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STATISTICAL NEWS

Developments in British Official Statistics

Foreword

by the Prime Minister,
The Rt. Hon. Harold Wilson, OBE, MP

One of the features of modern decision making is its reliance on statistics. This is true of the business world, of central and local government, and indeed of all parts of society. As one consequence, the scale and complexity of government statistical systems has grown out of all recognition, and it is now quite hard to keep up with all the new developments that take place. *Statistical News* is intended to help in this. Our government statisticians are most anxious to ensure that the statistics they produce are as useful as possible, not only to government, but to the business community, to trade unions, to social scientists, and indeed to the public at large. To this end, *Statistical News* will provide regular information on what is going on in government statistics, and will thus be a key link between the producers and consumers of statistics. I believe that it fills an important gap, and that it will be widely welcomed.

Harold Wilson.

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Developments in British official statistics

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Note by the Editor

This is the first issue of *Statistical News* whose aim is to provide a comprehensive account of current developments in British official statistics and to help all those who use, or who would like to use, official statistics.

It will appear quarterly and every issue will contain two or more articles, each dealing with a subject in depth. Shorter notes will give news of the latest developments in many fields, including international statistics. Appointments and other changes in the Government Statistical Service will also be given.

A full, cumulative index will provide a permanent and comprehensive guide to developments in all areas of official statistics.

It is hoped that *Statistical News* will be of use and interest not only to professional statisticians but to everybody who uses statistics.

The members of the Advisory Committee on *Statistical News* are

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The future role of the Central Statistical Office

C. A. Moser *Director, Central Statistical Office*

The adequacy of British official statistics has been much debated in recent years, most notably in the context of the Estimates Committee Report on the Government Statistical Services (*Fourth Report from the Estimates Committee, Session 1966–67*, December 1966). There has been praise for the advances of recent years—and these have certainly been substantial—but also considerable criticism of deficiencies. Some fields of statistics remain under-developed; some figures are too slow, inaccurate, or insufficiently detailed to be useful; there are complaints—not always justified—of duplication and inconsistency between enquiries; access to data is sometimes annoyingly difficult; and so on. The Estimates Committee Report pin-pointed a number of defects, and its recommendations ranged from a much stronger central co-ordinating role for the Central Statistical Office to a series of proposals concerning the dissemination of statistics. Although government statisticians may well feel that one of the main reasons for present shortcomings is lack of staff and the speed with which Government statistics have been expanded, this does not make the constructive recommendations of, amongst others, the Estimates Committee any less useful. And there are in fact many plans for improving official statistics, which we want to pursue in collaboration with industry and our other partners in the development of the statistical service. In this article I shall concentrate on those centering on the Central Statistical Office itself.

A new era

The improvement of government statistics is a continuing process. But in a real sense official statisticians—all over the world, not just in Britain—have entered a new era, and this is the background for many of the developments we have in mind.

The first reason why one can speak of a new era is that the sheer need and demand for statistics by government, industry, and indeed everyone else, has increased remarkably during the last few years. The greater emphasis on detailed planning, on a quantitative basis for decision making, on cost-benefit techniques and programmed budgeting—all this has enlarged the appetite for statistics, and especially for detailed and speedy statistics. There is also a much greater call for linking statistical series to one another, rather than treating them singly. At the same time, the techniques for satisfying this new appetite have vastly improved. The phrase 'computer revolution' is used so freely that it has lost some of its force, but in the field of large-scale statistical work, it is apt enough. Computers offer ways not only of performing massive calculations, but of storing and linking data, and of providing rapid access to them, such that one can truly regard them as transforming the statistical scene. They also cause difficulties, and we have had our share of teething troubles. In the early days, computers seem to have complicated, and even slowed down, government statistics. But this price had to be paid in pioneering large-scale data processing and the lessons have been learned. Some new arrangements relating to computers will be mentioned below.

Government statisticians thus face a quite unprecedented demand for their wares, and also possess equally unprecedented technical tools for producing them. All this is fine. But it has problems as well as potentialities. Resources are limited (in terms of skilled manpower as much as in money and computers), and there is no question of meeting all the demands all the time with all the speed, accuracy and detail everyone wants. Therefore, as in every enterprise, we have to determine priorities, bearing in mind particularly the need for a consistent and coherent pattern of statistics for the economy as a whole. The British statistical system is one of many which is being forced by these needs, and by the sheer complexity of the work which has to be inter-related, to move to a greater degree of central management. This lies behind some of the changes I shall refer to.

In brief they are intended

(*a*) to produce a more integrated system of official statistics, and one which is more explicitly planned as a whole;

(*b*) to improve the usefulness of the statistics to government and to other interests, notably the business world (small firms as well as large), trade unions, the press, economists and other social scientists, etc;

(*c*) to strengthen our contributions to methodological advances in statistical work, and our relations with the academic and research world.

Towards a more centralised system

Some would say that the only satisfactory way of achieving an efficient, well planned and truly integrated statistical system is through complete centralisation (in the departmental, not the regional sense), where all statistics—although not necessarily all the data which are administrative by-products—are produced by a single office. This is the system in Canada, Australia, Holland, Sweden, Norway, Germany, and many other countries. Hardly any advanced country now has as decentralised a system as Britain.

The advantages of a centralised set-up are substantial. A single organisation facilitates the task of keeping up with the increasing demand for statistics, and of taking an unbiased view of priorities; of achieving co-ordination of data collection, preventing duplication and improving the phasing of enquiries; of setting and implementing uniform standards, classifications, and definitions; of handling the massive problems of computer services, data storage and data retrieval; of economising in skilled staff and other resources; and so forth. All in all, a centralised system probably offers the greatest possibility for achieving an integrated and fully efficient system for the production of statistics.

As against this, a decentralised system—in which individual Ministries have their own statistics departments—also has advantages, and one of these is crucial. It provides a greater opportunity for statisticians to participate in policy making than is generally achieved under centralised arrangements. Statisticians are now both sufficiently valued and highly placed in many of our Ministries to take an effective share in the formation of policies and decisions. Some statisticians may feel that this is something to be avoided rather than sought; that the role of the statistician is that of a purveyor of pure facts, who should remain in the background, untainted—and seen to be so—by contact with policy makers. I do not share this view. I do not believe that there are 'pure facts'. All data contain errors, estimates and assumptions, and the only purity is, and always must be, in the complete objectivity and integrity with which one handles them. But a close working relationship between statisticians and policy-makers is good for both. It should help towards better policies and decisions, and it should also—because of the better understanding of the uses of figures—lead to better statistical work. A further advantage from having strong statistical sections in individual Ministries is that they are better placed than those in a central office to make the greatest possible use of, and to modify, statistical series derived from the processes of administration. This is one of the major aspects of official statistics that needs development.

The link with senior policy-makers that our system offers is thus not something to be lightly thrown away and to my mind is the main reason for not moving to a fully centralised statistical system at this stage. It has been agreed, however, to move as far towards centralisation as is compatible with preserving the links which individual statistical departments have with their policy divisions, and with the public whom they serve. To this end, there is to be built up at and under the C.S.O. an organisation which should provide the essential benefits of central management and co-ordination.

Before describing briefly what this organisation will look like, it is necessary to stress that the C.S.O. will continue—and indeed will further develop—its present tasks. Above all, this means its responsibility for major categories of statistics required for economic policy and management. In some cases, the C.S.O. itself collates and analyses the data in their final form from material provided by departments—notably for the national accounts, financial statistics, input-output analysis, the index of industrial production, and balance of payments statistics; in others, the office's role is more that of co-ordination. In the field of statistics for social policy the C.S.O. will in future do more work of both kinds. We also have a substantial publication programme, a central role in matters to do with professional statisticians throughout the service, responsibilities concerning relations with international agencies, and so on. All this work will be maintained and strengthened.

But in addition, the C.S.O. will assume new responsibilities for the management and co-ordination of the whole statistical system. These consist of a number of separate developments.

New co-ordination and planning units

First, we are setting up at the C.S.O. four new units expressly concerned with technical aspects of co-ordination, integration and overall planning. They will work in close association with other government departments.

Computer and data systems unit

The importance of computers in the development of government statistics cannot be over-emphasised. The new unit will have the general responsibility (in conjunction with the Treasury) for planning computer developments for government statistics and will be fully consulted before any particular developments and installations are decided upon. The unit will concern itself with ways and means of extending the use of computers in the existing structure of collection, analysis and dissemination of statistics and will examine in detail the merits of different systems and make recommendations. In this way we hope to achieve greater integration and compatibility of computer systems used for statistical purposes. In its first year or two, the unit will concentrate on the computerisation of industrial, or more generally business, statistics. This work is referred to in Mr. Stafford's article in this issue. On the longer time-scale our computer experts will interest themselves in the radical developments in data storage and retrieval which are becoming technically possible. Data banks of various kinds, including time series data banks, will certainly engage their attention.

Statistical standards and classifications

Few things cause more irritation to the users of statistics, or to those who supply the basic information, than inconsistencies in definitions, concepts and classifications between one enquiry and another. Thanks to the enormous advances of recent times, such instances are much rarer than of old, but there remain problems. While complete uniformity is impossible, since different needs will always dictate some variations, regular oversight is necessary to keep these to a minimum.

The new unit will (in support of the inter-departmental committees that deal with such matters) devote itself to this end. Its main task will be the continued development of classification systems—e.g. of industries, occupations, regions, commodities—and the giving of help in their use within government and outside it. This should extend wherever possible to administrative as well as to strictly statistical enquiries.

Survey control

Statistical information about firms is collected by a number of Government departments, by the Economic Development Committees, by Industrial Training Boards, by the National Board for Prices and Incomes, and so forth. Some of this is part and parcel of administrative procedures, some is done in special statistical enquiries. A similar picture, involving different departments, holds for statistics about individuals and households. We already make a great deal of effort when new enquiries are launched, through committees and consultations, to avoid unnecessary duplication and to see that each enquiry is made to serve as many needs as possible in order to avoid multiplying them unnecessarily. But there is now so much data-gathering, and so many agencies are involved in it, that a more concentrated effort is needed, both to examine new enquiries and to keep older ones under review.

This is the job of this new unit. Departments will be asked to deposit copies of forms they use for statistical and administrative purposes, and to submit early on plans for new enquiries, or for major changes to existing ones. We will examine the material and try to eliminate unnecessary duplication between enquiries; ensure that definitions are as far as possible compatible with general practices and standards, and with other new enquiries in the pipe-line; and examine the phasing of enquiries, especially with the problems of the suppliers of information in mind.

This sort of unit now exists in most countries. Practices differ as to how far the unit has a 'veto' over enquiries, and how far it operates by way of advice and discussion. There are also differences in the authority of such units over administrative (as opposed to statistical) enquiries. We shall evolve our procedures gradually, and decide after an initial period how rigid and formal they need to be.

Programme development

The last amongst the new C.S.O. co-ordination units is the one with the most far-reaching responsibilities. The task of the Government Statistical Service is now so great and complex, and the resources so relatively limited, that a more integrated approach to the development of the Government's overall statistical programme, and the priorities within it, is needed. The C.S.O. will take responsibility for this. It will work out overall programmes and priorities, and will move towards a comprehensive phased programme of current statistical work up to five years or more ahead. The starting point

will be as detailed an account and assessment of current statistical work, and the resources involved in it, as can be assembled. All this will of course be done in close consultation with the Departments.

I do not pretend that this is an easy task, for the needs of the Government and other users are continually changing and there are obvious difficulties in judging between quite different kinds of activity. But, as quickly as possible, we aim to move to a more explicitly planned and costed system of statistical programmes, so that our resources are used efficiently and to the greatest benefit of the 'consumers' of statistics. This last point is crucial. Like statistical offices in other countries, we are struggling with the problem of how best to assess 'user needs' for our data. All of us are anxious to produce the types of statistics in the kind of detail, accuracy, frequency etc., which best serve users—both inside and outside government. It will be one of the tasks of this particular unit, by all means at its disposal, to study, and keep under review, the changing needs of users. Within Government, we have channels for this, though they may not always be adequate. But outside Government, given their co-operation, we could do much more in trying to assess and satisfy the needs of the users of official statistics. Some of our plans will be the subject of a future article in *Statistical News*, but in the meantime we shall pursue any constructive proposals designed to improve the links between the producers and the consumers of official statistics. Again we have in mind particularly the needs of business firms, large, medium and small.

The Unit will also have other responsibilities, of which I would at this stage mention only one. We intend to make a more concentrated attack on the problem of the 'timeliness' of statistics, in short their speed of availability and publication in relation to the needs for them. This will take three parts: (*a*) a study of the precise user-needs, both within Government and outside, for the particular series under examination, to see how far quicker results would be welcomed even at the expense of precision and detail; (*b*) an analysis of each step in the production process of the statistics, aimed to see where delays can be eliminated; this will include studies of the factors causing delay in the completion of returns by firms and of ways in which they could be helped to overcome them; and (*c*) a study of statistical methods of forecasting final from early results. This work will begin with some of the most important economic series for which the C.S.O. itself is responsible; since these are largely based on data collected by other Departments the investigation will quickly extend to other parts of the Service.

Collection, storage and access

I turn next to plans designed to produce greater integration of the collection, storage and access stages.

A Business Statistics Office

It has been agreed that the present Board of Trade Census Office is to be evolved and enlarged into a Business Statistics Office, to be responsible for the collection of all the main data on industrial statistics, for the maintenance of a common register of establishments and firms and for developing a data bank or system of data banks, to store statistics and provide access to them. I say 'main' because there will occasionally be enquiries which can best be done straight from departments, especially if they are part of administrative routines. But, by and large, the intention is that the data collection from business establishments will be unified in this single office. Since Mr. Stafford's article describes its most important new developments in some detail, I will not enlarge on the topic here. But I do want to refer to the new form of management of this office, since this is part of the concept of more centralised management which I mentioned before. The day-to-day organisation of the Business Statistics Office will be the responsibility of the Board of Trade—and the staff will include a strong technical section concerned with methods and design, as well as subject-matter experts who will form the essential links with the policy departments. The C.S.O. will exercise control over the Office through an interdepartmental Management Committee under the chairmanship of the Director of the C.S.O., and this control will in particular relate to the policy of the office, priorities within its work, and the forms it uses, etc.

Surveys of households and individuals

We are also examining the possibility of similar developments in the collection of data from households and individuals. For example a study has begun of the costs

and uses of continuous household surveys on the model of the Current Population and Labour Force Surveys which occupy a central place in the statistical systems of the U.S.A., Canada, Sweden, Norway, Holland, etc. Such surveys could be an invaluable source of data for social policy purposes. We are also looking at organisational aspects of social statistics, including arrangements for censuses and surveys, and any developments that emerge will feature in future issues of *Statistical News*.

Research

I turn next to the subject of research. Government statisticians are in one sense in a particularly fortunate position to do applied research in statistics, since their work gives them a command over wide ranges of data. In another sense they are less fortunate, in that the calls on their services and resources are so great that little time is left for work on research. All of them would like to do more, and I intend in all possible ways to encourage this.

As one step, we are setting up at the C.S.O. a Division for Research and Special Studies. Its main task will be twofold. First, it will work on research topics flowing from the central group of economic statistics (and, in the future, social statistics) for which the C.S.O. is directly responsible. Second, it will work on basic technical topics which affect the work of many Departments, and on which a separate research group can contribute effectively. Among its early research projects are likely to be work on the measurement of economic growth and of the factors underlying it; seasonal adjustment procedures; forecasting techniques; problems of accuracy and internal consistency of index numbers of prices and output; and demand analysis. The Division will always work in the closest association possible with departmental statisticians. It will act as a clearing house for information on research, advances in statistical techniques, computational methods, etc. It will keep in close contact with universities, research workers and the Social Science Research Council; will aim to issue papers on technical matters; and organise refresher courses and seminars.

The Division will draw on the services of consultants wherever desirable, and it is particularly gratifying to the C.S.O. that Professor J. Durbin of the London School of Economics has joined us as a consultant on a regular part-time basis. Occasionally, it may also be desirable to farm out research projects to experts in the universities. In these various ways, I hope that the Division will contribute to the improvement of methods in the work of the C.S.O. and of government statistics as a whole. And it should serve to bring academic and official statistics closer together, which in itself is most desirable.

Dissemination of statistics

I have left to the end what is perhaps the most important area of all, the dissemination of official statistics. Government statistics are intended to be used and useful, and there is no doubt much that can be done to improve the dissemination of what we produce. The Estimates Committee laid great stress on this in its report, and I want to mention some plans we have at the C.S.O.; these do not of course cover the many developments under way in other departments.

First, there are developments in our publications programme as such. Perhaps I should start with *Statistical News* which—as the Prime Minister stresses in his Foreword—could be very important in developing links between the producers and consumers of statistics, and in providing a guide to our activities. Among other publication developments, I will mention only a few:

(*a*) We aim to review systematically all the C.S.O. publications from the point of view of their relative roles, content, layout, and so forth. The *Monthly Digest* and *Annual Abstract* will get early attention.

(*b*) We are considering various types and levels of guides to official statistics. A new edition of one of our most important guides—*National Accounts Statistics: Sources and Methods*—will be published later this year.

(*c*) We intend to issue a series of reprints of statistical papers produced by the C.S.O. and possibly other departments.

(*d*) We have begun work towards an *Annual Social Report*, which will attempt a statistical analysis of changes in the main social policy fields. We also plan to publish a regular report on *Highly Qualified Manpower*. Another publication under discussion is *Social Trends*, in parallel with *Economic Trends*.

These are all concerned with standard types of publication. Beyond them, I hope that we shall consider more radical developments to serve users outside government: more 'tailor made' publications to provide users with the statistics they are particularly interested in, and regular bulletins of new figures as they become available, ahead of the slower full publications. All these kinds of publications play an important part in foreign statistical services, and users appear only too ready to pay for them.

We could also, I believe, do more by way of special pamphlets, lectures, discussion groups, local visits and so forth, to help in the dissemination of official statistics. Regional statistical centres in the main business communities might be a way of advancing this process; they are proving useful in other countries.

Another aspect of the use of government statistics is the ease of access to what is available. We have begun in the statistical service a comprehensive review of all aspects of the confidentiality of official statistics, in order to see what relaxation in present constraints might be made without harming the interests of those who supply the information. We shall report on this in *Statistical News* at a later date.

Concluding remarks

This article has been concerned with developments at the C.S.O., all of them aimed to help government statistical work as a whole. There is a good tradition that government statisticians throughout the departments—all of whom belong to a single professional class—try to work as much as possible as a team, and the developments I have discussed are intended to follow, and indeed to strengthen, this tradition. The work facing government statisticians is enormous and exciting, and it is being done by what someone has described as 'quite a small band' of statisticians. It is only realistic to accept that we cannot make all the improvements we have in mind at the same time, and we will need to use our resources for the most urgent. But we hope that the new activities which are occupying the various statistical departments will attract more recruits than in the past, and we hope also to make more use of people on short-term appointments to the Statistical Service. In conclusion, I should like to stress again that we want to take every opportunity to strengthen our links with the users of official statistics, with those who supply us with data, with social scientists, and generally with statisticians in other fields.

The development of industrial statistics

J. Stafford *Director of Statistics, Board of Trade*

The Government has been looking closely into what can be done to improve industrial statistics both to meet its own needs and those of industry. Through discussions which Government statisticians have been having with individual trades, it has become clear that industry is looking to the Government to provide more up-to-date statistics in greater commodity detail and in forms better designed to permit the analyses which industrial economists are increasingly wishful to make. Allied to these needs is the importance attached to timeliness and the evident desirability of working to uniform concepts and definitions. The Report from the Estimates Committee on the Government Statistical Services underlines the desirability of developing official statistics in these directions (*Fourth Report from the Estimates Committee, Session 1966–67*, December 1966).

The Government's own requirements are basically the same, with growing need to be informed about the developing structure of industry, the pattern of its activities and markets and its changing location. These needs are being reflected in the increasing use of input/output analyses to trace the interdependence of different industries. Again, the progress which has been made in quantitative economic analysis has emphasised how important it is for statisticians to improve the quality of the primary data and to work towards an integrated system within which different statistical series can be appropriately inter-related.

A new approach to industrial statistics

These various considerations have led the Government to conclude that a number of innovations should be introduced which together would fundamentally change the present system of industrial statistics.

The common register

In the Statistical Service we believe that the first essential step to the better system which is planned is the creation of a common register of business establishments, and other reporting and accounting units such as companies, business units, and enterprises, which can be used for all industrial statistics and which, when established, will enable the results of different inquiries to be related and to form an integrated system of information. The Estimates Committee expressed great interest in the compilation and use of a register of this kind.

Basically the register will consist of a list—carried on magnetic tape and in other forms—of the names and addresses of business establishments, coded, *inter alia*, by size, location, industry and by company of ownership. In a number of important cases there will need to be agreement with the operating companies about the geographical and operational boundaries of the establishments which are taken on to the register. Because of the need for employment statistics for small geographical areas, it will be necessary to identify and code in the register industrial units which form part of an establishment, e.g. a separately located motor transport department of an industrial establishment. Similarly the register will contains lists of companies, groups of companies or establishments forming a business or management unit, and enterprises which will be coded in such a way that smaller and larger units can be related to one another.

The register in one or other of its forms will be used to identify and define the reporting units for the various statistical inquiries into industry which are conducted by Government Departments. The nature of the inquiry and the manner in which business records are kept will together determine the choice of one or other of the register's kinds of units for use as the basis of reporting. For example, quarterly figures of capital expenditure on fixed investment have been customarily collected for the management or business unit; while production statistics are regarded in this country as best collected for establishments. It will be clear that the boundaries of an industry will depend upon the reporting unit which is chosen to define them. Employment, for example, in establishments classified to the tobacco industry, will not be the same as employment in enterprises so classified.

Three advantages flow from the common use of a register of this kind. The information from different inquiries can be properly related and brought together for defined sectors of the economy. Its use can prevent duplication in the collection of information which is sometimes unavoidable when inquiries are not directed to commonly agreed and defined industrial fields. The register, or more accurately registers, for they will change over time, can provide a frame for storing information, i.e. for the creation of a data bank.

The Board of Trade and Ministry of Labour are already engaged in the creation of the common register

of establishments within manufacturing industry. As there are some 100,000 establishments in trades which comprise the manufacturing sector, the building of this part of the register in a form suitable for general use is a very considerable undertaking, and, as has been the experience in other countries, will take some time to complete. The purpose of the register will only be served if the industrial coverage of the register entries is understood and agreed by the compilers so that the different needs of Government and industry are met and the contents of the statistics are appreciated. The concept of the establishment is easily applied to a unit such as a small factory, in contrast to the problems presented by its application to a large industrial complex. The coverage of the entries must also be understood and accepted by the operating business as identifying units about which information can be provided on a consistent basis. To achieve these desiderata will inevitably require discussions both between the compiling Departments and with individual companies about the place of individual establishments within the businesses, how accounts are kept and how statistics can best be provided to the mutual benefit of industry and Government.

At a later stage, this part of the register will be completed by the addition of entries for other reporting units such as enterprises and companies engaged within manufacturing industry. It is envisaged that subsequently, as the need and the opportunity arise, the register will be extended to other industries and trades. Outside the manufacturing field the operating units are typically much smaller, the number of businesses much larger, their identification much more difficult and their births and deaths much more common occurrences. All these considerations underline the magnitude of the task of creating and maintaining anything approaching a comprehensive common register and the length of time that would be involved.

A new system of industrial statistics

The creation of the common register will make possible a fundamental change in the way in which industrial statistics are compiled. In the first place it will make unnecessary the large scale censuses of production which have been taken fairly regularly since 1907 in this country, and which still occupy a central position in the statistical programmes of most countries. What is now intended is a comprehensive system of current reporting of statistics over the field of industry covered by the census of production. For production statistics, a pattern of quarterly reporting is envisaged, which would put on to a more uniform basis the present rather various short-period inquiries undertaken by the different production Departments. Aggregated for the year and combined with other information as explained below, the statistics would be comparable to an annual census of production and, given the goodwill of industry, should be capable of being put together expeditiously.

The quarterly reporting of production would be on forms settled after close consultation with the many industries involved. It is the essence of the new proposals to invite industry into partnership in the creation of this new system. The immediate objective would be to secure regular reports on the output or deliveries of individual products and of the activity of individual industries. Existing inquiries about production, orders, and deliveries would be re-modelled to fit into the new system. To this information it would be possible to relate statistics of employment which will also be based on the common register. In the re-examination of the commodity headings under which production and delivery statistics will be collected, particular attention will be paid to achieving better correspondence with the headings used for overseas trade statistics, which are the subject of international agreement.

Although the basic pattern would be quarterly, there would of necessity be some variation. A number of industries have had the benefit of a monthly reporting system and would not want to see it abandoned. Moreover, the Government would wish to retain some monthly indicators and a way to make this possible will need to be worked out under these new arrangements with the industries concerned. The need will continue for up-to-date reporting on stock changes and expenditure on fixed investment, actual and expected, and it is envisaged that inquiries on this subject will continue on the present basis, integrated into the new system through the common register.

A feature of the proposed quarterly system would be that each reporting unit would return all of its output on one form—as it does for the quinquennial censuses. The form for each industry would be designed to cover

both the output of products characteristic of the industry and of any other output. This would enable the compilation of totals of output of individual products and of the total activity of each industry. At present many short-period inquiry forms relate just to the products characteristic of an industry with the result that many reporting units complete more than one return in respect of different parts of their output. Comprehensive reporting on the lines proposed should also largely overcome the present very difficult problems of maintaining up-to-date registers of firms producing the products covered by each inquiry. It would also allow the industrial classification of establishments to be based on up-to-date information about production. It would be impossible to maintain an acceptable common register without this secure basis of classification.

Annual and periodic information

It is intended also to institute a simple common form of inquiry each year for the units covered by the quarterly production inquiries on matters of interest to and significance for individual industries. This would be designed to provide a measure of net output or value added—the contribution made to the national product—and would produce aggregated figures of sales, purchases and stocks. This would provide the economic information to which industry, like the Government, attaches increasing importance. In addition, figures would be sought of expenditure on fixed investment in the establishment, so allowing the compilation of investment series for individual industries and for geographical areas of interest.

Information would be obtained on a variety of additional subjects at varying intervals, e.g. on the constituent materials, components, stores and services which together make up the current inputs of industry; the channels of sales used by businesses in the marketing of products; the transport facilities used by industry for its purchases and sales; and research and development expenditure. These statistics, again, would be obtained for reporting units on the common register.

In effect, therefore, the kinds of information now collected through the census of production and associated inquiries, and for the short-period production statistics, would be obtained through a variety of inquiries—quarterly, annual and periodical—and be brought together to form a pattern of continuous quarterly and annual reporting on an integrated and consistent basis. The Government hope that the whole of the flow of information so created would be valuable to industry, not only through the preparation of regular reports, but also through the meeting of requests for particular pieces of information. With this system and the potentialities of computers, the Government intend to develop a commercially useful service, and in this task look forward to having the co-operation and the advice of industry.

The cost of the system

In designing this system, the Statistical Service has been concerned to ensure that the value of the statistics to industry would increase in a markedly greater degree than that part of the cost of providing industrial statistics which must fall on the business community. That there would be some increase in these costs seems inescapable. On the whole, this system would provide more detailed commodity statistics than do the present short-period production inquiries, and to obtain these on a uniform basis would necessitate some changes in record keeping and reporting practices for some businesses. Industries which have little or no systematic statistical information, other than through the census of production, would be catered for within the system. The simple annual form would be directed towards a greater number of businesses than the corresponding return used for the present annual sample censuses, and it would call for more information. However, much the greater part of the data to be obtained under the new system would be on a regular basis, and be of a straightforward character: where figures are called for periodically, adequate prior notice would be given. For these reasons, it is hoped, the statistics would not be difficult to provide once a system of record keeping had been designed. This situation is in marked contrast to that presented by the quinquennial census of production, when rather detailed statistics have to be provided, in many cases, on something approaching an *ad hoc* basis, with the extra work which that is recognized to involve. The Government recognize, too, that though the present system of census taking has been essential for its own purposes, it has not been well adapted to serve

the very different needs of industry. The new system would enable these large infrequent censuses of production to be dropped from the programme; this should make a considerable contribution to offset the extra costs which other developments would bring.

The Business Statistics Office

To improve the efficiency of the new system, integrate effectively the various streams of industrial statistics, secure comprehensive industrial coverage while at the same time reducing the possibility of duplication or overlap, facilitate the adoption of common standards and definitions and promote better reporting and better access to the data, it is proposed to charge a new office—the Business Statistics Office—with the responsibility for collecting these industrial statistics and making available the results, and for building and maintaining the common register. The new office will be developed out of the existing Board of Trade Census Office. It will be staffed and run by the Board of Trade, but it is intended that its policy will be directed by a small inter-departmental management committee under the chairmanship of the Director of the Central Statistical Office. The Business Statistics Office will provide a common service to industry and to the Government Statistical Service alike, and the collection and dissemination of industrial statistics will become much more centralised than hitherto. But this will not disturb in any way the maintenance of the close relations in the design and use of statistics which exist between production departments and the industries with which they are concerned.

Redesigning the Family Expenditure Survey

W. F. F. Kemsley *Government Social Survey*

The new sample design

The Family Expenditure Survey (FES) is now in its twelfth year; for the first ten years, that is from 1957 to 1966, the sample consisted of about 5,000 addresses a year, based on a fairly simple design. From January 1967 the sample has been doubled in size and completely redesigned by the Government Social Survey. It now embodies a number of improvements which past experience has shown are desirable, and which should eventually lead to the production of even more useful data than in the past.

The earlier sample design

A description of the earlier sample design can be found in the 1962 FES report and a more detailed account in the Allen Committee Report on the impact of rates on households. The old sample produced between 3,000 and 3,500 budgets from co-operating households in a year. The size of this number and certain limitations inherent in the old sample design rendered it impossible to obtain really satisfactory quarterly or regional analyses. With the old design a nationally representative sample could be achieved only by taking the data for the whole of a calendar year. Briefly, the sample contained 128 *primary sampling units* (psu's) selected from a stratified sampling frame containing all the administrative areas of Great Britain. For operational reasons these were divided into eight sets of 16, and a set of 16 was allocated to each of the eight half-quarters of a calendar year. Any analysis based on part only of a calendar year covered only part of the sampling frame and ran the risk that it was not fully representative of the whole country. Likewise, with the small number of psu's available, it was not possible to balance completely regional variations within a quarter, so that seasonal variations were liable to be confounded with regional differences.

When in 1966 the final decision was taken to double the sample the Government Social Survey took the opportunity of re-designing the sample to overcome these objections. A short description of the new design will be found in the forthcoming FES report for 1967 and a very detailed account will also be included in a technical handbook now being compiled by the Government Social Survey covering all aspects of FES work carried out by the Social Survey. The main features of the new design are summarised below.

Outline of new design

A three-stage stratified rotating design with a uniform overall sampling fraction is used in which the primary sampling units are the administrative areas of Great Britain. The sample is self-weighting; the *probability* of selection of a psu within a stratum is *proportional to size* (pps), the probability of selection of a secondary unit within a selected psu is also proportional to size,

while a constant number of final units is taken from each selected secondary unit. The selection of a psu within a stratum is made at random, and independently of all other selections; the sampling is therefore random with replacement. In a period of three months 168 psu's are used, selected so as to be representative of the whole of Great Britain. Each psu is used four times at intervals of three months, and is then replaced. From each selected psu 16 addresses are chosen from the electoral registers each time an area is used, making a total sample of 2,688 in a quarter, or 10,752 addresses in any period of 12 months.

The stratification factors

The sampling frame consists of London boroughs, county boroughs, municipal boroughs, urban districts and rural districts in England and Wales, and in Scotland the four cities, large and small burghs and districts of counties, totalling just under 1,800. The frame has been stratified by three factors:

(i) A regional factor forming 15 major strata, namely:
  (*a*) Eight standard regions of England, but treating the Greater London Council area as a separate stratum;
  (*b*) Wales, divided into two, namely south east and the remainder of Wales;
  (*c*) Scotland, divided into four strata, namely northern, east central, west central and southern. The whole of Scotland has been covered including Skye, but not the other islands.

(ii) A secondary stratification factor has been employed in which the above strata, except the Greater London Council area, have been divided into four area types, namely:
  (*a*) administrative areas in provincial conurbations;
  (*b*) all urban areas not in provincial conurbations;
  (*c*) semi-rural areas, defined as rural districts (not in provincial conurbations) with a population density of 0·25 or more persons per acre, together with rural districts contiguous with urban areas having a population of 25,000 or more in mid-1965;
  (*d*) rural areas, defined as all other rural districts (not in provincial conurbations), that is those with a population density below 0·25 persons per acre and not contiguous with urban areas having a population of 25,000 or more.

(iii) The third factor is an economic indicator:
  (*a*) London boroughs have been arranged within the Greater London Council stratum according to the proportion (by value) of domestic property with a rateable value over £200;
  (*b*) all other areas in England and Wales have been arranged according to the proportion (by value) of domestic property with a rateable value over £100;
  (*c*) urban areas in Scotland have been arranged according to the proportion of total rateable value accounted for by industrial property;
  (*d*) rural districts in Scotland, that is district councils in landward areas of a county, have been arranged according to the population density.

The selection of areas from this sampling frame is made with pps, the measure of size being the latest population estimates available at the time the frame was drawn up, namely the mid 1965 estimates. In order to facilitate selection the sampling frame has been divided into 168 strata of approximately equal size. This division has been made in such a way as to ensure the correct regional representation of the final sample and also, as far as possible, a correct distribution by area type. The choice of the number, 168, was governed by various considerations of which the following were the most important. The total quarterly sample had to be in the region of 2,500. Secondly, the number of final units selected from a single psu had to be such, and clustered in such a way, as to be convenient for a single interviewer, and such as to enable her to deal with the preliminary fieldwork in a month; this number was fixed for the FES at 16. Thirdly, the number of psu's had to be such as to permit of the particular rotating scheme adopted.

The rotating system

The rotating element in the design is applied to the psu's. Each area is used four times at intervals of three months, and then replaced with a new selection from the same stratum. In any one period of three months, a complete set of 168 areas is used; in the next three months three-fourths of these areas are used again,

but the remainder, namely 42, are new areas introduced from a new selection. In order to facilitate the operation of the rotating system the 168 strata have been divided into four strata groups, each of 42. Successive selections are made from them in turn. In the diagram below A_i represents the i^{th} selection of 42 psu's from the strata group A; B_{i+1} the $(i+1)^{th}$ selection of 42 psu's from the strata group B, and so on.

Successive calendar quarters	*Strata groups*			
j	A_i	B_i	C_i	D_i
j+1	A_{i+1}	B_i	C_i	D_i
j+2	A_{i+1}	B_{i+1}	C_i	D_i
j+3	A_{i+1}	B_{i+1}	C_{i+1}	D_i
+4	A_{i+1}	B_{i+1}	C_{i+1}	D_{i+1}
i+5	A_{i+1}	B_{i+1}	C_{i+1}	D_{i+1}

Each selection of a psu is made independently of all other selections in other strata, and of preceding selections in the same stratum. It will be seen that in any period of 12 months two sets of psu's (B_i and D_{i+1} in the periods j+1 to j+4) are used once, two sets (C_i and C_{i+1}) are each used twice, two sets (B_{i+1} and D_i) are used three times, and one set, namely A_{i+1}, four times; altogether seven different sets of psu's are in use over a twelve month period, making 294 in all.

The second and third stages of sampling

A second stage is introduced into the sampling so that fieldwork can be confined to an area which is of reasonable size for a single interviewer to handle, bearing in mind that in the FES she has to re-visit co-operating households while record keeping is in progress. For this purpose each selected psu is divided into secondary units. In urban areas the secondary units are wards, and in rural districts, groups of parishes. Four such units are then chosen at the secondary stage with pps from each psu, using a fixed interval from a random start, the measure of size being the electorate at the time of selection. The four selected secondary units are allocated at random to the four times that the administrative area appears in the sample. Usually the result of this procedure is to select four different wards, so that the fieldwork in any one period is confined to a ward, but a different ward each of the four times an area is used. Occasionally, however, the same secondary unit appears more than once in the selection either as a result of the pps method of sampling, or where an area contains fewer than four wards.

The third stage of sampling is the selection of addresses within the chosen wards or parishes. These are obtained by random selection from the registers maintained for parliamentary and local government electoral purposes. An interval sample of electors is first drawn, using a random start, and the addresses selected for the sample are those where the selected elector happens to be the first entry on the register for that address, thus giving an equal chance of selection to each address in the area. In each ward or group of parishes selected at the second stage, 16 addresses are drawn by this procedure, thus making the total sample of 2,688 in a quarter.

The procedure described produces a sample of addresses some of which contain more than one private household, while some contain no household at all. At each address the interviewer is instructed to visit all households living there up to a maximum of three. At addresses with four or more households, three are chosen at random. To avoid exceeding the quota of households in an area interviewers delete other addresses from their lists in order to compensate for the additional households at any multi-household address.

Spacing of fieldwork over time

Considerable care is taken to ensure that fieldwork is spread evenly over time in order to avoid introducing bias into the results from seasonal variations in expenditure. To this end the 168 psu's employed in a quarter are divided into three sets of 56; each of these can be further sub-divided into four sets of 14 psu's corresponding to the four strata groups employed in the rotation system. The three sets of 56 are allocated to the three months in a calendar quarter, thus resulting in a constant sample of 896 addresses each month.

Furthermore, the preliminary interviews at the 16 addresses in an area, that is the visits to deal with the interview questionnaires and obtain cooperation, are spread over the whole calendar month to which the psu is allocated. These preliminary visits are arranged so that as far as possible there is an even flow of budgets throughout the month; thus, there is a constant flow of

budgets throughout the year, disturbed only by slight variations in response rate.

Summary

The new sample design introduced in January 1967 will greatly enhance the value of the FES. The increase in size from about 5,000 addresses to nearly 11,000, with a corresponding increase in budgets from cooperating households will lead to a direct reduction in sampling errors. Over and above this, the new design will enable quarterly and regional analyses to be made with the knowledge that they are now based on a statistically valid model. Further, the rotating system, which was introduced for certain technical reasons, will facilitate re-visiting some of the cooperating households should this prove desirable.

References

Family Expenditure Survey: Report for 1962, Ministry of Labour, 1963 (HMSO). (Price 15s. net.)

Committee of inquiry into the impact of rates on households (AIlen Committee Report), Cmnd. 2582 (HMSO), 1965 (Appendix 2, p. 147). (Price 30s. 6d. net.)

Family Expenditure Survey: Report for 1967, Ministry of Labour (in preparation).

Family Expenditure Survey—The Sample, Fieldwork and Coding Procedures, Government Social Survey (in preparation).

Notes on current developments

POPULATION AND VITAL STATISTICS

1966 Sample Census of Population

The *County Reports* for England and Wales were published between April 1967 and January 1968 and are now complete. They give statistics of population by age, sex, marital condition, birthplace and socio-economic groups, and of housing and households by rooms, size of household, tenure, household amenities, car usage and garaging. Separate tables are given for each local authority area with more than about 15,000 population. The *County Reports* for Scotland were published between May and September 1967.

The report on the Special Study Areas in Scotland, where full enumeration was carried out, will be published shortly. This report contains 100 per cent data classified as in the *County Reports* for these areas: Counties of Roxburgh, Sutherland, and Zetland; Fort William, Livingstone and surrounding areas; the islands of Lewis and Harris.

Ward library sheets containing brief tabulations of Sample Census results (full census in the special study areas) for local authority areas, their subdivisions and enumeration districts in Scotland are available from Census Office, Station Road, Corstorphine, Edinburgh 12.

Full tabulations of Sample Census results, at the level of detail given for counties in the *County Reports*, are available for smaller local authority areas in Scotland from the census office.

The *National Summary Tables*, published in December 1967, give a summary of the information in the *County Reports* for England and Wales, Scotland, standard regions and conurbations.

The first volume of *Economic Activity Tables* was published recently giving tables of occupation, industry and employment status at Great Britain, England and Wales, Scotland and regional level.

Planning the 1971 Census of Population

Meetings have been held of eight advisory panels, in order to obtain the views of census users outside government on the content of the 1971 census and the tabulations to be produced; representatives of government departments also attended. Each of the panels represented a specific field of interest and study. In addition, three general meetings have been held on income, migration and social class, as these were of interest to more than one panel.

A trial of 100-metre grid referencing of addresses by enumerators was carried out in September 1967.

A preliminary test was carried out in April 1968, primarily to try out the field organisation and procedures proposed for the 1971 census. Further limited tests may be conducted before the final field pre-test in April 1969.

Population

The *Registrar General's Statistical Review for England and Wales for 1965, Part III* was published in April 1968. This year's Commentary volume concentrates on topical matters arising from G.R.O. statistical work, all regular tabulations having been transferred to Parts I and II.

These discussions include a generation study of illegitimate children. The detailed account of how local population estimates are compiled, which appeared in the 1964 Commentary, is now followed by a similar account of the annual national population estimates (total, civilian and home). The appendices contain an Index to past *Commentary Volumes* 1950 to 1964 with volume/page number references.

Part II of the *1966 Review*, which appeared in March 1968, has some additional analyses of fertility for remarried women and a tabulation of legitimate live births by ages of both parents for the period 1962–66.

The Registrar General's Quarterly Return for England and Wales, No. 476, published in April, includes estimated mid-1967 populations, by sex and age, in standard regions, conurbations and hospital regions of England and Wales; estimated mid-1967 populations of children in counties and boroughs of England and Wales; an analysis of the regional population change 1966/67; and regional populations projected to 1981. It also includes the first of a continuing series of analyses of home population change for England and Wales by natural increase, deployment of non-civilians and other net migration. No. 475, published in January includes analyses of the numbers of congenital malformations detected at birth which were notified during 1966 in England and Wales.

The *112th Annual Report of the Registrar General for Scotland*, showing population figures up to 1966 and projections to 1986, was published in January 1968. The figures for 1967 were published in March 1968 in *Annual Estimates of the Population of Scotland, 1967*.

Population projections

Figures of estimated future total population of the United Kingdom are published annually in the April issue of the *Monthly Digest of Statistics* as well as later in the *Annual Abstract of Statistics*. The projections are prepared by the Government Actuary's Department in consultation with the Registrars General, using the latest mid-year estimates.

Figures are given for the five years succeeding the latest estimates and for 1975, 1980, 1990 and 2000. Males and females are shown separately in five-year age groups. A description is also given of the assumptions on mortality, births and migration on which the projections are made.

Migration

The *Registrar General's Quarterly Return for England and Wales*, No. 475, published in January 1968, contains detailed tabulations of migration into and out of England and Wales during the period July 1966 to June 1967, derived from the International Passenger Survey.

The *Quarterly Return of the Registrar General for Scotland 3rd quarter 1967*, published in February, includes the first separately published Scottish figures from the International Passenger Survey. They classify migrants between Scotland and countries outside the British Isles by country, age, sex, marital status, occupation and citizenship. The figures are liable to sampling error, but provide some information on migrants which is not otherwise available.

Mortality

The *Registrar General's Statistical Review for England and Wales for 1966, Part I, Tables, Medical*, published in January 1968, contains the final figures and detailed analyses of death (by sex, age, cause, area, etc.) in England and Wales, together with analyses of causes of stillbirth and notifications of infectious diseases.

The *Registrar General's Decennial Supplement, England and Wales 1961, Area Mortality*, published in January 1968, analyses mortality by area, based on deaths in the period 1959–63, and gives specific age/sex ratios using the 1961 census population figures. It is the most recent in a series of decennial area mortality analyses which cover periods from 1851–60 onwards. Comment on the figures will be provided in a separate volume of the supplement on area mortality.

The December 1967 issue of the *Journal of the Institute of Actuaries* contained a short article on the recent trend of mortality in Great Britain by Mr. L. V. Martin (Government Actuary's Department). It is one of a series of commentaries which have been published each year since the 1940's. Death rates are provided by age and sex, and the course of their development since 1930 shown in a series of tables and charts.

Medical nomenclature

From 1st January 1968, the 8th Revision of the *International Classification of Diseases* was adopted for mortality and morbidity coding in the General Register

Office and for the latter type of coding in hospitals. Volume I (Tabular list of inclusions, Regulations, etc.) was published in December 1967. As an interim measure the General Register Office compiled by computer a provisional short alphabetic index for use in the United Kingdom. This was published as Volume II in April 1968.

Studies on Medical and Population Subjects, No. 22: *A Glossary of Mental Disorders* is the latest volume in the series of special studies published by the General Register Office. This work was prepared by a sub-committee of the Registrar General's Advisory Committee on Medical Nomenclature and Statistics and has been designed to assist users of Section V (Mental Disorders) of the new *International Classification of Diseases*.

SOCIAL CONDITIONS

Nutrition surveys of young children and expectant mothers

Extensive surveys of the nutrition of children under school age and of expectant mothers are being carried out by the Ministry of Health, the Scottish Home and Health Department and the Welsh Board of Health. Interviewing started in October 1967 and is being spread over twelve months. A random sample of children and of expectant mothers has been selected in 39 areas in England, Wales and Scotland. Information about the kind of food they eat, how much, and the nutrient values of this food is important to those responsible for advising on the nutrition of these sections of the population.

Comprehensive surveys of this kind have not been made since the period 1948–51, when food rationing was still in force. Certain information can be got from the National Food Survey, made annually by the Ministry of Agriculture, Fisheries and Food, but this records purchases of food by households and does not show how much is eaten by individual persons.

In 1963 a pilot survey of some 430 children aged between 9 months and 5 years was undertaken primarily in order to gain experience in the best methods to use in nutrition surveys. The dietary surveys now being made will be of a national cross section of (*a*) children aged between six months and four and a half years and (*b*) expectant mothers in the sixth to seventh month of their pregnancy. A record of everything eaten and drunk during one week will be obtained, and will be supplemented by social and economic information, particulars of heights and weights, and, in some instances, details of the medical and dental condition. The dental examination of children between 18 months and 4½ years is to be made by the local health authority and the medical reports on the expectant mothers will be provided by their family doctors.

On behalf of the Health Departments, the Government Social Survey have commissioned the British Market Research Bureau to carry out the fieldwork. Scales are being lent to mothers who agree to participate in the survey so that they can weigh the food and drink served and left over. The diet records provided by the mothers will be analysed by the Ministry of Health in terms of the main categories of food, and the total intake by the individual of the various nutrients will be calculated. The other information obtained will also be analysed and related to the dietary facts.

The information will be used solely for statistical purposes and the participants' names and addresses will not be published or disclosed.

Operational research on health problems

The Ministry of Health is making a grant of £90,000 spread over a period of five years to enable the Institute for Operational Research to amplify its work for hospital authorities. The Institute is at present undertaking studies commissioned by the Birmingham, Wessex, and Manchester Regional Hospital Boards, by the Governors of the teaching hospital in Birmingham, and by the Ministry itself.

The Institute for Operational Research, whose Director is Mr. Neil Jessop, was founded in 1963 and is the most recent of the five research units which form the Tavistock Institute of Human Relations. The purpose of the new institute is to undertake social research by applying the disciplines of operational research and the social sciences. It tackles planning and decision problems arising in the management of industrial organisations and public and social services. It also provides advisory and training services related to its field of research.

As an example of the institute's work, a team led by Mr. Michael Luck and Mr. Brian Smith is working with hospital staff on operational policies for the new hospital at Walsgrave in Coventry. The aim is to ensure that when the hospital opens, in a year's time, it will be of maximum benefit to the local community. The research draws on detailed study of existing practices in local hospitals to create ' mathematical models '. These are used, for example, to forecast the needs of patients for diagnostic and treatment services. The models will provide a means of co-ordination in the complex task of deploying beds, nurses, operating theatres, laboratories, and all the other resources of the hospital to the best effect.

The Ministry grant will help to finance a programme for extending research of this nature and disseminating its results so that they can be more widely applied. The programme will also cover applications of operational research to other hospital and health service problems. It will be under the direction of Mr. John Stringer, Deputy Director of the Institute, assisted by an Advisory Panel to be set up jointly by the Ministry and the Institute.

Doctor migration to and from Great Britain 1962–65

An attempt has been made by the Ministry of Health to assess the annual net flow of doctors entering or leaving Great Britain in recent years. The best available source of this information is an index jointly maintained by the Ministry and the British Medical Association which contains one record card for each provisionally or fully registered civilian doctor known to be in Great Britain. This index is regularly updated and information is produced annually on entrants to and exits from it.

In the three years ended September 1965 there was a total net loss from Great Britain of some 1,100 fully or provisionally registered doctors born in the United Kingdom or Irish Republic. This was the result of an outflow of approximately 2,700 doctors and an inflow of approximately 1,600 doctors. Precise estimates cannot be made for each of the three years separately because of doubts in some cases about the exact dates of entry or exit, but the evidence suggests there might well have been an increase in net emigration in the year ended September 1965 compared with the annual increase in the previous two years.

The net loss of doctors born in the United Kingdom or the Irish Republic was approximately balanced by a net gain of fully or provisionally registered doctors born overseas. The total net gain of doctors born overseas makes an allowance for doctors born overseas who choose to work in Great Britain after graduating from British Medical Schools and for those who otherwise obtain registrable qualifications after arrival in Great Britain.

An article in the *British Medical Journal* by R. Ash (Ministry of Labour, formerly Ministry of Health) and H. D. Mitchell (Ministry of Health), describes the methods used to compile the estimates and gives details about the ages of doctors on emigration and immigration, and the countries from which they came and to which they went.

Reference

R. Ash and H. D. Mitchell, 'Doctor Migration 1962–64' (with an addendum for 1964–65 from the Ministry of Health), *British Medical Journal*, 1968, No. 1, pp. 569–72.

International comparison of social security costs

The International Labour Office has published the sixth in its series of reports on *The Cost of Social Security*, covering on this occasion the years 1961, 1962 and 1963. Part I (Basic Tables) presents factual information on the financial operations of the social security schemes in 61 countries. Part II (Comparative Tables) aims to provide international comparisons by showing the trends in social security costs for the various countries, by comparing the distribution of sources of revenue and types of scheme, and by comparing the distribution of benefits by type of contingency (sickness, maternity, employment injuries, pensions, unemployment, family allowances, public health services). Total receipts and expenditure are also given per head of population, as percentages of gross national product and as percentages of total private and government consumption.

Reference

The Cost of Social Security: Sixth International Inquiry 1961–63, International Labour Office, 1967 (Price 35s., post free).

Housing statistics in Great Britain

In the supplementary tables of *Housing Statistics, Great Britain*, No. 8 (March 1968) information is published for the first time on the private enterprise housing enquiry,

on the regulation of rents under the Rent Act 1965, and on the local authority housing revenue account for England and Wales. The regular tables include for the first time continuous series of quarterly figures taken from the Building Societies Survey, which started in November 1965.

The private enterprise housing enquiry is made three times a year by the Ministry of Housing and Local Government in conjunction with the Ministry of Public Building and Works to obtain data about current and future levels of private sector house building. The data are based on replies to questionnaires sent to some 14,000 builders and property developers who undertake speculative building. A comparison between the forecasts and the out-turn is given.

The analysis of rent assessment cases under the Rent Act 1965 shows the number of applications made to Rent Officers for the registration of a fair rent, the number of cases referred to the Rent Assessment Committees, and the number of determinations by each. Registered rents are analysed by the amount of increase or decrease, and by the gross value, type and age of the dwelling. The figures show that the rents of poorer property have, on balance, gone down and that rents of better premises have, on balance, gone up. Further figures will be published quarterly.

The consolidated housing revenue account for local authorities in England and Wales shows the growth of the main items of income and expenditure. It covers each of the years 1957/58 to 1966/67 partly from published sources and partly from returns made to the Ministry.

The Building Societies Survey, based on a 5 per cent sample of monthly mortgage completions, is carried out by the Ministry of Housing and Local Government with the co-operation of the Building Societies Association. The tables show mortgages granted by age of dwelling, purchase price, age and income of borrower and period of mortgage. Certain extra information is published from time to time in the supplementary tables.

Reference

Housing Statistics, Great Britain (Quarterly) (HMSO) (Price 8s. 6d. net).

Housing surveys

The sample surveys of housing conditions in the conurbations announced in *The Housing Programme 1965 to 1970* have been started. So far surveys have been carried out in the West Midlands, South East Lancashire and Greater London conurbations: these are on similar lines to the Social Survey for England and Wales (*The Housing Survey in England and Wales 1964*). Tabulations have been received and the results are being prepared for publication.

A national survey of the condition of the housing stock was carried out at the beginning of 1967 by a team of building surveyors who visited and inspected a sample of dwellings throughout England and Wales. They recorded the type and size of each dwelling, its age and tenure, whether or not multi-occupied, and the availability of certain household arrangements, and assessed its condition and the cost of repairs. Some preliminary results were published in *Housing Statistics, Great Britain*, No. 6 and further details are expected to be published shortly. Similar surveys were conducted during the autumn of 1967 in the West Midlands and South East Lancashire conurbations and are being planned for May and June 1968 in the Tyneside and Merseyside conurbations.

References

The Housing Programme 1965 to 1970, Cmnd. 2838 (HMSO), 1965 (Price 1s. 9d. net).

The Housing Survey in England and Wales 1964, Social Survey: S372, 1967 (Price 35s. net).

Private housing sites

A register has been completed, for the first time, of private housing sites on which dwellings were under construction at 31st January 1968 in England and Wales. For sites of more than four dwellings it gives the total number of dwellings to be erected, and whether the site is for house, flat or mixed development. For smaller sites their number, and the total number of dwellings to be erected on them is recorded in aggregate for each local authority. Summary results will be published in *Housing Statistics, Great Britain.*

New towns record system

A new towns record system has been set up, as a result of which the Ministry of Housing and Local Government receives data in respect of all tenants taking up residence in or vacating development corporation or New Towns Commission dwellings in eleven new towns. The returns enable data on the age-sex-marital condition

characteristics, household structures, occupations, workplaces, migration flows and turnover rates to be assembled. The data for 1966 and 1967 are now being processed, and will be used both to assist in forecasting the future demand for schools, employment, housing, etc. in existing new towns and to provide realistic figures based on actual experience in a wide range of new towns in order to assist generally in planning future expansion schemes.

Local housing statistics in England and Wales

Supplementary tables have been included for the first time in *Local Housing Statistics, England and Wales*, No. 5, published in April 1968, showing figures for individual local authority areas sales of council houses and improvement grants. Other housing matters will be dealt with in subsequent issues. The regular tables provide figures of housing progress and slum clearance in each area.

Reference
Local Housing Statistics, England and Wales (Quarterly) (HMSO) (Price 9s. 6d. net).

Classified index of local authorities and new towns

An alphabetical list of all housing and new town authorities in England and Wales was published in April 1968 as a supplement to *Local Housing Statistics*. It shows the types of authority, and the region, regional sub-division and county in which each is situated.

The classification of authorities in *Local Housing Statistics* is by county within each region, and within each county alphabetically under each type of authority. Different classifications are used in other publications.

Reference
Classified Index of Local Authorities and New Towns in England and Wales (not yet published)

Public expenditure on social services

The May issue of the *Monthly Digest of Statistics* contains a regular annual statement giving figures of public expenditure on social services and housing. The tables cover both current and capital expenditure of the central government (including the National Insurance Funds) and local authorities, and the capital expenditure of public corporations. The series published this year relate to the eight years from 1960/61 to 1967/68.

This statement was first included in the May 1951 issue of the *Monthly Digest of Statistics* and gave figures for the year 1949/50. Formerly information on this subject was published in the *Official Report, Parliamentary Debates, House of Commons*, in answer to a parliamentary question. The last return to be published in this manner covered the year 1947/48 and was contained in the *Official Report*, Volume 474, No. 33, 25th April 1950 (pages 80–81).

Statistical work of the Home Office

A considerable expansion of the criminal statistics collected and published by the Home Office has been recommended by the Departmental Committee on Criminal Statistics, under the Chairmanship of Mr. Wilfred Perks, F.I.A., whose report was published in December 1967. The Committee recommends *inter alia* that the scope of the statistics should be extended to include more information about the details of offences and the circumstances in which they occur, the characteristics of offenders, and the outcome of court decisions and penal treatment in terms of reconviction, and that a great deal more statistical analysis and interpretation should be published than at present. They also recommend that there should be a single computer organisation for all criminal and penal statistics, with provision for linkage between records of offences known to the police, court proceedings, penal treatments and reconvictions, in order to provide criminal histories of offenders when required.

The Report is under consideration by the Home Secretary. Implementation would require a considerable amount of pilot investigation and would be spread over a period of years. It would require additional manpower and improved computer facilities. Some preliminary study of the practical possibilities is under way, but progress must depend on the availability of staff.

Criminal Statistics for 1967 will be published by HMSO in its usual form in July 1968, but it might be possible to introduce some new features in the volume covering 1968. In the meantime, both criminal and penal statistics have been adapted and extended to take account of the provisions of the Criminal Justice Act, 1967 and other recent legislation, and to make possible some evaluation of their effects. Particular attention is to be paid to the use of suspended sentence of imprison-

ment, and to early release of prisoners on licence (commonly called 'parole'). It is hoped to record more information about prisoners generally, for statistical and research purposes.

Other new developments include the collection of statistics about breath tests, and the improvement of statistics relating to offences involving drugs and offences involving firearms. A special analysis of homicide has been started to bring up to date and extend the previous report on murder. New developments are also being planned in the field of child care and juvenile delinquency, to allow for the possibility of changes in the methods of dealing with juvenile offenders proposed in the White Paper *Children in Trouble*.

References

Report of the Departmental Committee on Criminal Statistics, (Perks Committee), Cmnd. 3448 (HMSO), 1967 (Price 5s. 9d. net, postage 6d.).

Criminal Statistics: England and Wales 1967, (HMSO), July 1968.

E. Gibson and S. Klein, *Studies in the Causes of Delinquency and the Treatment of Offenders, No. 4, Murder* (Price 4s. net, postage 5d.).

Ministry of Social Security: Research, Statistics and Information Department

There have been recent staff and organisational changes in the Research, Statistics, and Information Department of the Ministry of Social Security. The department remains in the charge of Mr. H. A. Turner, Under-Secretary but the research and statistics side has been reorganised into two divisions, Statistics (R.S.1) and Research (R.S.2) which work in close cooperation.

R.S.1 is headed by Mr. F. E. Whitehead, Chief Statistician, assisted by Mr. V. M. Thompson, Senior Chief Executive Officer; broadly, it is responsible for the collection, interpretation, review and supply of statistical data over the whole field of the Ministry's activities, for the general management of these processes, and for advice on statistical matters.

R.S.2 is headed by Mr. G. Beltram, Assistant Secretary; its responsibilities include appraisal of the Ministry's research requirements, the planning and carrying out of research projects, and liaison with outside bodies on matters of research.

The Information Division is under Mr. R. G. S. Hoare, Chief Information Officer.

EDUCATION

Individualised data system

The system of student statistics in further and higher education in England and Wales is being changed. At present colleges and institutions make returns of the aggregate number of students classified by subject of course, age, etc. The future 'individualised data' (ID) scheme provides for a centrally maintained record of the year-by-year progress of individual students through the education system. This student record will be held on magnetic tape and analysis of the tape will yield statistics of student numbers and of the movement of students from one year to another. For an outline of the system, see an article 'New look for education statistics' by P. Redfern in *Trends in Education*.

To initiate the part of the ID scheme relating to teachers in training, records of entrants to colleges of education and university departments of education in autumn 1967 have recently been transcribed to the magnetic tape record.

As an interim measure pending the introduction of a full ID scheme for students in grant-aided further education colleges, a 1 in 30 sample survey of students in this sector was launched in November 1967 and will be repeated in November 1968. The survey covers all categories of students except certain evening course students and students at evening institutes. In the November 1968 survey the sampling fraction will become 1 in 1 (i.e. 100 per cent) for students starting courses leading to degrees of the Council for National Academic Awards (CNAA); the aim is to build up a central record of CNAA students on behalf of the Council as an aid to its management.

There are developments in Scotland of a comparable nature.

Reference

Trends in Education, No. 3 (HMSO), July 1966. (Price 3s. 6d. net, postage 5d.).

Publications on education statistics

The *Statistics of Education* publication has been reorganised. In its first five years (1961 to 1965) it has appeared in three parts. For the 1966 statistics, however, a separate volume is devoted to each main subject. The following have already been published on the dates indicated:

Volume 1 Schools	October 1967
Volume 2 GCE, CSE and school leavers	March 1968
Volume 3 Further education	April 1968
Volume 4 Teachers	March 1968
Volume 5 Finance and awards	October 1967

All these volumes refer to England and Wales only. Scotland and Northern Ireland are covered in *Scottish Educational Statistics* and *Education in Northern Ireland* respectively. The following companion volumes will also be published this year in respect of 1966 statistics:

Universities (United Kingdom), prepared by the University Grants Committee

Education statistics for the United Kingdom, to be jointly published by the three United Kingdom education departments

The University Central Council on Admissions (UCCA) has published its *5th Annual Report* giving statistics of applications to enter universities in October 1967 and of acceptances. It covers Northern Ireland for the first time. It also includes, for the first time, statistics of admissions in October 1967 analysed by subject of undergraduate study. A more detailed *Statistical Supplement* will be published later.

Projections of qualified school-leavers

A revised projection has been published of the flow, from schools and grant-aided further education establishments in England and Wales, of people with various GCE qualifications. The figures appear in *Statistics of Education 1966*, Volume 2, Table 26. The following table compares the latest projection with those published in *Statistics of Education 1963*, Part 3, and in the *Report of the Committee on Higher Education* (Robbins Report), Appendix One (Cmnd. 2154—I).

STUDENTS WITH 2 OR MORE GCE 'A' LEVEL PASSES

Thousands

	1965–66	1970–71	1975–76	1980–81
Robbins Report (1963)	64·7	66·4	84·2	111·2
Statistics of Education:				
1963	72·4	80·1	101·8	134·8
1966	75·4*	80·2	101·9	139·9

* Actual.

Relating income to educational qualification

To provide information on the relationship in England and Wales between an individual's income and his occupation and educational qualifications, a follow-up survey based on the 1966 Census of Population is being carried out by the General Register Office on behalf of the Department of Education and Science. Some 15,000 of the 1966 Census respondents who returned higher education qualifications in response to the Census question on qualifications are receiving a postal enquiry from the General Register Office inviting them to provide figures of their 1966–67 incomes. So are 5,000 other respondents without higher education qualifications but in similar occupations, that is in occupations where substantial numbers of higher-educated people were found. The questionnaires for this survey were despatched in March, following a pilot survey in November 1967. The underlying aim of the survey is to yield data which will help to measure the economic return to investment in education.

The swing from science

The report of a Working Group of the Council for Science Policy on the *Flow of Candidates in Science and Technology into Higher Education* was published in February 1968 as Cmnd. 3541. The Working Group was chaired by Dr. F. E. Dainton, Vice-Chancellor of Nottingham University. The report quantifies the growth of sixth forms in England and Wales, trends in the examination qualifications of school-leavers and the swing away from science to arts and social science subjects. In considering possible causes of this development, the report examines the extent of science teaching in schools including the deployment of science teachers within the schools. A chapter of the Report refers to the pattern in Scotland. The Dainton report is to be followed shortly by a report on the deployment of graduates from science and technology courses in higher education institutions, prepared by a Working Group under Professor M. M. Swann, Principal of Edinburgh University.

Education price indices

Work has begun on the construction of education price indices. The first sector to be investigated is expenditure, other than on salaries, in maintained schools. Prepara-

tions are being made to collect details of expenditure on different categories of goods and services in a base-year, from which the weighting pattern of the price series can be deduced.

Input-output analysis in education and manpower planning

Input-output analysis originated in the study of the movements of goods and services between industries and ultimately to private and public consumers, to the creation of fixed assets and to exports. A recent paper by Philip Redfern, Director of Statistics, Department of Education and Science, prepared for the Treasury's Centre for Administrative Studies, shows how the same conceptual framework can be applied to describe the movements of people within the educational system and the way this system is related to the nation's supply and deployment of educated manpower. The paper contains as illustration the input-output tables of United Kingdom industry relations in 1963 with associated input coefficients, and an analogous but very simplified table of education/manpower flows and transition proportions for 1962–63. A good deal of development work is under way on this topic and is briefly referred to.

Reference

P. Redfern, 'Input-output analysis and its application to education and manpower planning', *CAS Occasional Paper*, No. 5 (HMSO), 1967 (Price 4s. net, postage 11d.).

MANPOWER AND EARNINGS

Engineering, technological and scientific manpower

A survey of engineering, technological and scientific manpower was launched in January 1968 by the Ministry of Labour on behalf of the Ministry of Technology, Department of Education and Science and other interested departments. This was the fifth in a triennial series of similar coverage and scope which began in 1956. Questionnaires have been sent to organisations in the public sector, management consultants and to a somewhat larger sample than hitherto in manufacturing industry and construction.

The survey is in two parts. In the first part information is sought on qualified engineers, technologists and scientists employed in January 1968, vacancies in January and future requirements three years ahead. The second part asks for analogous information about technicians whose deployment and utilisation is a subject of growing concern on which there is at the moment little data.

The triennial surveys have provided an important source of data to those concerned with education and manpower resources. Employers and government departments have however expressed a growing need for improved measures of utilisation of qualified manpower and the Ministry of Technology has been exploring ways of achieving this using a multi-axis system of classifying men and their jobs. A pilot study of analysis by functions, addressed to 50 large companies and associated with the triennial survey, is a first step in this direction.

Function for this purpose is defined as 'basic or structural sub-division' of the operations of a company. Five major corporate activities or functions have been selected: general management, commerce, research and development, production, and services. These are defined by a list of names of sub-functions and equivalent terms incorporating the results of experience so far accumulated. Each employer has been asked to record omissions or variations of particular terms in general use in his industry or of major importance to his company.

Occupational changes 1951–61

A recent report by the Manpower Research Unit presents the results of a study of the changes in the occupational structure of industry between 1951 and 1961. Data from the 1951 and 1961 Censuses of Population for England and Wales were used to construct occupation-by-industry matrices for these dates. Difficulties arising from the revision of the Standard Industrial Classification in 1958 were partially overcome by regrouping the industry groups used in 1951 to conform to the current twenty-four industry Orders. As by 1961 there had also been a complete revision of the occupational classification used in 1951 comparable tables were obtained by making use of work done in the General Register Office to reclassify the occupations recorded on a sub-sample of 1961 Census forms according to the 1951 classification. These occupations were condensed first into sixteen broad groups mainly reflecting qualifications and skill, and then into seven groups: in the latter the first four groups represent the administrative, clerical and technical

workers and the others the manual workers by three broad groups according to skill. The occupational changes between industries were examined in detail.

Separate matrices for males and females provided information on the pattern of employment by sex, occupation and industry at each of the two points in time as well as indicating the changes over time.

Changes in the overall occupational structure of the economy over a period of time are the results of a combination of two factors, not necessarily independent, namely the shift in the distribution of total employment between industries (the industry effect) and the change in the pattern of employment within individual industries (the occupational effect). These two effects were disentangled by comparing a hypothetical structure, obtained by applying the occupational structure of each industry at 1951 to the corresponding employment totals for 1961, with the actual structures observed in 1951 and 1961.

The work involved in the report is primarily part of a programme of research into methods of forecasting the occupational distribution of national manpower.

Reference

Ministry of Labour, *Occupational Changes 1951–61*, Manpower Studies No. 6 (HMSO), 1967 (Price 2s. 6d. net, postage 5d.).

Regional earnings

The *Abstract of Regional Statistics* published annually by the Central Statistical Office contains statistics of average annual earnings of persons in civil employment for men and women separately by age and region of residence (Table 45 in the 1967 issue). This information is obtained as follows.

The Ministry of Social Security regularly analyses a 2 per cent sample of insurance records for its own purposes. The sample is a standing one of all live persons whose national insurance number has the last two digits 14 or 84. Since the introduction of the graduated pensions scheme, information about the gross earnings of insured persons covered by P.A.Y.E., whether contributing to the graduated pensions scheme or not, became available to the Ministry and it was possible to link the information on a person's gross annual earnings with that on age, marital condition (for women only) and home address contained in the insurance records. National insurance cards are exchanged annually, one quarter at the beginning of March, June, September and December respectively. The cards exchanged at the beginning of March (the 'A' cards) cover eleven months of the income tax year and it is these, representing a half per cent sample of the insured population, which are matched with the earnings records based on P.A.Y.E. From this subsample two groups are identified:

(i) those whose contribution record showed that they had had almost a full year's pay, i.e. had actually paid at least 48 contributions as an employed person during the contribution year; and

(ii) those who had had at least one week's pay and had apparently stayed in the employment field throughout the year, i.e. had paid at least one contribution and had a total of at least 48 contributions paid or credited (usually for sickness or unemployment).

Group (ii) of course includes group (i) and both groups exclude persons who were unemployed or sick for the whole year. The relevant national insurance records are then matched against microfilms of the P.A.Y.E. deduction documents to obtain gross earnings in the tax year ending 5th April. Details of earnings are analysed by age, marital condition and region of residence of the employees, the latter being determined from the home address shown on the national insurance record.

The published table shows average annual earnings separately for men, all women and spinsters by three broad age groups for each of the standard regions. Separate tables are given for persons in group (i) and group (ii). Separate figures are not given for married women or for widows and divorced women because these statistics are less reliable than the series for spinsters.

It is important to realize that these series do not cover the following groups of people:

(*a*) employees aged under 18, men 65 and over, and women 60 and over;

(*b*) employees within the age range 18–64 (men) or 18–59 (women) who never come within the scope of the P.A.Y.E. returns because they never earn as much as £5 5s. 0d. a week or £22 15s. 0d. per month at any time during the income tax year;

(*c*) employees who have paid, or been credited with, less than 48 contributions during the insurance contribution year; and

(*d*) members of the armed forces.

Most of the employees not covered by the series are married women who work either part-time and never come within the scope of P.A.Y.E. or who work part of the year only and consequently never have sufficient stamps or credits to count as a full-year worker.

Figures are available for the years 1964/65 and 1965/66. Figures for 1966/67 will be published in the *Abstract of Regional Statistics* later this year.

Distribution of earnings

A paper on 'The distribution of earnings of employees in Great Britain', by A. R. Thatcher of the Ministry of Labour, was read to the Royal Statistical Society in December 1967. The paper took stock of the information about the frequency distributions of wages and salaries which can be derived from existing sources, namely the wage censuses, tax records and the Family Expenditure Survey. These provide data on annual, weekly and hourly earnings, and on the variation of earnings with age. Some of the main distributions can be fitted by theoretical forms. Their dispersions show a very marked stability over time: in particular, in the case of the earnings of full-time manual men, the ratios of the quartiles and deciles to the median were almost the same in 1966 as at the earliest wage census in 1886, despite the fact that the value of the median had increased from 24 shillings to 380 shillings per week. The paper concluded by raising a number of questions about the extent to which various economic and mathematical theories explain (or fail to explain) the empirical results.

Plans for a new earnings survey

Proposals are under discussion for a completely new type of earnings survey. This is intended to obtain a great deal of information which has not been available before on a comprehensive basis, including

(*a*) The distribution of earnings, showing the number of wage and salary earners who fall in each range of earnings (i.e. how many earn less than £10 per week, how many between £10 and £11, and so on). This information would be analysed to show the separate distributions, for example,
in each industry,
in each occupation,
in each collective agreement,
in each Wages Board or Council, and
in each region,
for all groups which are of sufficient size to be represented adequately in the sample.

(*b*) Similar distributions of hourly earnings, both including and excluding overtime premium.

(*c*) The make-up of earnings in terms of basic rates, overtime, bonuses, etc. This should provide new information on effective rates, wage drift, and the way in which nationally negotiated agreements affect actual earnings.

(*d*) Data on the proportions of both wage and salary earners who are not subject to statutory or negotiated agreements.

As a by-product, the sample would also provide estimates of the relative numbers of time-workers; payment by results workers and shift workers; the numbers of employees on 4, $4\frac{1}{2}$, 5, etc. day weeks; holiday entitlements and length of service.

By linking the data for successive years, it should be popossible to obtain information about migration between areas, movements between industries, wastage from occupations, etc.

The enquiry would cover the whole economy on a sample basis, and has been designed in such a way that the burden of work on any one employer would be relatively small. It would cove a half per cent sample of all employees, i.e. about 100,000 persons, chosen by selecting those whose national insurance numbers end in certain combinations of digits. A pilot survey on these lines was held in September 1967 and achieved a very satisfactory response rate. If all goes well the Ministry of Labour, in collaboration with the Ministry of Social Security, hopes to begin the full-scale survey in September 1968.

Growth of office employment

A further report by the Manpower Research Unit on the growth of office employment was published in March. An earlier study on computers in offices drew attention to the phenomenal growth of office employment over recent decades, and the new study examines this development in some detail from 1921 to 1961.

The report is based on Censuses of Population over this period with adjustments to assist comparability between individual censuses. Fortunately the differences

in occupational classification were not too significant in the office sector, particularly as office employment in this study was restricted to clerks, typists, secretaries and office machine operators.

Comparisons were made between changes in the numbers of these office workers and changes in the numbers of all workers, separate analyses being made for Great Britain, manufacturing industries, non-manufacturing indistries and each of the twenty-four industry Orders. The report is presented in two parts: first, each of the above sectors is dealt with separately, and secondly, certain topics relating for example to female office workers, comparative rates of growth and relative changes, are examined over the whole industrial field.

The study is intended as the first part of a larger survey to try to establish the reasons for the large increase in numbers of office workers and to forecast future developments.

References
Ministry of Labour, *Growth of Office Employment*, Manpower Studies No. 7 (HMSO), 1968 (Price 5s. net, postage 7d.).
Ministry of Labour, *Computers in Offices*, Manpower Studies No. 4, (HMSO), 1965 (Price 4s. net, postage 6d.).

PRODUCTION AND DISTRIBUTION

National fuel policy

A White Paper on Fuel Policy (Cmnd. 3438) was issued by the Minister of Power in November 1967. Appendix I of this White Paper summarises the aims, the methods and the results of the main statistical exercise carried out in the course of the comprehensive review of fuel policy undertaken during 1966 and 1967, during which new methods of statistical and economic analysis were brought into use.

Forecasts of future fuel demand and supplies are regularly prepared as part of the normal functions of the Ministry of Power. On this occasion a much wider exercise was carried out because the new prospect of large quantities of natural gas made it desirable to examine fully the implications of a range of assumptions about future trends in the fuel industries and in the economy generally.

The Appendix to the White Paper traces the way in which this statistical exercise was carried out. In considering the possible patterns of future demand for fuel, two variables were given special attention. These were the quantity of natural gas from the North Sea to be absorbed into the system and the level throughout the period of the protection for coal. These two factors were selected for this special initial scrutiny because of their particular importance for the review. The first was a major factor of exceptional uncertainty at the time these assessments were being prepared, the second was the principal variable relative to policy decisions. A description is given of how the likely effect on the demand for other fuels of differing rates of introduction of natural gas was assessed and how the price elasticities applicable to a wide range of possible levels of protection for coal were calculated. There was little appropriate information on which to base either of these assessments.

Other factors for which it was necessary to assess the significance of possible variations were the relative prices of coal and oil, the economic rate of development of nuclear power, the rate and pattern of growth of the economy and the rate of interest on new investment. The way in which a number of wider considerations beyond the cost of energy supplies had to be taken into account in choosing the best solution is outlined. The exercise had to accommodate new information as it became available during the course of the review, in particular, opinions as to the likely use of natural gas changed substantially while the review was in progress. The Appendix indicates how the statistical assessments were used in arriving at the policy decisions set out in the White Paper.

A major new development in the technique of analysis is now in train in the Ministry. With the help of experts from the fuel industries, the Ministry is engaged in constructing a set of mathematical models of the fuel sector of the economy. The Appendix to the White Paper mentions the two lines of development which are being pursued simultaneously. Under one, drastic simplifications are being introduced with the object of getting a working model into being for experimental purposes at the earliest possible date; the other, longer term, seeks to achieve the best possible representation of energy supply and demand consistent with the facilities and resources which can be made available. The work on the models was not sufficiently far developed for them to be used during the 1966/67 review but significant progress has been made since the White Paper was

issued and the stage has almost been reached when the simplified models can provide experience of actual operation and indicate the problems involved in linking the separate parts of the model together. They will also help the assessment of the significance of the various factors and so indicate the areas where work should be concentrated in developing the full model. It is hoped to report further experience in later issues of *Statistical News*.

Reference

Fuel Policy, Cmnd. 3438 (HMSO), 1967 (Price 8s. net, postage 6d.).

Output and employment in the construction industry

An extensive analysis of the results of the April 1967 annual census survey was published towards the end of the year in a *Supplement* to the *Monthly Bulletin of Construction Statistics* and issued separately by the Ministry of Public Building and Works. The statistics relate to private contractors, and firms were asked to give figures for employment in the week ending 15th April 1967 and the value of work done in the first quarter of the year. A few of the interesting features of the structure of the industry are mentioned below but readers who would like to receive the *Supplement* should write to Statistics Branch, Ministry of Public Building and Works, Lambeth Bridge House, London, S.E.1.

The number of firms on the Ministry's register fell to below 82,000. There was a reduction in the numbers of firms in nearly all size groups but the number of one-man businesses increased by 5 per cent compared with a year earlier and accounted for nearly a quarter of the total number of business units. On the other hand, the number of medium-sized firms declined by more than the overall rate. The largest size group, which for statistical purposes consists of firms with more than 6,500 employees, continued to contain six members.

There were clear indications of an increasing work-load stemming from clients in the public sector, who took almost half of the total new work produced by contractors. The larger the firm the more likely it was that it depended on orders from the public sector. Just under two-thirds of the new work done by firms with over 1,200 employees was for public clients.

Repair and maintenance accounted for slightly more than one-fifth of all work. Although the country is heavily dependent on the small firm to provide the effort in this sector, it is worth noting that as much as a half of the output of very small firms (13 employees or less) was on new work. In turn and as would be expected, a large proportion (75 per cent) of this new work was on housing. The proportion of new work on housing tended to decrease with the increase in the size of firm, dropping to 30 per cent for firms with over 1,200 employees.

The eighty-five largest firms in the industry (with more than 1,200 employees) produced more than a fifth of the total output with slightly less than a fifth of the labour force.

The larger the firm, the higher was the ratio of its off-site employees to its site operatives. This ratio ranged from one A.P.T.C. (administrative, professional, technical and clerical) for seven operatives in the case of very small firms to two A.P.T.C's. for seven operatives who work for the largest contractors. The number and proportion of A.P.T.C. staff have grown quite rapidly in recent years but the April 1967 results suggest that this development is losing mometum. A clearer picture will be available from the September 1967 survey of the more detailed pattern of employment in the industry and the results of which will appear in the *Monthly Bulletin* later this year.

A Directory and an Inventory of Construction Statistics

These two publications are the result of work carried out by Professor D. Turin of University College, London who was commissioned by the Ministry of Public Building and Works 'to make an annotated inventory of current statistical information relating to building and construction and to provide a statement of the source, method and basis of compilation and any limitation in usefulness'.

The Directory gives a descriptive account of the statistics suitable for a wider public, whilst the Inventory is intended to serve as a work of reference for those who require detailed information about the collection and publication of statistics. Both publications give an indication of the periodicals where the information is published, a list of collecting agencies and a subject index.

The Directory is obtainable from HMSO. The Inventory is not on sale but can be seen at the head-quarters and regional libraries of the Ministry and also

at the libraries of certain other Government Departments and at a number of University libraries.

Reference
Research and Development: Directory of Construction Statistics, (HMSO) March 1968 (Price 17s. 6d. net, postage 9d.).

Changes in the internal structure of the iron and steel industry

An article in the *OECD Observer*, February 1968 draws attention to the trend towards larger production units and concentration into bigger and more broadly based economic units in the iron and steel industries of most OECD member countries. Tables show for eighteen countries the changes between 1961 and 1965 or 1966 in the number of plants grouped according to crude steel capacity and according to numbers employed. Changes are also shown in the number of companies grouped by capacity. The article extracts the main points from the annual report on the industry prepared by the Special Committee for Iron and Steel of the OECD which has just been published for the period 1966 and up to September 1967.

Reference
OECD Observer, February 1968 (Obtainable from HMSO, price 4s. 6d. net).

Census of Distribution for 1966

The first results of the Census of Distribution and Other Services for 1966 were published in the *Board of Trade Journal*, 23rd February 1968. They show an increase in retail turnover since 1961 of 24 per cent to £10,954 million, or about 8 per cent at constant prices; the number of retail establishments, on the other hand, has declined by about 8 per cent to just about half a million.

The census was taken under the Statistics of Trade Act, 1947, details being prescribed by Order (S.I. 1965 No. 1408), and covered the following activities in Great Britain: retailing and the installation, maintenance and repair as well as the hiring-out of consumer goods; hairdressing and manicure; laundries, launderettes and dry cleaners, the hire of linen and industrial clothing; and, for the first time, radio and television relay services. It was a sample census like that of 1957; full censuses were taken for 1950 and 1961. Details of the sampling scheme were given in an article in the *Board of Trade Journal*, 30th December 1966, which also gave information about the tables which are to be published or can be made available on request. Enquiries about the census and requests for special tabulations should be addressed to the Chief Statistician, Board of Trade Census Office, Lime Grove, Eastcote, Ruislip, Middlesex (Telephone: 01–866 8771, Ext. 229).

Census of Production for 1963

The final *Report on the Census of Production for 1963* is now being published. (Preliminary results were published in the *Board of Trade Journal*, 24th December 1965.) The final Report will consist of 133 separate volumes, 128 of which will separately be concerned with specific census industries, 3 will contain summary statistics (and will include analyses on an enterprise basis and on a regional basis), and the remaining 2 volumes will cover the introductory notes and the index of products. The first volumes of the Report were published in December 1967; the remaining volumes are being published at intervals. Publication is expected to be completed by about the end of 1968.

The data collected in the 1963 Census of Production has been used to calculate a number of operating ratios from which firms may be able to compare their own performance with that of others engaged in similar activities. The results were published in the *Board of Trade Journal*, 16th February 1968.

The ratios which were calculated were:

Total stocks as a percentage of total sales
Stocks of goods on hand for sale as a percentage of total sales
Work in progress as a percentage of total sales
Stocks of materials and fuel as a percentage of total sales
Materials and fuel consumed as a percentage of total sales
Salaries as a percentage of total wages and salaries
Wages as a percentage of net output
Wages per £ of total sales
Salaries per £ of total sales
Net output per head

Retail sales

The marked upsurge in spending on durable goods at the beginning of this year pointed to the need, for a limited period, for a quicker indicator of current changes in spending in shops than was available from the monthly statistics of retail sales. The most practicable

way of meeting this need was to collect weekly figures from department stores since most of these businesses were likely to be able to provide the figures promptly. Their sales are substantial, covering in particular household durable goods, and, although their sales experience might not be typical of other retailers, current changes in their sales might, on the past evidence of the monthly figures, be a valuable guide to changes in other sectors of retail trade.

The co-operation of the stores was excellent. Each department store or group of stores contributing to the monthly statistics was asked for figures of weekly turnover, analysed into five major commodity groups, and, for comparison, figures for the corresponding week of the previous year. Figures covering over 90 per cent of the stores approached were obtained within six days of the end of the period to which the figures related.

The first set of weekly figures was for the week ended 27th January and these, together with figures for the week ended 3rd February were issued in a press notice on 15th February and published in the *Board of Trade Journal*, 23rd February 1968. Successive weeks' figures were published as soon as they became available.

The weekly series proved a useful guide to the extent of the extra spending which was taking place in the period before the Budget on 19th March; it was not intended to continue on a permanent basis and the last set of figures was collected for the week ended 30th March 1968.

Stocks and capital expenditure

The estimates of stocks and capital expenditure derived from the annual inquiries into certain distributive and service trades in 1966 were published in the *Board of Trade Journal*, 23rd February 1968. The sectors covered were road passenger transport, road haulage contracting, sea transport, insurance, banking, building societies and hire purchase finance houses, cinemas, theatres, radio, etc., catering (including registered clubs) and the motor trades. The results showed that investment remained at much the same level as in 1965. There was a slight decrease in capital expenditure in sea transport, insurance and building societies and hire purchase finance houses. Banking, however, showed a large increase in capital expenditure, the major part of this increase being due to new building work.

Estimates from the wholesale trade inquiry in 1965 (base year) and the sample inquiry in 1966 are due to be published.

During 1968, the same sectors will be covered with the addition of a sample inquiry into retail trade and a full (base year) inquiry into the motor trades.

New production enquiries

New quarterly enquiries have been started from the dates given in each case: pumps (Q1 1967); passive electronic components (Q1 1967); hearing aids (Q1 1967); heating, ventilating and air-conditioning equipment (Q3 1967); and accumulators (Q3 1967). The results of these enquiries will be given in new titles to be added to the Board of Trade/Ministry of Technology *Business Monitor* series. Further enquiries regarding these statistics should be made to the Ministry of Technology, Industrial Statistics Branch, Room 106 Kingsgate House, London, S.W.1 (Telephone: 01–828 1288, Ext. 7273).

Printing and publishing

The Board of Trade have been discussing with trade associations and other interested parties the need for short-period output statistics of the general printing and publishing industries and hope to start a regular quarterly inquiry into sales later this year. The inquiry will ask for sales separately for a number of product headings.

FOOD AND AGRICULTURE

The National Food Survey: a decennial review

The National Food Survey is a continuous sampling inquiry into the domestic food consumption and expenditure of private households in Great Britain. It was initiated in 1940, but was confined to urban working-class households until 1950, when it was extended to all classes and areas. About 8,000 households participate each year.

The sixteenth *Annual Report of the National Food Survey Committee* reviews the results of the Survey over the ten-year period which began in 1956, when the pattern of demand for food was adjusting to greater freedom of supply and consumer choice after decontrol.

During the decade average household expenditure on food increased by about a quarter, and food prices by about a fifth; in real terms there was a gain of nearly 6 per cent in the value of food purchases per head, with some shift in the spending pattern from cheaper to dearer types of food. Much of the gain was due to increased purchases of convenience foods, and contributed very little to the energy value and nutrient content of the diet.

There was some levelling up of consumption standards between households in different income groups and between those of different family composition. Regional differences have also been slowly diminishing. Tradition still controls the average consumer's preference scale as between the major food groups, such as meats, cereal foods, dairy products, fruit and vegetables, etc., but considerable changes have taken place within these broad groups, notably increases in poultry meat, pork, quick-frozen vegetables and some other convenience foods, and decreases in bread, margarine and preserves. An appendix gives income elasticities, which have diminished for most foods over recent years.

Summarized results of the regular Survey are published as soon as possible in the *Monthly Digest of Statistics* and the *Board of Trade Journal*. Unpublished results are available in more detail, including quarterly estimates of household food consumption, expenditure and average prices paid for nearly 150 foods by households of different social class and family composition, and in different regions and types of area. Such unpublished data can be supplied on payment of a fee; application should be made to the Secretaries of the National Food Survey Committee, Government Buildings, Tolcarne Drive, Pinner, Middlesex.

Reference
Household Food Consumption and Expenditure: 1965 (with provisional estimates for 1966 and a commentary on the ten years 1956 to 1965) (HMSO), 1967 (Price 21s. net, postage 9d.).

A Century of Agricultural Statistics

The annual census of agriculture began in 1866, after a long campaign. In the centennial report comparative tables present the main time series for 1866–1966, and the most striking changes are illustrated by charts and maps. Most of the latter refer to three dates: 1875, the end of Victorian high farming; 1938, when the arable acreage reached its lowest level; and 1966. An introductory chapter outlining the pre-history of British agricultural statistics, before the inception of the census, and a commentary on the tables and maps has been written by A. H. J. Baines, Chief Statistician in the Ministry of Agriculture, Fisheries and Food.

The labour force was first included in the agricultural census in 1921, and statistics of agricultural wages have been collected since 1918 (statutory minimum wages were first introduced in 1917). Gross agricultural output and net farm income have been calculated from 1938/39 onwards and these series are given for the first time in this book.

Grain prices are available on a national basis for each year from 1771, but other market prices were not officially collected until the turn of the present century. The coverage of market reporting has since steadily widened.

Reference
A Century of Agricultural Statistics: Great Britain 1866–1966 (HMSO), 1968 (Price 17s. 6d. net).

New computer for Agriculture

After about eight years' service from a group of three Deuce computers and an Elliott 803, the Ministry of Agriculture, Fisheries and Food will change over during the next two years or so to an I.C.T. 1907 system, housed in a new purpose-built computer building at the Guildford headquarters.

An important part of the computer work is the payment of grants and subsidies and, of course, salaries. The main statistical use of the Deuce computers has been the processing of the agricultural census data. Lack of resources has limited automatic data processing in other areas although some specialised statistical work has been possible on the 803 machine.

The new computer and its peripherals will enable existing processes to be handled much more quickly, and other new work in the scientific, economic and statistical fields to be undertaken. The change-over is a difficult and lengthy operation, however, and it will be some time before the practical advantages of the new system can be fully exploited.

Animal feedingstuffs manufacturing industry

In August 1967 the Ministry of Agriculture, Fisheries and Food published the results of a further study of

trends in the animal feedingstuffs manufacturing industry. With these were issued tables extending for three further years those published earlier in *Economic Trends* (No. 130, August 1964) showing the volume and value of output, the raw materials used and products, and the nature and proportions of deliveries from port and country-located factories respectively.

The recorded total output of the industry amounted in the year 1965/66 to 14·6 million tons, valued (at prices ex-mill and ex-merchant's premises as appropriate) at some £492 million.

The latest results confirm the tendency recorded earlier for production to be concentrated in the larger factories and for the country-located factories to increase their share of production. An interesting and important finding was the substantial increase over the two-year period from 1964/5 to 1965/6 in the tonnage of concentrated feedingstuffs delivered straight; this reflects a growing tendency for livestock feed to be mixed on farms.

Another aspect of importance emerging from this latest study was that, despite increasing home production of cereals, the imported raw material content of delivered concentrate feedingstuffs remained fairly steady.

A limited number of complete sets of the statistical tables (M.A.F.F. Statistical Information Notice, Stats. 121/67) are available on application to the Information Division, Ministry of Agriculture, Fisheries and Food, 3 Whitehall Place, London, S.W.1.

Cattle management and feeding practices 1966/67

The Ministry of Agriculture undertook a survey into livestock feeding practices in 1957–59, but as there have been considerable changes in the management and feeding of cattle a further survey was carried out in the period October 1966–September 1967.

Ministry staff visited a sample of about 7,500 farms with any type of cattle, and a special sub-sample consisting of about 800 farms with male cattle being reared under an intensive system of management. Both samples were stratified by the appropriate cattle size groups using the agricultural census returns. About 700 farmers were visited each month and were asked for information on the numbers, feeding, purchases and sales of their cattle, etc. Three subjects considered to be of particular importance were covered, (i) the breeds and crosses of cattle used for beef, (ii) the contribution to total beef supplies made by cattle being reared by intensive or semi-intensive methods of production, and (iii) the consumption by these animals of home-grown barley.

A good response was obtained from farmers and the data collected is now being analysed by computer.

Classification of farms by labour requirements

Farm Classification in England and Wales 1966 is the third of a series issued by the Ministry of Agriculture, Fisheries and Food. It contains distribution tables of agricultural holdings, crop acreages, livestock numbers, etc. by farming type and by size of business, for Ministry of Agriculture regions and for England and Wales.

The type-of-farming classification is based on the relative importance of the various enterprises, measured by their standard labour requirements, on each holding. The method was described in detail in the introduction to the first volume. The size-of-business classification is the same as that used for the 1965 analysis; some aspects of it were discussed in *The Structure of Agriculture.*

References

Farm Classification in England and Wales 1963 (HMSO), 1965 (Price 5s. 6d. net, postage 5d.).

Farm Classification in England and Wales 1964–65 (HMSO), 1967 (Price 4s. 6d. net, postage 5d.).

Farm Classification in England and Wales 1966 (HMSO), February 1968 (Price 17s. 6d. net, postage 9d.).

The Structure of Agriculture (HMSO), 1966 (Price 3s. 6d. net, postage 5d.).

Changing structure of the agricultural labour force

Very extensive information is available on agricultural labour, earnings and hours from surveys undertaken by the Ministry of Agriculture. A new volume on agricultural labour statistics is intended as a work of permanent reference, covering the first twenty years of detailed information which became available to the Ministry of Agriculture from 1945 onwards. Before that date the documentation on hours and earnings in this field consisted of little more than national average minimum wages and basic hours since 1918.

Since 1945, information deriving from inspections under provisions now incorporated in the Agricultural Wages Act, 1948, has been systematically collected from a random sample of farms in England and Wales. Recent analyses of these data have provided a great deal of new

information. Each of the series on contract hours, seasonal overtime hours and non-contractual hours has been analysed by type of occupation, as have total earnings and eight components of total earnings (e.g. minimum wage, contractual and non-contractual earnings and premiums). Some changes were made in the analytical structure when computer analysis was introduced in 1964/65. Percentage distributions of premiums according to type of worker are shown, as well as the total cost to the farmer of workers of each occupation according to the labour size group employed on the farm.

The volume brings under one cover the information on numbers of workers available from the agricultural census as well as from the wages and employment enquiry. Analysis by labour size group is employed here also, and the distribution of workers is shown by age and period of employment. The relatively rapid changes in the size and composition of the labour force since the Second World War are discussed and charted.

References

The Changing Structure of the Agricultural Labour Force in England and Wales: Numbers of Workers, Hours and Earnings 1945–65 (HMSO), 1967 (Price 17s. 6d. net, postage 10d.).

A Century of Agricultural Statistics: Great Britain 1866–1966 (HMSO), April 1968 (Price 17s. 6d. net).

Proportions of food and feedingstuffs imported

The Ministry of Agriculture, Fisheries and Food produces a yearly table showing the sources of supply of the main foods and feedingstuffs in the United Kingdom. The proportions of imported and of home-produced supplies are shown, as well as an analysis of the countries from which the greater part of the imports are consigned. Copies of this table, which shows the position for the two calendar years preceding the date of publication, with average figures for the pre-war period, are available on request from the Information Division, Ministry of Agriculture, Fisheries and Food, 3 Whitehall Place, London, S.W.1.

TRANSPORT

The 1965 National Travel Survey

To encourage maximum use of data from the 1965 National Travel Survey special tabulations of the results have been offered to local authorities and other bodies concerned with transportation problems. The Survey collected social, economic and transport information about 12,000 households, 34,000 individuals, 7,000 vehicles, and 400,000 journeys by both public and private transport. This information is stored on magnetic tape and the use of a flexible table-forming programme makes it possible to produce, at reasonable cost, a very wide range of detailed tabulations for various purposes. The approximate cost of tables concerning household, vehicle or individual characteristics only is £3 to £7 per table. Tabulations concerning journey characteristics cost approximately £35 per table.

A selection of more general tables will appear in the report on the survey to be published later this year.

HOME AND OVERSEAS FINANCE

The Financial Statement

This year's *Financial Statement* includes, for the first time, an assessment of the economic outlook. This is intended to supplement the explanation in the Budget speech of the economic factors underlying budgetary policy. The outlook is presented on a post-Budget basis taking into account all aspects of the Government's economic policy as set out in the Budget speech. Forecasts of expenditure, imports and gross domestic product at constant prices to mid-1969 are given; and the implications of a possible faster rate of growth in exports over the same period are also shown.

The national income tables included in the *Financial Statement* have been extended to provide information explaining more clearly the relationship between the transactions in the conventional accounts and the presentation of these transactions in the national income accounts tables.

The *Statement* also takes account of changes introduced by the National Loans Act, 1968, the effect of which is to remove from the Consolidated Fund most of the Government's domestic lending and the whole of its borrowing transactions and to bring them to account in a new National Loans Fund.

Inland Revenue statistics

The *110th Report of the Board of Inland Revenue* published in February 1968 contains the following new information:

Tables 54 and 55 give estimates of dividends, interest and other annual payments made and received by companies in 1966/67.

Table 145 gives the first statistics on corporation tax assessments made in 1966/67.

The 1964/65 Income Survey has now been analysed by the new planning regions and the results are shown in Tables 77–79. Table 100 gives county analyses of the same survey, excluding any cases with total income below £275. The corresponding table in the *109th Report* (Table 126) contained such cases and so was not directly comparable with other tables in the same Report.

The results of the 1965/66 Income Survey are also given (Tables 101–144). Tables 121 to 144 again analyse the results by region, with the improvement that civilians previously appearing in the category Public Departments are, where possible, allocated to the region in which they live. For comparison with earlier years, Table 144 shows the regional allocation of such persons. The figures apply mainly to civil servants, but also include any taxpayer whose main tax district is one of the Public Department series (e.g., some M.P's., members of the judiciary, etc.). The heading of Table 144 should accordingly be interpreted as 'Civilians, mainly civil servants, paid out of the public funds, whose main assessment is in Public Department Districts'.

Appendix VII contains the first statistics of capital gains tax assessments.

Seasonal adjustments to United Kingdom balance of payments

The January 1968 issue of *Economic Trends* contained an article, prepared by the Central Statistical Office, on seasonal adjustments to the United Kingdom balance of payments. It included detailed seasonally adjusted figures and notes on the methods of adjustment. It also contained a section describing the characteristics of the quarterly figures of the balancing item (representing the net total errors and omissions in the accounts).

Overseas investment

An article in the *Board of Trade Journal*, 26th January 1968 completed the extended analysis of direct overseas investment (other than oil) in 1965, which had begun with an earlier article in the *Journal*, 30th June 1967. Foreign investment in the United Kingdom is covered as well as British investments overseas.

The latest article is concerned with the book values of investments, and the rates of return on them, and includes new information about dates of establishment and the proportion of investments owned abroad, which is sometimes less than 100 per cent. Detailed breakdowns are given by country and by industry, and rates of return are calculated in some detail, with an indication of their dispersion.

NATIONAL INCOME

Current price forecasts of expenditure, income and saving

The February 1968 issue of *Economic Trends* contained an article by L. S. Berman (then a chief statistician at the Central Statistical Office) and F. Cassell (an economic consultant at H.M. Treasury) describing the techniques now employed in Whitehall in preparing short-term current price forecasts of expenditure, income and saving. The article also described some experimental work on forecasting financial flows. The purpose of the forecasts is to throw light on the distribution of income among the different sectors of the economy and on the financial and monetary implications of the forecasts at constant prices made by the Treasury. By providing material on income, saving and liquidity they may also indicate possible 'feed-backs' on the level of activity.

The article described how forecasts are made of company profits and of the saving and investment of the different sectors of the economy. These lead on to forecasts of the flow of funds between lenders and borrowers which provide a background for checking some of the initial assumptions used in the constant price exercise. A prospective sharp rise in company liquidity, for example, might suggest that the original forecast of real personal disposable income was too low, or that the forecast of expenditure on stockbuilding was too low. Another use of the financial forecast is to provide a background against which to consider the operations of debt management and monetary policy.

National accounts statistics: Sources and Methods

A new description of the sources and methods used in the preparation of the national income and expenditure accounts is now in course of preparation by the Central

Statistical Office. It will be published later this year as No. 13 in the series of Studies in Official Statistics.

The book will cover the developments in the national accounts which have taken place since the first description was published in 1956; in particular, the publication of quarterly accounts and of financial accounts which now form part of the system.

Research studies in the Central Statistical Office

Professor Moser refers in his article in this issue to the establishment at the Central Statistical Office of a new Research Division. A start is being made to build a framework for future work: the following paragraphs describe briefly some of the projects on which work has already started.

The first project consists of an empirical analysis of the series for the gross domestic product, employment and unemployment, in order to derive an estimate of the underlying growth rate of the economy. This will be supported by a detailed investigation of the structures of the time series involved. This exercise may throw light on significant structural changes that have occurred in these series over the period considered.

Arising from the various methods of estimating the rate of economic growth a study has now been undertaken of the testing and fitting of regression models where the regression function may change over time either continuously or abruptly.

The aim of a further project is to ascertain what sort of statistical information, other than that at present available, would be helpful for future studies of growth. This will probably entail carrying out some fairly detailed analyses to test various hypotheses.

In another project the possibilities of using leading indicators is being studied. For measures of output, such as the index of industrial production, there is an unavoidable time lag before statistics become available. At present some seven weeks elapse before the index of industrial production relating to any one month is published. An indicator which would give an early estimate of changes in industrial production would be a useful addition to the list of short-term indicators. Promptly available series, or some combination of them, are being examined for their predictive value.

An investigation is now in progress of the performance of several methods of seasonal adjustment in a number of economic time series. It is hoped to supplement this study by a simulation exercise.

PRICES

Retail prices of items of food

From March 1968 average actual prices of some eighty important items of food have been published in the *Ministry of Labour Gazette*. Many of these items vary in quality from retailer to retailer and partly because of these differences there are considerable variations in the prices. The averages are therefore accompanied by figures of the lowest and highest deciles.

Cost of Living Advisory Committee

The Minister of Labour recently re-convened his Cost of Living Advisory Committee with the following terms of reference—

> 'To re-examine the desirability of publishing retail prices indices for special social and income groups and by regions, and to consider again the treatment of owner-occupiers' housing costs and the possibility of including meals bought and consumed outside the home among the price indicators used for the Index of Retail Prices.'

The Committee, under the Chairmanship of Mr. A. S. Marre, Deputy Secretary of the Ministry of Labour, held its first meeting on 14th December 1967.

The internal purchasing power of the £

The purchasing power of money varies inversely with prices. In order to calculate changes in the purchasing power of the pound, the official estimates make use of what is considered to be the most appropriate index of consumer prices available for the period over which the change in purchasing power is required.

A note prepared by the Central Statistical Office giving annual figures from 1914 explains how the calculation is made of the approximate change between any two periods. This note is brought up to date in April and October each year.

A copy may be obtained on request from the Information Officer, Central Statistical Office, Great George Street, London, S.W.1.

INTERNATIONAL

15th Session of UN Statistical Commission

The fifteenth session of the United Nations Statistical Commission was held in New York from 26th February–8th March 1968. Of the present twenty-four member countries of the Commission, twenty were represented at the session. The United Kingdom representatives were Professor C. A. Moser, Mr. R. E. Beales (Director and Deputy Director respectively of the Central Statistical Office) and Miss J. H. Mather of the United Kingdom Permanent Mission to the United Nations.

The agenda covered questions relating to national accounts, classifications of economic activity, statistics relating to balance of payments, industry, external trade, demography, housing, international travel, research and development.

Of particular interest was the discussion on the international work programme and co-ordination between the United Nations and its specialised agencies, resulting in a resolution to the Economic and Social Council that it should request the Secretary-General to 'undertake the necessary steps in co-operation with the specialised agencies, to promote the arrangements necessary to ensure the development of an integrated and co-ordinated international statistical programme, based on longer-term planning than is now in effect, thus contributing to the efficiency of national statistical systems, as well as to the effective use of resources at international level'.

Notes on the development of this, and also on other aspects of the Commission's work, will appear in future issues of *Statistical News*.

Economic pattern in OECD member countries

A set of tables showing the diversity of the economies of its twenty-one member countries is given in the February 1968 issue of the *OECD Observer*. Drawn up at the end of 1967 they show: area, agricultural area, tillage, population, inhabitants per square mile, natural increase in population 1956–66, net immigration or emigration, civilian employment in agriculture, industry and elsewhere, gross national product, structure of gross domestic product, gross fixed asset formation, private consumption, current government expenditure and revenue, official holdings of gold and foreign exchange (31st October 1967), official discount rate at 5th January 1968 and date of last change, currency, imports, exports, tourism, cars, telephones, television sets, dwellings completed, and net consumption of electricity.

Reference

OECD Observer, February 1968 (Obtainable from HMSO, price 4s. 6d. net)

GOVERNMENT STATISTICAL SERVICE

Appointments

Central Statistical Office

The directing staff of the C.S.O. consists of *Professor C. A. Moser*, Director; *Mr. R. E. Beales*, Deputy Director; *Mr. T. S. Pilling*, *Mr. L. S. Berman* and *Mr. H. E. Bishop*, Assistant Directors. Mr. Berman and Mr. Bishop were appointed in March.

Mr. J. L. Nicholson, formerly a Chief Statistician in the Central Statistical Office, was appointed to a new Under Secretary post of Adviser on Economic Matters to the Ministry of Social Security as from 1st March.

Board of Trade

Mr. A. G. Carruthers has been appointed Assistant Director of the Statistics Division at Under Secretary level.

Ministry of Labour

Mr. R. F. Fowler was appointed in March to a new post as Director of Statistical Research, with responsibility for long-term statistical research projects. *Mr. A. R. Thatcher* was appointed to the post of Director of Statistics.

Ministry of Social Security

Mr. F. E. Whitehead, formerly a Statistician in the General Register Office, was appointed in February to a new Chief Statistician post in the Research, Statistics and Information Department of the Ministry of Social Security. Other organisational changes in this Department are mentioned on page 19.

Ministry of Transport

Mr. K. F. Glover, who had been serving on secondment as Director of Economics and Statistics to the National Ports Council, has been appointed to a Chief Statistician post at the Ministry of Transport.

R.S.S. Symposium

The Royal Statistical Society held a symposium on British Official Statistics on 15th November 1967. The papers and discussion are reproduced in the current issue of the *Journal of the Royal Statistical Society*. (Series A, Volume 131, Part I.)

Alphabetical index

The index to *Statistical News* will be cumulative. Page numbers are prefixed by the issue number e.g. 1.23 signifying issue number 1, page 23.

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

OTHER RECENT AND FORTHCOMING PUBLICATIONS

Annual Report of the Registrar General for Scotland, 1966 (HMSO), January 1968 (Price 42s. net, postage 1s. 3d.).
Scottish Health Statistics, 1966, prepared by the Scottish Home and Health Department (HMSO), February 1968 (Price 45s. net, postage 1s.).
Digest of Scottish Statistics, No. 31, April 1968, prepared by the Scottish Statistical Office (HMSO) (Price 8s. 6d. net).
Rates and Rateable Values in Scotland, 1967–68 prepared by the Scottish Development Department (not yet published).
Report on Hospital In-patient Enquiry for the year 1964, Part 1, *Tables* prepared jointly by the Ministry of Health and the General Register Office (HMSO), January 1968 (Price 31s. net, postage 4s. 6d.)

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