis of company accounts are also given. Accounting ratios based on the book values recorded in companies' own accounts are also given.

The article also contains national accounts estimates of capital consumption and net capital stock for financial companies, and industrial and commercial companies, both at current replacement costs (as published in *National Income and Expenditure* 1965–1975 Blue Book Table 12.11) and at historic costs (not published in the Blue Book).

Inquiries concerning the Business Monitor and the articles should be addressed to:

Home Financial Statistics
(Room 241C)
Economics and Statistics Division 6A
Departments of Trade, Industry and Prices and
Consumer Protection,
1 Victoria Street
London SW1H 0ET
(Tel: 01-215 3132/5705).

References

- Trade and Industry* 4 February 1977 (HMSO) (Price £0.00 net).
Economic Trends No. 253 November 1974.
National Income and Expenditure 1965–1975 (HMSO) 1976 (Price £3.50 net).

OVERSEAS FINANCE

Export prospects survey

Towards the end of 1975, the Department of Trade began a quarterly survey to provide information about short-term export prospects. The survey, which was run, initially, on an experimental basis, is now being continued. The results have proved a useful guide to short-term movements in exports, and have generated considerable interest. The survey covers most of the 75 or so largest UK exporting companies, and the results account for approaching two-fifths of total exports. The response rate to the survey, which is voluntary, has been very high (generally, in terms of the number of firms replying, around 90 per cent).

The information requested has been kept as short and as simple as possible in order to minimise the burden on industry. Companies are asked for the value of exports in the immediately preceding quarter and forecasts of the value for the current quarter and the next two quarters; the percentage changes these values represent on the values for a year earlier; and how these percentage changes in value are divided between changes in volume and sterling price.

There are two main difficulties in interpreting the results of the surveys which are currently being examined. First, companies' forecasts may inevitably not be realised, and it is as yet too early in the life of the survey to make a full assessment of any biases which may be involved (and which may vary for example with the economic cycle). Secondly, as the respondents to the survey are the major exporters, rather than a random sample of all exporters, there are problems in estimating for total exports.

The seventh survey is currently in progress. The results of the first six have been published in *Trade and Industry* on the following dates:

<i>Survey No.</i>	<i>Date</i>
1	19 December 1975
2	5 March 1976
3	11 June 1976
4	10 September 1976
5	28 January 1977
6	18 March 1977

Consideration is being given to publishing a fuller article on the export prospects survey in a future edition of *Statistical News*.

Enquiries on the survey should be addressed to:

Mr S R Curtis

Departments of Industry, Trade and Prices and
Consumer Protection

1 Victoria Street

London SW1H 0ET

Tel: 01-215 3155

Balance of payments – treatment of trade in goods affected by the 'Green Pound'

The CSO, in conjunction with other departments, has made a study of the way in which foreign trade in food affected by the 'green pound' system of the EEC's common agricultural policy has been recorded in the current account of the UK balance of payments.

An important aspect of this trade for the United Kingdom is imports from other EEC countries. To understand better how this trade is being valued in the trade statistics the CSO and HM Customs and Excise have recently carried out a small sample inquiry of importers based on a sample of around 120 import documents. The sample covered the main commodities involved and distinguished between the basis of valuation of imports in March 1976 and September 1976, ie both before and after May 1976 when the arrangement for paying the subsidies changed. The primary intention in the inquiry was to discover whether valuation was in fact after subtraction of the UK MCA (monetary compensatory amount) which compensates for the effects of depreciation of sterling. (The MCA effectively reduces prices from conversion at market rates of exchange to conversion at the fixed 'green pound' rate of exchange.) The total value of these MCA's rose rapidly during 1976 with a peak of around £100 million in the fourth quarter of 1976.

The inquiry results showed that in September 1976, apart from imports of sugar and maize, in the considerable majority of cases valuation was after subtraction of the UK MCA, ie at the lower, subsidised price. With the exception of the very small amount of Italian trade the subsidy is paid out *via* the foreign country and in general is received by the foreign supplier who then collects the subsidised value from the UK importer. In the exceptional cases, notably as mentioned, for sugar and to some extent maize, the subsidy is received by the importer. In these cases valuation of imports in the trade figures is at the higher, unsubsidised, values and some allowance for the subsidies has been made in transfer credits in invisibles.

The inquiry results for March 1976 showed a much more mixed valuation of imports. Before May 1976 the UK MCA import subsidies were paid via the UK intervention board for agricultural products (IBAP) to UK importers. In some cases the importers retained the subsidy since the full value has been paid to the exporter, in other cases the subsidised value was paid initially and the subsidy, when later received, passed to the exporter. These two methods were reflected in the invoices and hence in the import valuations.

It is clearly desirable that trade is valued on a consistent basis and HM Customs will soon be issuing

instructions on the correct basis of valuation of this trade, both for imports and exports.

For further information on the results of this inquiry and on the treatment of UK exports to the EEC and trade with third countries in the goods affected by MCA's please contact:

The Central Statistical Office
Great George Street
London
SW1
(Tel: 01-233 7451)

Effective exchange rate

The method of calculating the effective exchange rate which measures changes in the value of sterling against a basket of other currencies has been revised. The index will in future match that calculated by the IMF, although the basis for the UK index will remain the middle rates under the Smithsonian Agreement with 18 December 1971=100. (The IMF index is presented with May 1971=100.)

There are three main changes in the method of calculation: (a) the number of currencies included in the basket has been increased from 11 to 21, (b) the weights have been updated from 1969 to 1972 and (c) a revised method of weighting, including the use of geometric instead of arithmetic averaging, has been introduced. In addition there has also been a purely presentational change. The rate is now expressed as a straight index with 18 December 1971=100 rather than as a depreciation from rates at 18 December 1971. Thus what would have previously been called an effective depreciation of 45 per cent will in future be called an effective exchange rate index of 55. Details of the new index and its method of computation are given in the March issue of the *Economic Progress Report*.

The Bank of England started regular publication of the new index on 1 March 1977.

Reference

Economic Progress Report No. 84 March 1977, HM Treasury (HMSO).

REGIONAL ACCOUNTS

North Sea oil and natural gas

The rapid growth in the production of North Sea oil and natural gas and the consequent increases in profits in the industry exploiting these resources will have a major impact on the estimates of gross domestic product and its regional components in the next few years. The treatment of this industry in the national accounts was discussed in an article in the February 1976 issue of *Statistical News* (32.1). Exploration expenditure is treated as a current cost, so that during the earlier part of the 1970's, when there was substantial exploration activity but when natural gas only was being produced, gross trading profits in the industry

were either very small or negative. However, production of oil started in 1975 and has built up so that from 1977 onwards large profits will be generated. Careful consideration has therefore had to be given to their treatment in the regional accounts.

The purpose of the regional accounts is to allocate each element of the gross domestic product to the region where the economic activity takes place. In the case of off-shore oil and gas extraction, the main activities occur in the area known as the United Kingdom Continental Shelf which, in this context, can be regarded as part of the United Kingdom but not part of any of the eleven existing regions. To accommodate these operations it has been decided that future estimates of the regional accounts will include a new (twelfth) region to be known as the Continental Shelf region. The gross domestic product for the region will include only the profits of the oil and gas exploration and production industry (Minimum List Heading 104 of the Standard Industrial Classification) which are related to activities which take place off-shore.

The other relevant component of gross domestic product is income from employment. Total income from employment in the Continental Shelf will be very small compared with profits. Present practice is that income from employment is shown throughout the regional accounts according to the *region of residence* of the employee and, since there are no residents on the Continental Shelf, the allocation of employment income will not be altered by the new arrangements. It is recognised that this practice is not wholly satisfactory and that allocation by *region of workplace* would give an improved measure of economic activity. The present treatment is determined by the available data and for the eleven existing regions the differences between allocation by workplace and by residence are thought to be small. Rough estimates of the employment income off-shore will be given as footnotes to the appropriate tables in the regional accounts.

The latest published estimates of the regional accounts appeared in the November 1976 issue of *Economic Trends* and covered the period up to 1974. Preliminary estimates for 1975 will be published later this year and will include the new Continental Shelf Region as described above. A detailed account of the methods used in drawing up the regional accounts will also be published later this year.

Runcorn Household Census

A report of the 1976 Runcorn New Town Household Census (58 pages, 4 Appendices), price £5, is available from A. M. Morgan, Principal Research Officer at the address below. A wide range of demographic informa-

tion is provided together with some analysis of employment, shopping and leisure patterns.

Social Development Department
Grosvenor House
Runcorn Shopping City
Runcorn
Cheshire WA7 2DD

STATISTICAL COMPUTING

International Association for Statistical Computing, an open association of the International Statistical Institute

This is to announce the formation of the International Association for Statistical Computing (IASC), a section of the International Statistical Institute. IASC will be open to membership among those interested in promoting the theory, methods, and practice of statistical computing. The objectives of the Association will be to foster interest and knowledge in effective statistical computing through international contacts among statisticians, computing professionals, organisations, institutions, governments, and the general public in different countries of the world. The Association will pursue its objectives throughout the world with special attention to developing countries. It will promote collaborative efforts with international, national, regional, and other organisations and institutions having similar aims; it will foster evaluations of statistical computing techniques and programs, and will facilitate the exchange of computer programs and their documentation. The Association will arrange programmes and meetings, particularly in conjunction with sessions of the International Statistical Institute. Many statisticians and computer experts have been working on an international co-operative basis towards the founding of the IASC, which will formally come into existence and have its inaugural meeting in December 1977 during the 41st Session of the International Statistical Institute in New Delhi, India.

For further information, including details of membership, contact:

International Statistical Institute
428 Prinses Beatrixlaan
Voorburg, Netherlands

Annual individual member's dues structure is:

(1) Members from developed countries, \$15 per year;

Annual Individual Member's dues structure is:

(1) Members from Developed Countries, \$15 per year; and (2) Members from Developing Countries who request a reduced rate, \$7 per year.

CSO computer seminar

On February 1st and 2nd, the Central Statistical Office conducted its first computer seminar at the Church House, Westminster. The seminar was opened by

Sir Claus Moser who, while emphasising the importance of computing for the statistical service, expressed disappointment in that the return on the considerable investment on computer systems had not been as great as could reasonably have been expected. He hoped however that the proposed series of seminars would point the way to a more imaginative use of computers for analysis and projection.

Some 150 statisticians, economists, and computer specialists attended the seminar and heard and discussed papers on statistical information systems presented by members of the Statistical Office of the European Communities, the Computing Research Centre, Bratislava, the Central Statistical Office, and the Civil Service Department.

Working Party on EDP

The fourteenth session of the Conference of European Statisticians' Working Party on Electronic Data Processing was held at Geneva on 21st to 25th February. The session, attended by delegates from 26 countries and eight international organisations, considered reports and papers on a variety of subjects, in particular, integrated data bases and the developments likely to be made in statistical computing in the 1980's. A group of rapportures is to be set up, at which the BSO will be represented, to consider the computing aspects of the maintenance of central registers of economic and social units.

It was agreed at the Working Party that a detailed set of proposals be prepared for the establishment of a clearing house (or distribution centre) for generalised statistical programs at the International Computer Centre, Geneva.

A new computing aid

As an aid to enhancing the quality of statistics a number of departments have adopted a new computing system designed for the use of the Government Statistical Service.

Package X, as the system is known, provides statisticians and their support staff with direct and convenient access to data on various types of computer files and to interactive programs for data-management and analysis. The user may work in a conversational mode or give his instructions more concisely, but still interactively, in an English-like command language. Various types of computer terminal can be used. Lengthy or repetitive jobs can also be run in batch mode.

At present Package X can be used only on ICL 1900 computers operating under George 3 or 4. It is Government-owned and is available to UK Government organisations through the Central Statistical Office, and to UK Universities through arrangements made by

the Computer Board. It is marketed to other organisations by Dataskil Ltd. Further information can be obtained from

Mr V Dunleavy
Central Statistical Office
Great George Street
London SW1P 3AQ
Tel. 01-233 8250 (alternative 7721)

Dataskil Ltd
Reading Bridge House
Reading Bridge Approach
Reading RG1 8PN
Tel. 0734 581258

PUBLICATIONS

DES Report on Education No. 87 March 1977: The Growth of Comprehensive Education, describes the origins and developments of comprehensive secondary education, and the progress made so far by local education authorities. It gives statistics from 1965 of the number and types of secondary schools in existence, and the number of pupils receiving comprehensive education. The report also looks briefly at some of the implications of the comprehensive policy for the curriculum, teaching arrangements and the management of comprehensive schools.

Health of the School Child is the Report of the Chief Medical Officer of the Department of Education and Science. The final report in the series is entitled 'The School Health Service 1908-1974' and contains an historical review of the Service over the last sixty years. The report also contains a number of statistical tables for 1973, the last full year in which the School Health Service was the responsibility of local education authorities. These tables give the numbers of staff of the school health service by type and grade in England and Wales for 1973, the numbers of staff of the child guidance and school psychological service, and the number of medical inspections of school children carried out in England and Wales during the last year in which the local education authorities were responsible. The net expenditure of local education authorities on school health service is shown for England and Wales separately for the financial year 1972-73. From 1 April 1974 responsibility for the School Health Service passed to the reorganised National Health Service. Future reports about the health of school children will be published by the Department of Health and Social Security in their annual report 'On the State of the Public Health', while reports relating to the special education of handicapped children will be

published from time to time by the Department of Education and Science.

References

Report on Education No. 87, The Growth of Comprehensive Education, DES; March 1977; free.

Health of the School Child: The School Health Service 1908-1974 (HMSO) final report in series 1976; £1.00.

Research 1975-76

A new booklet, *Research 1975-76*, gives a resume of various research projects into people and work carried out by the Department of Employment, the Manpower Services Commission and its two executive arms, the Training Services Agency and the Employment Services Agency. It includes main findings, outlines future investigations and lists 44 publications that report on the projects in detail.

Reference

Research 1975-76 (HMSO) 1977 (Price £1.40).

National Institute Economic Review

Unemployment among school-leavers: an analysis of the problem - A. J. H. Dean.

This article examines the problem of unemployment among school-leavers. It is shown that although the summer peak in such unemployment has reached record levels in recent years this remains a largely temporary phenomenon. However, longer term unemployment among school-leavers is now becoming a serious problem. Though the Government's present measures will relieve the problem somewhat they provide a temporary palliative rather than a longer term solution. *National Institute Economic Review*, November 1976, Vol. 4/76, (No. 78), pp. 63-68 (English).

Offprints of *Economic Trends* articles

A limited number of offprints of *Economic Trends* articles are available and may be obtained from CSO Publications Unit, Government Offices, Great George Street, London SW1P 3AQ.

Articles published this quarter include:

- | | |
|----------|--|
| February | Employment in the public and private sectors 1971-75. |
| March | Government income and expenditure in the national income accounts; a change in presentation.
Note on the Budget and forecast. |
| April | Department of Industry survey of company liquidity; comparison with the financial accounts.
Estimates of the distribution of personal incomes for the United Kingdom 1974/75. |

GOVERNMENT STATISTICAL SERVICE

Appointments and changes

Mrs J G Cox, Chief Statistician at the Department of Industry retired on 28 February 1977.

Mr M C Fessey, CB., Director of the Business Statistics Office (Under Secretary) will retire on 31 May 1977.

Mr R Ash, Chief Statistician at HM Customs and Excise, will transfer to the Departments of Trade, Industry, Prices and Consumer protection on promotion to Under Secretary on 8 June 1977, to be Director of the Business Statistics Office in succession to Mr Fessey.

LATE ITEM

Survey of employment in the United Kingdom

A survey to obtain up to date information about the kind of jobs people have, unemployment and pensions is taking place in the United Kingdom during April and May.

Similar surveys are being conducted throughout the rest of the European Community. The statistical information they produce will help among other things to assess claims for the European Social Fund, whose main objective is the promotion of training in areas of high unemployment.

This survey covers a sample of 90,000 households in England and Wales; in Scotland a sample of 10,000 households; and in Northern Ireland a sample of 5,000 households.

The United Kingdom has taken part in a Labour Force Survey in 1973 and 1975. The results of the 1973 survey, for all member countries, have been published by the EEC in *Social Statistics 1/1975*. Results from the 1975 survey are expected to be published shortly by the EEC.

A methodological report on the 1973 and 1975 surveys was published by the Office of Population Censuses and Surveys in *Population Trends* issued in March 1977.

The Department of Employment will shortly publish an article presenting selected results from the 1973 and 1975 surveys in the *Department of Employment Gazette*.

References

Population Trends No. 7 (HMSO March 1977) (Price £2.00 net).

Department of Employment Gazette (HMSO monthly) (Price £1.50 net)

New surveys assessed by the Survey Control Unit

January to March 1977

Further information on the details of the surveys listed, including the appropriate departmental contact, may be obtained in the first instance from Mrs Elsa Sedgwick (01-233 8551), 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 January-March 1977

Title	Sponsor	Those approached	Approximate number approached	Location	Frequency
Business surveys					
The Use of Masonry in Residential Accommodation	BRE	Construction Companies	10	SE	AH
Transport Services and Storage - 1976 Inquiry	BSO	Service Businesses	2,000	GB	A
Business Services - 1976 Inquiry	BSO	Service Businesses	3,000	GB	A
Miscellaneous Services - 1976 Inquiry	BSO	Service Businesses	2,000	GB	A
Survey of Awareness and Attitudes to Small Firms Information Centres	COI/DI	Employers	500	E	AH
Treatment of EEC Agricultural Policy Subsidies in Valuation of Imports	CSO	Importers	60	UK	AH
Oil Refinery and Storage Capacity Survey (Revised)	DEN	Oil Refining/Storage Companies	40	UK	A
Oil Pollution Damage Survey	DEN	Oil Importing Companies	20	UK	A
Supplement to the Business Statistics Office Inquiry into Production of the Aerospace Industry	DI	Manufacturers	30	UK	Q
Postal Inquiry into Distribution of Share Ownership	DITPCP	Insurance/Nominee/Trust Companies	400	UK	AH
Survey of Planning Applications for Industrial Buildings	DOE	Companies/Public Bodies/Architects	2,500	GB	AH
Firms Assisted by Development Commission in Recent Years	DOE	Manufacturers	110	E	AH
Reactions of UK Airlines to Noise Abatement Proposals	DT	Airlines	15	GB	AH
Occupancy Survey of Static Caravan and Chalet Sites	ETB	Camp Site Operators	900	E	AH
Labour in Highland Firms	HIDB	Employers	200	S	AH
Survey of Heating Systems Control in Glasshouses	MAFF	Horticulturists	200	E	AH
Vining Peas Survey	MAFF	Farmers	20	EM	AH
Bulb Onion Survey	MAFF	Farmers	60	EM	AH
Lettuce Under Glass Survey	MAFF	Farmers	60	SW	AH
Cereal Stocks Inquiry	MAFF	Farmers	2,400	EW	AH
Cereal Yields Inquiry	MAFF	Farmers	2,600	EW	AH
Orchard Fruit Survey	MAFF	Farmers	730	EW	I
Performance of Mobile Feeding Systems for Forage and Other Feeds	MAFF	Farmers	80	E	AH
Handling and Application of Liquid Fertiliser	MAFF	Farmers	60	E	AH
Wages Paid to Employees on Job Creation Programme	MSC	Employers	200	GB	AH
Market Potential of UK Printing and Bookbinding Machinery Industry	NEDO	Manufacturers	30	UK	AH
Prescribed School-clothing Study	PC	Retailers/Manufacturers	300	UK	AH
Inquiry into Coffee Prices	PC	Retailers	110	UK	AH
Freight Generation Study - Hull Survey	TRRL	Goods Vehicle Operators	200	YH	AH
Research into Commodity Flows	TRRL	Manufacturers	100	GB	I
Food, Drink and Tobacco Industry Training Board Emoluments Return	TSA	Manufacturers	2,200	UK	A
Levy Return - Construction Industry Training Board Return	TSA	Construction Companies	38,000	GB	A
Local authority surveys					
Use of Stress Graded Timber in Building	BRE	Planning Departments	440	UK	AH
Survey of Non-teaching Staff Costs	DES	Local Education Authorities/Headmasters	1,100	EW	AH
HM Inspectorate Survey of Local Education Authorities Behavioural Units	DES	Education	97	E	AH
Planning Statement for the Personal Social Services	DHSS	Social Services	110	E	A
Services Provided for Alcoholics and Drug Addicts	DHSS	Social Services	110	E	A
Inquiry into the System of Remuneration of Local Authority Members	DOE	Chief Executives	520	GB	AH
National Survey of Rent Arrears and Procedures	DOE	Housing Departments	450	EW	AH
Community Land Schemes Monitoring Return	DOE	Planning Departments	370	E	A

New surveys assessed January – March 1977—continued

<i>Title</i>	<i>Sponsor</i>	<i>Those approached</i>	<i>Approximate number approached</i>	<i>Location</i>	<i>Frequency</i>
Local Authority Surveys					
Establishment of Trees on Reclaimed Land	DOE	Planning Departments	20	E	AH
Survey of Disposal of Farm Chemical Wastes	DOE	Chief Executives	43	E	AH
Consumer Advice Centres – Effect and Extent of Activities	DPCP	Chief Executives	43	E	AH
Study of Provision and Practice of Day Care Services	SED	Social Services	780	S	AH
Waste Collection and Disposal Surveys	WO	Town Clerks	75	W	A
Capital Payments – New Dwellings and Rehabilitation	WO	Chief Executives	40	W	A
Other Surveys					
Crime Panelisation Experimental Research	COI	Drivers	450	EW	AH
Research on Documentary Films	COI	Students	600	E	AH
Energy – Panelisation Experimental Research	COI	Adults	400	GB	AH
Drink and Drive – Validation of Sampling Technique	COI	Drivers	860	UK	AH
Communication Effectiveness of Leaflet M11 Describing Entitlement to Social Security Benefits	COI/ DHSS	Adults	100	UK	AH
Recycling Waste – Background and Slogan Research	COI/DI	Adults	40	E	AH
Concept Testing of Rabies Publicity Material	COI/ MAFF	Adults	140	E	AH
Information Project on Metrication and the Elderly in Lambeth	COI/ METB	Elderly	600	SE	AH
Omnibus Survey to Measure Attitudes to Metrication	COI/ METB	Shoppers	2,000	GB	AH
RAF Technicians Advertisements Concept Test	COI/ MOD	Men	50	UK	AH
Survey on Attitudes towards Overseas Development and Development Education	COI/ ODM	Adults	2,000	UK	AH
Distribution Study for Material Produced for Office of Fair Trading	COI/ OFT	Consumer Advisers	300	GB	AH
Early Careers of Graduates	DEM	Graduates	15,000	GB	AH
Register of Research and Development on Novel Energy Sources and Energy Conservation	DEN	Research and Development Organisation/ Universities	1,000	UK	AH
Survey of Input/Output of Students in Schools Providing Librarian Courses	DES	Headmasters	20	UK	AH
Inquiry into the Demand for Teachers with Particular Qualifications	DES	Headmasters	650	EW	AH
Uses of Day Centres for the Elderly	DHSS	Elderly	500	EA	AH
Cerebral Palsy and Spina Bifida Surveys	DHSS	Parents/Teachers/ Teenagers	360	SE	AH
Alternative Patterns of Care for the Elderly	DHSS	Elderly	2,300	E	AH
West Country Regional Tourism Study	DOE	Tourists	2,800	SW	AH
Car Park Signing Experiment in Truro	DOE	Adults	200	SW	AH
Acceptability of Low Cost Housing to First Time Buyers	DOE	Households	760	GB	I
Remuneration of Local Councillors Study	DOE	Councillors	6,500	GB	AH
Housing Problems of Handicapped Children Survey	DOE	Households	290	SW	AH
Improving Local Authority Housing Opportunities of Ethnic Minorities	DOE	Households	200	WM	AH
Hazard Warning Symbols – Evaluation of Proposed EEC Consumer Safety Symbols	DPCP	Adults	4,000	UK	AH
National Consumer Council Survey on Rural Transport	DPCP	Transport Operators	200	E	AH
Road Accident Statistics – Revision of Reporting System Study	DTP	Police	50	GB	AH
A57 Proposed Aston Relief Road – PPE	DTP	Adults	continuing ⁽¹⁾	YH	AH
Rural Transport Experiments in Four Areas	DTP	Adults	5,000	UK	AH
A303 Trunk Road Ilchester to Compton Pauncefoot Somerset – PPE	DTP	Adults	continuing	SW	AH
“England Holidays 1977” Brochure – Evaluation and Readership Studies	ETB	Adults	3,500	GB	AH
Qualitative Assessment of Creative Development for 1978	ETB	Adults	50	E	AH
Networked Tourist Information Centre Awareness and Usage Check	ETB	Adults	4,000	UK	I
Continuous Image Survey of Selected Holiday Destinations	ETB	Adults	2,800	UK	A
Survey of London Residents’ Opinions of Tourism	ETB	Adults	3,800	SE	AH
Holiday Intentions Survey	ETB	Adults	3,000	GB	AH
Evaluation of Camp Site Advertising Campaign	FC	Tourists	3,500	GB	AH
Training Opportunities Scheme Follow-up Survey – (Postal Form)	MSC	Trainees	1,100	GB	M
Survey of Registered Unemployed Young People	MSC	Teenagers	650	GB	AH
Follow-up of Ex Job Creation Programme Employees	MSC	Employees	3,710	GB	AH
Consumer Credit Act Benchmark Survey	OFT	Adults	2,500	GB	AH
Surgical Footwear Survey	OPCS	Patients	1,800	EW	AH
Survey of Attitudes to Employment and Finances	OPCS	Adults	2,300	GB	AH

New surveys assessed January-March 1977—continued

<i>Title</i>	<i>Sponsor</i>	<i>Those approached</i>	<i>Approximate number approached</i>	<i>Location</i>	<i>Frequency</i>
Other Surveys (continued)					
Infant Feeding – Reasons for Decline in Breast Feeding	OPCS	Mothers	2,300	EW	AH
Readership Survey of "Health Trends"	OPCS	Doctors	3,470	GB	AH
Ministry of Overseas Development Financed Training in UK	OPCS	Students	200	UK	AH
Transfer of Passengers at Heathrow	OPCS	Travellers	15,000	SE	AH
Prescribed School-clothing Study	PC	Headmasters	560	UK	AH
Research in Housing Action Areas	SDD	Households	1,000	S	AH
Community Councillor Survey 'Strathclyde'	SDD	Councillors	250	S	AH
Tenant Reaction to Local Authority Improvements	SDD	Households	450	S	AH
Follow-up Survey on Sixth-formers Driving Experience	TRRL	Individuals	1,800	NW	I
Orton-Longueville School Survey – Bicycle Routes	TRRL	Students	1,400	EM	AH
Community Transport – Voluntary Organisations Providing Transport Outside Public Transport System	TRRL	Users/Providers	480	WM	AH
Employment and Training of School Leavers	TSA	School Leavers	1,000	S	AH
Readership Survey of Autumn to Spring in Wales' Brochure	WTB	Adults	1,500	GB	AH
Readership Survey of the "Wales" Brochure 1977	WTB	Households	1,500	GB	AH

(1) A self-selection of visitors to exhibitions etc. who choose to complete a form.

Abbreviations used

General

EEC – European Economic Community
 PPE – Public Participation Exercise

Sponsor

BRE – Building Research Establishment
 BSO – Business Statistics Office
 COI – Central Office of Information
 CSO – Central Statistical Office
 DEM – Department of Employment
 DEN – Department of Energy
 DES – Department of Education and Science
 DHSS – Department of Health and Social Security
 DI – Department of Industry
 DITPCP – Departments of Industry, Trade and Prices and Consumer Protection
 DOE – Department of the Environment
 DPCP – Department of Prices and Consumer Protection
 DT – Department of Trade

DTP – Department of Transport
 ETB – English Tourist Board
 FC – Forestry Commission
 HIDB – Highlands and Islands Development Board
 MAFF – Ministry of Agriculture, Fisheries and Food
 METB – Metrication Board
 MOD – Ministry of Defence
 MSC – Manpower Services Commission
 NEDO – National Economic Development Office
 ODM – Ministry of Overseas Development
 OFT – Office of Fair Trading
 OPCS – Office of Population, Censuses and Surveys
 PC – Price Commission
 SDD – Scottish Development Department
 SED – Scottish Education Department
 TRRL – Transport and Road Research Laboratory
 TSA – Training Services Agency
 WO – Welsh Office

WTB – Wales Tourist Board

Location

E – England
 EA – East Anglia
 EM – East Midlands
 EW – England and Wales
 GB – Great Britain
 NW – North West England
 S – Scotland
 SE – South East England
 SW – South West England
 WM – West Midlands
 YH – Yorkshire & Humberside
 UK – United Kingdom
 W – Wales

Frequency

A – Annual
 AH – *Ad Hoc* (or single time)
 I – Irregular or less frequent than annual
 M – Monthly
 Q – Quarterly

Alphabetical Index

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number e.g. 29.31 signifies issue number 29, page 31.

Generally speaking articles relating to 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.

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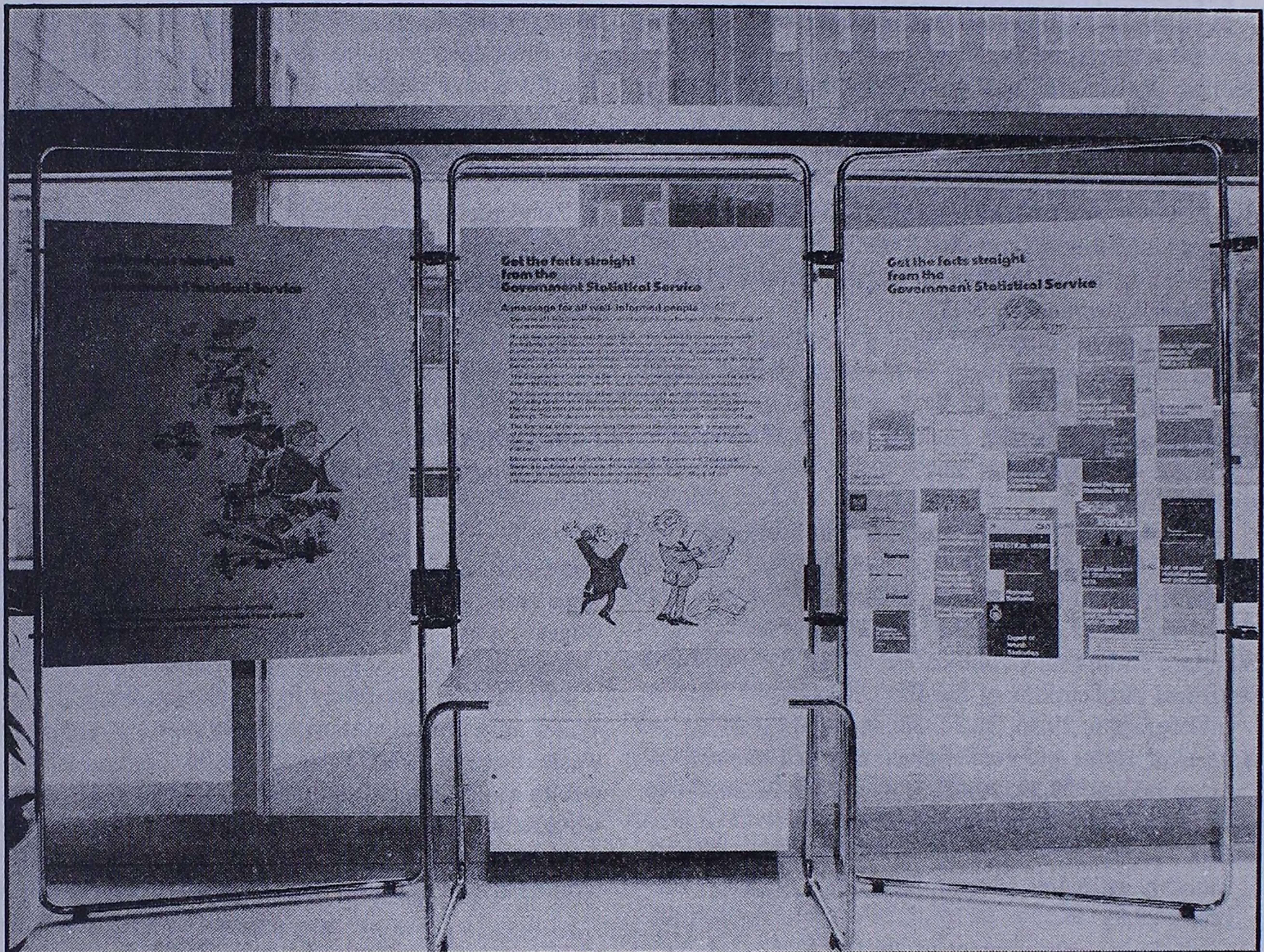
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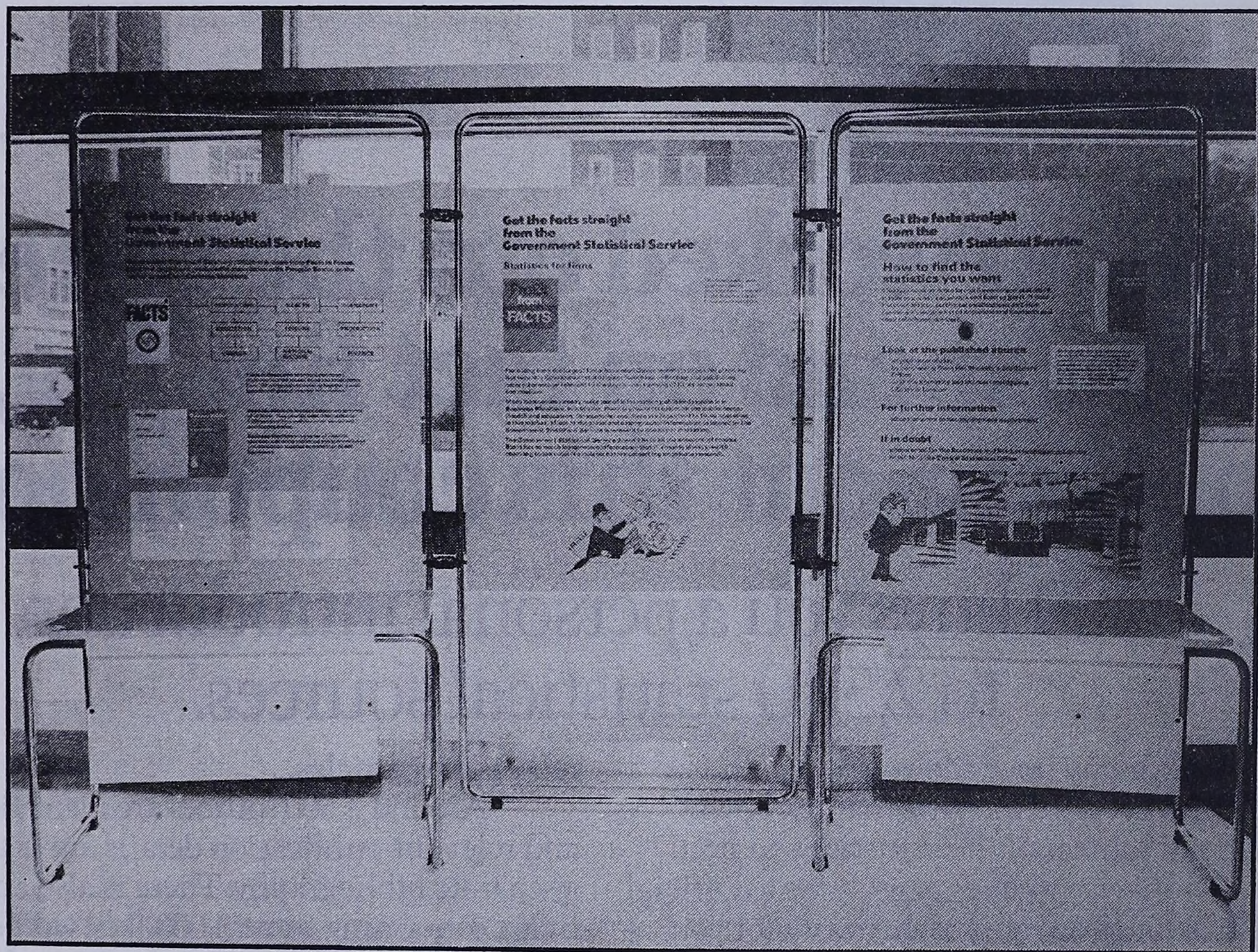


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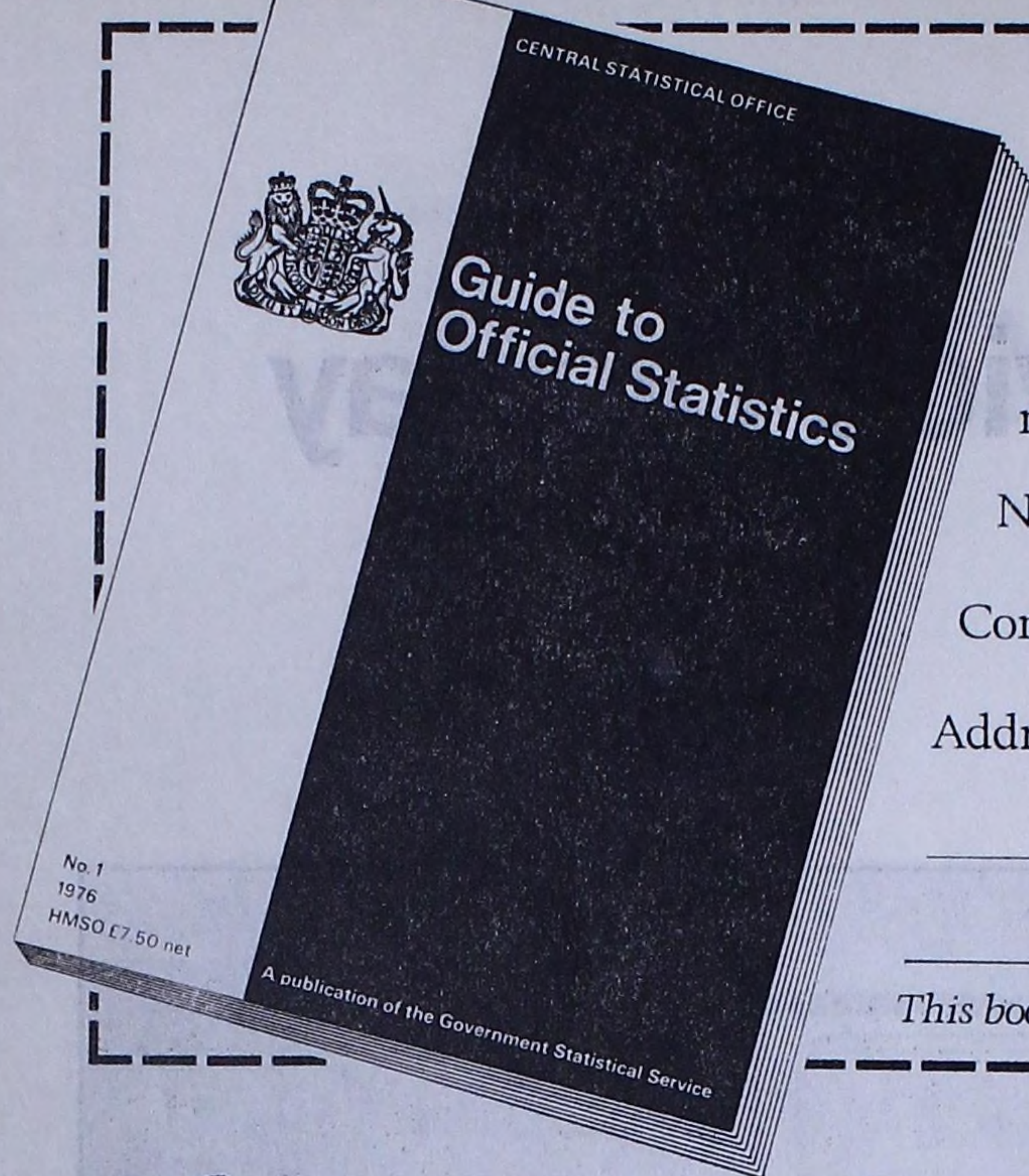
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