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Confidentiality of business statistics

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Introduction

The Business Statistics Office collects a wide range of statistics from industrial firms and from those engaged in the distributive and service trades, mainly under the provisions of the Statistics of Trade Act 1947. The provisions of this Act preclude the publication of information obtained under the Act about an individual undertaking; and the Office has to reject many requests for statistics because they would reveal such information. Although there would be advantage to the users of statistics, in industry and elsewhere, if more of the information collected in statistical enquiries could be made available, clearly it is necessary to protect the interests of the individual firms which supply the figures from harm which disclosure of their affairs could cause. Recently this question of the suppression from publication of statistics has been the subject of discussions between official statisticians and the Statistics Working Party of the Confederation of British Industry and other representatives of business.

This article discusses the present position, including the way the statutory provisions against disclosures are applied in the Business Statistics Office. While the note is for the most part confined to past and present practices in the censuses of production and distribution, the Statistics of Trade Act is used by many Government Departments to collect a wide range of statistics; over the next few years the Business Statistics Office will take over the collection of many of these statistics. The note goes on to describe practice in other countries and considers areas in which, if there were general agreement between industry, commerce and Government, some relaxation in present practice might be introduced and what safeguards might be necessary to protect the interests of individual undertakings. The note recognises throughout that many different interests are involved and that if any change in present policy and practice is to be introduced it can only be introduced gradually. The practices described in this paper relate generally to information collected under the Statistics of Trade Act. The Business Statistics Office safeguards information supplied voluntarily just as securely as information supplied under the Act and hence the practices described can be taken to relate to all information the Business Statistics Office collects.

The Statistics of Trade Act 1947

The prohibition of disclosure of information collected from individual businesses is contained in Section 9(1) of the Statistics of Trade Act, 1947, as follows:

No individual estimates or returns, and no information relating to an individual undertaking, obtained under the foregoing provisions of this Act, shall, without the previous consent in writing of the person carrying on the undertaking which is the subject of the estimates, returns or information, be disclosed . . .

Section 9(5) (b) further provides that:

. . . in compiling any such report, summary or communication the competent authority shall so arrange it as to prevent any particulars published therein from being identified as being particulars relating to any individual person or undertaking . . .

This provision is reinforced by Section 9(5) (a):

. . . no such report, summary or communication shall disclose the number of returns received with respect to the production of any article if that number is less than five; . . .

An exception to these general prohibitions is that the total quantity or value of any articles produced, sold or delivered may be reported after taking account of any representations made by any person directly affected by the disclosure (Section 9(5) (b)).

Practice in other countries

While safeguards similar to the provisions of the Statistics of Trade Act operate in other countries, an important difference in Canada is that there are provisions for publishing lists of firms, a practice prohibited by the terms of the 1947 Act; and in the United States the locality, size and commodity classification relevant to the activity of a single firm may be shown. In Canada no return may be seen by anybody except an officer of the Dominion Bureau of Statistics. In 1953, however, sub-section (3) of Section 15 (headed 'Secrecy') of the Statistics Act (1948) was repealed and the following is one of three exceptions to the rules about secrecy:

An index or list, whether published separately or in a report, summary of statistics or other publication under this Act, of particulars, taken from individual returns, of *i. the names and locations of individual firms or businesses; or*

ii. the types of products produced, manufactured or dealt with by individual firms or business,

but no such list or index shall otherwise reveal any of the particulars comprised in any individual return.

The introduction to the 1947 Census of Manufactures report indicates how the legal provisions are interpreted in the United States:

'a. It is not disclosure to show the number of establishments, even down to one, as to locality, industry classification, or approximate size;

b. Employment figures may be shown for any industry or locality represented by three or more companies;

c. Value figures may be shown for any industry, locality or product represented by three or more companies; provided also that one or two companies do not produce a very large proportion of the combined output of those companies;

d. Care is taken to provide against the probability of disclosure by subtraction.'

The Chief of the Industry Division of the United States Bureau of the Census writes:

'The Census Bureau is extremely conservative in interpreting its obligations under the law requiring confidentiality of data reported to it. As a by-product, we have come to enjoy the co-operation and confidence of American manufacturers in supplying a considerable volume of data in our voluntary programs. This co-operation in non-mandatory surveys reflects their confidence that we will reconcile their right to privacy with the needs of both the Government and industry for economic information.

Neither the law nor our interpretation of it makes any distinction between Federal agencies and others in the release of Census data. If the data cannot be published without violating confidentiality, they cannot be released to anyone.'

Similar provisions to those of the United Kingdom apply in India, New Zealand and Australia. In France, the law which in 1951 instituted the principle of compulsory statistical inquiries also provides the basis of statistical secrecy. Individual results 'ne peuvent en aucun cas être utilisés à des fins de contrôle fiscal ou de répression économique'. In Western Germany, the law of 1953 which set up the Federal Republic's Statistical Office embodies much the same principles in regard to confidentiality as are found in other industrial countries. The law applying in the Netherlands which 'imposes an obligation on the personnel of the Central Bureau of Statistics not to make use of the collected material other than that necessary for performing their task, i.e. the material may be used for statistical purposes only. No individual returns may be published or disclosed unless the respondent concerned authorises such disclosure'(1). Statisticians in the Scandinavian countries are all subject to corresponding restraints. In Sweden registers of enterprises or companies are published. These give details of the names and addresses of enterprises classified by industry, area and size in terms of employment. This information, however, is not obtained from statistical returns but from administrative records. In Japan the relevant Statute concerns 'designated statistics', which means statistics compiled either by the Government or by local authorities, or by agencies working under official instruction of the Administrative Management Agency. The facts which should be treated as confidential to a particular person or a particular organisation and which become officially known as a result of the collection of 'designated statistics' must be treated as secret.

Practice in the Business Statistics Office

The Business Statistics Office is concerned with the compilation of statistics in large-scale inquiries such as the censuses of production and distribution, and with monthly and quarterly inquiries about the production of different commodities and cognate matters. The statistics obtained are published as reports and in articles in, for example, the *Board of Trade Journal*. In the major inquiries undertaken by the Business Statistics Office, three kinds of possible disclosures are distinguished:

a. Primary disclosure involves key items for which the number of contributors is shown such as total goods produced or sold, work done, net output and employment (i.e. most of the aggregates appearing in Table 1 of the 1963 Census of Production reports, and corresponding items in Census of Distribution reports), together with specific items of goods produced or sold. Disclosure occurs if there are entries against these items for less than three enterprises (the establishment details being accumulated to an enterprise basis for assessment). It may occur when three or more enterprises are concerned, if one or two of them hold a dominant position in respect of the item under consideration.

b. Secondary disclosure concerns non-key items for which the number of entries is not shown and cannot be accurately deduced, such as employers' contributions to private pension funds, new building work etc, specific items of goods produced or sold where there are separate figures shown with and without quantities, and non-specific items such as 'other materials for processing' or 'other sales'. In these cases disclosure occurs if there are entries for one

(1) Verstege: The Statistical System of the Netherlands.

enterprise only or if one enterprise has a dominant position.

c. 'Disclosure by difference' arises where a figure has been published, and a subsequent analysis produces a figure differing from it only to the extent of an amount attributable to one or two enterprises. The clearest cases occur where the boundary of a geographical area is altered between the time of one tabulation and another, or where a tabulation for one area (e.g. a standard region) overlaps that for another (e.g. a television area).

Effect on publication

The Statistics of Trade Act forbids the disclosure of 'information' relating to a particular undertaking (see above). Hence (quite apart from the constraint on publishing figures relating to a firm's activity even though the firm itself is not identified) there is an embargo on the dissemination of lists of firms or establishments, showing the heading of the Standard Industrial Classification under which they have been classified on the basis of information in statutory returns. Information of this kind is much in demand. Because of this, the permission of respondents to the 1968 Census of Production is being sought for the inclusion of their names and addresses in published lists of firms contributing to the results for different industries. Of the questionnaires returned so far, almost four out of every five respondents have signified willingness for this information to be published. No other information about individual undertakings will be published. Some of the *Business Monitor* Production Series of publications include lists of participants in voluntary inquiries, but these lists comprise only those firms who do not object to their names being included – about nine out of ten contributors.

The prevention of disclosure accounts for a substantial part of the procedures involved in handling a statistical inquiry. In the Census of Production for 1963, for instance, disclosure exercises accounted for perhaps one-tenth of the total costs of the census. The costs of such procedures usually amount to a very much higher proportion of the total costs in the case of special tabulations. As has been indicated, it is not sufficient to examine tabulations of the returns as they are received: disclosure must also be considered in terms of enterprises, and returns must be grouped accordingly; and as activity becomes concentrated in larger enterprises, the amount of information which must be suppressed increases. (Incidentally, the inquiry register must in consequence contain adequate information about the inter-relations of establishments and their parent companies.) The suppression of figures involving disclosure is easy to handle where broad aggregates are concerned, like work in progress, or sales of plant which can be included in figures of total stocks or deducted from purchases of new plant to produce a figure of net investment. It is much more difficult to suppress items relating to individual commodities. Only in some cases can the sensitive item be included in a total of, for instance, 'all other sales' or a more precisely described residual heading. Often it is better to combine the item with another of a similar nature but of a different size, or material, or use. Much depends upon the relative size of the figures, since the combined figure must of course still meet the disclosure criteria. The choice between different alternatives often presents considerable difficulty, and judgment must be exercised in the light of technical knowledge and the advice available to the office. Whatever the conclusion, the effect is of course that a good deal of useful information which is clear of disclosure has to be hidden together with the sensitive items with which it is combined.

Another factor which must be borne in mind in the suppression of the primary data is the risk of disclosure by difference in producing other analyses. Combining figures for the purpose of an industry analysis may make it less or more likely that a subsequent geographical analysis will produce a disclosure situation. The Business Statistics Office does not normally consider itself obliged to ascertain what alternative sources of information may be available to readers of reports. For example, market research undertaken by a firm may enable it to deduce particulars from published aggregates which have otherwise been carefully hidden. Only in an exceptional case would the Business Statistics Office take into consideration, in settling its own procedure, special intelligence of this kind. The risk of disclosure by difference, combined with the fact that the statutory prohibitions are not subject to any limitations as to time, make it increasingly difficult to produce new analyses of past statistics. Occasionally, indeed, an amendment has to be suppressed because the change from the previously published figures represents the addition of information for a single organisation, but this kind of case is rare. Far more serious is the problem presented by a revision of industrial classification or some of the regional or local authority boundaries, which may involve such fine adjustments that comparative figures for past periods cannot be produced to set alongside new data collected and analysed according to the new definitions. In checking for disclosure the circumstances which are taken into account are normally those which were relevant in the period to which the data relate. Between the end of the period for which returns are received from firms and the date of publication of the statistics obtained from them, changes inevitably take place, and amalgamations may result in new disclosure situations. Changes of this kind are ignored in preparing tables.

Ratios derived from the basic data collected are often regarded as not involving any risk of disclosure since 'individual undertakings' cannot be identified. Thus, a single figure of net output per head, obtained from census data about sales, purchases, stock movements, employment, etc., could not be traced to any particular business. However, if a set of ratios of this kind (others being, for example, wages/sales, stock/sales, capital expenditure/employment and so on) were known to relate to a single organisation, there might be some possibility of that organisation being identified. Hence, in an article published in the Board of Trade Journal of 16 February 1968 a series of median ratios were shown, each of which related to a different organisation, although a series of ratios for a median organisation (according to some criterion) would have been more illuminating.

Application of disclosure procedures

The suppression of data which involves the risk of disclosure is carried out as standard procedure in all cases except where the figures relate to the sales or purchases of specific commodities. In all these cases the firms concerned are approached for their agreement to publication; and this is readily forthcoming in the majority of cases. However, the items for which agreement to publish is withheld are numerous and often of considerable importance. Different departments of an organisation may have different views about publication, so that an objection to publication may result from a careful balance of opinion. In order to make the results of the 1963 Census of Production as useful as possible, a special approach was made by the Board of Trade to the chairmen of about 60 large companies in anticipation of the publication of industry reports on the 1963 Census of Production. The publication of the items for which clearance was sought had been subject to refusal of agreement in earlier census reports, and collectively accounted for over £400 million of output. As a result of this approach it had been possible to publish for the first time particulars of more than £350 million of this output, as well as of a large output which would have had to be hidden as a consequence of suppression of the sensitive data.

The reasons given by firms who make representations against the publication of information relating to their business almost invariably concern the competitive situation in which the firm concerned is placed. Most often the fear is of the advantage which would accrue to a direct competitor. In many cases there is fear of potential rather than actual competitors, particularly overseas. Here price differentials may be of critical importance, so far as they can be deduced. Occasionally other aspects are stressed, such as the relative labour content of output in this country as compared with others. Frequently it is argued that information about United Kingdom output should be suppressed because corresponding information for other countries is suppressed abroad.

Requests for information

Against this background and with these statutory obligations, the Business Statistics Office must refuse to meet requests for information which would disclose information supplied by individual firms. The requests come from bodies like the National Board for Prices and Incomes, Industrial Training Boards, local authorities and planning organisations, trade associations, business undertakings (including market researchers) and from university and other research workers. The most frequent type of request is for a list of firms classified to an industry or which make a given product. Since the aim is often to conduct a survey, this sort of enquiry often includes a request for a size-indicator, such as employment, sales, etc. It is not permissible for the Business Statistics Office to reveal information of this kind. Another frequent type of request falls in the field of distribution activities. Market researchers wish to know the number of outlets for given commodities in particular areas; and planning authorities often wish to have a description of the structure of particular shopping areas. Detailed analyses of this nature often show that there is only one outlet or type of organisation in a small area, and this information is not revealed.

Among the requests for information from the public which the Business Statistics Office has had to refuse on confidentiality grounds in recent months are:

- frequent requests for breakdowns of published commodity information which would involve disclosure;
- a publisher of trade and other directories wanted a list of larger establishments in selected industries;
- a consultancy firm wanted a list of manufacturers by area and size;
- a manufacturing company wanted the names of the six largest manufacturers of a product in which its own output was an important element;
- a market research firm wanted more detailed information about size and form of retail organisation than is published so that they could design their own sample survey;
- a local authority requested information about kinds of businesses, with their turnover and number of persons employed, in various shopping areas within its boundaries;
- a trade association asked for a list of traders operating in the field covered by the association.

While the Business Statistics Office in no circumstances provides the public with a list of firms, it occasionally helps official agencies to conduct their own inquiries by sending to the firms which would come within the scope of a particular inquiry a questionnaire (or other document) covered by a letter of explanation from the Office.

The scope for change

The only field in which more information than at present about the activities of individual undertakings can be published without contravening the provisions of the present Statistics of Trade Act relates to the production, sale and deliveries of commodities. The power to do this, providing account is taken of representations made by those directly affected, arises from Section 9(5) (b) of the Statistics of Trade Act (described above). This power has not been used although firms have not infrequently re-examined their objections and agreed to publication. Section 9(1) of the Statistics of Trade Act 1947 permits disclosure of information from an individual undertaking with the previous consent in writing of the undertaking concerned. The Business Statistics Office proposes to include in the new type of annual censuses[2] a question similar to that posed in the 1968 Census of Production, to ascertain whether the respondent is willing for his name to be published as a contributor to the report for an industry. There is scope for this approach in enquiries into the distributive and service trades, and the Business Statistics Office is proposing to include a similar question in the 1971 Census of Distribution. A substantial extension to this approach towards publishing information about individual undertakings through obtaining their permission might not be considered contrary to the spirit of the Statistics of Trade Act; but if the climate of opinion is favourable to the publication of particular items of information it might be desirable for this to be recognised in the legislation itself.

The scope for changes in present policy towards confidentiality without amendment to present legislation has been described in the preceding paragraph. Beyond these limits publication is prohibited by the requirements of the Act. The main advantage to be gained from relaxing the present restrictions is that greater use could be made, by industry, commerce, local authorities and planning authorities and those engaged in research into economic and social questions, of the information which is collected at considerable effort and expense both to the suppliers of the information and to the tax-payer. It would help to reduce duplication in enquiries, and it would make possible the quicker publication of detailed figures in that it would ease the work of editing statistics to eliminate disclosure before they are published.

The disadvantage is that, if undertakings were to lose the confidence which prevails at present that information they provide for statistical purposes will not be revealed, and they begin to fear the risk of damage to their interest through the disclosures to their competitors (including their competitors overseas) of information about their businesses, it would jeopardise the co-operation which at present exists between industry and the Government Statistical Service, with adverse effects on the quality, comprehensiveness and timeliness of the statistics. Any move towards relaxing present restrictions would therefore need to pay the fullest regard to the views of those who are required under the Act to supply information. The following paragraphs consider areas in which some consensus of opinion towards change might exist. They take account of the nature of the information which can be collected under the Act; how attitudes to confidentiality may be affected by factors like the passage of time since the statistics were collected and the fact that the information may be available elsewhere; and what new safeguards might be needed.

Commodity headings are subjected to the primary disclosure test described earlier but Section 9(5) (a) of the Statistics of Trade Act 1947 imposes an additional restriction, requiring a minimum number of five entries at each heading[3]. Thus, in many cases headings are free of technical disclosure on the value or quantity of a commodity yet the number of entries contributing cannot be shown because they amount to less than five. One of the effects of this additional restriction occurs in the 1963 Census of Production, in table 5 of the first Summary volume (Part 131) published last year. This shows a concentration of sales of products or groups of products; the information is based on a minimum number of five contributors, whereas a finer analysis could have been given if the normal primary disclosure test was the only consideration. The requirement of five entries is not stipulated in other sectors of information collected under the Act and it is possible to show a sub-division, a size-cell for example, free of disclosure and yet show the number of contributors down to the minimum number of three. If the commodity sector was subject to the same consideration as the other sectors, then the additional stipulation of a minimum number of entries would be dispensed with.

Examples occur of information being suppressed under the requirements of the Statistics of Trade Act even though there is no possibility of attribution to an individual respondent or of prejudice to his business. This is unfortunate since (to take a field outside the range of the Business Statistics Office) the results of some enquiries into transport enterprises might help planning authorities in their work, if details of individual

(2) *Statistical News* No. 1, May 1968 (HMSO).

(3) This follows the recommendation of the Report of the Census of Production Committee (Cmnd. 6687, October 1945).

journeys and loads could be made publicly available without revealing the name of the transporter or of his customer. Another example might be the Department of Employment and Productivity's survey of earnings of individual workers. However, in some cases even this very detailed sort of information might be attributed to a particular firm by those who are well informed about the particular industry or service. This leads to the thought that a possible approach to the relaxation of disclosure restraints might lie in the identification of less sensitive areas of information where, on balance, the advantage to the public as a whole – other businessmen, market researchers, regional planners, local authorities, university workers and so on – would outweigh the risk of damage to individual interests. The items of information which could be disclosed would of course have to be very carefully chosen. In Canada, lists of firms can be published; United States practice might be followed and the locality, industry classification and an indication of size of a single establishment might fall within the field of information to be published (without identifying the establishment by name); a move to define non-sensitive information which might be disclosed would clearly tend in practice to be a move towards the disclosure of information which is often known from other sources or can be ascertained with little difficulty.

A less far-reaching alternative would be to recognise that if there are items of information which are generally non-sensitive, their disclosure should not be automatic and without any regard to the wishes of the firms concerned; small firms, for example, may be more sensitive than larger ones to the disclosure of information. This point could be fully met if firms were given the right to withhold their permission to publish, and less fully, by extending to any headings generally accepted as non-sensitive the present power vested in the authorities to publish the total value and quantity of articles produced, sold or delivered, after taking account of any representations made by the undertaking concerned. Any such relaxation, besides defining carefully the items of information considered to be non-sensitive, would also need to be subject to easily explained and easily defined rules. The unit about which information could be released would have to be the unit making the statistical return otherwise there would be considerable difficulties and very little value in giving the industry classification. It might be of value to industry to accept that there should be disclosure of non-sensitive headings, subject to the safeguards suggested above of firms being able to opt out of disclosure about their affairs, in tables giving regional, local or national figures. Unless there is disclosure at the regional and local level the figure will be of little value for purposes such as planning, market research and so on.

Finally the Statistics of Trade Act does not set any limit in time; information collected under it can never be divulged. Clearly the chances are small of harm being done to a business by the disclosure now of its activities as recorded in say the first major post-war census of production taken over 20 years ago.

These are some of the directions in which it may be thought useful to relax the present stringent restraints on the publication of information. Clearly any changes in present practice, or a revision of the Act, would affect a wide range of interests. The Statistics Working Party of the CBI endorses our view that the present article should be published to encourage public discussion of the problems of confidentiality and disclosure.

An historical abstract of labour statistics

A. R. Thatcher, *Director of Statistics, Department of Employment and Productivity*

The statistics which are now compiled by the Department of Employment and Productivity (and formerly by the Ministry of Labour) include those on wage rates, earnings, hours of work, retail prices, employment, unemployment, vacancies, family expenditure, industrial disputes, membership of trade unions, industrial accidents, labour costs and output per head. Some changes are being made in the method of publication of these statistics. Hitherto, current statistics have been published in the monthly *Employment and Productivity Gazette* and additional detail has been given in the quarterly publication *Statistics on Incomes, Prices, Employment and Production*. In future, the current statistics will continue to appear in the *Gazette* but the quarterly publication is being replaced by a new yearbook, which will bring together in a single volume all the main statistics relating to a particular calendar year. The first such yearbook will relate to 1969 and it is being preceded by an historical abstract of the statistics up to and including 1968. The title of this volume, which is now with the printer, will be *British Labour Statistics: Historical Abstract 1886–1968*.

The starting date of 1886 calls for some explanation. This was the year in which the House of Commons resolved that '. . . immediate steps should be taken to ensure in this country the full and accurate collection and publication of labour statistics'. The responsibility for implementing this resolution fell on the Board of Trade, which in 1893 formed a separate Labour Department. Thereafter the statistics were published in a regular monthly journal, described for brevity as the *Gazette*, which has had a continuous history up to the present time under the successive titles of the *Labour Gazette* (May 1893–January 1905), the *Board of Trade Labour Gazette* (February 1905–June 1917), the *Labour Gazette* (July 1917–May 1922), the *Ministry of Labour Gazette* (June 1922–May 1968) and the *Employment and Productivity Gazette* (from June 1968).

Summaries of the statistics were also presented to Parliament in a series of *Abstracts of Labour Statistics of the United Kingdom*, of which the first was published in 1894 and the last, the twenty-second, in 1937.

The forthcoming volume is essentially an abstract of the statistics which have appeared in the above publications, together with the associated reports on particular surveys, commencing with the first earnings survey in 1886. However, 1886 has not been treated as a completely rigid starting date: several of the series which have been reproduced from the early *Abstracts* contain statistics for still earlier years. Nor, in cases where useful supplementary material was known to be available, have the tables been strictly confined to those already published in the *Gazette*. In order to make the historical abstract as complete as possible, several tables have been reproduced from other sources and a number of new tables have been compiled to fill various gaps.

The opening tables on wage rates contain some very early examples of rates in particular occupations, taken partly from published sources but also from working documents and from an unpublished report which was compiled by the statistician G. H. Wood while in the Labour Department of the Board of Trade. The earliest entry shows wages in the printing industry in 1780. Examples of basic rates are given for a selection of occupations and years up to 1947. Thereafter, some 150 basic rates in each year from 1947 to 1968 are reproduced for reference purposes. All the official wage rate indices from 1874 onwards are reproduced, together with some additional indices of normal hours and indices of wage rates by industry in the period 1947–1955, which were compiled but not published at the time. There are also new tables which link together into a continuous series the indices for basic wage rates and normal hours from 1920 to 1968. The section concludes with a table on the growth of entitlements to holidays with pay.

The section on earnings covers all the main surveys from 1886 up to the new earnings survey in 1968. It gives the basic data on average earnings and hours and also the results of the special surveys on the distribution of earnings, showing the extent to which individual earnings departed from the average. It also includes information on the extent of payments by results, comparisons between normal and actual hours of work (from 1924 onwards) and a table showing the growth of the total wage and salary bill. The information from the new earnings survey held in 1968 includes tables showing the make-up of pay, reasons for loss of pay (including absenteeism), and a comparison between the earnings of those who were reported to be affected by national collective agreements or wages boards and councils and those not so affected. A new table, containing indices of earnings and comparable wage rates since 1935, has been given in preference to previous calculations of 'wage drift'.

The section on retail prices reproduces the official price indices from 1877 onwards. It also gives the average retail prices (in cash, as distinct from index form) of certain articles of food in selected years from 1914 to 1968, together with an even longer series of bread prices in each year since 1800.

A continuous series of employment statistics is available from the Censuses of Population from 1841 onwards. From 1923 onwards there are also employment statistics derived from the various national unemployment insurance schemes but these, as is well known, were not fully comprehensive and were subject to minor discontinuities in the years up to 1948 due to changes in the insurability provisions. There was a major discontinuity in 1948 when the present national insurance scheme was introduced. Since then the statistics for employees have been comprehensive but there have been a number of breaks as changes were made in the standard industrial classification, in the boundaries of regions and in the methods of estimation. One result of these changes is that for the years before 1966 the figures for individual industries and regions, as obtained by the methods used at the time, did not always add up to the national total as found by the uniform methods which were introduced in 1966. In order to produce what, it is hoped, will now be definitive series, the latest methods have been applied retrospectively to the industry and regional data for the whole of the period from 1948 to 1968, so far as this could reasonably be done. In addition, an appendix gives information about the discontinuity in 1948, with tables linking the series before and after; and another appendix gives a reconciliation between the employment statistics derived from the national insurance scheme and those obtained from the Censuses of Population in 1951, 1961 and 1966. A new index shows quarterly changes in employment in manufacturing and production industries as a continuous series from 1948 to 1968.

The employment section also includes tables on occupational statistics, the age of employees, engagements and discharges, the index of hours worked by operatives in manufacturing industries, numbers employed in the public sector, numbers of young persons entering employment, and some new analyses of the proportions of manual workers and part-time workers, together with new estimates of activity rates based on the Censuses of Population.

The section on unemployment gives the main statistics from 1881 onwards. It incorporates the latest (April 1970) revisions to the seasonal adjustments and also includes tables on the duration of unemployment and on expenditure on unemployment benefit. The section on household and family expenditure gives some results of the surveys of 1904, 1937–38 and 1953–54, as well as extracts from the continuing Family Expenditure Surveys which have been held since 1957. The recently introduced indices of costs per unit of output and output per head have now been carried back uniformly to 1950. The remaining sections, on vacancies, industrial disputes, membership of trade unions, industrial accidents, shift working, the size of establishments and the survey of employers' total labour costs are for the most part straightforward reproductions of published material and do not call for special comment.

The extensive Introductory Notes, which constitute a major feature of the volume, describe the various series, the concepts involved and the methods which are used to compile the statistics. This is the first complete account which has appeared since the *Guide to Official Sources: No. 1 Labour Statistics* was revised in 1958, and it incorporates the many changes which have occurred since that time.

A glossary of technical terms is given as an Appendix. Further appendices give details of changes in the geographical boundaries of the regions, and the weights used to compile the indices of wage rates and average earnings.

British Labour Statistics: Historical Abstract 1886–1968 will contain about 370 pages of tables and 50 pages of text. It will be published by HMSO and is expected to appear this autumn.

The 1966 ten per cent Sample Census — Why there was no preliminary report

Percy Gray and **Frances Gee**, *Social Survey Division, Office of Population Censuses and Surveys*(1)

This is a cautionary tale illustrating one type of error which can have bizarre results.

Traditionally, in previous censuses, a Preliminary Report was produced soon after census day giving preliminary population counts for all administrative districts. To get these counts quickly, special measures were adopted. After census forms had been collected, the enumerators were required to enter in their enumeration record books the number of persons present on census night, against the address of each household and institution. The entries were then added by the enumerators to produce page totals and a book total. From the book total, the Census Officers produced administrative district summaries which were forwarded to Somerset House. Finally the General Register Office (GRO) used these summaries to produce the figures for the Preliminary Report. With full censuses this was a fairly simple operation to organise.

The intention was to produce a Preliminary Report on the 1966 ten per cent Census in a similar way. But there were difficulties. There would have been no difficulty if the enumeration had been a straightforward 10 per cent sample of the population. All the counts could simply have been multiplied by ten. But two sections of the sample were sampled at a higher rate than 1 in 10 and consequently needed down-weighting relative to the main part of the sample. This down-weighting proved the downfall of the Preliminary Report.

In the first place there was the oversampling which had occurred in buildings (other than purpose-built blocks of flats) where the sample address issued to the enumerator was only part of the building. These addresses had been chosen with a one in ten chance of selection, but when the enumerator reached such a building, he was instructed to enumerate all the households in the whole building. Thus the households in these buildings had been given more than a one in ten chance of filling in a census form. To help deal with the problem this created, the enumerator was required to put an arrow against the household (or households) occupying that part of the building which corresponded to the original sample address that he had been given. Then by counting only the occupants of the arrowed households, the effect of the over-sampling would be eliminated. GRO expected that the arrows would sometimes be wrongly placed or missing for some buildings and they were concerned about the effect of this. They asked us as part of our Quality Check on the 1966 Census to advise them as rapidly as possible whether the preliminary figures would be sufficiently accurate to be worth presenting. We were able to do this as soon as we had made photocopies of our sample of enumeration record books. We quickly found that, although some trouble had arisen from missing and misplaced arrows, far greater errors had arisen in connection with the second section of the census sample which was over-sampled, the large institutions.

Large institutions had been the subject of a 100 per cent sample and had then been treated in two different ways. Where the large institution was a hotel, census data in the shape of individual P forms had been obtained for everyone staying there on census night. As a check the manager had to certify on a C form the total number staying at his hotel. (Later GRO headquarters took a sample of one out of ten of these hotel P forms). The procedure in other large institutions differed from that in hotels. In other large institutions, such as hospitals, the manager was required to list all the occupants on L forms (F forms in Forces establishments), but only those falling on every tenth line of the form were required to complete a P form. Thus only 10 per cent of persons in hospitals ever completed P forms. However, as part of the preliminary count procedure, the enumerator had to enter 100 per cent of the institutional population in the persons column of his enumeration record book. We were not surprised to find some cases where, instead of entering the number of persons listed on an L form, the enumerator had entered the number of P forms completed, i.e. about one tenth the figure required. This introduced an appreciable error into the population estimates but it was still not the major source of error.

The major contribution to the error that we found arose from the completion of the two summary tables

(1) Government Social Survey at the time this work was done.

at the back of the enumeration record book i.e. the Abstract of Record and Institution Abstract. Here the enumerator summarised the counts he had made for each page of his book. In the Abstract of Record table the enumerator entered the page totals for the persons present at the sample addresses and thus arrived at a grand total for the book. This table should have included 100 per cent of the population in large institutions and 10 per cent of the population not in large institutions. In the other table, the Institution Abstract, the enumerator should have entered 100 per cent of the population in large institutions. The important point is that 100 per cent of the population in all large institutions should have figured in *both* abstracts. Then, after further summarising by the Census Officers, GRO could have derived the estimated population for any administrative district by computing 10 $(a-x)+x$, where a is the total in the Abstract of Record, i.e. 10 per cent non-institutional population+100 per cent institutional population, and x is the total in the Institutional Abstract.

But no one told the enumerators and the Census Officers that the figures would be used in this way. So they tried to be helpful and, as they thought, avoid double counting. Some enumerators left out the large institutions from the Abstract of Record with disastrous effects. Worse still, some Census Officers amended Abstracts that had been correctly filled in. Every time a large institution was included in the Institution Abstract but omitted from the Abstract of Record, it meant that the estimated population of Great Britain was wrongly reduced by ten times the population of the large institution. So great was the error introduced in this way that when we computed the population estimate for a group of eight of our enumeration districts in Central London, it proved to be negative! This occurred because the large institutions, which had been omitted from the Abstract of Record, contained more than one-tenth of the total population.

We do not attach much blame to the enumerators for these errors. People in general, not just enumerators, feel quite naturally and sensibly that they should not count anything twice. Where they have to count something twice, they must be given clear instructions to this effect. The Abstract of Record needed a boldly printed notice, somewhat as follows: YOU COUNT THE OCCUPANTS OF ALL THE LARGE INSTITUTIONS IN THIS TABLE *AS WELL AS* IN THE INSTITUTION ABSTRACT. WE WILL ALLOW FOR THIS.

We did not examine all the enumeration record books in our sample. We merely looked at enough to establish that the errors were widespread. This meant that the GRO could not use the Census Officers' summaries of the abstracts. To put matters right, each and every enumeration record book would have needed careful examination and between 5 and 10 per cent would have needed correction. This was clearly impossible, so the Preliminary Report was abandoned. The decision has proved fully justified: the GRO have now discovered even bigger errors in the preliminary counts which would have been even more difficult to detect and rectify at an early stage.

What is the moral of this tale? Variable sampling fractions are sometimes necessary but always dangerous.

Government spending on research and development in private industry

D. B. Manwaring, *Statistician, Ministry of Technology*

For the whole period over which the UK has collected statistics of the expenditure on research and development in private industry, the figures for Government spending on R&D in private industry obtained through the Government accounting system have always exceeded the estimates obtained from the questionnaires directed to companies in private industry. The difference between the two figures amounted to something under £20 million in 1960/61 but by 1966/67 had risen to over double. The difference was variously attributed to overstatement by Government Departments (the inclusion of non-R&D items), understatement by private industry and problems associated with accounting and timing. The Ministry of Technology is responsible for spending the greater part of these very large sums of money and a discrepancy of this size was not acceptable. Thus the exercise was a matter of executive as well as statistical importance. It was appreciated that a very considerable effort would be required to solve the problem, and a period of about six months was set aside for discussions and interviews; in the event, a period of one year was found to be necessary.

Possible causes for discrepancy

The possible causes of the discrepancies seemed to be:

- Misunderstanding:
  - Different interpretations of the R&D definition
  - Ambiguities in the questionnaire
  - Exclusion of items from questionnaire on grounds of security
  - Exclusion of Government-funded work on grounds of prior knowledge
- Accounting practice in firms:
  - Period covered by the return
  - Payment/receipt accounting versus income/expenditure accounting
- Accounting practice in Government:
  - Mixed contracts not sub-divided between R&D and other
- Data collection:
  - Limitations of sampling frame in use
  - Identification or exclusion of subsidiaries

The discussions

The possible causes were not, of course, examined sequentially; the evidence was collected and examined as a whole. Some of the issues which looked promising and indeed proved to be relevant had very little importance in numerical terms. For instance, it was understood that some companies excluded items of R&D where the work was classified as secret, but the amounts involved were too small to affect the overall statistics. Similarly, different systems of accounting, while making some difference, were not large enough to account for the sort of discrepancy that we were searching for. Neither was it found that companies who had excluded Government-funded work 'because the Government knew already' carried out research of a significant amount.

Boundaries of R&D

There was little evidence that people had mis-interpreted the definition of research and development. In practice, the only understatement attributable to this source was in the field of construction, where it appeared that far too little expenditure had been included in 'development'. Strangely enough, however, the understatement was as clearly evident in Government as in private industry so that it was of no help as an explanation of the difference.

Construction is an area where the large-scale (and therefore the most costly) development tends to be carried out 'on site' rather than in a laboratory. The cost attributed to development is frequently merged with that of the project as a whole, and it is difficult to separate out. Nevertheless, work which can be equated with development work in other fields, e.g. aircraft, certainly exists. In the statistics, the present restriction to laboratory R&D understates the development effort deployed by the industry, and an attempt is being made to improve this situation.

Period covered

Where the expenditure on R&D was increasing it became clear from discussions with companies that there could be some discrepancy due to differing accounting periods and this could be appreciable with large contracts. A further suggestion had been made that there were gaps in time between the performance of the work and the payment for the work. This was shown to be of no great magnitude. In practice, when very large sums are involved, it is not unusual for payment to be made within hours of the end of the accounting period of R&D work.

The exercise, so far, had explored many of the suggestions that had been made to explain long-term differences between the two sets of figures. Only a fraction of the total discrepancy, however, was to be explained in this fashion.

Government returns

It had been believed that, under the system of Government accounting, substantial items of expenditure might be included with R&D which were not in accord with the standard international definition. The matter was investigated in detail and it was found that the supposition was not correct. Only in one area of support, known as 'launching aid', were sums discovered which could not be attributed to R&D. This expenditure included the tooling-up for R&D contracts and training of personnel.

Small contracts

Another element of discrepancy was found to be small contracts. These are made by Government departments in very considerable numbers. Some of the firms carrying out these contracts are very small and are not in the sampling frame. In addition many of the contracts received by small firms would not be recognised by them as R&D.

Data collection

When the suggested causes of discrepancy described above had been examined there still remained an appreciable gap between the figures derived from source of funds (Government) on the one hand and performer (private industry) on the other. The next stage in the exercise was a closer comparison of the Government and the private industry accounts. This was carried out in consultation with selected companies, and sub-headings of expenditure were looked at in more detail.

Two interesting points came to light. First, in certain circumstances (such as for various types of international collaboration) it has been found convenient by both sides for Government to deal with specially created companies. Such companies do not perform R&D themselves but place orders as necessary. Hence they do not automatically make a return in the R&D survey (which is on a Census of Production basis) and the contractors which do perform the R&D may not recognise the contract as Government financed. There is a strong chance therefore that some payments slip through the survey net. Thus for the first time, we had uncovered a substantial cause of understatement in the industrial R&D statistics. The second discovery made in this stage of the exercise was that private industry had not been including payments from Government relating to 'agency factories'. These establishments were run by industry for Government as a service in return for payment. Including these payments also made an appreciable difference.

The method of surveying R&D in the private industry sector was also found to have problems. It became clear that, where mergers of one kind or another had taken place since the previous enquiry, in spite of steps taken by the collecting agency to combat this, there was a possibility of misunderstandings. The respondents were liable to assume that their associated companies would also have obtained a separate questionnaire, but this was not always so. When contracts are large, misunderstandings of this nature can cause very large errors in the overall estimates, and they did, in fact, prove to be a major cause of the discrepancy.

Experience in other countries

Through the good offices of OECD, it has been possible to compare experience in the United Kingdom with that of eight other countries. Of the countries who joined in the exchange, all were troubled to a greater or lesser extent by a gap between the figures derived from source of funds (Government) on the one hand and performer (private industry) on the other. Four countries were planning a programme of research similar to that carried out in the United Kingdom. Two countries, who had examined the problem in some depth, the United States and the Federal Republic of Germany, had reached firm conclusions as to the cause of the difficulty but had been unable, as yet, to quantify the various factors identified. For example the Federal Republic of Germany made an attempt to explain this phenomenon in the publication '*Wissenschaftsausgaben der Wirtschaft 1964*' (page 21) as follows:

> 'It can be taken for granted that a number of companies questioned, especially those that carry out R&D for the Ministry of Defence, did not report their R&D expenditure, or for reasons of secrecy reported only that part financed by themselves.'
>
> 'A differing delimitation or handling of accounts may to a certain extent play a role and be responsible for the different amounts given for government funds.'

From the evidence made available from the OECD countries, it would appear that the United Kingdom is the country which has made the most headway in resolving the discrepancy between the figures for R&D grants and contracts reported by industry and those reported by Government.

Compose yourself

A. R. Clark, *Chief Executive Officer, General Register Office, Scotland*

Introduction

This article relates some of the problems in the design and presentation of statistical tables which had to be solved by a small statistical unit seeking to achieve faster publication through new methods of preparing and printing its output.

The Registrar General for Scotland has published an Annual Report [1] for more than 100 years. It contains mainly tables of vital and mortality statistics. The report has always been printed by the conventional typeset method and the size, format and appearance have changed remarkably little. This might well be attributed to the high standard achieved by printers in nineteenth century Edinburgh; but it is also partly due to the desire to maintain consistency in format for comparable statistics. The conventional typeset method still provides a very high standard of appearance. Unfortunately the high cost and the scarcity of skilled compositors is such that the publication of complex and varied tables which have a relatively low circulation is no longer considered by printers an attractive or economic proposition. The General Register Office, Scotland, had to consider other methods of printing their publications.

The task

The Annual Report is the most voluminous and the most complex of the publications of the department and we decided to use its needs as a basis for selecting a new system. The process of producing the Annual Report by typeset methods fell into four parts:

a Collection of data

b Preparation of input data (transference to punched cards) and machine tabulation

c Clerical preparation of draft tables and text for statisticians and for printers

d Proof reading and proof correction.

Only processes (c) and (d) were directly affected by the change of printing methods; but a simultaneous examination of the statistical content of the report was also undertaken.

We regretted abandoning the typeset method; but the work of building up tables, preparing and amending drafts and proof reading took up much time and labour and we therefore decided to seek a method which would enable us to make an improvement in these areas without too great a loss in print quality. The following objectives were set:

a To maintain a high standard of appearance

b To produce machine tabulations in a format similar to the copy for input

c To produce tables and text in draft by the new system for examination by statisticians: the system to provide for amending, deleting or adding to these drafts

d The system to be capable of holding standing information such as headings, stubs and serial data for tables in which such information is repeated every year

e The system to reduce to a minimum the clerical effort in preparing and transmitting data

f The cost effectiveness of the new system to be satisfactory.

Our main objectives could be summarised thus: to produce tables, satisfactory in appearance and utility to ourselves and our users, as early as possible after the events to which they relate, and at an acceptable cost.

The choice

The small size of our statistical unit and the limited circulation of our publications meant that the new system was obviously going to be found within the range of electric typewriter or vari-type equipment. In consultation with the O & M Division of the Treasury (now the Civil Service Department) a number of systems were examined. A magnetic tape electric typewriter system seemed to meet most of our requirements:

a The standard of print was high with varying sizes of type. The spacing and appearance were similar to that of conventional typeset.

b Output from our data processing equipment, including computers, could be designed so that clerical handling was reduced. (Paper tape and punched card computer output could be fed directly into the system).

c Because amendments to tapes were speedily and easily made, drafts and corrected clean drafts could be made quickly available to staff.

d The magnetic tapes of standing information such as stubs and headings for tables could be held and printed as required.

e The output was produced either on camera-ready copy or on a special paper ready for lithography, giving us control of production to an advanced stage.

f Savings in staff time, reduced operational costs and improved efficiency made the system an acceptable economic proposition.

Staffing and operational requirements

Although the composer was automated to a large degree, we had reservations about the ability of staff with no technical knowledge of composition to plan, design and compose the complex tables to camera-ready stage. A brief explanation of the system may help to explain the processing difficulties and recruitment problems which were encountered.

The system divides into two parts, each with its own typewriter keyboard.

The first unit is the recorder. It records information on magnetic tape and simultaneously prints out a typed 'hard' copy. There are two tapes on the unit and information can be transferred from the first tape to the second tape. Additional or amended data on the first tape can be keyed-in to, or omitted from, the second tape, a very useful facility for up-dating statistical tables. The recorder requires a large volume of keyboard work, but the operator also has to know the codes for automatic composition at the second stage. The work is not straight-forward typing – this is worth keeping in mind

Example 1. Specimen of a tabulation produced by recorder

```
[xl]Table B2.3[,,,,]Deaths, numbers and rates, by local authority area, Scotland, 1968[s,]

[tc112,c293,,]
                                    Deaths
[tc112,c111,c70,c112,,]

                                                                    Rate per
                                                                    1,000
Area                                                 Rate           population
                                    Numbers          per 1,000      adjusted for
                                                     population     age and sex
                                                                    distribution
                                                                    1951
[t112,r72,r87,r91,,]
Counties of Cities                  22,793           12.8           13.3
Large Burghs                        10,835           11.5           12.3
Small Burghs                        12,369           12.5           11.3
Landward                            17,314           11.7           11.4

[,,,,,,,,,]SCOTLAND                 63,311           12.2           12.2

[s,]
```

Example 2. Specimen produced by composer

Table B2.3 Deaths, numbers and rates, by local authority area, Scotland, 1968

Area	Deaths		
	Numbers	Rate per 1,000 population	Rate per 1,000 population adjusted for age and sex distribution 1951
Counties of Cities	22,793	12.8	13.3
Large Burghs	10,835	11.5	12.3
Small Burghs	12,369	12.5	11.3
Landward	17,314	11.7	11.4
SCOTLAND	63,311	12.2	12.2

when recruiting staff. After the recording stage the checking of the input drafts is carried out against the hard copy. This copy contains not only the content of the draft but also the composition codes inserted by the operator. Until the proof readers become familiar with this output the proof checking of complicated drafts can cause difficulty.

Example 1 is the recorder hard copy of an extract from table B2.3 in the Annual Report for 1968. It is a simple tabulation, containing very little coding (in square brackets) and is easy to read against the original draft. Example 2 is an extract from table B2.3 produced as camera-ready copy by the composer unit.

Complicated tabulations with many codes or with uncommon or medical terms can be troublesome at the proof reading stage, and the error content in tapes going forward to the composer stage can be high. With fast amendment facilities it is sometimes less wasteful of time to go on to the next stage and print out a rough composed copy for proof reading. Data can be indexed for quicker access by inserting codes at suitable points on the tape.

The second part of the system, the composer unit, has two magnetic tapes, and a computer type console for feeding-in user programme instructions to the memory. The operating programme, or software, is fed-in by means of a prepared tape. The user instructions relate to composition, e.g. spacing, indentations, etc. The corrected tape from the recorder is automatically composed and produced as camera-ready copy, (see Example 2). Although a knowledge of typing techniques is helpful, the output is mainly automatic and aptitudes similar to that for computer console operating are required.

The planning and measurement of the tabulations and the text is called 'copy marking'. The information about spacing, length of line, etc. is charted for input to the recorder. Staff at Clerical Officer level have been trained on site to do copy-marking and they have learned the rudiments of the task within a few months. The skills are well within the limits of Clerical Officer and Executive Officer grades.

In Example 3 a shortened version of a planning chart has been completed with data relative to the extract of table B2.3 which was shown in Examples 1 and 2. It illustrates a technical aspect of the work of copy-marking.

The first assignment – The Annual Report for 1968

Basic training was completed and the installation was ready by November 1968. Although this was later than our original deadline we maintained our intention to produce the Annual Report for 1968 by this new method.

The Annual Report (pre-Composer style) ran to about 450 pages. There were about 300 tables of varying sizes and the print contained many type sizes. The new system uses the type font or 'golf ball' head action and it has available a large selection of types including fonts for mathematical and for Greek symbols. We decided to use only one type but selected four different sizes with a medium, bold and italic in each size.

The size of page provoked considerable discussion. If the previous page size of 9 ins. by 6 ins. were retained, a large number of tables would have to be re-designed. The international A4 size was chosen, which allowed more space and also brought us into line with many other international publications.

Some aspects of planning tables

The analysis of the report revealed that inconsistencies in statistical content and in presentation were to be found in the tables. The opportunity was taken to remove anomalies and to draw up standards for presentation.

Because the technical presentation was now our own responsibility, the task of setting standards involved all levels and grades – statisticians, executives and technical – and an interest in presentation was aroused.

Some research was carried out to ascertain how tables were used. In lengthy and detailed tabulations only extracts or summations may be used by any one person and the facility to extract or sum should be built into the design. Too often a table is designed for symmetry, tidiness, legibility or even because it is technically easier to group the data in a certain way. Legibility and comprehensibility are often confused. A table may be legible as to individual characters but it may be difficult to interpret or read statistically.

A major change in presentation resulted from the analysis: serial tables and current tables were placed in separate groups for each subject.

Technical problems and solutions

An account of some of the problems we had to overcome may be of interest to anyone undertaking statistical tabulations by this system.

Large descriptive headings and stubs cause most problems in design and composition, especially when the table has many columns. Space can be gained, without abbreviating the descriptions, by making the column headings read vertically. Sometimes there is no alternative, but the result is not attractive, and it may be difficult to extract data. In the composer system the insertion of vertical headings interrupts the automatic flow and increases the time taken.

Recording data on tape has an advantage where a group of headings or stubs are common to a number of tables. For example, the International Classification of

Example 3. Specimen of plan chart of measurements for Table B2.3

Recorder Instructions Chart

Table Number	*B2.3*	Margin 2
Total Units *384* used as follows:-		
Stub	= *112*	
3 columns at *70*	= *210*	
– columns at –	= –	
2 gutters at *21*	= *42*	
1 gutter at *20*	= *20*	

Heading 1	Deaths													
Heading 2	Area	Numbers					Rates – pop.				Rates – age and sex			
Stubs & figs 3	Stubs			Figs				Figs				Figs		
Column No.	1	2	3A	3B	3C	4	5A	5B	5C	6	7A	7B	7C	8
Units	*112*	*20*		*70*		*21*		*70*		*21*		*70*		*21*
			19	*33*	*18*		*22*	*27*	*21*		*22*	*27*	*21*	

Input Instructions for Tabs spacing

	Mode Code	1	2	3A	3B	3C	4	5A	5B	5C	6	7A	7B	7C	8
	L	Type title													
*Heading 1	*T*	*c112,*						*c293*							
*Heading 2	*T*	*c112,*			*c111,*				*c70,*				*c112,,*		
*Stubs & figs 3	*T*	*c112,*		*r72,*			*r88,*					*r91,,*			

***Note** – The calculation for Headings 1 and 2 are self explanatory. The calculation for 'Stubs and Figures' is a little more complicated because the measure for Figures in each of the three columns is less than the measure for its alphabetic heading and, a further instruction must be put in to centre the figures under the heading. Hence the reason for dividing the 'Numbers' and 'Rates' columns into three parts. For example in the 'Numbers' column spacing for 'Figures' is calculated thus:- Measure for columns = 70: Less measure for Figures = 33 .·. Balance = 37 : Divide 37 into two parts and place the 33 units space in centre. Column 3 is divided into A:19 ; B.33 ; C:18. The Figures must end at columns 3B. The Stubs entry (112 units) ended at column 1. The Figures entry, .·. starts at column 2 and ends at column 3B = total 72. A similar calculation is made for the 'Rates per 1,000 Population' column, starting at column 3C and ending at column 5B.

Diseases manual [2] has about one thousand classifications, but for many tables an abbreviated list is used, grouping several diseases under one heading. There are a number of these lists, in varying degrees of abbreviation. If a list is common to a number of tables, it can be held on tape and extracted for printing with the appropriate table. This facility can also be used for amending a common list. This not only saves time (only one amendment per list) but also reduces the chances of omitting the amendment on one or more of the lists, an omission which can be made with manual amendments.

Manufacturers' software programmes were intended for narrative work and a column limit of 20 was imposed. Many tables exceed 20 columns. We devised a technique to overcome this limitation, but as it was rather slow we had a special programme written to allow a maximum of 60 columns.

The composer stops each time the font has to be changed. In one of our tables some indication was needed for cells where the ratio was based on less than 20 events. Italics had been used before but this involved a change of font. To avoid changing fonts asterisks could have been used but they would have dominated the table and would have created problems of space in presentation. Despite the considerable effect on workflow, italics were used.

When the lengthy task of creating tape records, including serial tables going back over one hundred years, was completed, the tapes were edited for speedy output. Stubs and headings common to a number of tables were indexed. Historical data were recorded up to the current year so that only an additional column would need to be inserted in the following year. Tables which cover a span of, say, ten years will be up-dated annually by deleting the earliest year and inserting the latest year.

Review of the project

The Annual Report was published in December 1969. In reviewing our objectives at the current date, General Register Office, Scotland, consider that they have been achieved: the Annual Report was published in time; the difficult task of recording all the standing data was finished; the re-design of tables has been completed; a review of statistical content has been launched and partly executed; and we have established our ability to operate the new system. There is a good prospect of obtaining a much earlier publication date. Clerical work has been reduced and greater job satisfaction has been expressed by the staff. The system provides a better service to senior staff in the analysis and draft stage of the process. The recording on tape of standing data for tables, in addition to improving time schedules, will also improve the service for the provision of extracted tables.

The Life Table 1960–1962 [3] and the Annual Estimates of Population [4] were produced by the new system. The Life Tables contain a methodological section with mathematical formulae. This specialised form of printing is carried out and lined up with little difficulty by use of the Greek and Mathematical fonts. The Quarterly Return [5] and the Occupational Mortality Report [6] will be produced by composer in 1970. A valuable advance in the publication date of the Quarterly Return is anticipated.

We have proved to our satisfaction that the system can be used in the production of large and complicated statistical tables by staff who previously had little or no knowledge of composition work. Initial reaction to the new report has been favourable.

As far as can be ascertained we were the first in the government field to use the system in Scotland and the second to use it in the United Kingdom. We are perhaps the only organisation in the United Kingdom to adapt the system for the production of complex statistical tables. Although we have had only one year's experience, we are in a new field in which the personnel have been tested under fire and they would be very pleased to place whatever knowledge and experience they have gained at the disposal of anyone contemplating a similar venture.

References

(1) Annual Report of the Registrar General for Scotland, 1968 No. 114 Part I-Mortality Statistics price £3 6s. Part II-Population and Vital Statistics. Published by HMSO—Price 19s. 0d.

(2) Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 1965.

(3) Life Tables 1960-1962—First Supplement to the Hundred and Fourteenth Annual Report of the Registrar General for Scotland, 1968. Published by HMSO—Price 6s. 6d.

(4) Annual Estimates of the Population of Scotland 1969. Published by HMSO—Price 2s. 3d.

(5) Quarterly Return of the Registrar General for Scotland, Births, Deaths and Marriages. No. 460—[Composer produced publication in August 1970].

(6) Occupational Mortality 1959-1963—Second Supplement to the Hundred and Fourteenth Annual Report of the Registrar General for Scotland, 1968 [publication in August 1970].

Notes on current developments

POPULATION AND VITAL STATISTICS

Scottish statistics

The Registrar General's return for the first quarter of 1970, published in August, contains Scottish population projections to 1991, overseas migration figures for the second half of 1969 and local population estimates at mid-1969 by age and sex, in addition to the usual quarterly tables.

A new table on births by parents' country of birth is included.

HEALTH AND SOCIAL SECURITY

Abortions

A supplement on abortions to the Registrar General's *Statistical Review of England and Wales for 1968*, the first on this topic, is to be published in August. It will provide detailed tabulations of data concerning legally induced abortions which took place during the first eight months after the Abortion Act of 1967 came into effect in April 1968. The details presented include specific medical grounds for abortion and environmental circumstances, occupation group, number of existing children and area of residence of the women concerned, as well as age, marital status, gestation period, type of premises, duration of stay etc. A similar supplement containing 1969 data will follow.

Reference

A supplement on Abortions to the Registrar General's Statistical Review of England and Wales for 1968, (HMSO) August 1970. (Price 6s. 0d.)

Sickness and injury benefit incapacity statistics

An article describing the method of obtaining incapacity statistics from a 5 per cent sample of claimants to sickness and injury benefits under the National Insurance Acts appeared in *Statistical News* 5.14. It has now been decided to halve the sample.

The 5 per cent sample consisted of all claimants whose national insurance number ended in either 4B or 8B. The new 2½ per cent sample will comprise only those claimants whose number ends in 4B.

Tests on the sample data for 1967–68 have shown that the reduced sample will still enable satisfactory estimates to be made of the leading statistics on certified incapacity.

The reduction in the sample will save time and effort, thereby releasing staff for other statistical exercises.

DHSS Annual Report

The *Annual Report of the Department of Health and Social Security for 1969* deals with the work of the Department in the fields of health and welfare and of social security. It contains leading statistics about, for example, the executive council services, local authority services, hospital and specialist services, national insurance and industrial injuries, supplementary benefits, family allowances and war pensions. The *Annual Report* will be available from HMSO in September.

Although much statistical material is also published in the *Digest of Health Statistics* (6.30), the *Monthly Digest of Statistics* on sickness and injury incapacity for work (8.23) and the *Abstract of Retirement Pensions and Widows' Benefits* (8.23), the *Annual Report* is the sole published source of detailed statistics on the numbers receiving supplementary benefit. The latest *Annual Report* contains the results of the November 1969 special analysis of a sample of live supplementary benefit case papers. If further information is required it can be obtained from the Chief Statistician, Branch SR3, Department of Health and Social Security, 10 John Adam St, London, WC2.

HOUSING

House condition surveys

Results of the West Yorkshire Conurbation[1] House Condition Survey carried out in 1969 have now been published as the fifth issue in the *Housing Survey Reports* series. The first four issues gave results of similar surveys in other provincial conurbations (West Midlands, South East Lancashire, Merseyside, Tyneside) which were described in *Statistical News* 7.30 and 8.23.

The *West Yorkshire Conurbation House Condition Survey* is the last in the current series. Further issues of the *Housing Survey Reports* will be devoted to interview surveys of households in particular conurbations and to tabulations linking data from certain household and house condition surveys.

About 82,000 or 12 per cent of the 688,000 dwellings in the West Yorkshire Conurbation were shown to be unfit for habitation, and a further 8,000 or one per cent of dwellings though not unfit were in or adjoining potential slum clearance areas. The proportion of unfit dwellings was rather higher than that found in other provincial conurbations, except South East Lancashire, and similar to the proportion shown for England and Wales as a whole in 1967.

The standard of amenity in the unfit dwellings was very low: 43 per cent had no w.c., either inside or outside, while only 9 per cent had all of the four basic amenities(2). However, 79 per cent of the whole stock had all the amenities, a higher standard than in any of the other provincial conurbations.

In terms of the average number of rooms, both the unfit and fit stock in West Yorkshire are smaller than in any other conurbation, 46 per cent of the unfit and 11 per cent of the remainder consisting of less than 4 rooms.

(1) Conurbation area as defined in the 1966 Sample Census plus 8 adjacent local authority areas.

(2) The 4 basic amenities are (for the exclusive use of the occupiers): inside w.c., fixed bath or shower, wash basin, hot and cold water at 3 points.

Reference

Housing Survey Reports; No. 5 West Yorkshire Conurbation House Condition Survey, 1969 (HMSO) May 1970 (price 5s. 0d.).

EDUCATION

Education in Northern Ireland

The Ministry of Education for Northern Ireland has just produced its annual report for 1969, which contains a special chapter (No. 12) entitled 'Trends in Subject Choice at School and University'. Northern Ireland has not been examined in the same detail as England and Wales which were covered in 1968 by the Dainton Report dealing with the movement into higher education of candidates in Science and Technology. Nevertheless, the results of a limited survey suggest that in Northern Ireland the trend in subject choice differs somewhat from that in Great Britain. Whereas Mathematics and Science subjects have been losing ground relatively to other subjects in Great Britain, there is some evidence of a more favourable trend in recent years towards Mathematics and Science subjects in Northern Ireland.

Reference

Education in Northern Ireland in 1969, Cmd. 542 (HMSO), April 1970 (Price 6s. 0d.).

MANPOWER

Civil service staff records

Two new computer-based personnel records for the Civil Service were mentioned in an article on the CSD Statistics Division in *Statistical News* No. 8. The major project, which is only just starting to be implemented, and was originally called the Civil Service Personnel Information System, has now been re-named (for a reason not too difficult to perceive in relation to its acronym) Personnel Record Information System for Management – PRISM.

The information content of the Phase I record for PRISM, which is to cover the whole of the non-industrial Civil Service, was recently agreed in principle by Departments, subject to a few points being reconsidered. Work on coding the individual items is now proceeding.

The other record is the Central Management Staff Record (CMSR) which covers all senior staff, that is, down to Assistant Secretary and its equivalent in all other classes. It also replaces existing manual registers e.g. for the Administrative, Statistician and Economist classes. Questionnaires completed by individual members of staff have now been converted into magnetic tape and the basic file has been set up on the ICL System 4/70 computer at the Road Research Laboratory, Crowthorne, Berks. Apart from basic personal detail the record contains information about academic and professional qualifications and experience. By the time this note appears it is expected that CMSR will be in full operational use with the record being interrogated remotely from a teleprinter terminal located in Statistics Division CSD.

Inter-industry manpower flows

Some approximate estimates of the flows of employees between industry groups (SIC Order Groups) for the twelve-month periods ending mid-year 1960 to 1968 were published in the April 1970 issue of the *Employment and Productivity Gazette*. These estimates are based on information obtained from a one per cent sample of national insurance records relating to employees who hold national insurance cards. The estimates of inter-industry flows include only those employees who in a particular year are classified to an industry (SIC Order Group) other than that in which they were classified in the previous year. The estimates do not take account of new entrants or re-entrants to industry, those who have left the labour force, or other employees who for any other reason could not be identified as working in different industries in successive years.

The fall in the working population since 1966

A special article analysing the fall in the working population since 1966 was published in the June 1970 issue of the *Employment and Productivity Gazette*. This article is concerned mainly with changes between 1966 and 1968. It is noted that, after allowing for demographic changes, there was an equivalent fall of 400,000 in the working population over this period. A large part of this fall (150,000) is attributed to the increased numbers in full-time education and much of the remainder consists of persons below age 25 or above normal retirement ages, who might be expected to leave the working population when unemployment rises. The article also draws attention to the estimated equivalent loss to the working population of 100,000 men aged 25 to 64 and considers some possible reasons for this fall.

Printing and publishing – estimate of occupational employment

A survey to estimate changes in the occupational needs of the printing and publishing industry (excluding national daily newspapers) is the subject of a recently published report by the Manpower Research Unit. Questionnaires posted to 1,838 establishments were designed to establish the numbers in various occupations in September 1967 and to encourage employers to consider a sequence of questions on the factors likely to affect their occupational needs before they made an estimate of these needs for mid-1972. The replies to these questions were used to check the general credibility of the forecasts and the reasonableness of the level of output assumed for 1972. Particular attention was paid to the manpower effects of technological change. Replies were obtained covering 935 establishments and were supplemented by visits to or other discussions with nearly a quarter of the respondents as well as wider ranging discussions with representative organisations concerned with the industry.

The survey found that as a result of major technological developments there was likely to be continuous change in occupational needs for many years but at a rate which should give adequate time for prior planning and consultation. The report includes detailed occupational estimates for mid-1972, for the industry as a whole and separately for each of six sectors – general printing, books, provincial newspapers, periodicals, cartons and stationery.

Reference
Department of Employment and Productivity, *Manpower Studies No. 9, Printing and Publishing* (HMSO) 1970 (Price 12s. 0d.).

Forecasting manpower requirements

Under the auspices of the OECD Manpower and Social Affairs Committee, a working party met in Paris in May to consider the problems of manpower forecasting in a wide economic and educational context and also in relationship to the present imperfectly understood behaviour of labour markets. The papers discussed included one on methodological and research problems of manpower forecasting, by Mr F. G. Forsyth, Manpower Research Unit, Department of Employment and Productivity, and one on the function of the labour market in practice by Mr. D. Robinson, Oxford Institute of Economics and Statistics.

Revised seasonally adjusted unemployment and vacancy series

The new method used by the Department of Employment and Productivity for seasonally adjusting unemployment series (*Statistical News* 9.22) has now been applied to the monthly series for males, females, standard regions and industries; it has also been applied to the monthly series of notified unfilled vacancies for adults. All these revised seasonally adjusted series are updated and published monthly in the *Employment and Productivity Gazette* (Tables 104 to 117 and 119), beginning with the issue for June 1970. The unemployment series now include those for South East and East Anglia standard regions, replacing the series formerly published for the two DEP administrative regions, London and South Eastern and Eastern and Southern.

The Manpower Society

Sir William Armstrong, Head of the Home Civil Service, has become first President of the Manpower Society. The Society came into being on 1 April 1970, and replaces the Manpower Planning Study Group (see *Statistical News* 9.22).

The Council of the Manpower Society has elected Mr. J. S. Gough (Head of Staff Appointments and Career Planning, ICI) as Chairman of the Executive Committee in place of Mr. A. R. Smith (CSD Statistics Division) who has been chairman since the Study Group was formed in November 1967. Mr. E. Tonkinson (Director, Institute of Personnel Management) and Mr. J. A. Farmer (Hon. Secretary, Operational Research Society) have joined the Council. The Council now numbers 20, of whom five are members of the Government Statistical Service.

The Society aims to include within its membership people representing all aspects of manpower management and planning, and to act as a bridge between the various interests. An explanatory brochure is available. This may be obtained by writing to the new Membership Secretary: Mr. C. W. Walmsley, ICI Paints Division, Wexham Road, Slough, Bucks.

PRODUCTION AND DISTRIBUTION

Index of production

Many users of the index of industrial production have expressed a need for a long run of monthly figures in the industry detail given in the *Monthly Digest of Statistics* (Table 48). Such a table appeared as a supplement to the July issue of the *Digest* and gave monthly figures, both unadjusted and seasonally adjusted, from the beginning of 1963 to the end of 1968. Whilst the figures for these years can virtually be regarded as definitive, there may be minor revisions to the seasonally adjusted series as the calculation base is extended; the present seasonal adjustment factors take into account the seasonality of output in the period 1963 to 1969.

Offprints of this eight-page supplement are available on request from the Central Statistical Office, Information Division, Great George Street, London S.W.1.

Output measurement

A new study entitled *The index of production and other output measures* – No. 17 in the series Studies in Official Statistics – is now with the printers and will be published shortly by the Central Statistical Office. Previous publications on the index of industrial production (nos. 1, 2 and 7 in that series) followed the taking of a detailed Census of Production, which provided the material for moving to a new base year. The most recent was published in 1959; shortly after, when the 1958 results became available, the new weights and indicators were given with a brief text in the June 1959 issue of *Economic Trends*. In the meantime, there have been changes not only in the weights and indicators but also in the industrial classification and methods of seasonal adjustment. Last year, when the new base year 1963 was adopted, it was decided not only to provide a full restatement of the aims and methods of the index but also to extend the scope of the publication to the methods of measuring the output of other industries outside the index of production. Hitherto the treatment of these other industries and activities had been described in the two comprehensive books on National Accounts Statistics (1), and articles giving revised weights and indicators have appeared in *Economic Trends*. Their inclusion in No. 17 of the Studies series means that all the industries and services contributing to the gross domestic product are now described and examined in one publication.

The book begins with a complete re-statement of the concepts underlying the methods used in the measurement of output. In the section on the industrial index there is a critical examination of the various types of indicators used – physical quantities, deflated values and input series of various kinds – and a description of the methods used for dealing with weekly, four-weekly, calendar monthly and quarterly series and a discussion of the treatment adopted to deal with the variations in the calendar so as to eliminate distortions which would otherwise appear. The derivation of the statistical weights applied to the indicative series is discussed and described and an appendix gives a full list of the weights and series.

A chapter devoted to those activities which make up the remainder of the gross domestic product, namely agriculture, the distributive and service industries, examines the problems of measurement, where indicative series are harder to find and the conceptual and practical difficulties are more difficult to resolve. A full list of the annual series used and their weights is given together with the quarterly series where they differ from the annual indicators.

Seasonally adjusted figures and their interpretation, particularly in relation to the index of production used as a short-term economic indicator, are discussed in the text. The method used for deriving these seasonably adjusted figures is the recently introduced X–11 variant of Census Method II of the US Bureau of the Census. A full description of this method is provided in an annex.

(1) *National Income Statistics: Sources and Methods* (1958) and *National Accounts Statistics: Sources and Methods* (1968).

Reorganisation of industrial statistics

The new system of industry statistics, fully reported in earlier issues of *Statistical News*, will be extended in the third quarter 1970 by the launching of quarterly sales enquiries in a further nine industries as follows:

Shipbuilding and Marine Engineering	MLH 370
Weatherproof Outerwear	MLH 441
Men's and Boy's Tailored Outerwear	MLH 442
Women's and Girls' Tailored Outerwear	MLH 443
Overalls and Mens' Shirts, Underwear etc.	MLH 444
Dresses, Lingerie, Infants' Wear etc.	MLH 445
Corsets and Miscellaneous Dress Industries	MLH 449/1, 3 & 4
Brushes and Brooms	MLH 493
Plastic Products n.e.s.	MLH 496

In each of the above industries the enquiry will cover all establishments with 25 employees or more, except for Brushes and Brooms where the coverage is 11 employees or more.

The results of the enquiries will, in due course, be published on a regular basis in the *Business Monitor* series.

Engineering, Shipbuilding and Vehicle Industries

These industries will be brought into the new system of quarterly sales enquiries on the following planned timetable, which has been devised to minimise inconvenience to users arising from either overlap or discontinuity.

Order VII Mechanical Engineering

Beginning 4th Quarter 1971

Agricultural Machinery (MLH 331)

Metal-working Machine Tools (MLH 332)

Industrial Engines (MLH 334)

Textile Machinery (MLH 335)

Construction and Earthmoving Equipment (MLH 336)

Mechanical Handling Equipment (MLH 337)

Office Machinery (MLH 338)

Beginning 1st Quarter 1972

Pumps, Valves and Compressors (MLH 333)

Mining Machinery (MLH 339.1)
Printing Machinery (MLH 339.2)
Refrigerating, Space heating, Ventilation and Air-Conditioning Equipment (MLH 339.3–4)
Scales, Portable Tools and Other Machinery (MLH 339.5–9)
Food and Drink Processing, Packaging and Bottling Machinery (MLH 339.7–8)
Industrial Plant and Steelwork (MLH 341)
Ball and Roller Bearings (MLH 349.1)
Precision Chains and Other Mechanical Engineering (MLH 349.2–3)
Order VIII Instrument Engineering
Beginning 3rd Quarter 1971
Photographic and Document Copying Equipment (MLH 351)
Watches and Clocks (MLH 352)
Surgical Instruments and Appliances (MLH 353)
Scientific and Industrial Instruments and Systems (MLH 354)
Order IX Electrical Engineering
Beginning 1st Quarter 1972
Electrical Machinery (MLH 361)
Insulated Wires and Cables (MLH 362)
Telegraph and Telephone Apparatus and Equipment (MLH 363)
Radio and Electronic Components (MLH 364)
Broadcast Receiving and Sound Reproducing Equipment (MLH 365)
Electronic Computers (MLH 366)
Radio, Radar and Electronic Capital Goods (MLH 367)
Electric Appliances for Domestic Use (MLH 368)
Electrical Equipment for Motor Vehicles, Cycles and Aircraft (MLH 369.1)
Primary Batteries; Secondary Batteries (Accumulators) (MLH 369.2–3)
Electric Lamps; Electric Light Fittings, Wiring Accessories, etc. (MLH 369.4–5)
Order X Shipbuilding and Marine Engineering
Beginning 3rd Quarter 1970
Shipbuilding and Marine Engineering (MLH 370)
Order XI Vehicles
Beginning 1st Quarter 1971
Aerospace Equipment (MLH 383)
Beginning 2nd Quarter 1971
Motor cycle, Tricycle and Pedal cycle Manufacturing (MLH 382)
Locomotives and Railway track Equipment (MLH 384)
Railway Carriages and Wagons (MLH 385)
Beginning 3rd Quarter 1971
Wheeled Tractor Manufacturing (MLH 380)
Motor Vehicle Manufacturing (MLH 381)

Discussions will begin between Mintech and industry interests 9–12 months before the operating dates.

Further information about work on these enquiries can be obtained from Ministry of Technology, Engineering Industries Statistics Branch, Dean Bradley House, Horseferry Road, London S.W.1. (Tel: 01-799 5688, Ext. 5).

The motor trades in 1967

A report on the large-scale inquiry into the motor trades in 1967 was published in the *Board of Trade Journal* on 6 May 1970. The article includes tables giving numbers of organisations and establishments, an analysis of turnover by kinds of business and figures of stocks, capital expenditure and purchases. Analyses of kinds of business by region and by turnover size were provided. Copies of the article can be obtained from the Business Statistics Office, Lime Grove, Ruislip, Middlesex HA4 8RS (Tel: 01-866 8771 Ext. 18).

Petroleum

The Institute of Petroleum was founded in 1913 and until the end of the second world war operated as a scientific body concerned with the dissemination of scientific and technical knowledge. It has expanded its activities considerably in recent years and now provides a statistical information service on many aspects of the petroleum industry.

Statistical material available on request from the Institute includes details of the United Kingdom refinery industry, both its current capacity and future plans, quarterly and annual figures of inland oil deliveries, statistics for major overseas oil production and refining areas, and details of supplies of motor spirit in the United Kingdom including brand names, companies responsible and retail outlets supplied. There is also a comprehensive booklet of world oil statistics covering petroleum reserves, tanker tonnages, imports and exports of crude oil and finished petroleum products, free world energy consumption, etc.

A full list of the Institute's publications is available from 61, New Cavendish Street, London, W1M 8AR (01-636 9359).

AGRICULTURE

The changing structure of agriculture

This Report, produced jointly by the Ministry of Agriculture, Fisheries and Food, the Department of Agriculture and Fisheries for Scotland and the Ministry of Agriculture, Northern Ireland, was published on 22 June 1970. It draws upon a wide range of statistics to illustrate the pattern of farming in the United Kingdom as it has evolved during the sixties. It also brings up to date the report published in 1966[1] which described in less detail the situation as seen in 1964–65.

The first part of the Report gives a broad analysis of the size structure of agricultural holdings for the United Kingdom as a whole, including estimates of changes in the number of full-time farms. Totalling some 200,000 in 1968, these have been decreasing at an average rate of about 4,000 a year since 1963. About 40,000 large holdings (each capable of providing employment for at least four men) continue to account for approximately half of the industry's total output, while about 60,000 medium-sized holdings contribute a further quarter. The number of small holdings (providing employment for only one or two men) fell from 96,000 to 84,000 between 1965 and 1968, with a corresponding decline in their contribution to total output from about 19 per cent to 16 per cent. Even after excluding some 30,000 part-time holdings in England and Wales whose production is negligible, there still remain around 160,000 very small holdings in the United Kingdom which do not normally provide their occupiers with full-time employment and which supplied only 7 per cent of the national output in 1968.

The second part of the Report deals separately with England, Wales, Scotland and Northern Ireland, describing in turn the main types of farm found among the full-time holdings, e.g., Dairy, Cropping, Livestock and Horticultural holdings. The size groups, based on standard labour requirements, are the same as those employed in the first part, and estimates are given for each type showing the contribution towards total output of the major products, the average size of the main farm enterprises, the average gross output and net income per holding, and any significant variations in the pattern of production.

The third part is concerned with the trends since 1960 towards concentration in the main enterprises other than horticulture. The data here are expressed in terms of livestock numbers and crop acreages and relate to all holdings, not only to full-time ones. The most dramatic changes have occurred among poultry enterprises (both for the production of eggs and broiler chickens) and in pig breeding. For example, in England and Wales the average size of broiler enterprise increased by 22 per cent a year between 1960 and 1968 (by 36 per cent between 1960 and 1963) and the average laying flock by 12 per cent a year from 1965 to 1968. The average pig breeding herd has recently been increasing by about 10 per cent a year. These changes have been matched to a greater or lesser degree in Scotland and in Northern Ireland. There have also been significant shifts towards greater concentration in other major enterprises, with rates of increase in average size varying between about 4 and 8 per cent a year. The position reached in 1968 in pig and poultry enterprises in England and Wales is illustrated in the following figures:

5·5% of producers accounted for 37·7% of all breeding pigs

1·5% of producers accounted for 50·4% of all laying fowls (eggs for eating)

4·8% of producers accounted for 55·0% of all broilers.

The fourth part of the Report gives the results of a recent enquiry into the tenure of farm land and compares the relative importance of tenancy and owner-occupation today with that which obtained in 1960–61 (2). The trend towards owner-occupation of farm land continued between 1960 and 1969, though at a slower rate than in the previous decade. Thus, for England and Wales, the owner-occupied acreage represented about 38 per cent of the total in 1950, 49 per cent in 1960, and 54 per cent in 1969. In Scotland, the corresponding proportions in 1961 and in 1969 were almost the same, or about 58 per cent in both years.

The Report is supported by appendices containing detailed statistics of recent changes.

References

The Changing Structure of Agriculture (HMSO) April 1970 (Price 6s. 6d.).

(1) *The Structure of Agriculture* (HMSO) September 1966 (Price 3s. 6d.).

(2) 'Tenure of agricultural holdings in England and Wales', C. R. Orton, *Statistical News* No. 9 (HMSO) May 1970 (Price 6s. 0d.).

OVERSEAS FINANCE

United Kingdom balance of payments

A table giving a new analysis of capital and monetary flows, and of official financing, (Table B) was included in the June 1970 issue of *Economic Trends*. A further new table shows the levels of United Kingdom official short and medium-term borrowing outstanding at the end of each quarter, following the introduction of this series in the *1970–71 Financial Statement and Budget Report*.

The arrangements for Special Drawing Rights at the IMF, described in the UK White Paper (Cmnd. 3662) issued in June 1968, came into effect on 1 January 1970 with the allocation to the United Kingdom of SDR equivalent to £171 million. This event is recorded in the balance of payments accounts as follows: the new asset is included in the figure for the change in the official reserves, and a contra-entry entitled 'Allocation of SDR' is shown which records the creation of the asset. The subsequent use of SDR results in changes in the level of the reserves or changes in the composition of the reserves.

WAGES AND EARNINGS

DEP earnings surveys in 1970 and 1971

Following consultation with the CBI, the TUC and others, including employers' associations and trade unions concerned with particular industries, many changes have been made in the programme of earnings surveys by the Department of Employment and Productivity in 1970 and 1971. Substantial reductions in older types of surveys have been made as a consequence of the introduction of new earnings surveys in each year. Overall, the new arrangements will provide a much more extensive range of statistics needed for government policy and administration and, it is hoped, an improved statistical service to industry and to organisations concerned in wage negotiations. In formulating the new arrangements, much attention has been given to the burden of form-filling which statistical enquiries place upon employers.

There will be a general review of earnings surveys after the results of the 1970 and 1971 surveys become available.

The programme for 1970 and provisionally for 1971 is as follows:

New earnings surveys: these will be held in April 1970 and April 1971, covering one per cent of all employees in employment in Great Britain i.e. rather more than 200,000.

Earnings and hours of manual workers: these enquiries will be held in October 1970 and October 1971, covering manufacturing and some other industries in the United Kingdom, as in earlier years. However, they will not be held in April, except in a few industries for which there are special needs which cannot be met from the new earnings survey. Enquiries were carried out in April 1970, at the request of the industrial organisations concerned, into eleven manufacturing industries and two service industries, viz.

MLH (1968 SIC)

- 213 biscuits
- 218 fruit and vegetable products
- 229 food industries not elsewhere specified
- 261 coke-ovens and manufactured fuel
- 272 pharmaceutical chemicals and preparations
- 362 insulated wires and cables
- 395 cans and metal boxes
- 411 production of man-made fibres
- 415 jute
- 429 textile industries not elsewhere specified
- 431 leather (tanning and dressing) and fellmongery
- 893 dry cleaning
- 895 repairs of boots and shoes

As a result, forms were issued to only about 1,500 establishments, compared with over 50,000 in earlier years. Arrangements for April 1971 are not yet settled.

In addition, at the request of the National Joint Council for Local Authorities Services (Manual Workers) a limited enquiry was made in April 1970 covering some manual employees of local authorities in Great Britain.

Earnings of Administrative, Technical and Clerical Workers: the enquiry in October 1970, covering non-manual workers in production industries and some other sectors in Great Britain, will be the last one of this annual series. There will be no enquiry in October 1971.

Monthly survey of earnings: these small-scale sample surveys, which cover all categories of employees in production and some other industries in Great Britain, and which provide the basis for the monthly index of earnings, will continue unchanged.

Earnings of manual workers, by occupation, in certain industries: these surveys of earnings of adult male manual workers in some broad occupational groups in a limited number of industries in Great Britain have hitherto been made in January and June.

Iron and Steel manufacture	: in January 1970 only and then discontinued
Some Chemical industries	: in January and June 1970. Arrangements for 1971 are not yet settled
Mechanical engineering Electrical engineering Motor vehicle manufacture Aerospace equipment manufacture and repair	: in January and June 1970 and in June 1971, but not in January 1971
Shipbuilding and ship-repairing	: in January and June in each year
Construction	: in January 1970 only, and then discontinued, except in June 1970 for heating and ventilating occupations only.

Earnings of selling staff in retail distribution: these surveys have been discontinued.

New earnings surveys

A booklet entitled *New Earnings Survey 1968* has now been published, dealing with the results of the first new type of sample survey of earnings of employees in Great Britain, as foreshadowed in the article in *Statistical News* 8.12. In addition to the main results published last year in instalments in the *Employment and Productivity Gazette*, the booklet includes an extensive and varied selection of other analyses, the survey questionnaire, definitions of the terms used, a technical appraisal and a report of the expert group which appraised the results and made recommendations about future surveys.

The new analyses include earnings distributions by occupation within industry groups, by industry within region, by age within occupational groups, for payment by results workers and after excluding overtime premium payments; distributions of normal hours and of hours worked; length of service with the employer; holiday entitlements; numbers of trainees and apprentices; and a selection of joint distributions. The latter show the relationship between earnings and hours and between earnings and wage rates. Some estimates of average earnings are given for broad categories of workers by regions and sub-divisions of regions.

Results of the enlarged survey of earnings in April 1970 are expected to be published towards the end of this year.

Reference
New Earnings Survey 1968 (HMSO) August 1970.

Survey of labour costs

Results are now being published of the second comprehensive survey, undertaken by the Department of Employment and Productivity, of employers' total labour costs in the United Kingdom in 1968 (*Statistical News* 3.30). As for the 1964 survey, which covered Great Britain only, a series of articles will appear in the *Employment and Productivity Gazette* and subsequently a more comprehensive booklet of results will be published. The first article includes analyses by industry and by size of firm of annual expenditure by employers in Great Britain on such direct and indirect labour costs as wages and salaries, national insurance, selective employment tax, training, welfare and redundancy payments. Subsequent articles will include, for example, separate tables for administrative, technical and clerical workers and operatives.

PRICES

Wholesale prices index

The Board of Trade have recently examined the extent to which seasonal changes occur in four of the principal index numbers in the wholesale price series: products of the food manufacturing industries, products of manufacturing industries other than food, drink and tobacco, and the corresponding materials and fuel index numbers. Results were published in the *Board of Trade Journal* of 22 July 1970.

The degree of seasonal variation was found to be small for the two products index numbers, but more marked for the materials and fuel series.

NATIONAL BOARD FOR PRICES AND INCOMES

Pay of university teachers in Great Britain

The NBPI made its second report in April 1970 on the *Pay of University Teachers in Great Britain* under its standing reference. This report outlines subsequent developments since the Board's first report (No. 98) in December 1968.

Account was taken of a preliminary study undertaken for the Board by the Higher Education Research Unit of the London School of Economics. The study is summarised in an appendix and there are various analyses on numbers of staff, salaries, supplementary earnings, income, promotion prospects etc.

Reference
Standing Reference on the Pay of University Teachers in Great Britain: Second Report, National Board for Prices and Incomes, Report No. 145, Cmnd. 4334 (HMSO), April 1970 (Price 6s. 0d.).

Pay and conditions of industrial civil servants

The NBPI reported in April 1970 on the *Pay and Conditions of Industrial Civil Servants*.

A survey was undertaken in two parts. The first took the form of a departmental analysis of the structure of the industrial civil service and the distribution and employment of its labour force; the second consisted of an analysis of hours of work and pay classified by function, region, sex and occupations, differentiating between pieceworkers in the Royal Ordnance Factories of the Army Department and time-workers. The sample included about a fifth of all establishments with 10 or more employees and data on hours and earnings for 4 per cent of a total labour force of 180,000.

Reference
Pay and Conditions of Industrial Civil Servants, National Board for Prices and Incomes, Report No. 146, Cmnd. 4351 (HMSO), April 1970 (Price 12s. 6d.).

Margarine and compound cooking fats

A report by the NBPI on *Margarine and Compound Cooking Fats* was published in May 1970. Enquiries were made into the costs, prices and profitability of producing margarine and compound cooking fats among the larger companies responsible for about 97 per cent of the combined output of both markets.

Reference
Margarine and Compound Cooking Fats, National Board for Prices and Incomes, Report No. 147, Cmnd. 4368 (HMSO), May 1970 (Price 2s. 3d.).

Pay and conditions in the pottery industry

A report by the NBPI on *Pay and Other Terms and Conditions of Employment of Workers in the Pottery Industry* was published in July 1970. The report gives the results of a sample survey of pay and conditions of employment for a week in January 1970 of workers in Great Britain engaged in the production of pottery, i.e. domestic ware (including china and fine china as well as general earthenware), electrical porcelain, ceramic tiles, sanitary-ware and certain ancillary products. The survey covered 166 pottery establishments with a response of 78·3 per cent. Information on hours of work and earnings was obtained for a sample of 7 per cent of the labour force.

The analysis covers the structure of the industry and composition of the labour force, age, length of service, vacancies, turnover, absenteeism, shift working, payment systems, arrangements for determining wage rates and general wage rate increases since June 1968, conditions of service, hours of work and pay.

Reference

Pay and Other Terms and Conditions of Employment of Workers in the Pottery Industry, National Board for Prices and Incomes, Report No. 149, Cmnd. 4411 (HMSO), July 1970 (Price 11s. 0d.).

INTERNATIONAL

Population and working population projections

The OECD Manpower and Social Affairs Committee is organising a further study of demographic trends in member countries. This will be the fourth in a series undertaken at intervals of five years. Governments are to provide reviews of developments in recent years and projections of the total population to 1985 and for 2000 AD and corresponding projections of the working population to 1985. The report of the previous study, *Demographic Trends 1965–1980 in Western Europe and North America*, was published by OECD in 1968. The plans for the study were made at a meeting held in Paris during February of a Working Party of government representatives that included Miss J. H. Thompson, Chief Statistician, Office of Population Censuses and Surveys, Mr. J. R. Watts, Actuary, Government Actuary's Department and Mr. Robert Turner, Deputy Director of Statistics, Department of Employment and Productivity and chairman of the Working Party.

Conference of European Statisticians

The eighteenth session of the Conference of European Statisticians was held in Geneva from 15–19 June 1970. Participating at the Conference were representatives from 29 member countries of the Economic Commission for Europe, as well as Canada and Israel, and representatives of several International Organisations. The United Kingdom was represented by Professor C. A. Moser, Director of the Central Statistical Office, and by Mr. J. N. C. Hancock, also of that Office.

At the opening session the Executive Secretary of the Economic Commission for Europe referred to the significance of the work of the Conference in one of the Commission's central tasks of improving the statistical data on East-West trade, and also drew attention to the importance of environmental problems. The Executive Secretary said that there would be a moderate extension of the work of the ECE Secretariat on population questions and expressed his strong support for the work of the Conference on the development of an integrated system of demographic and social statistics and the improvement of demographic data generally. The Executive Secretary said that he intended to propose for study by the Commission at its next session the subject of the structure of European industry and in the meantime to initiate a Secretariat study of this question for which statistical data from national statistical offices would be required.

The agenda for the eighteenth session of the Conference was broadly divided into (i) general frameworks for integrating statistics, (ii) statistical programmes in individual fields, (iii) organisational and operational subjects, (iv) co-ordination of statistical activities and (v) the 5–year programme of work of the Conference. Under (i) and (ii) the discussion was based on reports of meetings of working groups which had been held since the seventeenth session of the Conference in 1969. The main subjects were the extension of national accounts to cover balance sheets and distribution of income, consumption and wealth, as well as links between the United Nations System of National Accounts and the Material Product System of East European countries; the scope, objectives and framework of the system of demographic and social statistics; the classification of commodities by industrial origin and the International Standard Classification of Education (ISCED); agriculture statistics, productivity statistics and statistics of education. Attention was given to electronic data processing and to problems to determine the priorities in national statistical programmes under item (iii) above. The co-ordination of statistical activities (item (iv) above), related to the statistical work of the Economic Commission for Europe and also to the statistical work of other international organisations in Europe. The programme of work for 1970/71 includes meetings on statistics and indices of prices and quanta, the system of demographic and social statistics, activity and commodity classifications, population projections, agriculture statistics, housing, building and planning statistics, health statistics and electronic data processing.

PUBLICATIONS

Britain's economy in figures

The CSO has just produced a new version of the pocket-sized plastic card 'Britain's Economy in Figures'. Intended mainly for the businessman travelling abroad, the card provides a useful aide-memoire to the key economic series for the years 1963, 1968 and 1969. Copies are obtainable free from the regional offices of the Board of Trade and Ministry of Technology or direct from the Central Statistical Office, Information Division (SN), Great George Street, London S.W.1.

Sources and Nature of the Statistics of the United Kingdom (New Series)

The two volumes in the original series, under the editorship of Dr. M. G. Kendall, were published in 1952 and 1956; for some time now it has been evident that an up-dated version is needed. The Royal Statistical

Society in conjunction with the Social Science Research Council is now sponsoring a new series and the first batch of contributions have been commissioned on the following topics (i) Social Services (ii) Tourism (iii) Housing (iv) Construction (v) Engineering and (vi) Crime.

It is proposed to issue the new series as individual booklets or, perhaps, small collections of related topics. Some provision for loose leaf binding may be possible and, in any event, it is intended to compile and make available a cumulative index.

In order to make the project as useful as possible, the editor of the new series would be grateful to have any suggestions or comments that prospective users may feel encouraged to send. In particular, it would be of great interest to know the uses to which the original series was put (e.g. in connexion with teaching, academic research, business research, etc.) and to have an indication of how well these specific purposes were or were not served. In general, suggestions for any particular features which would increase the usefulness of the series are welcome. They should be sent to the editor of the new series: Dr. W. F. Maunder, Department of Statistics, London School of Economics and Political Science, Aldwych, London, WC2.

The surveys of professional engineers and professional scientists 1968

The 1968 surveys of professional engineers and professional scientists mentioned in *Statistical News* No. 2, August 1968, are now published in two parallel volumes.

Part One takes the form of charts and summary tables and Part Two presents the detailed results in a series of 14 tables (engineers) and 13 tables (scientists). These two volumes are the first of a new series, 'Studies in Technological Manpower'.

The surveys which dealt with the remuneration and deployment of engineers and of scientists were carried out jointly by Mintech with the Council of Engineering Institutions and The Council of Science and Technology Institutes, respectively. The results of these enquiries have produced comparative information which is believed to be unique.

Professional engineers

The volume dealing with professional engineers is a sequel to an earlier publication which described a similar joint survey made in 1966. The results of the 1968 engineers survey are based upon a sample of nearly 18,500 members of the engineering institutions and a response rate of 79·8 per cent was achieved. Comparison with the earlier enquiry suggests an absolute increase in the number of engineers occupying top management posts and an increase in the proportion of engineers describing their posts as 'managerial.'

The later survey of engineers asked for new information about the training courses attended by engineers subsequent to their original qualifying courses. 38 per cent of the sample had taken some sort of course in the twelve months prior to the enquiry. The analyses show the ages of engineers who took courses, the type of course taken and the length of course.

Professional scientists

The volume describing the first comprehensive survey of professional scientists contains tables which are largely parallel to those of the companion engineering volume. Nearly 40,000 questionnaires were circulated to the members of the five science institutes which form the Council of Science and Technology Institutes. A 69·3 per cent response rate was achieved, with a final sample of just over 25,500 scientists. A direct comparison of the income of scientists and engineers is made giving the median income at five-year age intervals. These data illustrate the fact that at all ages beyond 30, scientists receive a marginally higher income than engineers. When the respondents are analysed into those scientists and engineers with and without university or other degrees, it is notable that the engineers generally receive the higher income at each age.

References

The Survey of Professional Engineers 1966 (HMSO) October 1967 (Price 8s. 6d.).

The Survey of Professional Engineers 1968 (HMSO) April 1970 (Price £1 2s. 6d.).

The Survey of Professional Scientists 1968 (HMSO) April 1970 (Price 15s. 0d.).

University statistics

The third annual volume of university statistics in the *Statistics of Education* format is published this month as Volume 6 of *Statistics of Education 1968* and is available from HMSO, price £2 8s. It was prepared by the University Grants Committee in co-operation with the Department of Education and Science.

Family expenditure survey

The *Family Expenditure Survey Report for 1969* is being published shortly, in a form broadly similar to that of the 1968 report. There are new tables which analyse weekly income and expenditure of households surveyed grouped according to the income of the household and the age of the head of the household; another analyses by region the households having certain durable goods.

Fuel and power

The *Digest of Energy Statistics 1970* prepared by the Ministry of Technology continues the series of annual statistical publications on energy and fuel and power in the United Kingdom previously produced by the Ministry of Power. The new edition, which is due to appear shortly, is very similar in content and scope to the previous issue (that for 1968 and 1969 reviewed in *Statistical News* 6.23) when the publication was extensively re-arranged and the form of presentation of many of the statistics was changed to illustrate more clearly how the figures for individual fuels are combined into statistics for the supply and consumption of energy as a whole. This process has been continued in the new edition which contains new tables in the gas and electricity sections showing detailed fuel inputs for gas and electricity production and final consumption of these fuels in a form which enables their contribution to the UK energy balance to be assessed.

The coke and manufactured fuel section has also been expanded to include a summary of production and consumption of all forms of solid smokeless fuel including information on the quantities of fuels used for their manufacture.

The 1970 *Digest* contains statistics for the year 1969 as well as those for earlier years. In addition many of the more important basic series contain figures for the financial year 1969/70.

National Institute Economic Review

The May issue of the *National Institute Economic Review* contains four articles relating to forecasting. Two deal with methods of predicting respectively investment in private manufacturing industry in the United Kingdom and trade, including specifically United Kingdom exports, between the members of OECD and the primary producing countries, a third suggests how the CBI's industrial trends survey can be used to forecast manufacturing output, and the fourth analyses errors in the National Institute's past forecasts of changes in the United Kingdom's balance of payments, particularly on current account. (Copies of this issue can be obtained, as usual, from the National Institute Economic Review, 2 Dean Trench Street, Smith Square, London, S.W.1.)

The investment article, 'Forecasting manufacturing investment – some preliminary results' by A. R. Nobay, discusses equations which have been developed to explain and predict the behaviour of manufacturing investment in the United Kingdom. The conceptual basis is provided by the 'appropriations to investment' framework, incorporating explicit recognition of the lags between appropriations and orders and between orders and delivery (the approach being first to estimate an average lag and then to allow for a variable element dependent upon supply conditions in the industries producing capital goods). But the specification of the factors determining appropriations brings in the alternative notions of capacity or profits as variables ultimately determining investment, and the results suggest that the capacity/accelerator model is superior to explanations based on past profits or liquidity. Interest costs are also found to be a significant, though not very important, influence upon investment.

The trade article, 'Forecasting trade between OECD countries and primary producers' by A. H. C. Broadbent, E. A. Anyanwu and N. C. Garganas, describes an attempt to determine first OECD countries' imports from primary producers (as a function of OECD countries' aggregate demand, excess demand, and price), secondly OECD countries' exports to primary producers (as dependent on their own imports from primary producers, together with aid and capital flows and the level of reserves), and finally exports from the United Kingdom to primary producers (as a function of total exports from OECD countries to primary producers, together with terms measuring British price competitiveness and the pressure of demand in this country). It shows that for the estimation period of the equations (up to 1967) encouraging results were obtained, but that forecasts based on the more promising specifications have turned out badly in the difficult post-devaluation period. For both 1968 and 1969 the equations under-predict OECD countries' imports and exports by substantial amounts, while they over-predict United Kingdom exports even more markedly.

The article on the CBI surveys, 'The CBI Industrial Trends Survey as a measure of manufacturing output' by Mrs. M. Gregory, suggests that data from the surveys can be used quite successfully to predict the trend of the official United Kingdom index of manufacturing output some months before this becomes clear from the published statistics. The most satisfactory results are obtained from equations which include a constant term, dummy variables to allow for firms' apparent failure to take adequate account of seasonal factors, and terms representing either reported and expected trends in output or reported new orders and capacity utilization. (Somewhat surprisingly, the orders-capacity formulation gives a statistical prediction of output changes which is fully as good as that based on the reported trends in output themselves.)

The article on the National Institute's balance of payments forecasts, 'Errors in National Institute forecasts of the balance of payments' by R. L. Major and M. J. C. Surrey, shows that for the last seven years the average error in the February forecast for the current year of the change in the current balance compared with the previous year has been about £250 million, with a bias towards over-optimism of nearly £200 million. The errors made in February have been nearly as big as the variations of the changes themselves from their average over the period since 1959 or as the errors which would have resulted from 'no change' forecasts for each year, and even in November the average error in the last five years has been nearly £100 million. The main trouble has been with imports, of which the value has invariably been under-predicted – by an average of 3½ per cent. Forecasts of the balance of payments published by other bodies have usually been even more inaccurate.

GLC Research and Intelligence Unit

Occasional papers

Occasional Paper No. 2 (November 1969), 'The Census of Population as a source of information for Local Authority Planning Departments'. This paper records the proceedings of a seminar held in March 1969 attended by representatives of London Boroughs and the City of London to discuss the use of the Census of Population in the current work of Planning Departments, with special reference to the 1966 Census and the need for improved data from the 1971 Census.

Occasional Paper No. 3 (March 1970) 'Demographic social and economic indices for wards in Greater London'. This paper presents data derived from the 1966 Census. Seventy-six demographic, social and economic indices have been calculated for each of the wards in Greater London – about 700 in all. The indices are grouped into 13 categories, as follows:

- Age–sex structure of the population
- Small, pensioner and large households
- Type of dwelling and tenure
- Density of occupation
- Housing conditions –1
- Housing conditions –2
- Car-ownership and garaging
- Socio-economic groups
- Activity and unemployment rates
- Immigrants from the New Commonwealth and Ireland and aliens
- One-year in-migrants
- Modes of transport to work

References

GLC Research and Intelligence Unit Occasional Paper No. 2 (November 1969), *The Census of Population as a source of information for Local Authority Planning Departments.*

Available from the Information Centre, The County Hall, London SE1. Price 5s. (postage extra).

GLC Research and Intelligence Unit Occasional Paper No. 3 (March 1970) *Demographic, social and economic indices for wards in Greater London.*

Available from the Information Centre, The County Hall, London SE1. Price 40s. (postage extra).

Quarterly Bulletin No. 10 (March 1970) of the G.L.C. Research and Intelligence Unit includes, *inter alia*, the following articles:

'Confidentiality of personal information supplied to public authorities', by Catherine M. Firth, Assistant Director, Research and Intelligence Unit.

This article examines various types of administrative and statistical systems based on individual records, and reviews the methods of preserving confidentiality that are currently in use by local authorities, first in general terms and then with particular reference to those associated with computer systems. There is then a discussion of the problem in relation to linked records, followed by an examination of the methods of safeguarding highly confidential data, such as medical records, and information on religious and political affiliations. The article concludes with some remarks on the responsibility for maintaining confidentiality that public authorities must carry.

'Demographic factors and borough occupancy rates', by Jane Peretz and Hywel Davies, Research and Intelligence Unit.

This article discusses methods of predicting the future population of an area, and assesses the usefulness of projections based either on borough occupancy rates or on birth rates, death rates and migration rates. The authors then suggest how the two different approaches might be combined. The article is accompanied by a number of statistical tables covering London boroughs.

Reference

GLC Research and Intelligence Unit *Quarterly Bulletin* No. 10, March 1970. Obtainable from the Information Centre, The County Hall, London SE1 (Price 5s. 0d. net, postage 1s. 3d.)

OECD report on economic growth

A report entitled *The Outlook for Economic Growth* has recently been produced by a working party of the OECD's Economic Policy Committee. It deals in summary form with an extensive study of the problems of economic policy, particularly those related to growth and stability, in the period 1960–1980, of which the full report is expected to appear within the next few months. The present publication sets out the main conclusions of the large-scale study, and discusses in general terms the performance and prospects of OECD countries. While detailed comparisons between individual countries have not been included, there are statistical tables that compare growth rates of output in the period 1960–1970 and also projections of employment, productivity and output for 1970–1980. Average annual percentage rates of growth are given, enabling the performance of the United Kingdom to be compared with that of other OECD member countries.

Reference

The Outlook for Economic Growth. Organisation for Economic Co-operation and Development. (Available from HMSO, price 14s. 0d.)

Statistical Office of the European Communities

The ninth edition is now available of the publication issued by the Statistical Office of the European Communities entitled *Basic Statistics of the Community*. It compares statistics from the Common Market countries and other European countries with those of the United

States, Canada, Japan and the Soviet Union. The book was published in May 1970, and is obtainable from HMSO (price 8s. 9d.).

In May, the *National Accounts: 1969 Yearbook* was published, covering the years 1958 to 1968. It is obtainable from HMSO at £1 6s. 3d.

Also recently issued by the same body are two publications devoted to energy statistics, the first entitled *Energy Statistics: 1969 Yearbook* covering the period 1958 to 1968 (available from HMSO, price £1. 1s. 9d.), and the second entitled *Energy Statistics, No. 1, 1970* (available from HMSO, price 17s. 6d.). Both publications appeared in June 1970.

In addition, the Statistical Office of the European Communities has recently published two volumes of social statistics. One entitled *Social Statistics, No. 3. Germany (B.R.). Structure and Distribution of Wages 1966* was published in June 1970 and is available from HMSO (price £1. 15s. 0d.) in a multilingual edition – French, German, Dutch and Italian – though not in English. The other, *Social Statistics, No. 1, 1970. Labour Cost of Road Transport* was published in July 1970, and is obtainable, in a French-German edition only, from HMSO (price 17s. 6d.).

GOVERNMENT STATISTICAL SERVICE

Office of Population Censuses and Surveys (OPCS)

On 11 May 1970, in reply to a question in the House of Commons on the formation of the Office of Population Censuses and Surveys, the Prime Minister stated that the Office, resulting from the merger between the General Register Office and the Government Social Survey Department, had been established on that day.

The Head of the new Office is Mr. Michael Reed who has the title of Director and Registrar General.

Reference

Hansard, 11 May 1970, Written Answers, col. 240.

Liaison with industry

Construction industry: Seminar

The Construction Industry Study Group of the Operational Research Society Ltd. is organising a One-Day Seminar on 'Statistics for Construction Industry Decision-Making'. This will take place on 25 November at the Faculty of Environmental Studies, University College, London University, Gower Street, W.C.1. Speakers at the morning session will include Mr. M. C. Fessey, Director of the Business Statistics Office and Mr. M. L. M. Neifield, Chief Statistician at the Ministry of Public Buildings and Works. Mr. Fessey will also chair a discussion group following the presentation of his paper.

Full details of the Seminar can be obtained from O.R.S./C.I.S.G. Seminar Administrator, 6, Greatwood, Yester Road, Chislehurst, Kent, BR7 5HU. (Tel: 01-467 5880).

Appointments

CIVIL SERVICE DEPARTMENT

Mr. A. R. Smith, Chief Statistician, has been appointed to a new post of Director of Statistics.

Mr. J. A. Rowntree has been promoted to Chief Statistician.

BOARD OF TRADE

Mr. T. Paterson, Chief Statistician, Ministry of Technology, has been promoted to fill the vacant post of Assistant Director in the Board of Trade Statistics Division.

OFFICE OF POPULATION CENSUSES AND SURVEYS

Mr. P. Redfern, Director of Statistics at the Department of Education and Science, has transferred to become Deputy Director of OPCS.

DEPARTMENT OF EDUCATION AND SCIENCE

Mr. K. G. Forecast, Chief Statistician, Ministry of Transport, has been appointed Director of Statistics in Mr. Redfern's place.

MINISTRY OF DEFENCE

Mr. M. V. Wilde, Statistician, Central Statistical Office, has been promoted to Chief Statistician to fill the vacancy caused by the retirement of Mr. G. A. Deane.

MINISTRY OF TECHNOLOGY

Mr. I. J. Whitting, Chief Statistician, has resigned to take up an appointment with the Gas Council.

Alphabetical Index

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number e.g. 5.31 signifies issue number 5, 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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Studies in Official Statistics

This collection forms a useful set of reference papers on a variety of statistical sources and methods. The list below gives a selection of the titles still in print and available from Her Majesty's Stationery Office.

No. 6 Method of Construction and Calculation of the Index of Retail Prices (February 1967) . Price 4s. (4s. 4d.)

No. 11 List of Principal Statistical Series Available (1965: Reprinted 1969) Price 6s. (6s. 8d.)

No. 13 National Accounts Statistics: Sources and Methods (September 1968) Price £2 5s. (£2 9s. 6d.)

No. 14 Agricultural and Food Statistics: A Guide to Official Sources (July 1969) Price 12s. 6d. (13s. 2d.)

No. 15 New Contributions to Economic Statistics (Fifth Series) (Reprinted from *Economic Trends*, May 1967 – August 1969) (January 1970) Price 15s. (16s.)

No. 16 Input-Output Tables for the United Kingdom 1963 (March 1970) Price £2 15s. (£2 16s.)

No. 17 The Index of Industrial Production and other Output Measures (later this year)

A separate **Research Series** was introduced in 1968. The titles published so far are:

No. 1 Duration of unemployment on the register of wholly unemployed (R. F. Fowler) (September 1968) Price 6s. (6s. 6d.)

No. 2 The numbers of coins in circulation in the United Kingdom (R. G. de Glanville) (January 1970) Price 4s. (4s 4d.)

No. 3 Some problems of index number construction (R. F. Fowler) (March 1970) Price 10s. (10s. 6d.)

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