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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.

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NOTES ON CURRENT DEVELOPMENTS

The environment in which statistical offices will work in ten years' time

Sir Claus Moser, *Director of the Central Statistical Office and Head of the Government Statistical Service*

This article is based on a paper given at a seminar on Statistical Services in Ten Years' Time held in Washington in March 1977. The seminar was organised by the UN Statistical Commission and the Economic Commission for Europe. The article draws on comments by a number of other national statistical offices (Austria, Canada, Czechoslovakia, Finland, France, German Democratic Republic, Federal Republic of Germany, Greece, Hungary, Italy, Poland, Romania, Spain, Sweden, Switzerland, United States of America, Yugoslavia), but basically represents a personal view rather than a summary of these contributions.

Introduction

Looking back at how statistical systems here and in other countries have changed over the last ten years, one finds differences in detail rather than in fundamental purpose or approach. I suspect the same will be true when in due course one looks back from 1987 to 1977. Of course there will be many differences in the type and range of statistics collected and in the technology used for their collection and analysis – but I doubt whether work and life in a statistical office will be fundamentally different from today. Whether it is or not will depend mainly on the general environment, and especially on the government environment, in which the offices operate and it is with this that the present article is concerned.

One other introductory remark needs to be made. In looking ten years ahead, one can either speculate on what is *likely* to happen or discuss what (in one's own view) is *desirable*. I shall try, as much as possible, to concentrate on the 'likely', though some wishful thinking will creep in: it is hard to avoid the temptation of saying how official statisticians should – in one's own view – react to likely challenges. But the main emphasis is on the problems which official statisticians are likely to face in ten years' time.

The current situation

In considering the future environment, two broad facets can be identified. One is the relation of statistical offices to the rest of government and to other public authorities; the other is our relation with non-government groups and individuals, both as users and suppliers of data. The former bears on the changing role of Government itself and what, in consequence, may be required from us; the latter bears on relations with the business community and the public and raises problems such as privacy, confidentiality and the burden of form-filling.

Before gazing into the future, it is useful to try to characterise the environment in which we work now – perhaps with a ten year backward glance in mind. We note the enormous growth in the scale of official statistics in most countries; it is not exceptional for the statistical office to have multiplied in its professional complement by a factor of five over the last ten years, with the grades of the top people much higher than before and with greater integration in the top councils of government. The percentage of public expenditure spent on statistics has increased substantially, more than many other parts of government. The range of statistics collected directly, or indirectly, from administrative data has increased beyond recognition, accompanied by gains in accuracy and timeliness. The technology of statistics and of automatic data processing (ADP) facilities has improved. Decision makers are more conscious of statistics and in public discussion statistics are more prominent. The general public, both as individuals in various professional groupings and in business, are more sophisticated in their understanding of, and respect for, statistics, and the standard of newspaper comment on, and use of, statistics is greatly improved. In short, compared with ten years ago, we have more and better statistics, they are better produced, and they are used more intelligently. If this sounds complacent, the last year or two have removed much of the grounds for complacency. Defects in the system have become more apparent, including prominent errors and delays, and there has been some opposition to the increasing demands made by the collectors of statistics. A more critical attitude is evident, not only amongst policy-makers but

also in the public, whose increasing participation in policy and management increases their appetite for good data. It is against this background of increasing demand, coupled with a less unquestioning attitude, that one looks ten years ahead.

The government environment

The enormous increase in the demands of governments for more and better statistics has reflected the increase in government itself. Wherever one looks, governments have tended to govern more, and it is a basic question whether this trend is likely to continue. There are two contradictory streams of demand. People and organisations call for more intervention and services from government, but they also express growing concern about the extent of government intervention in their lives; many take the view that governments should govern less. It is anyone's guess to what extent the cries for less government and less interference will carry the day against the opposite view. The chances are that the pressure for less *central* government will have some success though perhaps not enough to affect the central government appetite for official statistics; but there is no doubt it will make the climate in which we work tougher, with more public resistance to requests for data, and thus threats to reliability. At the same time, the activities and importance of regional and local government is likely to increase, and with it the demand for small area statistics.

But even if one assumes that the central government environment ten years hence will be such as to require at least as much statistical support as today, this is not to imply an unchanged official environment for statisticians. Far from it: I believe that the continued government demand for statistics will be set in a very changed context.

First, *resources* will not grow in parallel with demands. Throughout the world, public expenditure will come under increasing scrutiny and the size and growth of civil services in particular will be kept more in check, including the statistical activities. Yet the demands are certain to increase, not least because governments themselves will need more and better data for setting their own priorities. An increasing conflict between demands and resources is likely, and this will mean:

i. a greater emphasis on *efficiency* in statistical organisation and production and on cost reduction generally, and a greater reliance on cheaper (e.g. administrative) sources;

ii. a much greater need for rational setting of statistical *priorities*, with strictly structured medium-term statistical programmes becoming the norm – related to policy needs, and with the more sophisticated use of cost-benefit techniques applied to statistics. This is a difficult area and many statistical activities are not easy to quantify in terms of benefits; but systematic costing, and the estimation of benefits wherever possible, must be the aim. In times of relatively static resources, priorities are vital – and they must encompass all parts of a statistical system.

Second, the *nature of government demands* for statistics is likely to change. This is meant in several senses:

i. governments attempt to steer economies – and, up to a point, social developments – with the aid of statistics. The statistical boom years have led to greater sophistication amongst policy users and to great expectations. These are often unfulfilled. The indicators can be less accurate, less timely and less relevant than the policy-makers expect, and the fact that the expectations are often unrealistic may be as much the fault of the producers as of the users of statistics. Expectations and achievements must be brought closer together, with a much greater emphasis on the *quality* of the data – in terms of accuracy and timeliness;

ii. government users of statistics will look for greater simplicity. The flood of statistics resulting from the boom years sometimes confuses or fails to help. The search will increasingly be for simple summaries, for key indicators, for simple rather than complex models;

iii. policy-makers will increasingly want to supplement general background statistical information with data bearing on specific problems – to help them in making particular decisions and in monitoring their consequences. Micro statistics – relating to particular areas, sectors and groups – will become more important, and over-all national statistics perhaps less so;

iv. above all, policy-makers in government will expect from their statistical offices not so much the production of more data as, increasingly, their analysis and interpretation. The aim will be 'to collect less and to use more' – and understandably so. Analytical studies, rather than mere presentations, will be expected of the statistical offices of the 1980s, with – amongst other things – advances in the statistical base for economic and social forecasts. Statisticians will be expected to come more into the open in assessing their figures in terms of quality and in interpreting their meaning. Figures will be expected to have 'quality labels' attached to them. The greater interpretative role will demand a more outward-going, politically sensitive approach (which, one must stress, should – and can – go hand in hand with total professional integrity).

In sum, the government environment ten years

hence will be tougher as regards resources and more critical about what official statisticians produce. The magic of numbers may be less seductive than now. Ministers and top administrators will be sophisticated enough about statistics to want guidance about the accuracy of the figures, as well as greater timeliness and relevance in the figures themselves; they will want more help in analysis and interpretation. Priorities and statistical programmes will have to be explicit, with *user*-orientation (for users outside and inside government) dominating their choice. Regular routine statistics may become less important, 'one-off' surveys and analysis more so.

Trends in subject matter are hard to predict. It is a safe bet that social statistics will become even more important, as a necessary component of increasingly systematic social monitoring. The inter-relations between different social changes will call for measurement as social policy-making becomes more sophisticated. The social consequences – often secondary or tertiary – of economic changes will need to be analysed, and statistical offices may be led into areas of measurement which are at present regarded as difficult, even impossible. Statistics on distributions and differentials will become ever more important. Generally, as societies and social policies become less compartmentalised and more integrated, so must their statistical analysis.

The regional and local environment

The previous section has argued that the central government environment may not change dramatically in the next ten years, though the demands on the statistical services will. At 'sub-national' levels the changes are likely to be more basic. A continued movement towards devolved and dispersed government seems likely in many countries. The trend is towards dissatisfaction with large units and a 'small is beautiful' atmosphere will add to other pressures for a greater spread of decision-making and administration.

This devolution of power and administrative functions from the centre to regional, State, provincial and local authorities will substantially change the context in which statistical offices work. It will call for improved small-area data, and there will be a need for co-ordination to ensure that what is collected and produced 'locally' is compatible with national requirements. There will be organisational problems in how to link the statistical operations of local offices with their central counterparts. To the extent that the former have administrative automony, it will be the harder to sustain an integrated statistical system and organisation. This integration is so important from the point of view of good statistics that organisational splintering will need to be resisted, or, if it is unavoidable, accompanied by strong co-ordinating machinery. In short the changing 'local' environment, whilst good from the point of view of encouraging small area data, contains within it organisational difficulties. To the extent that decision and policy making becomes increasingly decentralised, so will the statistical services have to be; and this could be a major change in environment.

What is certain is that sub-national authorities, whether at State, regional or local level, will increasingly have their own statistics, research and intelligence units, and also their own ADP installations. Networks of local computer/data banks would offer advantages in supplying comparable data, but this will raise questions of what is socially acceptable as well as what is technically feasible.

The public environment

Dissemination

Like other parts of government, national statistical offices impinge on public life, and their relation with the public is a two-way process. On the one hand, the public are users of government statistics, and on the other as respondents they provide the straw with which the statistical bricks are made. In both senses, the environment ten years hence may be very different, from now.

National statistical offices will increasingly be called upon to make the data on which policies are based more readily available to the public at large. Greater openness will be expected all round, partly because there will be greater public participation in decision-making and partly because impatience with secrecy is likely to grow. More specifically, statisticians will be expected to make available data collected at the public's expense and through their effort.

The public of the 1980s will be better educated and they will more consistently challenge the decisions of government. They will expect to monitor government efficiency by using official statistics and will expect readily accessible, convenient and well illustrated statistical publications, with more guidance than now on quality of data and their meaning. Non-government users will become more important in the thinking of statistical offices, with close attention to public relations, the 'marketing' of data, and guidance to data sources.

For the supply of detailed data, traditional methods of dissemination will not suffice and new technology will help. Computer terminal linkage to databanks holding anonymous aggregate data will become widespread and the use of visual display units and easy-to-use analytical packages will further facilitate communication with the non-expert user. Detailed guides to the data available in this way will be needed. Such develop-

ments are totally feasible, but they will involve serious technical problems of safeguarding the confidentiality of individual information. In any case, the chances are that dissemination of statistics will be a mixture ranging from conventional publications to data bank outputs, rather than just the latter as might once have been expected.

Institutions other than government will increasingly analyse and present statistics – e.g. trade unions, trade associations, stockbrokers, research institutes. In this way, national statistical offices may lose the near monopoly they enjoy now, and there will be risks of duplication and confusion. The more open we become with official statistics, and the better they are, the less the risks will be. But some increase in statistical activity outside government is inevitable; it will give the concept 'official statistics' a new meaning, and will call for strong co-ordination by the central office if confusion is to be avoided.

Form-filling

Whether objection to the burden of statistical enquiries placed on businesses and individuals will harden is anyone's guess. There could be increased resistance stemming from concern about 'over-government' and objections to authority in general. People could become more concerned about privacy, and business firms – expecially small ones – could become more impatient about government-imposed paper work. Against this, increased openness and persuasion of the value of good statistics could influence attitudes in a more positive direction.

It seems sensible to proceed on the assumption that attitudes may harden. National statistical offices will have to ensure that society does not become, or consider itself to be, oversurveyed. Thorough scrutiny procedures will check that all government surveys are strictly necessary and that each item of data sought is essential. There will also be calls for national statistical offices to control the proliferation of non-government surveys, though this may prove difficult to implement. Informing the public about the statistical requirements for efficient government and explaining the reasons for, and uses of, the surveys is important. Respondents will expect to 'get something direct' out of surveys – a return for their labours. In the field of business surveys, closer links between statisticians and company accountants will help. The methods of data collection will change in the direction of more emphasis on reducing the burden on the public by, e.g.

i. increasing use of sample surveys (and their careful design to minimise sample sizes).
ii. improving form design;
iii. deriving data directly from business and other organisational computers;
iv. using administrative records as sources of primary data more systematically and generally.

The use of compulsory surveys may decline, and therefore there will be greater emphasis on techniques of imputation to deal with the problems of non-response. However 100 per cent surveys will still be necesarry to provide data for grossing-up procedures and for the sampling frames themselves. Regular population censuses (asking for only a limited amount of information) will fulfil part of this need and registers, e.g. of businesses and properties, will be developed for use with other types of surveys.

Privacy and confidentiality

The subject of privacy is intertwined witq that of confidentiality and the public will continue to have fears relating to both. However, subject to fears on confidentiality being allayed by well-publicised safeguards, and constraints being placed on the total burden of statistical enquiries, it is possible that public attitudes to privacy could become more relaxed over the next ten years, and that the limits to what one can ask, successfully, will be widened. This is hard to gauge, and it is just as possible that citizens will increasingly challenge the right of government to ask personal questions, and will expect stronger justification for them. Which trend prevails will depend on attitudes to government at the time and on complex economic and social forces. Most likely, there will not be a consistent trend, and attitudes will vary from country to country and from time to time.

The statistical offices will certainly have a major task in allaying the public's fears on confidentiality at a time when there will be more pressure for linking of data and the creation of databanks, and when all the technical computer trends may suggest a less safe environment. Statistical laws to cover these problems will become commonplace and, where there is no actual legislation, there will probably be codes of conduct, with 'watchdog' bodies set up to survey their implementation. The security of personal data and the protection of business data for individual firms will be the most important aspects. Confidence on these and related points will be vital if statistical offices are to retain the support of the public.

The technical environment(1)

The previous section touched on aspects of technology, and most countries in their contributions discussed developments they expected in the ADP area. Dramatic changes in computer technology can be anticipated with

(1) This was the subject of a separate session at the seminar and is touched on only briefly here.

improvements in hardware and the likely predominance of mini-computers. New input and output technologies are likely, with much reference to optical character reading, microfilms, microfiche etc. Processing should become faster and more efficient. Linkage facilities are expected to get much easier, facilitating the development of integrated information systems, including linkages with computers of large companies, facilitating the supply of data to and from them. Administrative records are expected to be increasingly computerised with statistical outputs as an essential by-product. Access to anonymous computer-held information is expected to become easier, with facilities for 'browsing' and interrogating the databanks, so that analysis of basic data can be done more easily.

The potentialities are great and one can understand why statistical offices use phrases like 'computer revolution' when looking ten years ahead. But there is, at the same time, a danger that statisticians will be mesmerised by ADP developments, and will be led into the construction of increasingly complex data systems when what may be wanted is simplicity and better use of the data already held. These dangers can be partly avoided if establishments have more control over ADP developments, in short, if the *user* voice (in this case that of statisticians) is given more weight. I have already mentioned the questions of privacy and confidentiality, and these too must be given greater weight in deciding how to develop the computer side of statistical offices.

The moral seems to be to proceed with the technical developments that now lie within our grasp, but not to be carried away by them into areas where they might harm rather than help the service statisticians give to governments and to the public. The main need will be for statisticians to make better, more sensitive and more relevant use of data, and to the extent that computers help with this, they are to the good; to the extent that they distract from this aim, they should be treated with caution.

The professional and academic environment

The professional environment for statisticians working in government may well change. True, the main responsibility for collecting and producing statistics will remain theirs, but if they do not rise to the challenge of a greater analytical and interpretative contribution, this role may well be taken over increasingly by other social scientists. This would reduce statisticians to mere data-providers which would be a great pity. Professional statisticians have a great contribution to make in interpreting their data and they should not shy away from it. Interaction with administrators will become better as they become more numerate, and statisticians more literate. Inter-disciplinary teams are likely to become more commonplace

Already the borderlines between different kinds of specialists are becoming more blurred. Economists and statisticians already overlap in their functions, and are also likely to do so increasingly. Overlaps and relationships between statisticians and accountants, ADP specialists, operational research specialists and other groups are also likely to grow, and the breed called 'statisticians' may become less distinct and identifiable. This is not harmful as long as the central core of the statistician's work remains clear and represents a distinct professional contribution. At the edges, the more he comes to interact with other specialists and with 'generalists', the better.

A very unsatisfactory aspect of the present situation is the gap between official statisticians and the academic statistical community. This was the main thesis in Mr Petter Jacob Bjerve's presidential address to the Warsaw session of the International Statistical Institute in 1975 and was also discussed by me in a paper to the American Statistical Association in 1975; it need not therefore be laboured here. What is apparent is that in most countries official statisticians are relatively remote from what goes on in university statistical departments. Too often they make little use of advanced statistical techniques, are not in close contact with teaching and research, and do not generally contribute to university actitivites; all this in a situation where official statistical work could no doubt benefit from the help of the academic community (as quickly becomes clear when academic consultants *are* used). On the whole, university statisticians, at any rate in mathematical and theoretical statistical departments, take fairly little interest in official statistics, though the course work and research in academic departments could benefit if more of it was built around problems arising in official statistics. It is to be hoped that ten years hence the bridge will have been narrowed. The difference between theory and practice seems to grow each year, with increasing splintering of the profession. Both sides – the theoreticians and the practitioners – lose from the gap. In particular it is to be hoped that courses in statistics will encompass a more practical outlook, with applications in official statistics having as much prominence as those in businesses, agriculture, research and so forth. This is all the more vital if, as is argued here, statisticians in government are to play a more analytical role; they should emerge from their university courses with a well-balanced background. In return, we must serve the academic fraternity better – in particular by greater openness and access.

International environment

A brief word needs to be said about the way the international environment for work of statistical offices will change. This will vary with the organisations. In cases their influence will be felt mainly in the search for more comparable statistical concepts and in the development of accepted international standards and classifications. These objectives are likely to be intensified by the greater use of ADP, and there will be increased pressure for the use of common coding systems in areas of mutual interest, e.g. documentation concerned with international trade. Just because international factors increasingly affect national environments, the pressures from international organisations for better and more co-ordinated data will intensify.

International organisations may increasingly sponsor the collection of new data for the purpose of inter-country comparisons. This is particularly likely where the organisation has a formal, and partly binding, relationship with its members. Such organisations may well become tougher in their demands, and this will cause increasing priority choices for national offices in times of scarce resources.

The study of international problems as such – e.g. relations between economies, markets, population movements and so forth – may grow as countries become more intertwined, and this would intensify the demand for international and internationally comparable statistics.

Concluding remarks

I have looked at various ways in which the environment for official statistics may alter in the coming decade, in realistic terms, avoiding fanciful speculation. Trends likely to affect many countries, rather than a few exceptional ones, have been emphasised.

What emerges is a challenging situation. Demands are likely to increase more than the resources needed for satisfying them. There will thus have to be stricter priority-setting and emphasis on efficiency. While one can assume a continuing, perhaps a growing, respect for the role of statisticians, users of statistics will be more critical. The statistical honeymoon of the immediate post-war decades is over. A more critical scrutiny, from within government as well as from outside, will be applied to official data, and we will be expected to be more forthcoming about the quality of our figures and more helpful in analysing and interpreting them. At the same time, the increasing dispersal of decision-making will call for major improvements in small-area data. The public generally will become more demanding, and at the same time *perhaps* more resistant to data-collection and worried about privacy and confidentiality. The more open statisticians are, the more effective in explaining why they want data and how they plan to use them, and the better they become in disseminating statistics, the more co-operation will they get from the public. Statistical offices will need to become more outward-looking and very user-orientated.

A more fundamental organisational problem may arise from some of the developments I have discussed. Several of the trends foreseen for the next decade imply a 'splintering' in statistical activities, away from an integrated approach; moves to more *ad hoc* surveys, as opposed to regular statistics, can have this effect as can a greater stress on analysis and interpretation; the building up of regional and local statistics can obviously have this effect; so can the development of statistical activities outside government. All these tendencies could weaken the build-up of integrated systems which has, rightly, characterised the last decade or two; and could result in a profusion of autonomous organisations. This could undo progress made in recent years in creating integrated and co-ordinated statistical operations. One possible outcome could be for statisticians to become confined to 'data-factories', with analysis and presentation and use looked after elsewhere by people with other labels. This would be highly undesirable in terms of the integrity and proper interpretation of the data and must be avoided. The aim of achieving both relevance to policy *and* integrity, will remain one major issue to wrestle with, and the establishment of strong co-ordination arrangements to counter the effects of 'splintering' in statistical activities will be another.

The survey of short-term export prospects

Stephen Curtis, *Statistician, and* **Roger Beedell**, *Assistant Statistician, Departments of Industry, Trade and Prices and Consumer Protection*

Introduction

This article discusses the reason for the introduction of this inquiry; describes how it has been run; and explains some of the problems inherent in it and the attempts being made to solve them.

The inquiry, which is quarterly and addressed to companies, covers exports of goods (exports of services are not covered). It was begun in the Autumn of 1975, at a time when the volume of exports had been falling, reflecting the decline in world trade in manufactures as a whole. The timing and pace of the recovery in world trade from the recession and the scale on which UK exports might share in the recovery were crucial to the development of the UK economy and the balance of payments. Naturally, Government was making its own forecasts of the likely developments in the economy, but it was felt that a limited inquiry, utilising individual companies' knowledge of, for example, their orders on hand, market conditions and their likely export performance, could provide a useful supplement to these forecasts. Once the broad lines of the questionnaire had been established, a small pilot survey of companies was undertaken to see if they would be able to provide the information desired. This pilot was sufficiently encouraging to allow the main inquiry to go ahead.

The survey

The forms for the survey are despatched at the beginning of each calendar quarter, and ask for forecasts of the value of the companies' exports for that quarter, and for each of the next two quarters; and for forecasts of the movements in value, price and volume in each period in terms of percentage changes on a year earlier. In addition, actual figures for the immediately past quarter are requested. The major inquiry into export intentions up to that time was the Confederation of British Industry's (CBI) Industrial Trends Survey. This inquiry, which covers the next four months, provides a qualitative indication of movements in exports (being based on 'up', 'same', 'down' questions), and the questions have hitherto been couched only in value terms. For these reasons it has not been feasible to interpret the CBI's survey closely, although it lustrates the exporting 'mood', and has the advantage of being classified by size-group and industry. The agreement of the CBI to the export prospects survey was obtained.

Given the concentration of exports among the major firms it was decided to approach only the major exporters for their assessment of prospects. The inclusion of smaller companies would have added little to the aggregate results, but would have disproportionately increased the cost of the inquiry, both to Government and industry. Accordingly, the top seventy-five exporting companies were invited to take part, covering nearly one-half of total exports. Of these, the top twenty companies cover one-third of total exports. The list from which the companies were drawn was the *Financial Times* 1974 ranking of the size of direct visible exports by company, obtained from company accounts. The export prospects survey is voluntary; nevertheless, seventy three of the seventy five firms approached accepted the invitation to participate for a trial period of a year, after which the usefulness of the survey was to be reviewed. A number of companies indeed were enthusiastic about the venture. One of the reasons for the very good response was undoubtedly the shortness and simplicity of the questionnaire, which has remained substantially unchanged throughout the life of the survey. A copy is reproduced at the end of this article (Appendix A).

In each of the four experimental rounds, around 90 per cent of the firms replied (and a high level has been continued subsequently). An indication of the interest shown in the survey was apparent when one company, not included in the inquiry, asked to participate.

The advantages of having a small sample size given limited resources were apparent in the valuable degree of rapport it was possible to establish with respondents; the thoroughness of scrutiny to which it has been possible to subject each return; and the degree to which personalised reminder action (by telephone) has been possible. It is an instructive exercise in the possible benefits of a small population against a large one which could not be as carefully controlled, and provides a salutary reminder that the quality of the results is not only a function of the number of respondents. It must

be accepted, however, that with a small sample, it will, in general, not be feasible to produce disaggregated results, e.g. by industry.

As was intended at the outset of the survey, a review of its usefulness was undertaken in the Summer/ Autumn of 1976. This concluded that it was worth continuing the survey for a number of reasons:

i. while, as inevitable with surveys of this kind, it was not possible to fully evaluate biases in the results (see below) the judgement was that the survey had provided useful additional evidence in the assessment of possible short-term developments of exports. In particular it had provided an accurate indication of the upturn in exports in the autumn of 1975;

ii. the extremely good co-operation from industry;

iii. a number of companies have said that they make use of results themselves. A copy of the results of each round is sent to each responding company;

iv. the results of the surveys had received widespread publicity in the media and generated considerable interest.

Accordingly, all respondents to the experimental rounds of the survey were invited to continue contributing to a more permanent exercise. Only a few refusals were received. In addition the list of respondents has been supplemented by firms that were in the latest listing of the major exporters, but which were not in the 1974 listing.

Using the results

The purpose of the survey must be mainly to allow inferences to be drawn on the likely short-term prospects for total exports. There are a number of difficulties, however, inherent in attempts to use the export prospects survey to forecast total exports:

i. forecasting is inevitably hazardous, dependent as it is on so many factors, both domestic and international. The forecasts that industry makes of its own exports may not therefore be realised. There may be a tendency for these forecasts to be consistently optimistic or pessimistic;

ii. since the coverage of the survey is the major exporters, rather than a random sample of all exporters, problems exist in matching the reported quarterly results for the companies covered by the survey to the official figures of total exports. It should be noted, however, that, for reasons of timing alone, this problem would still exist to some extent even if the respondents to the survey were representative of total exporting industry.

In addition to these two biases, which cause difficulties in interpretation, there also exists the difficulty in constructing a quarter by quarter path for UK exports from the series of percentage changes on a year earlier given in answer to the questions. These problems are examined below, separately for volume and prices. The movements in value are composed of volume and price changes, and will not, therefore, in general, be discussed.

(a) **The differences between companies' forecasts and their reported outturn**

Seven surveys have been completed to date (the eighth survey is currently in progress). There are some composition changes between the various surveys, in that the group of respondent firms has not been exactly the same for each round. The figures have however been adjusted to be as comparable as possible, and thus some lessons can be drawn on the companies' forecasting performance to date. Tables 1 and 2 below set out the differences that have so far emerged, for volumes and prices.

Table 1

Volumes

Forecast percentage changes on a year earlier minus actual growth rates as reported by companies in surveys 1–7

	One-step ahead forecast(1)	*Two-steps ahead forecast*	*Three-steps ahead forecast*
1975 Q4	+1	n.a.	n.a.
1976 Q1	—4	—5½	n.a.
Q2	+2	—3	—5
Q3	+3	+5	—1
Q4	—2½	+1½	—2
1977 Q1	+5½	+ ½	+5
Average error	+ ¾	— ¼	— ¾
Average error disregarding sign	3	3	3¼

(1)i.e. for the quarter in which the questionnaires are despatched.
n.a.=not applicable.

Table 2

Prices

Forecast percentage changes on a year earlier minus actual growth rates as reported by companies in surveys 1–7

	One-step ahead forecast(1)	*Two-steps ahead forecast*	*Three-steps ahead forecast*
1975 Q4	0	n.a.	n.a.
1976 Q1	—1½	— ½	n.a.
Q2	+ ½	—2	—2½
Q3	—2	—2½	—6½
Q4	—2	—4½	—7
1977 Q1	+ ½	0	—3½
Average error	— ¾	—2	—4¾
Aveage error disregarding sign	1	2	4¾

(1) See footnote to Table 1.
n.a.=not applicable.

The limited data so far available shows no clear tendency for companies consistently to over – or under-

forecast their actual percentage changes in export volume. In the early rounds of the survey, when the volume of exports had recently been falling, there was some under-estimation of the rate of increase of volume in the first half of 1976. The mean absolute deviation of their forecasts from their actuals has been about 3 per cent for each forecast horizon. It is not yet feasible to make judgements on which way any forecast bias is likely to move in the future. It may, for example, vary with the economic cycle.

There was some under-forecasting of price movements during 1976 which was perhaps not surprising in view of the substantial depreciation of sterling last year. An error of 6½ per cent was made, for example, in the three-steps ahead forecast for Q3 1976, a forecast produced in the January 1976 round of the survey, at a time when the sterling exchange rate was stable. Similarly, the three-steps ahead forecast for Q4 1976 (which was in error by broadly the same amount) was made in April last year, prior to the September/October fall in the sterling rate which was part of the cause for the rapid fourth quarter increase in export prices. When sterling has been reasonably stable (as in the early and most recent rounds of the survey) the price forecasts appear to have been a good indicator of actual movements. Companies make their own assumptions about the likely future path of sterling, as they do about the other determinants of exports such as world trade. Visits to respondents have shown that some of them assume a fixed exchange rate for forecasting purposes.

(b) **The differences between companies' outturn and the figures for total exports**

As Table 3 below indicates, in the seven surveys so far completed, the volume of respondent companies' exports grew faster from the trough in the Summer of 1975 than did total exports, while their export prices apparently increased less fast over the whole period.

Table 3

Companies reported increases in exports compared with actuals(1)

Percentage changes on a year earlier

	Value		*Volume*		*Price*(2)	
	EPS(3)	*Actual*	*EPS*(3)	*Actual*	*EPS*(3)	*Actual*
1975 Q3	3½	14	— 9½	— 7½	13½	23
Q4	13	20½	— ½	— ½	13½	21
1976 Q1	26	25	9½	5	15	19
Q2	27	26½	9	4½	16	21
Q3	34	29	12½	7	19	20½
Q4	39½	31½	15	7	20½	22½
1977 Q1	29½	30½	9	5½	18½	24

(1) Recorded *Overseas Trade Statistics* (OTS) basis less precious stones.
(2) The price index is the average value index obtained by dividing the value of exports by the volume figure. This is likely to be closer to the figures given by firms than the unit value index.
(3) Export Prospects Survey.

In the five surveys since the beginning of 1976, respondents' reported volume growth rates were, on average, some 5 per cent higher than the increases in total exports, while their export prices apparently rose 3–4 per cent less fast.

(c) **The aggregation of the results from individual respondents**

The results from each respondent are weighted together by the value of each respondent's exports to give the aggregate survey figures. Since these respondents are not representative of total exporting industry, however, weights relating to the importance of the firm's products in total exports have also, experimentally, been tried for analytical purposes. One of the aims of this has been to see if these alternative weights would bring the figures recorded from the survey closer to the OTS actuals. This re-weighting was done by aggregating individual company returns to broad industry groups and weighting these industry results by export commodity weights derived from the overseas trade statistics. A difficulty with this exercise however is that of needing to ascribe the exports of each of the largest firms in the economy to single, even broadly defined, industries or commodity groups (particularly since the available data normally relates to the company's total sales pattern, rather than export sales alone). Another is the relationship between the exports of the major exporters and total exports at this level. In the event revised weighting of the export prospects survey results has failed to yield estimates closer to those for total exports. This perhaps partly reflects different relationships, industry by industry, between the exports of the large exporters and total exports; and these are not removed by the different method of aggregation.

(d) **Derivation of a quarterly volume path from the export prospects survey results**

This problem arises from the nature of the questions, which are all in terms of the change on a year earlier. They were phrased in these terms to avoid problems of seasonality. The quarter-by-quarter path is, however, of much interest, particularly for the volume series. These are two main problems in obtaining such a path from the information given. First, the survey provides no quarter by quarter links to which the percentage changes can be applied. Thus we know that in Q1 the volume of exports by large exporters is forecast to be x per cent higher than in Q1 the previous year, and in Q2 the forecast is for y per cent growth on Q2 the previous year. However, we have no link between the volume of exports in Q1 and Q2 of the base period to enable us to relate the current Q1 and Q2.

Secondly, the returns to the export prospects surveys are based on 'actuals' i.e. not on seasonally adjusted data. It is, however, seasonally adjusted series we are usually interested in.

Three methods have been used to estimate quarter by quarter links. The first and simplest is to assume that the quarterly volume path in the base period is the same as that for total exports, and extrapolate by the survey's percentage changes. The second is to deflate the values given in the survey for the major exporters by a price series derived from the survey. The assumption made is that the quarterly path of price movements in the base period shows a similar pattern to that for total exports, constraining the year on year growth to that given in the replies to the survey. The third approach involves expressing the volume index for the large exporters in terms of constant £ million, by using the percentage of exports covered by firms responding to each round of the survey as multipliers to the 1970 price series for total exports. The coverage percentage is derived from the value figures, and the method assumes that these coverages are also appropriate for the volumes.

The series produced by these means have been used as complementary methods of estimating for total exports from the survey's results. In all cases the seasonal adjustment applied is that for total exports.

Estimates for total exports

The paragraphs above have indicated the kind of problems which exist in attempting to make estimates for total exports from the survey results. However, on the basis of the results of the seventh survey, published in June, for the first time forecasts were made of the seasonally adjusted volume of total exports.

Publication

The results of each quarterly survey are published in the journal *Trade and Industry*. It has not yet been possible to work to a firm publication date since it is dependent to a large extent on the rate of response, but publication has tended to be around 11 weeks after the despatch of the forms which are sent out at the beginning of each calendar quarter.

Reference

Trade and Industry (HMSO) Weekly (Price 35p).

IN CONFIDENCE

EP/77/2
(eighth survey)

DEPARTMENT OF TRADE
Economics and Statistics Division 5
Room 247
1 Victoria Street
London SW1H 0ET

Tel: 01-215 3165
or 01-215 5615

SURVEY OF EXPORT PROSPECTS

All figures given will be treated as strictly confidential *(see note 10)*

Dear Sir

The purpose of this statistical inquiry is to help the Department of Trade to assess the short term prospects for United Kingdom exports. The inquiry is being addressed to the largest exporting companies.

I should be grateful if you would answer the questions below and return this form as soon as possible. All the information provided will be treated as strictly confidential.

You may find it helpful to read the notes given overleaf before answering the questions.

Yours faithfully

Ken Mansell

K MANSELL
Chief Statistician

	1977			1978
	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
	£ million	FORECASTS		
1 Value of exports of goods		£ million	£ million	£ million
2 Estimated percentage increase or decrease compared with corresponding quarter in previous year	Percentage	Percentage	Percentage	Percentage
of which,				
3 due to movement in prices	Percentage	Percentage	Percentage	Percentage
4 due to movement in volume	Percentage	Percentage	Percentage	Percentage

Form completed by:

Name in capitals..... *Signature*.....

Status in company.....

Telephone No:..... *Extension* ..... *Date* .....

SURVEY OF EXPORT PROSPECTS

NOTES

General

1 The questionnaire asks for information about your exports of goods (but not services) for past and future quarters. We are anxious to obtain the information with as little burden on you as possible and it is our intention that the answers given should be provided so far as possible from data readily available. Please let us know if you have any difficulty in answering the questions by telephoning one of the numbers given at the top of the questionnaire.

Definition

2 The figures given should relate to direct exports of goods by you or by export agents working to your instructions. Goods which are sold to other firms in the UK not covered by this return and subsequently exported, should be excluded.

3 For **past periods** the data should correspond to the information which has been provided to HM Customs and Excise on export documents.

4 For **current and future** quarters the answer should be based upon your expectations taking into account your assessment of overseas market conditions, the likely demand for your goods, the state of your order books and any other factors affecting the demand for and supply of your goods.

5 If information cannot be provided readily on the basis required but a nearly equivalent basis – eg goods despatched ex-works for export – is available, please use this.

Valuation and prices

6 Exports should be valued on an f o b basis and quoted in Sterling in £ million to one decimal place. The answers given to question 3 should be based upon movements in export prices measured in Sterling terms. If it is necessary to convert part or all of the data from foreign currencies to Sterling, please use the rates of exchange adopted for your own accounts or, in the case of forecast data, for your own forward planning.

Reporting Unit

7 The information required should cover all United Kingdom companies – both parent and subsidiary companies – under common ownership. This definition of reporting unit is the same as that used in the annual inquiry into Overseas Transactions undertaken by the Department of Industry using form OT/G/76. If you would prefer to make separate returns for each of your constituent companies or divisions, please do so.

8 We realise that you may find it difficult to provide the data for the reporting unit defined in this way because of the large number of units from which data has to be collected. Where comprehensive coverage proves difficult it will be sufficient for this Survey for you to make a return covering as much of your export business as possible so that the burden of providing the data is kept to a minimum. It is hoped however that you will find it possible to cover the bulk of your export business.

Consistency

9 It is important that the data provided be consistent over time. If for any reason the data provided cannot achieve this – for example because the structure of your company or group of companies alters or because your method of recording exports changes – please let us know.

Confidentiality

10 All information supplied will be treated as confidential. Only those persons directly employed on collecting, processing and interpreting the information will have access to the particulars of individual returns, which will not be disclosed outside this small group of officials. Any results made available will be compiled so as not to reveal the figures of individual contributors.

Timing

11 Please return the completed questionnaire by the end of July 1977. If you are unable to meet this timing please let us know so that we can avoid taking unnecessary reminder action.

C2 / 83

The Statistical Information Service of the Chartered Institute of Public Finance and Accountancy

B. Fieldhouse, *Chairman, Statistical Information Service Management Committee*

Introduction

There is in local government a long tradition of publishing statistics showing the expenditure of individual local authorities up and down the land. There has been, for instance, a 'return of rates' in some form each year since 1885 – at first through local initiative, later co-ordinated by the Chartered Institute of Public Finance and Accountancy (CIPFA), and now a joint exercise by CIPFA and the Department of the Enironment. The post-war years saw the emergence of service statistics giving detail of the nature of expenditure by individual authorities, published jointly by CIPFA and by the Society of County Treasurers for the major services. CIPFA also began to compile annual returns on rate collection and outstanding debt and the Society produced a number of publications for counties alone, including financial and general statistics and rate precepts.

Both bodies had always pursued the objective of a reasonable consistency of format, but providing the flexibility necessary to cater for the information needs of particular services. Contacts had been maintained with other local government disciplines and with government departments in order to take account of their particular views and needs. Collectively, the publications were providing a coherent range of statistical information covering almost the whole spectrum of local government activities, but in the early 1970s both CIPFA and the Society saw the need to consider how the existing statistical service should respond to the changing needs of local government, having regard to the greatly increased size and complexity of the work of local authorities and to the imminence of a major reorganisation of local government. The particular needs for statistical information in the future were seen to be:

i. extension of the existing statistical series to include more non-financial information, particularly information on the use of manpower, land and other resources;
ii. the identification of more significant measures of local authorities' performance and their relationship to the use of resources;
iii. earlier collection and publication of statistical information to enable local authorities to take budgetary and other decisions in the knowledge of the latest position in comparable authorities;
iv. more searching analysis and interpretation of statistical material, including the identification of objective factors affecting the cost of providing a given level of service (thus helping to explain differences in costs between authorities) and the development of standard norms of costs and staffing ratios for specific activities;
v. a speedy and reliable service for collecting, summarising and analysing information for *ad hoc* purposes.

The Statistical Information Service

It was considered that the developing needs of local government could be most effectively met by the introduction of a Statistical Information Service, under the aegis of CIPFA, providing a comprehensive range of financial and non-financial statistics. The service is directed by a management committee, which includes chief officers representing all of the main professions in local government, including chief executives, and representatives of the Department of the Environment, the Central Statistical Office and of the local authority associations. There is cross-membership between this committee and the National and Local Government Statistical Liaison Committee which is the forum for discussion between local authorities and government departments of all statistical developments in the public domain. Thus in the direction of the service the committee is able to draw upon the experience of a wide range of professions and to respond to their needs, and is in close touch with government agencies whose interests coincide with those of local government.

The main strands of development of the service may be summarised as:

i. the publication of a basic reference work in separate

volumes, each dealing with a service or a group of services, together with an annual *Local Government Trends* publication providing an epitome of developments in the broad local authority context, and supported by research, enquiry and library services;
ii. a technical support service for the local authority associations providing factual information and analysis for specific purposes.

The basic reference work

The aim is to build upon the existing publications which in the past have been available as separately bound booklets. One major change which has already been brought into effect is the introduction of statistics based on estimates of expenditure and income, which are available early in the year of account and expressed at the price level adopted in the Rate Support Grant settlement. This change of emphasis away from actual expenditure statistics produced some months after the close of the financial year has provided much more relevant data both for the individual authorities in their budget review processes, and for those involved on behalf of the local authority associations in the continuing negotiations with central government over trends of expenditure for local government as a whole. It is the intention that statistics based on actual expenditure and income should continue to be published for individual services in order to continue the historic series, but in most cases in a more abbreviated form.

The reference work is planned to consist of twelve volumes, each containing a number of individual loose-leaf sections to which updating material can be added. The development of each volume is in the hands of a working party including representatives from the professional societies for the relevant services and disciplines, and from the government departments. The first volume – 'Sources' – is to contain an index to the work as a whole and to other local government statistical sources, together with a general directory and a library catalogue for the Service as a whole. The second volume – 'Techniques and Applications' – is planned to include chapters which describe the function of statistics in the local authority environment, the use and presentation of data, the role of computers, the use of statistical techniques and the practical use of statistics in the planning and control of local authority activities. The third volume – 'Community Indicators' – will get down to discussion of population and client group numbers and the way in which the available economic physical environment and social indicators can be employed in policy development. The fourth volume – 'Administration' – is planned to be in three parts containing summary data on rating, Rate Support Grant, borrowing and superannuation; general information on membership and structure of local authorities, manpower and central functions; and summary statistics on current and capital expenditure.

Each of the remaining volumes will deal with specific service areas in local government and the job of the individual working parties is the improvement and extension of the annual statistical collections with particular emphasis on:

i. the client groups for each service, such as housing tenants, schoolchildren and the elderly;
ii. the volume of service provided – for example, numbers of school meals, and frequency of refuse collection;
iii. the non-financial resources available or utilised, particularly manpower;
iv. expenditure and unit costs recorded in the continuing series of estimates and actual spending statistics, related wherever possible to client groups and to outputs.

Commentaries will be provided on trends within services, and comparisons of actual spending with original budget plans can also now be made. It is hoped that the extended data collections will form a basis for progress in the long-standing search for objective measures of output, expecially now that central government has expressed the intention of modelling future grant distribution to local government on the basis of assessed spending need.

At the present time, the annual series of service statistics based on estimates and actuals are continuing to be published as separate booklets with expanded commentaries. It is intended within the next twelve months to introduce the loose-leaf format for selected volumes and to complete the process for the whole reference work by 1980. The service volumes will cover:

education, including school meals;
environmental health, including waste collection and disposal;
housing and construction;
leisure and amenities, including libraries;
personal social services;
public protection, including police, fire, magistrates' courts, probation and coroners;
transportation;
planning and development.

The cost to local authorities of the publications is planned to be met by subscription, and a scheme has now been launched covering the twenty existing separate statistical series which will ultimately be assimilated into the basic reference work at an annual subscription rate of £250 for 1977–78 (£200 for non-metropolitan district councils) and providing up to six copies of each publication. Separately priced individual copies are available outside the subscription

scheme, but CIPFA is considering the extension of the subscription principle to other agencies with an interest in local government on a broad front.

The subscription scheme also covers *Local Government Trends*, (1) introduced in 1973, which is a separate annual publication providing an epitome of developments in the social and economic environment which have a bearing on local government activities. Its original aims were to provide an integrated and comprehensive reference work for those involved in local government activities, with analysis and interpretation of data, and to disseminate information of value in the forward planning process. With the introduction of the basic reference work containing separate volumes on techniques, community indicators and individual services, the role of *Local Government Trends* within the Statistical Information Service will change and the objectives now set for the future are:

i. to provide information for those within local government on the services provided by local government and also the wider environment affecting those services as it will influence forward planning and policy making; and

ii. to provide information to those outside local government on the scale and significance of local government's activities.

Future editions will be designed as handy works of reference, capable of speedy production, and containing key statistics with emphasis on aggregates for local government as a whole, drawing on data from a variety of sources including the volumes of the basic reference work.

Technical Support Service

The continuing expansion of the consultative process between central and local government, particularly on finance, has increased the need for data on local government activities to be readily available to the local authorities associations, and for independent research facilities to focus on particular aspects of local and central policy. The Technical Support Service of CIPFA fulfils these needs, undertaking paticular projects in the fields of local and public expenditure, examining financial practices and providing technical interpretations of financial policy. The direction of this work is in the hands of a steering committee of local authority members, nominated by the associations who meet the cost of the projects.

Conclusion

There is within local government a mass of information which in the past has not been fully exploited. Systematic work on the marshalling of statistics has been largely confined to financial information, although a very large number of statistical collections, of both a financial and non-financial nature, have been undertaken year by year by both central and local government agencies. One of the most important objectives of the Statistical Information Service is to rationalise the collection of data and to develop and present its analysis in a form which provides prompt and relevant information for the user. The development of the full range of volumes in the basic reference work is an evolutionary process, and in view of the pressures on local authority staff on whose voluntary services the project largely depends, it is inevitable that progress is gradual and tangible results are slow to materialise. The value to local government of a comprehensive and up-to-date statistical service has been significantly increased by the prevailing atmosphere of restraint in spending, which has strengthened the resolve of CIPFA, the associations and their professional advisers to complete the development of the service on the lines set down at the time of local government reorganisation.

Further enquiries about the Statistical Information Service will be welcomed by:

The Secretary,
CIPFA,
1 Buckingham Place,
London, SW1E 6HS.

Reference

(1) *Local Government Trends* (CIPFA) forthcoming (Price £6·50). ISSN 0307-0441.

Secondary school teachers—a new survey and mathematical model for assessing teacher demand

Brian Longman, *Statistician, Department of Education and Science*

Introduction

Historically the total demand for teachers in primary and secondary schools has been calculated on the basis of the national pupil/teacher ratios – i.e. the ratio of the total number of pupils to the total number of qualified teachers in the schools – needed to achieve stated policies in relation to the elimination of classes of more than a certain size, and by applying these ratios to forecasts of the number of pupils in the schools in future years. The pupil/teacher ratios used for this purpose have been derived from an examination over a period of years of the relationship between pupil/teacher ratios in primary and secondary schools and changes in class size. This method masks differences both in the requirements of different types of schools and in the nature and balance of the staff available for teaching; nor does it make explicit allowance for the administrative and other demands on teachers' time. It is plainly desirable to take account of such considerations in calculating the demand for teachers, especially in the secondary sector where, despite teacher unemployment, there are still shortages of specialists – in most cases, of graduate teachers – in certain subjects.

In the light of this background the Advisory Committee on the Supply and Training of Teachers (ACSTT) recommended to the Secretary of State for Education and Science in the summer of 1976 that a mathematical model of teacher demand should be established which would permit assessments to be made of the numbers and types of teachers who would be needed to fulfil any desired curriculum provision on the basis of varying hypotheses about the use of staff.

It is important that the term 'model' should not be misunderstood. A mathematical model of the kind envisaged is no more than a computer-assisted mechanism that enables estimates to be made of the effects of any changes in the variables involved. Use of such a model does not imply prescription of norms, nor does it imply any value-judgements which might suggest a 'right' pattern of staffing structure and deployment for the individual school. It is solely a planning tool for use by ACSTT and the Department of Education and Science. This article describes the model and refers, in the final paragraph, to the information which is to be sought specifically for it.

The model

The variables are of two kinds. One set deals with the curricular provision that is to be met in terms of what is taught, how much of it, to how many pupils, and in what sizes of groups. The other set concerns teachers, their numbers, both in total and sub-divided by specialisms, and the proportion of their time that is devoted to teaching as distinct from the range of other duties that some may undertake. Each run of the particular model which is outlined below starts from a number of hypotheses about the curriculum and calculates the size and nature of the teaching force that would be needed to meet whatever hypotheses are selected, taking into account the range of possible teaching loads that might be carried. The model will be operated many times and the results of each run will be assessed in conjunction with the curricular provisions that have been fed into the model.

The model provides a means of quantifying the total number of secondary school teachers who would be required to fulfil a variety of selected objectives in terms of curriculum, organisation and teacher deployment, and should allow a breakdown of these requirements by individual specialisms. Each run of the model will arrive at a total requirement for teachers, sub-divided by subject specialisms, by adding together the requirements from sub-models which will show the number of teachers required for hypothetical schools of various sizes and types. Applying the sub-model to a hypothetical school of any particular size and type will reveal how its staffing needs depend upon:

i. the number of pupils in each year group;
ii. the extent of subject choice;
iii. the number of pupils in each year undertaking each subject;

iv. the number of periods per timetable cycle for which pupils undertake each subject;
v. the number of teaching groups for each subject, and the number of times per timetable cycle, each group takes each subject;
vi. the maximum class size of teaching groups for each subject;
vii. the extent and nature of tuition by regular individual withdrawal for remedial or other purposes;
viii. the time (expressed in period equivalents) devoted by the teachers concerned to activities other than teaching. The effect of the amount and distribution of non-teaching time on potential deployment for teaching purposes may be examined in one or other of two ways. For the whole staff, or for any sub-group within it, an average 'contact ratio' can be calculated (i.e. the ratio of the total number of periods taught to the maximum number of periods theoretically possible, given the number of staff available). Alternatively, the time required for the exercise of a variety of functions including administration, guidance of all kinds, in-service training, and agreed professional activities outside the school (e.g. commitments to examining boards), can be assessed and expressed in terms of the teaching time (in period equivalents) that these activities consume. The first approach suffers from the problems of averaging, and the risk that this may obscure the impact of particular matters; the second cannot easily take account of the difficulties of determining how the total non-teaching time of any teacher might be sub-divided between the specified functions, especially as this sub-division may vary at different times of the year.

The computer is also able to calculate and print out the average class size for each subject and for each year group in the sub-models, together with the deployment of teachers needed if teaching groups are not to exceed specified limits. To obtain a total picture further aggregation will be necessary, involving hypotheses about the future pattern of schools by number, size and type.

Data required by the sub-models

Four groups of data are required:

i. data relating to each hypothetical school as a whole, including its type, number on roll, details of the time-table cycle, and the number of subjects taught;

ii. for each subject, by separate year-groups, the number of pupils involved and the number of lessons allocated in the timetable cycle: e.g. in Year-Group I, there might be 221 pupils who receive 5 periods of mathematics;

iii. the maximum size of a teaching group: this can be varied from subject to subject and for each year-group separately;

iv. the proportion of the timetable cycle for which teachers of particular subjects are required to teach, bearing in mind the other kinds of work teachers do in running a school: pastoral, careers advice and so on. This may be incorporated in the model either on the basis of the overall 'contact ratio' or on the basis of a 'contact ratio' for teachers without special responsibilities together with an additional allowance which is to cover the time spent by i. the headteacher on his duties as head of the school, ii. any other teachers on activities unconnected with subject teaching (e.g. careers advice), iii. on remedial education for pupils that are withdrawn from other lessons, iv. on in-service training, and v. on any discretionary allowance to permit a degree of flexibility in the organisation and timetabling of the school.

The sub-models' arithmetical process

Expressed in non-mathematical terms, the number of teachers required for a given subject in any school is calculated by summing the requirement for each teaching group for a given year and by summing all years in which the subject is taught. The teacher requirement for each individual teaching group is calculated as follows. The number of pupils requiring tuition in a particular subject in the year-group is divided by the maximum class size, rounded up to the next whole number, and multiplied by the number of periods for which that teaching group receives tuition, thereby obtaining the number of lessons per timetable cycle required by that group in that subject. There will be a small degree of flexibility on the maximum class size, reflecting what would be done in most schools. By summing the lessons given to each group and then dividing by the number of periods for which teachers give tuition, the number of teachers of any particular subject is found. The process is repeated for each subject.

An example of the arithmetic is as follows

In Year Group V 120 pupils study mathematics 5 times a week and 64 pupils study mathematics 4 times a week. To measure the teacher requirement on the hypothesis of (say) a maximum class size of 25 the following number of classes would be required:

$\left\{\frac{120}{25}=4{\cdot}8\right\}$ i.e. 5 classes

$\left\{\frac{64}{25}=2{\cdot}6\right\}$ i.e. 3 classes

These classes will study mathematics for the following number of lessons in a week:

$5 \times 5 = 25$
$3 \times 4 = 12$

If the overall 'contact ratio' is 0·78 i.e. on average teachers provide 31 lessons in a 40-period week, the number of teachers required would be:

$$\frac{37}{31} = 1 \cdot 19$$

Since teachers may have qualifications in more than one subject this could represent one full-time maths teacher plus 19 per cent of the time of a teacher who has qualifications in both maths and another subject, e.g. science. In order to arrive at the total teacher requirement, this process is repeated for each subject and year-group to which it is taught throughout the school. An example of the number of mathematics teachers needed for a school, together with the average class sizes, is shown below.

Other models are possible that would explore the inter-relationships between the deployment of teachers and the curricular provision that different teacher deployments would give, e.g. starting from a known teacher availability with varying teaching loads alternative curricular arrangements could be produced.

Operation of the model

The model is operated by feeding instructions into it. These instructions may alter the hypotheses about the distribution of schools by size and type, and/or hypotheses about the pattern of teaching in the sub-models, and the model will then print out the total number of teachers (by subject specialism) which would be required. The model is designed as a planning tool, and ACSTT and the Department of Education and Science are expected to make extensive use of it in their consideration of future secondary school staffing needs and employment policies. The model will be operated on the computer of the Department of Education and Science at its computer centre at Darlington.

The Survey

Theoretically any values whatsoever could be fed into the model; but it seems sensible, initially at least, to consider current practice and a reasonable range of variation from it. This requires much more detailed knowledge of current practice than is at present available and this is to be obtained from a survey of secondary schools in England and Wales, their teaching complements and the ways in which these are used. The survey is to be conducted early in the next (1977–78) academic year when questionnaires will be sent to a stratified sample (with varying sampling fractions for different types of school) of some 500 secondary schools, representing about a tenth of the 5,000 secondary and middle deemed secondary schools in England and Wales. Detailed information will be collected on the curriculum and the size of teaching groups in which different subjects are taught, on the number of periods allocated to individual subjects and the number of teachers who provide the tuition. Information will also be sought on the qualifications of teachers, the subjects they actually teach (which are known to be not necessarily the same as those in which they are academically qualified),their additional special responsibilities and other non-teaching duties. This will provide a much more complete picture than at present exists of the existing stock of teachers and how they are deployed, and should make possible a more accurate projection of future needs.

Teacher's subject	*Number of Teachers for each Year-Group*							*Average Class Sizes for each Year Group*		
	I	II	III	IV	V	VI	ALL	I–III	IV, V	VI
Mathematics	1·29	1·19	1·32	1·19	1·19	1·16	7·34	27·1	23·1	9·1

Survey into the use of government statistics

Peter Brierley, *Statistician, Central Statistical Office*

Introduction

The Organisation of Professional Users of Statistics (OPUS) approached the Central Statistical Office (CSO) two years ago suggesting that a study be undertaken of the use of various statistical publications issued by the Government Statistical Service (GSS). After consultation with departments, and a pilot study in 1975, 6,900 questionnaires were sent out early in 1976 to the members of the five constituent organisations of OPUS – the Institute of Statisticians, Market Research Society (MRS), the Society of Business Economists, Industrial Market Research Association (IMRA) and the Society of Investment Analysts. Reminders to complete these forms were later incorporated in the news letters of these organisations.

Several of those who are members of one of these organisations are also members of another and hence they received more than one form. Others found that a number of forms were received within a particular section or division of their company and returned one consolidated form. As no combined listing of the members of the five organisations exists, it is unfortunately not possible to quantify the degree of overlap thus generated. The response of 792 can however be regarded as more representative than the basic 11 per cent response rate suggests, though even so, the response rate was disappointing. Response by organisation is shown in the following table.

Organisation	*No. of questionnaires dispatched*	*No. of questionnaires returned*	*Response as a percentage of questionnaires dispatched*	*Response as a percentage of questionnaires returned*
Institute of Statisticians	1,000	109	11	13
Market Research Society	2,500	295	12	38
Society of Business Economists	700	105	15	13
Industrial Market Research Association	1,000	207	21	27
Society of Investment Analysts	1,700	76	4	9
Total/average	6,900	792	11	100

The questionnaire sought both quantitative and qualitative information, and whilst the quantitative data cannot be extrapolated because of the low response, a synthesis of the 3,000 comments made on the forms does give an indication of reactions by this group of users to the various GSS publications. This brief report deliberately concentrates on those aspects relating to CSO publications, as the questions have been analysed thus far mainly to aid the review of CSO publications mentioned in *Statistical News* 37.15.

One third of the respondents worked in manufacturing companies, and a similar number in insurance, finance, banking and business services; half the sample were in firms with a turnover in excess of £50 million a year. The function of respondents within their organisation varied widely, but was dominated by market researchers (39 per cent); in view of the large numbers of members of the MRS and IMRA who responded this is not surprising. The only other large group of respondents were the 15 per cent who worked as economic analysts and forecasters.

Getting and using specific publications

Respondents were asked to indicate the extent to which they used each of 58 GSS publications; the question was generally fully answered and details will gladly be given to readers who would like to have them about any individual publication not mentioned below.

Of the CSO publications economic analysts and forecasters made very heavy regular use of *Economic Trends*, *Monthly Digest of Statistics*, *Annual Abstract of Statistics*, *National Income and Expenditure* (Blue Book), *United Kingdom Balance of Payments* (Pink Book) and *Financial Statistics*, but *Input-Output Tables*, *Social Trends* and *Regional Statistics* were used much more for special exercises. Market researchers used *Economic Trends*, the Blue Book and *Financial Statistics* much less than average, and many had never heard of

either the Pink Book or the *Input-Output Tables*.

Respondents were also asked what other statistical publications they used routinely. A very large number were listed by 199 respondents, the most dominant of which were:

Publication	*Published by*	*Percentage*
Statistical News	CSO	12
Special Statistical Series	HM Customs & Excise	10
Economic Progress Report	Treasury	8
Basic and General Statistics	EEC	6
Special Reports	National Economic Development Office	5
Economic Surveys	Organisation for Economic Co-operation and Development	5
Statistical Yearbook	United Nations	5

The importance of international publications to respondents listed here was substantiated by the number of comments made on individual publications which indicated how much international comparisons were used and wanted. The uses which respondents made of each publication they had indicated they used regularly are included in the sections on particular publications given below.

Respondents were asked how they obtained their statistical publications, and answers given were:

	Percentages
Bought own copy	8
Organisation bought copy	55
Used organisation's library	31
Used public library	4
Other ways	2

This institutional dominance of purchasing reflects the fact that many of these particular respondents were regular users of GSS publications.

Improving the range of statistics

Comments were sought on the current range of statistics, particularly those published by the CSO, and specific statistical gaps in the existing data were requested. 127, or 16 per cent of the sample were conscious of gaps, and some 110 examples and comments were given. The majority seemed to consist of requests for further data in those very specific areas in which respondents probably regularly worked or were working at the time.

More general comments related to the fact that data sources for some subjects were inconveniently spread over a number of publications. Information originating on similar subjects from more than one department might well have definitional difficulties, either in areal coverage or quantity measured. Greater detail was requested for individual industry statistics. Several overlaps were noted, which included the CSO *Financial Statistics* with the *Bank of England Quarterly Bulletin*, and the CSO *Monthly Digest of Statistics* with various other publications. The nuisance of delays in publication and the need for longer series were also mentioned.

In addition to the open ended comments sought for each publication used, eight specific questions were asked about the present range of CSO publications.

Question	*Yes*	*No*	*Do not know*	*Total replies (=100 per cent)*
	Percentages			
Is there still a need for a monthly digest of statistics?	71	9	21	731
Is there still a need for an annual abstract of statistics?	84	3	13	740
Is it desirable for the *Annual Abstract of Statistics* to carry long runs of figures (usually 11 years)?	76	12	12	734
Should the *Annual Abstract of Statistics* be thinned to remove detailed tables available elsewhere?	28	49	23	716
Is it necessary to retain *Financial Statistics* as a monthly rather than a quarterly publication?	21	28	51	693
Should *Economic Trends* comprise only tables, charts and commentary on current trends, removing methodological articles etc to another publication?	31	43	26	705
Would you subscribe to a cheaply duplicated weekly summary of the latest economic statistics?	35	48	17	711
Are *Statistical News* articles helpful?	51	16	33	697

Financial Statistics was wanted monthly especially by insurance and financial companies. Economists etc., strongly wanted articles to be retained in *Economic Trends*. The suggestion of a weekly summary of economic statistics (perhaps confined to a reproduction of the relevant press notices) was eagerly taken up by economic analysts, though others considered that *Trade and Industry* largely met this requirement.

The problem of priorities in producing statistics was raised with the following results:

Question	*Very important*	*Important*	*Fairly important*	*Little importance*	*Total replies (=100 per cent)*
	Percentages				
Speed of publication	62	29	8	1	760
Accuracy of statistics	55	38	7	–	761
Availability for purchase	24	38	26	12	741
Availability for reference	39	30	19	12	728
Low price	9	15	43	33	749
Consistency and comparability	72	23	4	1	752

The replies to availability for purchase varied significantly by the method respondents used to obtain their copies – those who used the public library felt less strongly about being able to actually buy the data. The very low profile given to price consideration did not vary significantly by either the activity of the organisation or by the method of obtaining copies, but nevertheless probably is a reflection of the large percentage not personally buying them. The high marks scored for the need for consistency and comparability is backed up by comments made on other parts of the questionnaire.

General comments on the GSS

More than a quarter of the sample mentioned the difficulty of obtaining a particular publication, several suggesting they should be available in more retail outlets, and that it should be possible to purchase individual numbers of Business Monitors (rather than subscribe for a year).

Another frustration keenly felt by many respondents was the difficulty of finding their way about the many statistical publications. The survey was conducted before the publication of the *Guide to Official Statistics* and one hopes that this Guide will largely overcome this problem. Many respondents seemed unaware that the CSO has for several years produced a brief guide to sources of government statistics which includes telephone numbers of relevant contact points. Some familiar with this booklet urged that a wider range of telephone numbers be given to facilitate access to those responsible for specific series. Allied to the problem of finding relevant statistics was the problem of understanding them, and 60 per cent of respondents felt that the GSS did not help with this well enough.

45 per cent of the sample considered that the GSS inadequately publicised the available statistics. The HMSO *Daily List* or *Monthly Catalogue* did not highlight statistical publications particularly (there is no special reason why they should of course) and hence they were often missed.

Whilst there was a call for more advertising in the press (for the market represented by the respondents the *Financial Times* and *Economist* particularly), it would seem many would prefer a direct mail shot. A more aggressive marketing policy was advocated by some – the GSS should have its own marketing department – based on the realisation that many of the numerous publications already available were not known to them.

Comments on specific CSO publications

Monthly Digest of Statistics

This publication enjoyed the highest regular use of all the CSO publications (44 per cent) by the respondents in this survey, and a further 35 per cent used it for special exercises. Only 1 per cent had never heard of it. Of those who gave a firm 'Yes' of 'No' to the question 'Is there still a need for it?' 89 per cent replied in the affirmative. The closeness of the contents of this publication with others, especially the *Annual Abstract of Statistics*, was noted, and a closer link-up with the latter recommended.

There is little doubt that this is a major source of information on a wide variety of topics, a general reference book to indicate the kind of information which could be expected to be available. This is confirmed by the widespread nature of the particular items indicated as being used – only the small social services, chemicals and entertainment sections (accounting for only 10 out of the 172 tables) were not specifically mentioned. The use of this publication as a basic reference book highlights the importance of it having exceptionally good subject and source indexes. The lack of such was noticed by a number.

Perhaps the most general criticism was of information not being sufficiently up-to-date – part of a much wider problem. Another criticism was the suggestion that the *Monthly Digest of Statistics* was too much industrially orientated, and contained too few social statistics. Whilst the right 'mix' will vary from one kind of user to another, since many commented on the need to have more information by specific industry, perhaps this indicates an expansion rather than a radical change in the proportion of tables currently included.

One specific item which attracted many comments was the confusion generated by base year changes; the flavour of comment was not that such changes should not be made, but that a suitable length of series should be worked back on the new basis.

Annual Abstract of Statistics

Like the *Monthly Digest of Statistics* this publication also enjoyed a very high use by respondents – regularly by 33 per cent and for special exercises a further 47 per cent. Only 1 per cent had never heard of it. Out of those who gave an unequivocal answer to 'Is there still a need for an *Annual Abstract of Statistics*?' 97 per cent said 'Yes'.

The basic use of the *Annual Abstract of Statistics* is for general reference. It is regarded as the primary source for a wide range of statistics, confirmed by the broad width of particular uses indicated. The degree of use of the different sections however varied, with population, industrial production and prices being the most popular. Area and climate, balance of payments and home finance were not mentioned at all, and a large section like education only by one person. This probably reflects, however, the kind of user covered by this survey.

In view of its importance as a reference document, the source and subject indexes need to be of a high standard. Comments on the need to improve the present index would suggest they are not yet as useful and complete as they might be.

Comments on the length of series in the Abstract varied. Half of those mentioning this felt they were about right, but 40 per cent felt they ought to be longer and 10 per cent felt they should be shorter in order to include more detailed tables. When asked if the Annual Abstract should carry 11 years runs of figures 86 per cent of respondents saying either 'Yes' or 'No' replied in the affirmative.

A number of respondents considered that the *Annual Abstract of Statistics* should be much more closely connected with the *Monthly Digest of Statistics*, in an analogous manner of the *Economic Trends Annual Supplement* to *Economic Trends*. If the Annual Abstract became the Annual Supplement of the Monthly Digest, then some rationalisation of contents would be needed, especially with the advent of the *Economic Trends Annual Supplement*.

Similar comments on more industry detail, the problems of changing base, and quicker publication were made as for the *Monthly Digest of Statistics*.

Economic Trends

Economic Trends was a highly popular publication with those surveyed. 36 per cent used the tables regularly, and a further 28 per cent for special exercises. 18 per cent used the articles routinely, and 35 per cent more on special occasions. However 7 per cent of this numerate audience had not heard of it.

Its main use was for background information and for giving general economic indicators serving to help those giving briefs on broad interpretations of the financial and political world. An important secondary use was for forecasting trends.

Items used covered much of the broad range included in *Economic Trends*, but undoubtedly the graphs on cyclical indicators for the UK economy and the selected monthly indicator data had aroused the greatest interest. There were a number of respondents who requested that the data underlining the cyclical indicators be given.

Many enthusiastic comments were given about the change in format and style, and about the range and frequency of the publication. There were a few however who felt that there were too many graphs and that this lowered its professional tone. Perhaps the thought of a graph on every double page should be reconsidered.

The *Economic Trends Annual Supplement* also received warm applause, largely because, it would seem, for the length of runs in years it contains in most of its tables, as well as for the explicit linking with tables in *Economic Trends*. Some felt the Supplement to be of more value that the Blue Book because of the length of run.

It was clear that the articles in *Economic Trends* were an important feature of the publication. When asked if *Economic Trends* should consist of tables only, 58 per cent of those giving specific answers replied in the negative. Articles on new statistical techniques and/or methodology were felt to be of special interest. Some would like the number of special articles (i.e. articles usually of a one-off nature on a specific topic) to be increased. A few felt that while the *Economic Trends* articles were important, a more appropriate location for them would be in *Statistical News*.

Social Trends

The people involved in this survey were not likely to utilise *Social Trends* a great deal, and the replies received confirmed this. Only 15 per cent of respondents used *Social Trends* regularly, though 38 per cent used it for special exercises. Only 7 per cent of respondents had never heard of it, perhaps reflecting the large amount of publicity which this publication has received.

Usage of data from *Social Trends* was, for this audience, mostly background information especially for market research purposes. *Social Trends* provided

a broad picture to which could be added local or individual data gleaned from other sources.

The scatter of comments mentioning the awkwardness of not finding tables consistently included, the elaborate style of presentation, the need for greater footnote clarity etc., suggests very detailed use of *Social Trends* by certain individual respondents. Comments on content suggested the inclusion of more regional data (many respondents had not heard of *Regional Statistics*), and more EEC/international comparisons. This last item appeared in many comments throughout the questionnaire and should not be confined solely to *Social Trends*. One person commented on the poor binding.

Regional Statistics

As with *Social Trends* the kind of respondent to which the survey was directed was not necessarily the one who would take the most interest in regional statistics. There were only 39 central and local government respondents in the total sample (5 per cent). Nevertheless 9 per cent of all respondents claimed to use *Regional Statistics* regularly, and 25 per cent for special exercises. However 18 per cent had never heard of it.

Comments on the use of *Regional Statistics* were relatively sparse but it was used most as a reference volume. Some found it supplemented the *Annual Abstract of Statistics*. Interestingly respondents used it for comparison with national figures, and with other regions, and with sub-regional data – the full spectrum of information covered by *Regional Statistics* – thus indicating a detailed use of certain tables by some respondents. As with other volumes a few thought the indexing was weak.

A section of the questionnaire was devoted to the policy behind *Regional Statistics*, but because of the low response did not yield as much usable information as had been hoped. Although the numbers are very small, the demand for regular information on sub-regional level was almost as high as at regional level, and could be taken as support for the policy of including county information in the latest (1976) issue of *Regional Statistics*.

Financial Statistics

Whilst the number of users of *Financial Statistics* is fairly small, the publication was clearly an important one for them. Of the total sample, 20 per cent used it routinely and 22 per cent for special exercises, but 12 per cent had never heard of it. In the larger companies the economic analysts and forecasters especially found it indispensible.

Whilst its main use was for background information, those listing particular items covered the broad range of the publication. The sectoral detail was especially mentioned. Many felt it to be an excellent publication in virtually every respect.

The main problem it would appear, for the CSO, is the extremely small sector to which it applies. Those who were intimately involved in using it strongly wished its frequency to be kept at monthly intervals.

Only one major criticism emerged – the overlap of this publication with the *Bank of England Quarterly Bulletin*. The Bulletin is likewise used for general background reference, though most of its statistical sections were mentioned as being of use to some. It would seem that while the Bulletin attracts readers because of its articles (and the authority that lies behind them), *Financial Statistics* attracts users because its data is monthly.

A very few felt the layout of *Financial Statistics* should be modernised, and this is now in the process of being done. Similarly a few criticised the layout of the Bulletin's statistical section.

Whilst many individual suggestions were made for *Financial Statistics*, only one commanded the support of several respondents. This was the need for an historical abstract along the lines of the *Economic Trends Annual Supplement*.

Since a similar need arose with the Annual Abstract and the Blue Book, both of which contain financial data, should such a suggestion be acted on it would be necessary to rationalise the relevant contents of these and of the *Economic Trends Annual Supplement* to prevent duplication.

National Income and Expenditure (*Blue Book*)

The Blue Book was another publication which was felt to be extremely valuable by survey respondents. 22 per cent of them used it regularly, and a further 37 per cent for special exercises. Only 8 per cent had never heard of it.

Whilst its main use was again given as background information, the utilisation of particular sections was uneven, with some apparently hardly ever used by these respondents (such as industrial input and output, public corporations, central government and local authorities which formed 14 out of the 92 tables in the 1976 book). The section most used was that of gross domestic fixed capital formation. It would seem that those needing financial accounts used *Financial Statistics* rather than the Blue Book for this.

One suggestion made by several respondents was that there should be longer runs of data perhaps at least of 20 years, even if this meant a separate volume.

United Kingdom Balance of Payments (*Pink Book*)

The Pink Book was considered to be most important for the few who used it, just 7 per cent regularly and 12 per cent for special exercises. Thirty three per cent of the sample had never heard of it; as it is such a specialised publication however, it is unlikely that many of these, if they heard of it, would subsequently become users.

Its main use was to provide background information, and the utilisation of its various sections was uneven. The tables on invisibles were particularly important, however, and it was suggested that these should be augmented and expanded. A closer link with the format and conventions of the Blue Book was also recommended.

Statistical News

Whilst *Statistical News* was not listed with the main data publications (as it does not contain tabulated data), 12 per cent of respondents nevertheless indicated that they regularly used it. This percentage was by far the largest out of all the CSO and non-CSO publications mentioned as being regularly used but not listed in the questionnaire.

It would seem from the comments made that the two main parts of *Statistical News* are equally necessary. 76 per cent of those giving a positive answer found the articles helpful, and several said how readable they found them. It was also apparent that a good number found *Statistical News* invaluable as a source of up-to-date news of developments across the whole field. No adverse criticisms were made of the publication.

Conclusions

This survey received a very small response, and all the comments made above must be interpreted in that light. This especially applies to the quantitative details given.

A i. Few comments were given on the broad range of CSO publications, but it was apparent that there was widespread support for the continuing of the general digest volumes – *Monthly Digest of Statistics*, *Annaul Abstract of Statistics*, *Social Trends*, *Regional Statistics* and *Economic Trends*. It was also clear that the specialist publications – *Financial Statistics*, Blue Book and Pink Book – were essential for the detailed work of some respondents, some of whom felt there should be more of such publications. *Statistical News* fulfilled a useful news function, and its articles gave it a further importance.

ii. The format of each statistical publication (style of publication, binding, quality of paper, layout of tables, footnotes, indexes, etc.) very definitely mattered. A number commented on the inadequacy of the indexes in CSO publications.

iii. Overlap between publications, especially *Financial Statistics* and *Bank of England Quarterly Bulletin* were mentioned by a number, more from the view point it would seem of the waste of resources than with the thought of reducing content.

iv. The main additional requirement to the existing CSO publications was the request for longer runs of data (in *Annual Abstract of Statistics*, *Social Trends* and Blue Book especially), and the new *Economic Trends Annual Supplement* was specially commended from this aspect.

v. Adverse price comments were very few, but then most of the respondents received these publications via their organisations.

B i. Greater interpretation of the statistics published was considered to be important, especially by those who used the publications for teaching (especially *Monthly Digest of Statistics*, *Annual Abstract of Statistics*, *Social Trends*, *Economic Trends* and th Blue Book). Consistency of definition and of coverage were requested, and more methodological articles.

ii. Associated with the need for interpretation was the requirement to find the right person to talk to about data. The CSO Guide for departmental contacts, whilst helpful, often did not go into enough detail, and was criticised for being frequently out-of-date.

C One major thought which emerged throughout the questionnaire was the need for an adequate comprehensive guide to all the statistical publications. The *Guide to Official Statistics* has clearly met this need, but it could be followed up to evaluate users' reactions to it.

D There were two major criticisms levelled against GSS publications generally. One was the difficulty experienced by so many respondents in actually obtaining copies of the various publications from HMSO, and the other was the lack of publicity given to statistical publications, Many respondents were amazed at the number listed on the questionnaire itself; it came as a revelation to them!

Census in the South Seas

John Doyle, *Government Statistician, seconded from the Home Office*

Official data collection presents problems which are often discussed in these pages. We felt that the following account from a member of the Government Statistical Service seconded to the South Seas would help put the matter into perspective.

When I was told before leaving London that a census was due to be taken in Tonga, I was not particularly worried. A population of some 100,000 – the combined gates, say, at Anfield and Goodison Park – should not be too difficult to count. Alas, as every statistician knows, distribution is all! It was not that I expected to find the Tongans neatly arrayed on the terraces, as it were, but scattering themselves over 140,000 square miles of Pacific Ocean was, I thought, a trifle eccentric.

For the benefit of those readers whose knowledge of the geography of Tonga is rusty, the Kingdom consists of 169 islands of which 36 are inhabited – or were at the time of the 1966 census. The islands are in three main groups, Tongatapu and 'Eua (135 square miles); Ha'apai (46 square miles); Vava'u (55 square miles), Niua Fo'ou (13 square miles) and Niua Toputapu (7 square miles). They lie between latitudes 15° and 23·5° South, and longitudes 173° and 177° West.

When I came to view the situation on the ground (if that is the right word) I found that communication both physical and intellectual would be the problems. The former was obvious from the map; the latter crept up only slowly. Tongans, I was told, speak English. This is not true. They speak some English and, being exceedingly polite and kind, they smile and nod their heads because they know you want them to understand what you are saying and they do not want to disappoint you. If they cannot supply the substance of rapport, then they are determined to supply the most reassuring and comforting shadow they can. It is only when you begin to notice that nothing is happening; that the painstakingly detailed instructions are being ignored that you realise you might just as well have spoken in Efik. The training of supervisors and enumerators was not going to be easy.

School teachers were the obvious – indeed the only – choice for supervisors and enumerators. They were already 'there'. The difficulty in many cases would be getting 'there'. It was clear that a significant number of enumerators would have the benefit of personal instruction in their duties on a onetime basis only – and that onetime could be a very short time. To ensure, in so far as we could, that all the necessary information was conveyed to the enumerators in the shortest possible time, a model lecture on how the census was to be conducted was drafted and studied by the census team. The team members then instructed each other until (it was devoutly hoped) all was clear beyond peradventure. The thought foremost in our minds was that once the instructors had sailed away from an island, dialogue would be at an end. The enumerator would have only his instruction manual to guide him and such one way information as came from Radio Tonga.

The text of the draft instruction manual was studied by the census team with the same assiduity the medieval theologians brought to the study of the mystics. This was to be the enumerators' sheet-anchor and it had to hold in the worst storms of panic and self-doubt!

The household schedule was drafted with equal care but time allowed the various drafts to be piloted only among a randomly selected sample of Nuku'alofa residents. A quaint habit of Tongans, guaranteed to fray the nerves of social researchers, is to answer negatively phrased questions with the logically correct, but linguistically incorrect, answer. Q. Have you no bananas? A. Yes. We have no bananas.

Dividing the Kingdom into census blocs promised to be straightforward enough. Apart from the capitals of the three island groups and some of the larger villages of Tongatapu, each village would be a census bloc, care being taken to ensure that none of the population lived in the 'bush'. Unfortunately, the only maps available were about 40 years old. Demarcating the census blocs was therefore a matter of trudging over the ground and bringing the maps up-to-date literally *ad ambulandum*. Wandering through a Tongan village in the rain ankle-deep in mud is not the picture which comes to mind when settling down in the cosy comfort of LSE to study 'Survey theory and methods'!

The day finally arrived when all the material – instruction manuals, household schedules, summary

records etc. – was printed and ready for distribution. The requirements of each enumerator were carefully packed in bright pink plastic bags and securely tied and labelled. The non-sampling error of losing some of the material in the sea was ever present in our minds. All that now remained was to distribute the material and instruct the enumerators. Conducting a census is like putting on a play that has only a first night and no dress rehearsal!

We were now face to face with the physical communications problem. The larger islands of Vava'u and Ha'apai presented no difficulty: a small aircraft maintained a regular service between these islands and Nuku'alofa. The two nothernmost islands (the Niuas) had a tenuous link with reality by means of a boat, not exactly A1 at Lloyds, which took 32 hours to sail from Vava'u to Niua Fo'ou; 18 hours from Niua Fo'ou to Niua Toputapu; and 21 hours from there back to Vava'u. Niua Fo'ou is an active volcanic island (I wondered whether it was worthwhile counting these people at all) and, consequently has no reef or beach. Passengers and freight are hauled ashore on a raft. An intrepid Peace Corps volunteer in the Statistics Department undertook this saga and completed it successfully. A cassette tape of the model instruction lecture, together with a tape recorder, were left at each of these islands since there was every possibility that weather conditions would make it impossible for the boat to stand-off for any length of time. In the event, the volunteer was able to spend the daylight hours on the volcano and 36 hours on the other island.

The sixteen islands of the Ha'apai group presented the longest and most tiresome journey and (in the best tradition of the Service!) this was undertaken by the Government statistician. (It was off one of these islands, Tofua, that the mutiny on the Bounty took place and it was to this island that Captain Bligh first made to take on water and breadfruit before sailing into navigational history.)

Transport was provided by the Tongan Defence Force launch, a vessel of great speed and equal noise which bucked like a bronco in all but the calmest seas. And so, with a mound of bright pink plastic bundles, a tent and primus stove (perhaps a few lectures on field craft should be added to the Survey theory and methods course?) we set out to find these multitudinous dots scattered over the South Seas. And by a feat of navigation – perhaps not equal to Captain Bligh's – find them we did. But finding them was one thing, landing on some of them was quite another. Although the launch drew only 4½ feet of water, it could not cross, nor navigate the openings in, the reefs surrounding the coral islands (two of the islands were volcanic: these presented hazards of their own). Nor could the launch anchor since the water outside the reef was far too deep. Landing was therefore effected by transferring via a little ladder to a tin dinghy while the launch maintained 'way'. It was a situation fraught with non-sampling error: a situation which was not improved when, on the second day out, one of the sailors contrived to lose the ladder in 16 fathoms of water. The volcanic islands have no reef or beach: they are just mountains which have managed to struggle above the surface of the sea – and presumably, were just as likley to disappear again. Landing here was a question of leaping on to the safest-looking piece of mountainside as the tin dinghy rose and fell with the water. A third type of island (fortunately only one fell into this category) had an unbroken reef which not even the tin dinghy could navigate. It was with a dawning sense of danger that we noticed no effort being made to launch the tin dinghy while from the shore native dugouts were putting out. (A dugout is a hollowed out tree trunk connected by two spars at right angles to a smaller parallel log. The passenger and paddler face each other, sitting at each end of the log with their feet, one in front of the other, inserted into the hollow.) We were told that the native paddlers knew exactly when to time their run with the incoming breakers so as to 'jump' the reef into the calm water of the lagoon beyond. Indeed some do, on occasion, manage to do this. Suffice it is to say that no census material was damaged.

The final worry was the collection of the completed schedules. This fortunately was accomplished without serious mishap. And such errors as occurred in recording were capable of correction at the editing stage.

For the record

	Total	*Male*	*Female*
Tongatapu	57,437	29,323	28,114
Vava'u	15,065	7,714	7,351
Ha'apai	10,812	5,389	5,423
'Eua	4,486	2,364	2,122
Niuas	2,328	1,239	1,089
Total	90,128	46,029	44,099

The full census report will be available towards the end of 1977.

British Industries: A Comparison of Performance

A book review

Recent correspondence in the press about the value of census of production data suggests that it is appropriate to comment on the book with the above title, compiled by E G Wood, Director of the Centre for Innovation and Productivity at Sheffield City Polytechnic. With the assistance of the Business Statistics Office, Mr Wood gathered together data from the 1963 and 1969 censuses and the new-style annual censuses from 1970 to 1974 to provide information covering a 12-year period on as consistent a basis as possible. The end-product not only provides a valuable compendium of data from the censuses but also contains a large number of derived statistics which facilitate assessment and comparison of industrial performance.

The census of production data reproduced in the volume relate to gross and net output, capital expenditure, employment of operatives and others and their wages and salaries. They are presented separately for 171 industry groupings covering mining and quarrying, manufacturing, construction, gas, electricity and water. From these basic statistics is derived a large number of ratios, comprising, in addition to those published in the census reports, such measures as net to gross output ratios, gross output per employee, net output per £ of wages and salaries, wages and salaries per employee, capital expenditure per head, and ratios of operatives to other employees. The tables presenting this mass of statistical data are accompanied by introductory chapters discussing the problems of measuring industrial performance, describing the content of the tables, and comparing and commenting on the performance of individual industries.

In presenting the data the author expresses the view that value added, or net output (which is the nearest proxy to value added available from the censuses over a run of years), provides a better measure of industrial performance than does profit. Net output differs from value added in that it includes the cost of certain non-industrial services, such as advertising. (Future censuses of production include a new aggregate, 'gross value added', which is closer in concept to value added.) While these costs are of differing importance in different industries, inter-industry comparisons based on net output are still generally valid.[1]

Mr Wood attaches particular importance to the ratio of net output to gross output as an indicator of relative industrial performance in that it relates wealth created to materials used. A major drawback in using such a ratio, and the individual figures for gross output and materials purchased, is that they contain an element of double-counting which varies according to the industry concerned and its reporting structure. This is not serious in a vertically integrated industry, such as pottery, where one firm's activity may cover the whole transition from raw material to finished product and which records only a single purchase of materials and a single sale of the product. In contrast, an industry like woollen and worsted, where different firms might handle each stage of the production process, will record a sale and a purchase at each transfer, and therefore show a total figure for output which duplicates the contribution made by firms at different stages in the production process.

Mr Wood seeks to evaluate the performance of individual industries over time and in relation to that of industry as a whole in a series of tables which show the basic figures for each industry; i. at constant 1970 prices; ii. as a percentage of their 1963 value at constant prices; and iii. as a percentage of those for all manufacturing industry. For the two sets of constant price figures he has chosen to use only four deflators each relating to the whole economy and available in the National Income and Expenditure Blue Book, although more specific deflators, from the range of wholesale price indices and indices of average earnings, are available for most industries. This broad-brush approach impairs the validity of the resulting constant price series at the industry level which are in consequence of limited use for inter-industry comparisons.

Mr Wood's book makes a timely contribution in view of the current interest in industrial performance and the interaction of remuneration, investment, productivity and employment. Although the value of a presentation of this kind, dependent as it is on the

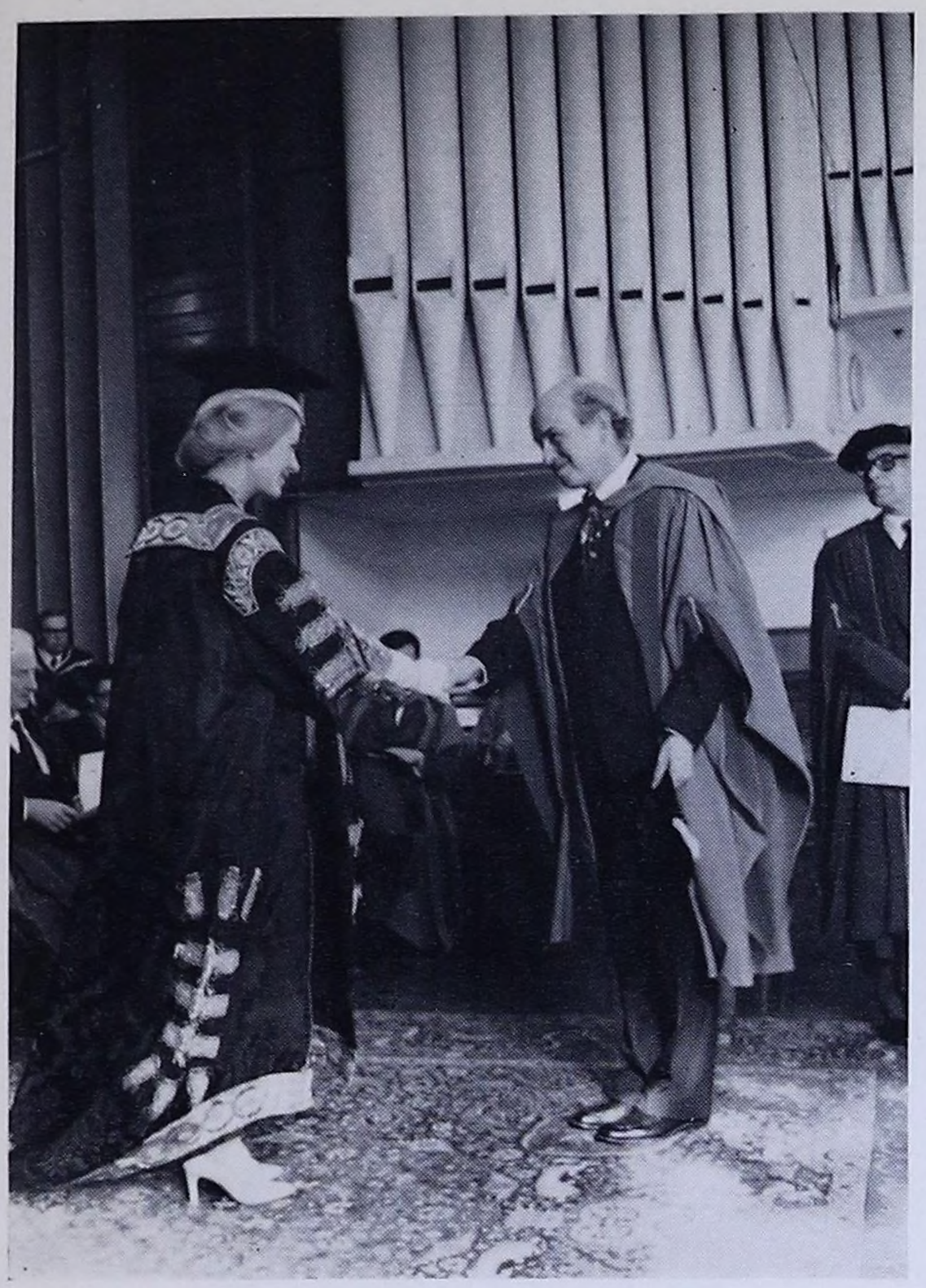
(1) See 'Some pitfalls in the use of net output statistics' by A A Sorrell, *Statistical News* No. 12, February 1971.

census of production results, lies in its relevance to structural analysis rather than up-to-the-minute interpretation of current trends, it fills a much-felt need. Some of the methodology used in calculating the derived series, such as the deflation procedures mentioned above, are, as the author admits, open to criticism. This serves merely to draw attention to the pit-falls of the volume being used without a thorough understanding of the underlying data and perhaps goes some way to explain why it has needed someone outside the Government Statistical Service to produce such a compilation. Mr Wood himself raises some of the difficulties mentioned here, and other problems, including some specific to particular industries. He is to be congratulated on bringing to fruition such a massive task of data analysis.

Reference

British Industries: A Comparison of Performance by E G Wood (McGraw-Hill) (Price £39·50 net).

THE GOVERNMENT STATISTICAL SERVICE IN THE NEWS



Left: Sir Claus Moser, Director of the Central Statistical Office and Head of the Government Statistical Service, receives the honorary Degree of Doctor of Science at Leeds University from the Chancellor, HRH The Duchess of Kent.

Below: John Boreham, Deputy Director of the Central Statistical Office, receives the Besterman Medal awarded to the CSO's *Guide to Official Statistics* from Sir Frederick Dainton, President of the Library Association. The medal is given each year by the Association for 'an outstanding bibliography or guide to the literature'.

M C Fessey CB, Director of the Business Statistics Office, retired on 31 May this year. He is seen (*left*) with Sir Claus Moser and the new Director of the BSO, R Ash, admiring his farewell gift from his colleagues in the Government Statistical Service; and (*below*) at a BSO Management Committee meeting.

Shown in the picture are: (*from left to right*) Miss S P Carter (CSO); G Penrice Department of the Environment and Transport); Sir Claus Moser; R Ash; L S Berman (Departments of Industry, Trade and Prices and Consumer Protection); M C Fessey; O Nankivell (CSO); A R Thatcher (Department of Employment); L Napolitan (Ministry of Agriculture, Fisheries and Food); and A A Sorrell (CSO).

Recently available statistical series and publications

The following publications containing social statistics have recently or will soon become available during the July–September quarter of 1977. Unless otherwise specified copies may be purchased from HM Stationery Office. A list of release dates of economic series is published monthly in *Economic Trends*.

Department of Education and Science
Statistics of Education, Volume 1: School statistics, 1976.
Statistics of Education, Volume 3: Further education statistics, 1975.

Home Office
Control of Immigration Statistics for 1976
Report of HM Chief Inspector of Fire Services 1976
Report on the Work of the Prison Department 1976
Statistical Tables
Criminal Statistics 1976
Return of Experiments on Living Animals 1976
Statistics of Persons acquiring Citizenship of the United Kingdom and Colonies 1976
Offences of Drunkenness for England and Wales 1976

Department of Employment
The *Department of Employment Gazette*, published towards the end of each month, contains indicators on earnings, unemployment and prices. The July edition includes an article entitled 'Family expenditure survey: early results for all UK households'.

Department of the Environment
Housing and Construction Statistics, Issue 21: figures for first quarter 1977
Local Housing Statistics, Issue 42: figures for first quarter 1977

Board of Inland Revenue
Estimated Wealth of Individuals in England and Wales 1975 (Obtainable from the Board of Inland Revenue, price 15p)

Office of Population Censuses and Surveys
Population Projections area 1974–1991. PP3 No. 1
Mortality statistics: causes 1975. DH2 No. 2
OPCS Monitors available free from the Office of Population Censuses and Surveys include:

Births and Deaths	VS	Weekly
Deaths from Accidents	DH4	Monthly
Legal Abortions	AB	Monthly
Adoptions	FM3	Quarterly
Infectious Diseases	MB2	Quarterly

Scottish Office
Scottish Hospital In-patient Statistics, 1975 (available free from the Scottish Office)
Criminal Statistics, 1976
Housing Returns for Scotland, fourth quarter 1976
Scottish Education Statistics, 1974 (Special Edition)

Welsh Office
Welsh Local Government Financial Statistics, Financial year 1975–76
Welsh Social Trends
Digest of Welsh Statistics

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

Further information can be obtained from:
Mr D Smith
Statistics and Research Division 3B
Department of Health and Social Security
10 John Adam Street
London WC2N 6HD

Unemployment benefit
Quarterly analysis of decisions of Insurance Officers quarter ended 30 June 1977

Widows and retirement pensions
Six-monthly analysis of additions and cessations six months ended 27 May 1977

Family allowance/child benefit
Analysis by families and children as at 31 December 1976

Analysis by families and children, additions and deductions – five months ended 31 May 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 31 December 1976

Adjudication
Quarterly analysis of appeals and references to local NI and II appeal tribunals – quarter ended 30 June 1977

Sickness benefit, invalidity benefit, injury benefit
Annual analysis of spells of certified incapacity by sex, age, cause, duration, area and (for injury benefit only) industry – 1975/76

Prescribed diseases (injury benefit)
Annual analysis of spells commencing in period by sex, age, cause, area and industry – 1975/76

Industrial disablement benefit
Annual analysis of pensions, allowances and gratuities by sex, age, cause, area, industry, etc. – 1975/76

Industrial injuries special schemes:
1 workmen's compensation
2 pneumoconiosis, byssinosis and miscellaneous diseases Annual analysis of allowances current and deaths in period by age and industry – 1975/76

Quarterly analysis of PMP Boardings by age, percentage assessment and industry etc.
Details of newly diagnosed cases in industries other than coal mining – quarter ended 30 June 1977

Industrial death benefit
Annual analysis of pensions, allowances and gratuities by age, cause and industry, etc. – 1975/76

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 30 June 1977

Mobility allowance
Weekly analysis of awards current and dis-allowances variously analysed by sex, age, cause, duration and area.

Family income supplement
Monthly analysis of numbers and characteristics
March 1977
April 1977
May 1977

New surveys assessed by the Survey Control Unit

April to June 1977

Further information on the details of the surveys listed, including the appropriate departmental contact, may be obtained in the first instance from Mrs Hazel Evans (01-233 8583), Survey Control Unit, Central Statistical Office, Great George Street, London SW1P 3AQ.

An introductory note was given in Statistical News 36.41

New surveys assessed April–June 1977

Title	*Sponsor*	*Those approached*	*Approximate number approached*	*Location*	*Frequency*
		Business surveys			
Attitudes of British Manufacturers to Energy Conservation	COI/DEN	Manufacturers	112	GB	AH
Consumer Credit Act – Registration Awareness Study	COI/OFT	Retailers	1,800	GB	AH
Hardy Nursery Stocks Survey	DAFS	Horticulturists	150	S	AH
Collection of VAT Numbers to Facilitate Matching of Units and Numbers Registers	DITPCP	Distributive and Service Companies	1,500	UK	AH
Ivory Coast Export Promotion Survey	DT	Exporters (Visible and Invisible)	630	UK	AH
London Hotel Occupancy Survey	ETB	Hotels	80	SE	M
Comparative Assessment of 1978 Campaign Themes	ETB	Travel Agencies/Tour Operators	235	UK	AH
Safety in Mines Research Establishment Fire and Gas Ignitions Surveys	HSE	Mine Managers	continuous	GB	C
Fire and Fire Prevention Measures	HOME	Manufacturers	3,500	UK	AH
Survey of Pesticide Usage – Poultry Husbandry	MAFF	Farmers	1,050	GB	AH
Assessment of "MUCK '77" Exhibition at National Agriculture Centre	MAFF	Farmers	530	WM	AH
Use of "Tramlines" in Wheat	MAFF	Farmers	520	EA	AH
Small Farmers Project – Socio-Economic Problems of Small Farmers	MAFF	Farmers	34	E	AH
National Survey of Grass Weeds	MAFF	Farmers	1,200	UK	AH
Evaluation of Cereal Disease Warning Service	MAFF	Farmers	400	EW	AH
Evaluation of Potato Blight Warning Service	MAFF	Farmers	400	EW	AH
Evaluation of Agricultural Development and Advisory Service Advice on Cutting Grass for Silage	MAFF	Farmers	250	EW	AH
Survey of Bunker Silos – Structure and Management	MAFF	Farmers	275	EW	AH
Survey of Labour Shortages	MSC	Employers	1,050	GB	AH
Tea Price Reference	PC	Wholesalers/Blenders/ Retailers	250	UK	AH
Beer Price Reference	PC	Publicans/Brewers	300	UK	AH
Paint Price Reference	PC	Retailers/Wholesalers/ Manufacturers	620	UK	AH
Selected Services Industries Survey	SDD	Service Companies	150	S	AH
Chemical and Allied Products Industry Training Board Return – Numbers Employed and Emoluments	TSA	Chemical and Allied Products Companies	3,300	GB	A
Hotel and Catering Industry Training Board – Manpower Information Study	TSA	Hotels/Catering Firms	5,700	GB	I
		Local Authority Surveys			
Provision made for Certain Aspects of Careers Teaching in Wales	CSAW	Local Education Authorities/Schools	260	W	AH
Rent (Agriculture) Act Return	DOE	Housing Authorities	364	EW	Q
Costs and Organisation of Housing Management	DOE	Housing Authorities	120	GB	AH
Survey of Weights and Measures Authorities – Review of Prescribed Fees	DPCP	Chief Executives	17	GB	AH
Survey of Census Users	OPCS	Chief Executives	140	EW	AH
Waste Collection Statistics for Financial Year 1976/77	SDD	Chief Executives	56	S	AH

Title	*Sponsor*	*Those approached*	*Approximate number approached*	*Location*	*Frequency*
		Other Surveys			
Energy Cost Comparison Leaflet – Communication and Evaluation Test	COI/DEN	Adults	560	GB	AH
Child Pedestrian Safety Study to Assess Awareness of Green Cross Code	COI/DTP	Children	3,500	GB	AH
Anti-Vandalism Advertising Concept Research	COI/HOME	Adults	35	EW	AH
Attitudes to Mobile Radiant Electric Space Heating – Fire Hazard	COI/HOME	Housewives	50	SE	AH
Women Prison Officers – Recruitment Advertising Research	COI/HOME	Women	25	E	AH
Metrication and the Elderly in Warwickshire and West Yorks	COI/METB	Elderly	1,760	E	AH
RAF Officer Advertising Concept Test	COI/MOD	Men	30	EW	AH
Research on Titles for School Leavers Information Sheet	COI/MSC	Teenagers	20	E	AH
Communication Effectiveness of a Radio Commercial	COI/MSC	Teenagers	50	UK	AH
Evaluation of Special Employment Measures – Job Release Survey	DEM	Adults	600	N	AH
SOEC Labour Force Survey 1977	DEM	Households	105,000	UK	I
Energy Efficiency Labelling-Study to Determine Usefulness of Labelling Domestic Appliances	DEN	Consumers	800	UK	AH
Evaluation of Questionnaire on Physical Development in One-year-old Infants	DHSS	Parents	185	SE	AH
Survey of Career Patterns of Women in Medicine	DHSS	Doctors	1,500	UK	AH
Investigation into Social Support Systems	DHSS	Elderly	150	YH	AH
Survey of Problems of Adolescents	DHSS	Teenagers	800	YH	AH
Research into Accidental Falls by Old People	DHSS	Elderly	N/K	WM	AH
Communication Problems of Hearing Impaired People at Work	DHSS	Individuals	50	SE	AH
Review of the Practice of Inter-Country Adoption to Establish Policy Guidelines for Future Practice	DHSS	Parents	150	SE	AH
Study of Birth Control and Abortion Services – Clinic Patients	DHSS	Women	100	SE	AH
Survey to Assess Public Attitudes to Noise in Darlington	DOE	Adults	600	N	AH
Chandlers Ford Hypermarket Follow-up Study	DOE	Shoppers	2,000	SE	AH
London's Greenbelt Land – Analysis of its Ownership, Price and Use	DOE	Valuers/Auctioneers/ Owners	280	SE	AH
Child Poisoning from Household Products	DPCP	Mothers	550	E	AH
A69 Trunk Road – Brampton, Cumbria	DTP	Adults	PPE	N	AH
A10 Buntingford By-Pass	DTP	Adults	PPE	SE	AH
A47 Billesdon By-Pass	DTP	Adults	PPE	EM	AH
A31 Proposed Improvement at Stoney Cross and Picket Post Junctions, Hants	DTP	Adults	PPE	SE	AH
A696 Otterburn By-Pass Northumberland	DTP	Adults	PPE	N	AH
Market Weighton By-Pass Origin and Destination Survey	DTP	Adults	3,200	YH	AH
Bevereley By-Pass Origin and Destination Survey	DTP	Adults	1,600	YH	AH
Study of Car Parking Price Elasticities	DTP	Drivers	1,200	SE	AH
Jobseeker Attitude Survey	ESA	Adults	2,500	UK	I
Exploration of Serviced Accommodation Choice Criteria	ETB	Adults	520	UK	AH
Impact on Overseas Visitors of "Touring in England" Booklet	ETB	Overseas Visitors	1,500	SE	AH
Holiday Taking Behaviour of Recipients of Development Area Promotional Booklet	ETB	Adults	6,000	UK	AH
Usage and Opinions of "Touring England's North Country" Booklet	ETB	Adults	20	E	AH
Comparative Assessment of 1978 Campaign Themes	ETB	Adults	600	UK	AH
Central Electricity Generating Board – Assessment of Psychiatric Status of Workers	HSE	CEGB Employees	500	SE	AH
General Post Office Occupational Health Survey	HSE	GPO Employees	20,000	GB	AH
Employment Medical Advisory Services' Noise and Audiometry Survey	HSE	Individuals	750	SE	AH
Survey to Determine the Dietary Intake of Mercury of Fish Eaters	MAFF	Households	400	E	AH
Survey of Unemployed Executives	MSC	Adults	1,350	GB	AH
Survey of Attitudes to Employment and Finances	OPCS	Households	150	GB	AH
The Protective Legislation Survey – the Attitudes and Intentions of Women towards Working Shifts	OPCS	Women	2,500	UK	AH
Dalleagles Post Bus Survey – Rural Transport Experiment	SDD	Households	410	S	AH
Hospital Transport Service Study – Transport Difficulties – Patients and Visitors	SDD	Individuals	250	S	AH
Blackmount On-Bus Survey to Determine Number of Passengers likely to use a New Mini-Bus Service	SDD	Passengers	500	S	AH
1976 National School Leavers Survey	SED	Teenagers	34,000	S	I
Survey to Examine Nature and Extent of Marital Violence	SHHD	Women	80	S	AH
Travel to Work Survey – ICI Bracknell	TRRL	ICI Employees	500	SE	AH
Survey of Environmental Benefits of Keswick and Cockermouth By-Passes	TRRL	Adults	1,000	NW	AH

New surveys assessed April–June 1977

Title	*Sponsor*	*Those approached*	*Approximate number approached*	*Location*	*Frequency*
Survey of Environmental Benefits of Tring By-Pass	TRRL	Adults	200	SE	AH
National Survey into Various Aspects of Lorry Nuisance 1978	TRRL	Adults	750	GB	AH
Dykes Act Case Studies – Attitudes to Lorry Restraint Policies	TRRL	Adults	500	GB	AH
Northallerton Hospital Survey – Transport Difficulties of Outpatients and Visitors	TRRL	Individuals	3,300	YH	AH
Environmental Effects of Various Road Schemes	TRRL	Adults	1,000	E	AH
Research on the Effects of Bus Service Reductions	TRRL	Individuals	200	E	AH
Assessment of 'Household Activity-travel Simulator' in Connection with Rural Bus Travel	TRRL	Households	100	SE	AH
Alcohol and the Road Users	TRRL	Adults	500	WM	AH
Road Safety Education – Study of Police Force Activities	TRRL	Police Forces	48	GB	AH
Access to Countryside Recreation by Public Transport	TRRL	Households	1,000	W	AH
Heavy Goods and Public Service Vehicles Involvement in Motorway Accidents	TRRL	Drivers	1,000	GB	AH
Survey of Car Sharing as a Means of Travel to Work	TRRL	Households	5,000	YH	AH
Perception of Visual Amenity of Proposed Rural Roads using Photographic 'White Line' Overlays	TRRL	Households	200	SE	AH
Bus Survey in Devon and Ripon in Connection with Rural Transport Experiments	TRRL	Passengers	200	E	AH
Survey to Assess Loss of Skill in Unemployed Skilled Workers	TSA	Individuals/Employers	63	SE	AH

Abbreviations used

General

PPE – Public Participation Exercise – A self selection of visitors to exhibitions etc. who choose to complete a form
RAF – Royal Air Force
SOEC – Statistical Office of the European Communities

Sponsor

COI – Central Office of Information
CSAW – Careers Service Advisory Council for Wales
DAFS – Department of Agriculture and Fisheries, Scotland
DEM – Department of Employment
DEN – Department of Energy
DHSS – Department of Health and Social Security
DOE – Department of the Environment
DPCP – Department of Prices and Consumer Protection
DT – Department of Trade
DTIPCP Departments of Trade, Industry and Prices and Consumer Protection common service
DTP – Department of Transport
ESA – Employment Services Agency
ETB – English Tourist Board
HOME– Home Office
HSE – Health and Safety Executive
MAFF – Ministry of Agriculture, Fisheries and Food
METB – Metrication Board
MOD – Ministry of Defence
MSC – Manpower Services Commission
OFT – Office of Fair Trading
OPCS – Office of Population Censuses and Surveys
PC – Price Commission
SED – Scottish Education Department
SDD – Scottish Development Department
SHHD – Scottish Home and Health Department
TSA – Training Services Agency
TRRL – Transport and Road Research Laboratory

Location

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

Frequency

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

Notes on current developments

POPULATION AND VITAL STATISTICS

Futher tests for the Census of Population – England and Wales

The Office of Population Censuses and Surveys conducted a major test of census methods in April 1977. The areas chosen for the test were parts of Cambridge, East Cambridgeshire, Plymouth, West Devon, Leicester and York. The combined population of these areas is some 140,000 persons.

Completed forms were returned by 72 per cent of households. The response rate was lower than those achieved in previous tests this decade, but it was comparable with that achieved in a test in the late 1960s. It was not possible to contact 6 per cent of households, 9 per cent refused to accept a form and 13 per cent accepted a form but declined to complete and return it. Response varied widely between areas. The highest was 79 per cent for East Cambridgeshire whilst the lowest was 65 per cent for Leicester.

Various aspects of census operations were tested. The main object was to investigate the efficiency of taking samples, in the field, for linked surveys. Three samples were considered; a one per cent sample, a fertility sample, and a sample of highly qualified persons. Enumerators were asked to select either a fertility sample or a sample of highly qualified persons or both. This involved identifying all households with the form number ending in a particular digit and then deciding whether anyone in the household was eligible for a further questionnaire. Assistant Census Officers were set a similar task, but in some areas they were also required to choose a one per cent sample of households. A linked survey form was sent out to those persons falling into the sample of highly qualified persons. To date, 72 per cent of persons have completed and returned the form. It is too early as yet, to say whether the samples have been accurately selected.

Also under test was a new method of training enumerators based on self instruction booklets. Evaluation of the reactions of enumerators to this method and its success as a mode of teaching is in hand.

Further information can be obtained from:

Census Division
OPCS
St Catherines House
10 Kingsway
London WC2B 6JP

Population Trends

The latest edition of *Population Trends*, the journal of the Office of Population Censuses and Surveys was published in early July. An article traces the history of the Registrar General's social class classification, introduced in 1911, and describes the basis on which it was built and its evolvement. The article points out the refinements made to the classification over the years and demonstrates the dangers in analysing statistics by social class without being aware of problems of interpretation.

Between 1964 and 1975 there were 3·3 million emigrants from the United Kingdom and 2·5 million immigrants coming into the country. The age, sex, marital status and occupations of these migrants are analysed taking the International Passenger Survey as the main data source. One of the conclusions of the article is that the loss of qualified manpower from the United Kingdom (the 'brain drain') has, in some measure, been made good through immigration.

Deaths from tuberculosis in England and Wales from 1910 to 1974 have been analysed and possible reasons behind the recent changes within generations suggested. One of the interesting points that emerge is that each generation shows a characteristic age pattern of rates.

Mortality appears again, this time in an article on population projections. The effects that medical research and development have brought about on the size of the population, its age-distribution and on the numbers of the elderly with resultant effects on the projections are discussed with comparable results for France and the United States.

The remaining two articles cover firstly the divisions of post-1974 local authority districts in England and Wales into pre-1974 'urban' and 'rural' categories despite the reduction in the number of such authorities. The second, by the same author, demonstrates an interesting technique whereby the population *density* in a map can be given greater emphasis than the area's physical size and shape.

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

Population Trends 9 due for publication in September 1977 will include a preview of the decennial occupational mortality study, a review on twelve years' surveillance of congenital malformations and a discussion on what constitutes the most densely populated areas of Great Britain.

References
Population Trends 8 (HMSO) July 1977 (Price £2·00 net).
Population Trends 9 (HMSO) due in September 1977 (Price £2·00 net).

Population Estimates – changes in methodology

It has been decided to make some changes in the method used to make mid-year population estimates. There will be two main innovations. Firstly the improved use of electoral registration statistics together with the introduction of data from both the National Health Service Central Register and the Department of Education and Science when making estimates of migration for individual Local Authority areas. Secondly the production of Health District population estimates on a proper demographic basis which has not been possible in the past.

The new methodology will be used to revise all National, Local Authority and Health District population estimates for each year back to mid-1971. This work should be completed by March of next year.

OPCS Occasional Papers

Requests for OPCS Occasional papers should be made to:

Information Branch
St Catherine's House
10 Kingsway
London WC2B 6JP

It was incorrectly stated in the last issue of *Statistical News* (37.28) that requests should go to the OPCS library.

EDUCATION

Scottish educational statistics

A new series of factual statistical bulletins has been instituted. The ultimate aim – this will be worked towards gradually – is to have bulletins covering many of the matters presently contained in *Scottish Educational Statistics;* the range of detail will of course be much reduced. Bulletins will be issued throughout the year (as soon as possible after the information becomes available) and will result in data being made public very much earlier than has so far been the case.

Scottish Educational Statistics (SES) will to some extent be replaced by the series of statistical bulletins and will become more firmly established in the character it already partly has of a volume of value mainly for research or academic purposes. The 1975 and subsequent editions will contain considerably less detail.

Reference
Scottish Educational Statistics (HMSO) annual (Price £4·65 net).

MANPOWER AND EARNINGS

Survey of characteristics of the unemployed

In June 1976, the Department of Employment conducted a sample survey of the unemployed in order to amplify information obtained from the regular official unemployment statistics. Similar studies in earlier years, and most recently in 1973 (*Statistical News* 25.22) had been carried out to assess the prospects of obtaining work of a sample of the unemployed and to shed light on certain characteristics which involve a degree of personal judgement by local office staff. An important consideration in 1976 was to obtain a comparison of the results at a time of a high unemployment level with those from the June 1973 survey when unemployment was at a low point in the cycle.

A one-in-sixty sample, of 14,299 men and 3,932 women (aged 18 and over), was drawn from the unemployed registered at local offices of the Employment Services Agency (ESA) and Professional and Executive Recruitment (PER). Registrants at Careers Offices were excluded as, of course, were those unemployed people who choose not to register. As in 1973 a follow-up survey was carried out the following January to see whether the persons were unemployed at that date. The 1976 follow-up survey also obtained information on the reasons for leaving the register and the month of leaving for those no longer registered as unemployed. This enabled some check to be made of the consistency of local office assessments.

An article giving a description of the Survey and the first tables of results has been published in the June 1977 issue of the *Department of Employment Gazette*. More detailed tables will appear in subsequent issues of the Gazette.

The sample results show that a large proportion of unemployed adults seeking long-term full-time work were considered to have good, fair or reasonable prospects of obtaining work: 55 per cent of men and 70 per cent of women. Almost all of these were considered keen or relatively enthusiastic for work. The remainder had poor prospects but many of these were also considered to be keen or relatively enthusiastic (meaning that the local office had no reason to doubt that the person would take a job if offered).

Unemployment has risen substantially since the date of the previous survey. The two surveys show that three quarters of the increase since 1973 in the number of unemployed men and women has been among these with good, fair or reasonable prospects of obtaining work. Compared with 1973, the largest increase has been in the proportion of men with reasonable prospects, from 14 to 25 per cent. This increase has been most noticeable among occupational groups that

contain skilled or qualified men, notably craft and other manual occupations, excluding general labourers.

It is estimated from the survey that in July 1976 there were about 75,000 men registered as unemployed receiving an occupational pension. The proportion in the total unemployed aged 60–64 was 49 per cent, only 3 per cent higher than in 1973.

Reference
Department of Employment Gazette, June 1977 (HMSO) (Price £1·20 net).

National labour force projections

Revised labour force projections for Great Britain to 1986 have been prepared by the Department of Employment. These projections replace those published in December 1975 (see *Statistical News* 32.26). They take into account 1975-based population projections and the latest information on numbers in full-time education. The 'activity rates' (the proportion of the population in the labour force) have been projected using various sources of information, in particular the EEC Labour Force Survey, to update the 1971 Census of Population rates which were the basis of earlier projections.

Projections for regions (which were published in December 1975) have not yet been revised.

Reference
Department of Employment Gazette, June 1977, (HMSO) (Price £1·20 net).

Articles on manpower planning

Recent issues of the *Department of Employment Gazette* contained further articles in the manpower planning series (*Statistical News* 37.32 etc.). The March 1977 issue had an article describing the impact on the Scottish labour market of the expanding North Sea oil industry. The April 1977 issue contained an article (in two parts) on skilled labour in the engineering industry and an article on the numbers of young people leaving school in England and Wales.

Reference
Department of Employment Gazette, March and April 1977 (HMSO) (Price £1·20 net).

Recent movements in the indices of basic rates of wages

The Department of Employment has drawn attention in press notices and an article in the Department's Gazette to the effect on the indices of basic wage rates of nationally agreed rates of wages for engineering workers remaining unchanged for more than 12 months. The indices for the metals industries group, all manufacturing industries and all industries and services combined do not reflect any change in wage costs for such workers since February 1976.

Reference
Department of Employment Gazette, May 1977, page 463 (HMSO) (Price £1·20 net).

London weighting indices

Indices measuring changes between April 1974 and April 1977 in prices and additional costs experienced by persons working in London compared with those experienced elsewhere in the United Kingdom were published in the June issue of the *Department of Employment Gazette*. This series (*Statistical News* 30.32) provides information for up-dating the allowances recommended in 1974 in the Pay Board's report on London Weighting (*Statistical News* 26.16) or other negotiated London allowances.

Reference
Department of Employment Gazette, June 1975 (HMSO) (Price 90p net) and June 1977 (HMSO) (Price £1·20 net).

INCOME AND EXPENDITURE

Survey of personal incomes

The main results of the *Survey of Personal Incomes 1974/75* have been published in a booklet pending full publication in *Inland Revenue Statistics 1977* in due course.

The tables in the booklet are similar to those in the publication for 1973/74 including distributions of personal income before and after tax and distributions by marital status, size of family and type of income. There is also a summary table showing incomes allocated to smaller areas on the basis of the new regional boundaries as adjusted following local government reorganisation.

Tables in greater detail will appear in the main volume.

Reference
The Survey of Personal Incomes 1974/75 (Price 50p net), obtainable from:
The Public Enquiry Room,
Room 8, New Wing,
Somerset House,
Strand,
London, WC2 1LR.

Peers' expenses allowance

Report No. 9 of the Review Body on Top Salaries, for which the Office of Manpower Economics (OME) provides the Secretariat, contains the results of a survey of the hours spent and expenses incurred by Members of the House of Lords in the pursuance of their Parlia-

mentary duties. It also records their views on the level and operation of their expenses allowance. It was carried out in March and April 1975. A questionnaire was sent to every Peer (other than those who had not received a writ of attendance or those who had been given leave of absence) and there was a 66 per cent response rate. Averages and distributions of expenditure on subsistence, accommodation, incidental travel and other items, hours spent on Parliamentary work both at and away from the House of Lords and days of attendance are analysed by, *inter alia*, distance of main home from London, frequency of attendance and whether or not the Peer was claiming against the allowance.

Reference
Review Body on Top Salaries, *Report No. 9: Ministers of the Crown and Members of Parliament and the Peers' expenses allowance: Part III* – Cmnd. 6749 (HMSO) March 1977 (Price 75p net).

Estimates of household expenditure – comparison between the Family expenditure survey and the National accounts

Last year the Central Statistical Office made available a paper which compared the grossed-up results of the Family expenditure survey with National accounts' estimates of consumers' expenditure for 1970/74. An updated version of this paper covering 1970/75 is now ready and may be obtained, on application, from:

Mr B G Hilton
Central Statistical Office
Great George Street
London SW1P 3AQ
Tel: 01-233 7227

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].

The results for glasshouse items and for machinery items were published in a Statistical Information Notice on 17 May 1977.[2]

The March 1977 Sample Enquiry
The results of this enquiry in England and Wales were published in a Press Notice on 4 May 1977.[3] These show that dairy cows increased and beef cows decreased in number compared with March 1976. The pig-breeding herd, although slightly larger than a year before, is declining and the number of gilts in pig has fallen sharply. The egg-laying flock increased during the year, but growing pullets were down in numbers compared with March 1976.

The April 1977 Sample Pig Enquiry
The results of this enquiry in England and Wales and in the United Kingdom were published in a Statistical Information Notice on 20 June 1977.[4]

Farm Classification in England and Wales 1975[5]
This recently published volume, the eleventh in the series, contains distributions of agricultural holdings, crop areas, livestock numbers etc. by farming type and by size of business for England and Wales in 1975.

References
(1) Press Notice No. 64 issued by the Ministry of Agriculture, Fisheries and Food.
(2) Statistical Information Notice (Stats 131/77) issued by the Ministry of Agriculture, Fisheries and Food
(3) Press Notice No. 143 issued by the Ministry of Agriculture, Fisheries and Food.
(4) Statistical Information Notice (Stats 159/77) issued by the Ministry of Agriculture, Fisheries and Food.
(5) Farm Classification in England and Wales (HMSO) 1975 (Price £2·50)

The April Pig Sample Census – Scotland
The results of this census in Scotland were published as a Scottish Office Press Notice on 23 May 1977 (Press Notice No. 536/77). These results show a contraction of thirty-one thousand (5 per cent) in total pig numbers since December 1976. Compared with last December the breeding herd has dropped by over four thousand pigs (7 per cent), the number of in-pig gilts has fallen by five hundred (6 per cent) and the number of maiden gilts has fallen by two thousand (33 per cent). Store pig numbers have decreased by twenty-five thousand over the same period.

INDUSTRIAL STATISTICS

Statistical inquiries into industry's purchases

Information about industry's purchases of materials for use in production, packaging, fuels, etc., has to be collected from time to time for a number of important purposes, which include the bringing up to date of the basis of calculation of the monthly index numbers of wholesale prices of materials used by the various sectors of industry and the compiling of input/output tables for the UK economy. Detailed breakdowns of firms' purchases were obtained in the last of the old series of periodic large-scale Censuses of Pro-

duction, which related to the years 1963 and 1968. With the introduction from 1970 of the new series of Annual Censuses of Production which collect summary information only, it was decided that the Business Statistics Office would seek detailed information about purchases every few years in inquiries carried out separately from the Censuses. The first of these new Purchases Inquiries was held for 1974. Some 24,000 questionnaires were sent out early in 1975 to the larger firms in the manufacturing, mining and quarrying industries and the public utilities. Results for the individual industries covered by the inquiry are being published in the industry volumes of the Report on the Annual Census of Production for 1974 (the PA series of Business Monitors, available from Her Majesty's Stationery Office). Inquiries about the results should be addressed to Room 4.15, Business Statistics Office, Newport, Gwent, NPT 1XG. (Telephone: Newport (0633) 56111, extension 2392).

A further Purchases Inquiry is planned for 1979. Views on the content of the questionnaires are being invited from trade associations representing the businesses that will be covered by the Inquiry, and advance information copies will be sent to the businesses themselves in 1978. Copies for completion will be issued at the beginning of 1980.

PA 365.1	Gramophone records and tape recordings	365/1
PA 365.2	Broadcast receiving and sound reproducing equipment	365/2
PA 383	Aerospace equipment, manufacturing and reparing	383
PA 399.5	Drop forgings, etc.	399/5
PA 399.6	Metal hollow-ware	399/6 and 7
PA 431	Leather (tanning and dressing) and fellmongery	431
PA 432	Leather goods	432
PA 442	Mens' and boys' tailored outerwear	442
PA 449.1	Corsets and miscellaneous dress industries	449/1, 3 and 4
PA 449.2	Gloves	449/2
PA 462	Pottery	462
PA 464	Cement	464
PA 469.1	Abrasives	469/1
PA 473	Bedding, etc.	473
PA 475	Wooden containers and baskets	475
PA 479	Miscellaneous wood and cork manufactures	479
PA 481	Paper and board	481
PA 482.1	Cardboard boxes, cartons and fibre-board packing cases	482/1
PA 482.2	Packaging products of paper and associated materials	482/2
PA 484.1	Wallcoverings	484/1
PA 491	Rubber	491
PA 492	Linoleum, plastics floor-covering, leathercloth, etc.	492
PA 493	Brushes and brooms	493
PA 494.3	Sports equipment	494/3
PA 495	Miscellaneous stationers' goods	495
PA 496	Plastics products	496
PA 499.1	Musical instruments	499/1

Business Monitors

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 and a further list appeared in Issue No. 37. 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.

Business Monitor Number	*Description*	*Standard Industrial Classification Minimum List Heading*
PA 102	Stone and slate quarrying and mining	102
PA 218	Fruit and vegetable products	218
PA 277	Dyestuffs and pigments	277
PA 312	Steel tubes	312
PA 321	Aluminium and aluminium alloys	321
PA 334	Industrial engines	334
PA 342	Ordnance and small arms	342
PA 351	Photographic and document copying equipment	351
PA 352	Watches and clocks	352
PA 353	Surgical instruments and appliances	353
PA 354	Scientific and industrial instruments and systems	354
PA 361	Electrical machinery	361
PA 362	Insulated wires and cables	362
PA 364	Radio and electrical components	364

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

Scottish index of industrial production: continuous series from 1948

An article in the *Scottish Economic Bulletin* No. 12/ Summer 1977 contains revised figures for the Scottish index of industrial production for the years 1958–70. These have been linked to the previously revised series from 1948 to 1958 and to the new series based on 1970 to provide a continuous series by industry groups from 1948 to the present. The series has an annual frequency from 1948 to 1972 and quarterly thereafter. A market sector analysis has also been produced for 1958, 1963 and annually from 1968.

Reference

Scottish Economic Bulletin, No. 12 (HMSO Summer 1977).

RESEARCH AND DEVELOPMENT

Resources allocated to research and development in the United Kingdom

The recent CSO publication *Research and Development – Expenditure and Employment*[1] contains estimates of resources allocated to research and development in the United Kingdom. It updates the former CSO publication[2] but contains for the first time estimates of employment on research and development in central government and industry and an analysis of central government expenditure by the (revised) standard objectives nomenclature of the European Community. It presents sectoral analyses of the funding and performance of scientific research and development for 1972–73 – the last year for which information covering all economic sectors is available – and detailed analyses by product group of industrial expenditure in 1972–73 and preceding years. Data for central government cover the period 1970–71 to 1975–76.

About 18 thousand scientists and engineers were employed on scientific research and development in central government establishments in 1974–75, compared with 16 thousand in 1972–73 when the number similarly employed in industry was 61 thousand. Including technicians and other supporting staff, the total numbers employed on scientific research and development in 1972–73 were 76 thousand in government and 182 thousand in industry.

In 1972–73 the United Kingdom spent £1,310 million on scientific research and development of which government financed 49 per cent and industry 43 per cent, with a further 5 per cent coming from abroad. However, only 26 per cent of all scientific research and development was performed in government establishments, whereas 63 per cent was carried out in industry and 8 per cent by universities and colleges of further education. This pattern had remained fairly stable since the mid-1960s, although 1972–73 saw a sharp increase in the extent to which government and industry financed research in other sectors. In 1972–73, 60 per cent of government expenditure on scientific research and development was performed in other sectors compared with 54 per cent in 1969–70; comparable figures for industry were 12 per cent in 1972–73 – with funds going predominantly to government – and 4 per cent in 1969–70.

As a proportion of gross domestic product (GDP), total UK expenditure on scientific research and development fell steadily from 2·75 per cent in 1966–67 to 2·45 per cent in 1972–73. About one third of total spending represented research and development for defence and government-financed aerospace, whilst government financed about one third of all expenditure on civil (non-defence) research.

Central government budgetted in 1975–76 for some £1·2 billion of expenditure on research and development in the natural and social sciences and engineering. The analysis by socio-economic objectives shows that throughout the period 1970–71 to 1975–76 about 90 per cent of this expenditure fell into four categories: defence, rising from 42 per cent to 46 per cent; general promotion of knowledge via the Research Councils and universities at a little over 20 per cent; industrial productivity and technology, falling from 17 per cent to 12 per cent; and energy conservation and technology at 7 per cent.

References

(1) *Research and Development – Expenditure and Employment: Studies in Official Statistics No. 27*, December 1976, (HMSO), (Price £2.00 net).

(2) *Research and Development Expenditure: Studies in Official Statistics No. 21*, 1973, (HMSO), (Price £1.55 net).

Survey of research and development in Industry 1975

Two articles in *Trade and Industry* have given the results of the 1975 survey of industrial research and development in British industry. The first, 'Industrial expenditure and employment on scientific research and development in 1975', appeared on 24 June 1977; and the second, 'Employment on scientific research and development in industry 1975', one week later. The articles gave an estimate of research and development expenditure at £1,345 million in 1975, the increase since 1972 being due to increased costs. Total employment on research and development in 1975 was estimated to have fallen by 2 per cent since 1972, a smaller rate of decrease than had occurred for some years. This fall was due primarily to a drop in employment in private industry particularly for electrical engineering products.

Reference

Trade and Industry, weekly (HMSO) (Price 35p).

HOME FINANCE

Public sector debt

The November 1976 issue of *Statistical News* (35.43) referred to a new presentation of statistics on public sector debt that was introduced in the 1976 edition of the *Annual Abstract of Statistics*. This new style of presentation has now been described more fully in an article in the May 1977 issue of *Economic Trends* which includes figures for debt outstanding at 31 March 1976. It is hoped in future to improve the timeliness of this information further by publishing in *Financial Statistics* the following January figures on the nominal value of outstanding debt of the public sector at 31 March each year.

The *Economic Trends* article argues that the debt of the whole public sector, and particularly that part of it that is held by the domestic private and overseas sectors, is often a more useful concept than the narrower but more often quoted definition of national debt. The national debt is affected, for example, by the extent to which local authorities and public corporations raise the finance they need by borrowing from central government rather than from the market. Long-term and recent trends in the level and structure of debt are described, and changes in the nominal value of public sector debt outstanding are reconciled with the public sector borrowing requirement for one year – 1974/75.

Reference
'Public sector debt' by David J. Reid, *Economic Trends* No. 283, May 1977, (HMSO) (Price £1·95 net).

Bank of England Quarterly Bulletin

The June issue of the Bulletin included the following:

Sector financing: 1976
An article reviewing the main developments in the flow of funds between sectors of the economy in 1976.

Financial forecasts in the United Kingdom
An abbreviated text of a paper presented in Paris in April 1977 by M E Hewitt, a member of the Bank's Economic Intelligence Department, to a seminar of central banks and international institutions, describes the process by which short-term financial forecasts are constructed by the Treasury and the Bank.

The following changes were made to tables in the same issue:

Table 6/3 UK Banking sector: transactions in liabilities and assets
Deposits by the public sector are now divided into sterling and other currencies.

Table 11/3 Public sector borrowing requirement, domestic credit expansion and money stock
The second page of this table now includes figures for 'banking' months.

Table 29/4 Foreign exchange rates: effective indices
This table now shows indices of effective exchange rates instead of percentage changes.

Copies of the Bank's Bulletin and off-prints of the Financial forecasts article may be obtained, free of charge, from:

The Economic Intelligence Department
Bank of England
Threadneedle Street
London EC2R 8AH

OVERSEAS FINANCE

Overseas aid flows in 1976

The UK's net Official Development Assistance (ODA) to the developing countries is provisionally estimated at £462·1 million in 1976, compared with £388·9 million in 1975. Gross flows of Official Development Assistance in 1976 were £521·9 million and receipts of amortization £59·8 million.

Net Official Development Assistance are those official flows which meet the development motivation and concessionality criteria agreed within the Development Assistance Committee of the Organisation for Economic Co-operation and Development and count towards the internationally recognised target of 0·7 per cent of GNP. In 1976 the UK's performance against this target is provisionally 0·38 per cent of GNP compared with 0·37 per cent GNP in 1975. This compares with the average for all DAC member countries of 0·33 in 1976 and 0·36 in 1975.

The UK's net bilateral ODA, which comprises financial aid (grants and loans) and technical co-operation expenditure, totalled £321·6 million in 1976 compared with £254·9 million in 1975, an increase of 26 per cent. In 1976, bilateral financial aid amounted to £194·2 million and bilateral technical co-operation £127·4 million. This compares with £158·7 million and £96·3 million in 1975, respectively.

Net Multilateral aid amounted to £140·6 million in 1976, an increase of 4·8 per cent compared with 1975. The proportion of aid channelled through multilateral organisations has increased steadily over the past five years and in 1976 accounted for approximately 30 per cent of the UK's ODA.

An inventory of UK external assets and liabilities: end-1976

An article in the Bank of England's June 1977 Bulletin continues the annual series of estimates.

CONFERENCES

1978 Conference of the Institute of Statisticians

The Institute of Statisticians is convening a major international meeting on Time Series Analysis for 12–15 July 1978, again at Cambridge. The conference is expected to attract several hundred delegates. Eighteen outstanding authorities, from all over the world, have been invited to contribute substantial papers; and it seems likely that there will be at least a dozen experts of the highest calibre coming to speak.

Full details will be available later this year. The Institute have made this announcement early to help people fit the dates into diaries well ahead.

PUBLICATIONS

Off-prints from *Economic Trends*
A limited number of off-prints of articles from *Economic Trends* are now available and may be obtained from:

The Publications Unit
Central Statistical Office
Government Offices
Great George Street
London, SW1P 3AQ
Tel: 01-233 7596

Articles recently published include:

May Improvements to the engineering series for the index of industrial production.
Department of Industry survey of company liquidity: comparison with the financial accounts.
Public sector debt.

June Regional accounts – preliminary estimates for 1975.
Interest, profits and dividends in the balance of payments.

July Developments in national accounts.

INTERNATIONAL

Purchasing power in the EEC
An article in the May issue of the *Department of Employment Gazette* compares purchasing power in each of the EEC countries. It reports on work undertaken by the Statistical Office of the European Communities to calculate for consumer goods and services 'exchange rates' known as purchasing power parities which are based on the relative price levels in the EEC. It says that the results show clearly the inadequacy of simply using foreign currency exchange rates as a basis of international comparison.

The article is based on a survey carried out by the Statistical Office of the European Communities (SOEC) in 1975, and it was the first time that the United Kingdom took part. SOEC are now developing a work programme to provide an updating of the parities on an annual basis up to 1980.

In says that prices in Bonn were 129 per cent of prices in London, in Paris 131, Rome 101, Amsterdam 119, Brussels 122, Luxembourg 113, Dublin 98 and Copenhagen 147.

Reference
Department of Employment Gazette, May 1977, page 443, (HMSO) (Price £1·20 net).

GOVERNMENT STATISTICAL SERVICE

Retirement of Mr M C Fessey CB, Director, Business Statistics Office
Sir Claus Moser, Head of the Government Statistical Service was at the Business Statistics Office to mark the retirement of its first Director, Martin Fessey. In his speech, Sir Claus referred to the real affection in which Martin Fessey is held and to his success in putting the BSO on the national, industrial, governmental and international map. He had created a firm base on which his successor, Ray Ash, could build.

As pictured in this issue he presented Martin Fessey, on behalf of his colleagues – many hundreds of whom were present – with a chess table made by a Welsh craftsman, a set of chess pieces, a chess clock, and a cheque. Sir Claus revealed that the cheque would be added to a trust fund which Martin Fessey was setting up to give an annual prize of £20 worth of books to a student of statistics, economics, computing or management science.

In his reply, Martin Fessey said that the thing for which he would like to be remembered was the part he had played in building up the BSO. Throughout his career, the most important influence had been the friendship, wisdom and tutelage of those he had worked with.

Appointments and changes
Miss S V Cunliffe, Under Secretary, Director of Statistics at the Home Office, retired on 30 June 1977.

Miss R J Maurice, Under Secretary, Head of ECS6 Division in the Departments of Industry, Trade and Prices and Consumer Protection (DITPCP) transferred to the Home Office on 1 July 1977 to be Director of Statistics in succession to Miss Cunliffe.

Mr S F James, Under Secretary, Director of Statistics at the Board of Inland Revenue, transferred to the DITPCP on 4 July to be Head of ECS6 Division in succession to Miss Maurice.

Mr J W S Walton, Under Secretary, Assistant Director of Statistics at the Central Statistical Office, transferred to the Board of Inland Revenue on 4 July 1977 to be Director of Statistics in succession to Mr James.

Mr J Hibbert, Chief Statistician in the Central Statistical Office, was promoted to Under Secretary on July 4 1977 and succeeds Mr Walton as Assistant Director of Statistics responsible for the National Income and Expenditure Division.

Mr J A Rushbrook, Chief Statistician in the Central Statistical Office succeeds Mr Hibbert as head of Branch 1.

Mr D Newman, Chief Statistician at the Office of Population Censuses and Surveys, retired on 30 June 1977.

Mr N Harvey, Chief Statistician in the Board of Inland Revenue transferred to HM Customs and Excise on 4 July 1977 to succeed Mr Ash as Controller, Statistical Office, Southend on Sea.

Mr D W Flaxen, Chief Statistician in the Central Statistical Office transferred to the Board of Inland Revenue on 4 July 1977 to succeed Mr Harvey as Chief Statistician in charge of Personal Incomes Section.

Mr D Ramprakash, Statistician in the Central Statistical Office was promoted to Chief Statistician on 4 July 1977 and succeeds Mr Flaxen as Head of Branch 13.

Mr F E Whitehead, Chief Statistician in the Department of Health and Social Security, has been appointed Head of the Social Survey Division in the Office of Population Censuses and Surveys with effect from 1 August 1977 in succession to Mr C G Thomas.

Mr R C Woods, Statistician in the Business Statistics Office, was promoted to Chief Statistician on 1 August 1977 to fill the vacancy as Head of EcS6b at the DITPCP following the retirement of Mrs J G Cox.

Mr P D Dworkin, Chief Statistician at the Department of Employment, transferred to the DITPCP on promotion to Under Secretary and to be Head of Economics and Statistics Division 5, in succession to the late Tom Pilling.

Mr E Hunter, Statistician in the DITPCP, was promoted to Cheif Statistician on 1 August 1977 and transferred to the Department of Employment to replace Mr Dworkin.

LATE ITEMS

Population and the Social Services

As part of the 'Joint Framework for Social Policies', an inter-departmental group, chaired by the Central Policy Review Staff and including CSO and OPCS, have been considering the implications for social services and social expenditure of changes in the population.

The results of the first stage of this work, which concentrated on looking at the implications of a declining birth-rate for social service expenditure and priorities, were published on 18th May in a report entitled *Population and the Social Services*.(1)

The report considered the implications to the end of the century of three different population projections for Great Britain, varying in their assumptions about the future birth-rate. The effects of two of the official 1974-based projections were contrasted with those of a specially commissioned third projection which assumes a period of significantly lower birth-rates than has hitherto occurred in this country.

The report contains important conclusions about the changing age structure of the population and the effects of a continuing low level of births, and makes recommendations about priorities and resource-allocation.

The first of the report's two main conclusions is that public expenditure planning for the social services takes too little account of present and foreseeable demographic change. Increases in expenditure when the number making calls on a particular service rise are not matched by equivalent savings when numbers fall. Instead the opportunity has been taken to allow standards to rise, but with limited resources available the report recognises that this cannot go on without distorting priorities. It is therefore urged in the report that greater attention should be paid to demographic trends in settling social service priorities and in allocating resources at all levels.

A number of specific policy options are identified (in for example, health, housing, education) and recommended for consideration by the relevant Government departments.

Second, whilst the 'need' for social services is virtually insatiable, the report recognises that there is no reason to expect in the foreseeable future that the country will be able to afford such rates of growth in social service expenditure as have recently occurred. Changing needs and priorities will have to be met in part by switching from one programme to another. To do this it will help if changing population trends and their implications can be identified and acted upon quickly.

The Government have welcomed the report and instructed the Departments concerned to consider the various policy options contained in it.

Further information on the report may be obtained from:

Martin Daly
Central Statistical Office
Great George Street
London SW1P 3AQ
Tel: 01-233 7644

Reference

Population and the Social Services, May 1977 (HMSO) (Price £2·25 net).

Construction industry statistics,

The statistics of new orders and output at current prices, and of employment have been revised. A number of firms previously included in the register of construction firms have been reclassified as 'structural steel fabricators' and have been transferred to the appropriate statistical register maintained by the Department of Industry. They include firms producing steel platforms for North Sea oil-drilling; orders, output, and employment reported by these firms from 1974; and estimates for earlier years have been deducted from the appropriate previously published series.

This change affects the constant price series. Also for orders, better estimates have now been made of the differential movements of tender prices for different types of construction work during the period of rapid price rise, and the deflators used in converting current prices to 1970 prices have been amended, affecting mainly 1974. The seasonal factors for all three series have been recalculated.

An assessment has been made of the effect of the improved method introduced in April 1976 of estimating orders from the returns made by a sample of firms. It is now apparent that figures for earlier periods were slight underestimates.

Revised figures for orders were given in the Department of the Environment (DOE) press notice No. 261 issued on 24th May 1977 and for output and employment in the DOE press notice No. 289 of 13th June 1977. The revised figures will appear in *Housing and Construction Statistics* in due course, and copies of the revised tables can be obtained on request from:

Mrs R Draper
SC1 Division
Department of the Environment
2 Marsham Street
London SW1
Tel: 01-212 7142

Reference

Housing and Construction Statistics, (HMSO) quarterly (Price £2.00 net).

Alphabetical Index

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number e.g. 30.31 signifies issue number 30, 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.

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

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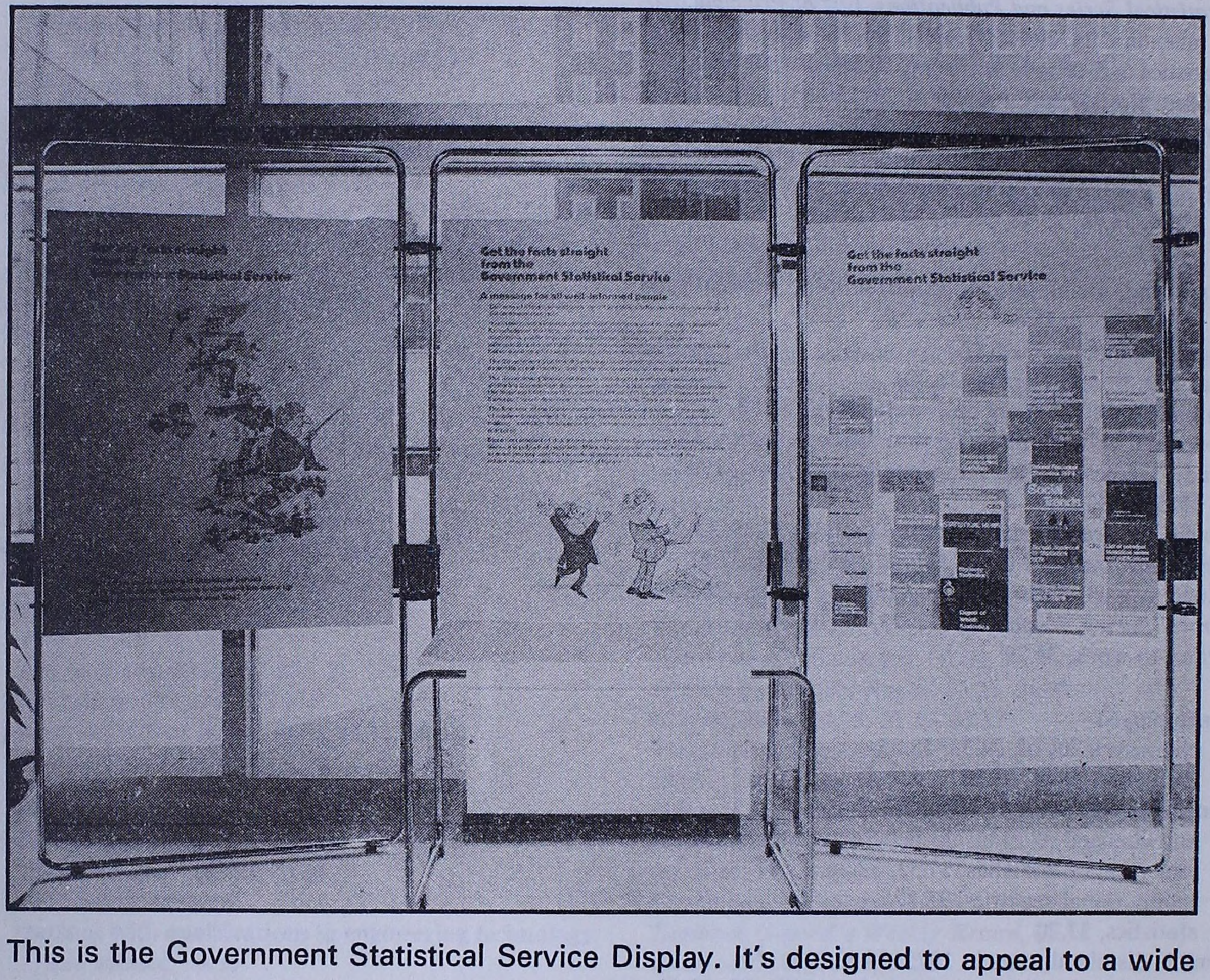

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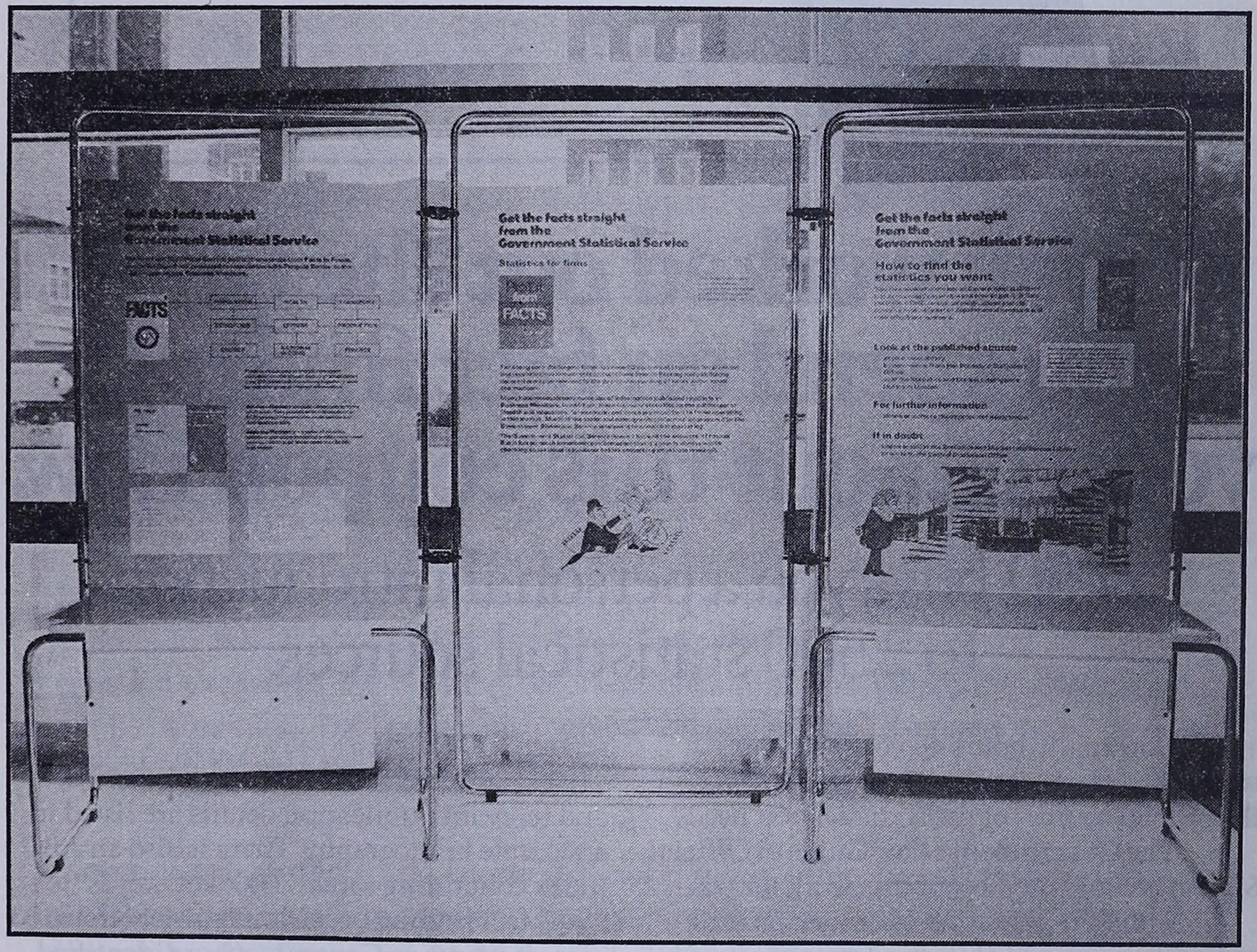

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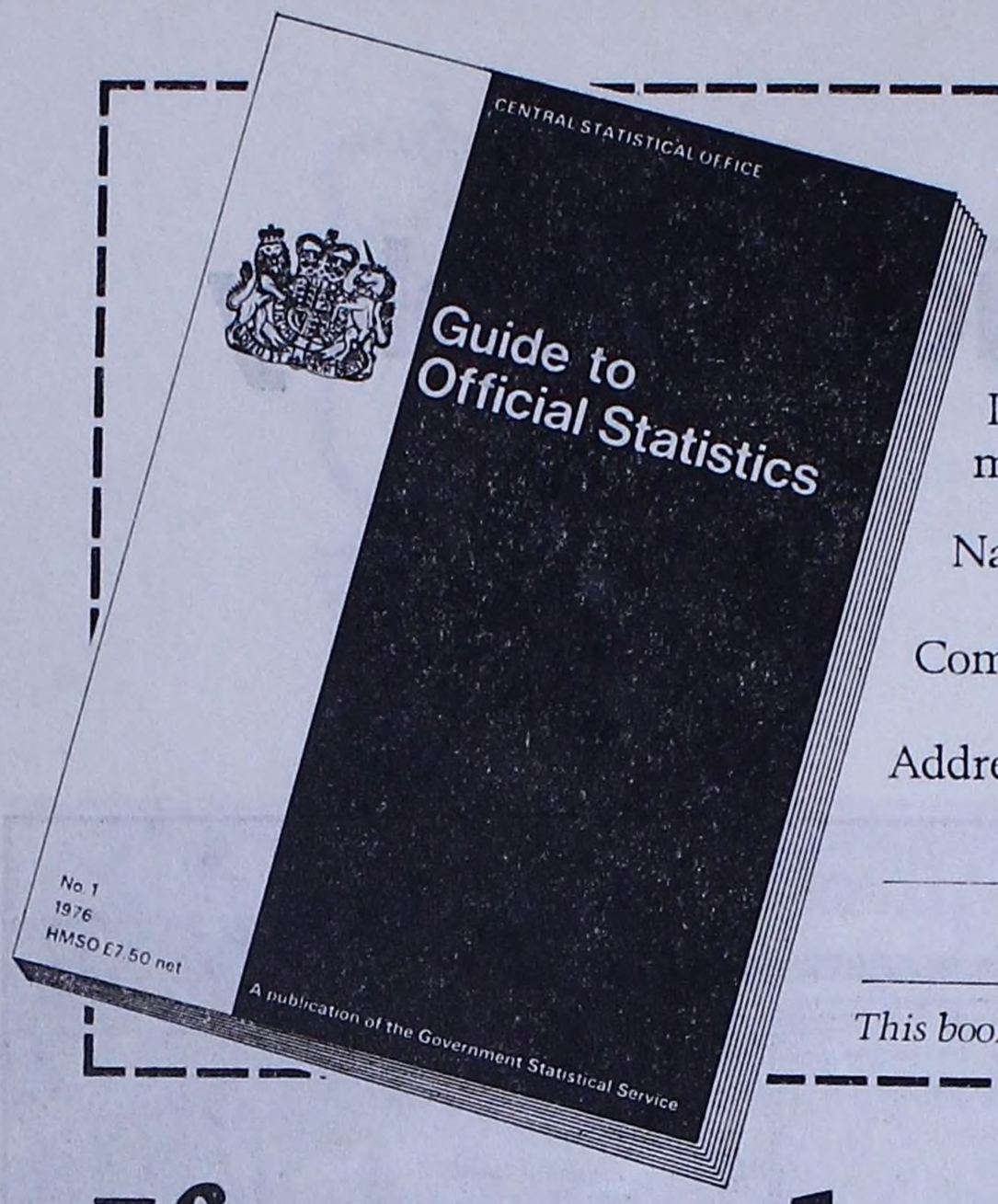

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