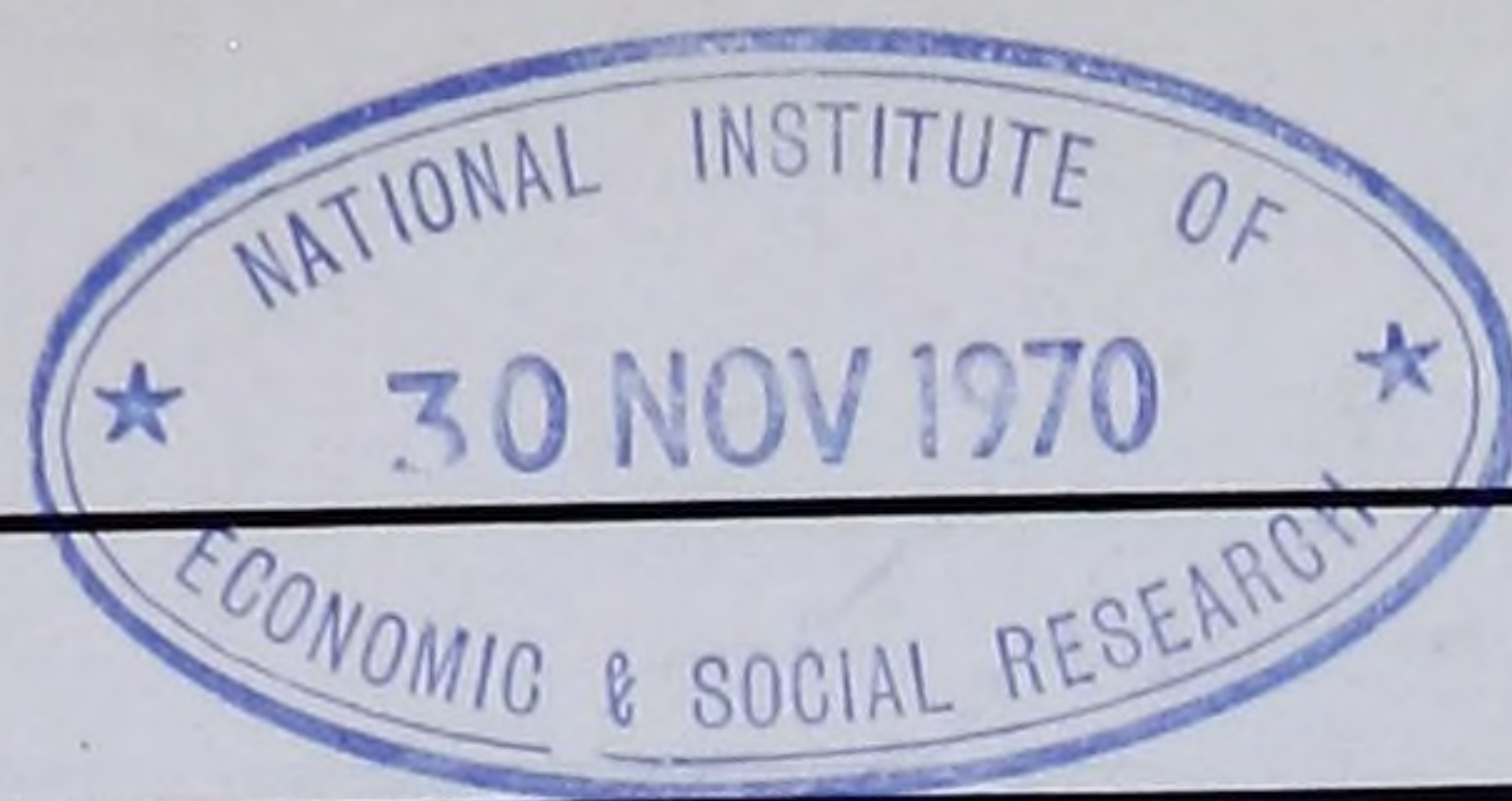


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STATISTICAL NEWS

**Developments
in British Official
Statistics**

Note by the Editor

R. E. Beales

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

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

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

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

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Statistical News

No. 11

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in
British
official
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Treasury computer facilities for economic forecasting

G. Kunzle, *Computer systems consultant, H. M. Treasury*

The use by the Treasury of mathematical techniques and formal models for economic forecasting has developed considerably during the past year or so. A formal version of the quarterly model (of about 60 equations⁽¹⁾) used for short-term forecasting has now been created and programmed for use on a computer. There is also a larger annual model (of about 250 equations⁽¹⁾) used for medium-term assessments. A general indication of each model is given in Chapter 17 and Appendix I respectively of *The Econometric Study of the United Kingdom* edited by Hilton and Heathfield.⁽²⁾ A further development has been the increasing demand for computer facilities for research purposes, principally conversational systems for undertaking regression analysis.

The purpose of this article is to outline the computer techniques and facilities in use and planned as an aid in the decision-making process. It will also attempt to show the directions in which future developments can be expected and the type of advanced technology it will expect to use in the coming years.

The advantages of using computers for economic analysis and forecasting are many. Calculations and simulations can be carried out at great speed which provide, amongst other advantages, a facility for conditional forecasting, i.e. the examination of alternative results when different values for parameters or variables are adopted. Access to computers also enables research tasks to be planned and executed more efficiently, particularly as the researcher is able to maintain a sustained effort over a short period rather than wait for lengthy calculations to be made. It has freed researchers from limitations they would have otherwise felt obliged to impose on the form and complexity of relationships to be considered.

Until very recently, the Treasury forecasting models and its regression analyses were run by conventional batch processing methods at computer bureaux with a relatively quick turn-round. Turn-round time, for example, for a model simulation was about 2-3

days initially, and then down to 1 day or even under in favourable circumstances. However, this system soon revealed a number of disadvantages which grew in importance as the value of computerised models was increasingly exploited. In the first place, even the relatively short turn round of a day became unacceptable when forecasting exercises were under way. Secondly, partly because of the length of turn round, the approach to simulations of models was relatively inefficient. The most frequent use of such simulations is to test out various hypotheses with a view to narrowing down the range for selection. In such circumstances much of the information is transient and significant only in so far as it contributed to an immediate evaluation or assessment. However, with the delay involved the practice developed of asking for full tabulations each time to ensure that particular characteristics of a simulation could be fully analysed. Similar considerations applied to regression analyses where large batches of regressions on alternative assumptions or equation specifications were asked for all at once. Finally, the existing system had become inefficient in the sense that, if an assessment was to be based on conditional forecasting, the bringing together of many alternative results into one written report became a cumbersome and a relatively inefficient method of presenting the results. Moreover, under such conditions, a valuable advantage of conditional forecasting, which is a 'learning by doing' situation, is lost, i.e. the computer ought to be exploited more fully by allowing those concerned with policy themselves to take part in the simulations.

These considerations have led to the development of the latest computer system which will now be described in greater detail.

The size of the models and the volume of calculation have always meant that a powerful computer with a large core store must be used. Currently, as the new development is planned and implemented, the models are running on the IBM 360/365-50 ASP complex at IBM's Central London commercial bureau. In spite of the power of the system it was found impossible to get

(1) In each case about half are behavioural equations.

(2) MacMillan, 1970, Price £10.00

a run turned round in much under 4 hours, most of which time was spent physically taking input from the Treasury to the bureau and bringing the printed listings back. Of the time on the computer, even with top priority, at least 15–20 minutes were taken up printing out the results. The main objectives, therefore, were to cut out the physical transfer and to reduce, or for certain purposes eliminate altogether, the print-out.

The first objective has been attained by installing in the Treasury itself a small satellite 1130 computer. This is connected, over a privately leased GPO telephone line, directly to the computer complex at the commercial bureau. In these early stages its use is being limited to straightforward Remote Job Entry and the printing-out of results. Already it is clear that a turn-round of a half to three-quarters of an hour will be normal, most of which time will be occupied in the print-out. The installation of the new unit and the accompanying programming developments have made it possible to increase the number of model simulations from a maximum of 3 in a day up to 9 or 10.

The second objective has been achieved by eliminating much of the need for a voluminous print-out on paper. Since the main objective is to provide the means for the quick digesting of information, long and comprehensive listings on paper are not suitable. Selective printing of relevant information is one way of overcoming this problem but a more powerful aid to presentation is a facility allowing the output from the models to be displayed graphically on a Visual Display Unit.

This system is being implemented now and makes it possible to assimilate the results of a model simulation as soon as they come back down the telephone line. Turn-round for this first quick scan of the output is thus cut to about 15 minutes. If a more detailed look is required, a print-out can then be made. However, it has been found that often a quick look at the behaviour of certain key variables is enough to provoke the need for a new run with small variations in parameters or constraints. Eventually a series of runs done in this way converge towards a variant or series of variants which can be printed off for more exhaustive discussion.

The display unit being used is an IBM 2250 display with a light pen attachment which enables instructions to be passed on via the screen itself. This allows direct input and control from the operators who can call up whichever series is required. They can look at results in tabular or graphical form superimposed for comparison purposes, select specific elements for more detailed study, enlarge portions of graphs and even transform

the raw data, e.g. look at percentage changes. Initially the unit will be able to compare the results of different simulations of the models previously run and stored on disc where previously this would have needed extensive cross reference between big print-outs. On the Visual Display Unit, the information will appear virtually instantaneously and can be studied by direct visual comparison. Ultimately, it will be possible via the light pen to ask for alternative simulations proposed, for example, in the course of discussion, which would then be worked out via the model and the results reproduced on the screen.

In parallel with the developments for model simulation purposes, similar improvements will be available for research into basic relations. The use of regression analysis as an analytical tool has grown rapidly since computers became readily available some five to ten years ago. Recently a further improvement in service was obtained by installing terminals which can be dialled directly over the public telephone network into a computer time-sharing service. The one used mainly over the past six months has been CALL/360. This service enables economists to come to the typewriter and run their own regressions with response times of under a second. Because of the speed with which they are able to try different alternatives and assess the progressive outcome they have been able to complete studies on a much shorter time scale. This development has proved valuable because of, firstly, the quick response and, secondly, the availability of a conversational statistical package whose use needs negligible computer knowledge.

Although a simple conversational computing tool of this sort can help economists, the present terminal system is limited because it can only present results in numerical form and this often takes a long time to digest (graphs can be produced but only laboriously by a complicated use of the characters on the typewriter keyboard). The Visual Display facilities are quicker than the typewriter and can display graphs directly.

To this end, the display system on the satellite computer is being developed to provide a conversational intelligence system which will allow economists to call up their time series from a data bank, manipulate and adapt the data and examine it graphically at each stage. All the advanced tools used at the moment, such as multiple and step-wise regression, Almon Lag regression, 2-stage least squares, etc. will also be incorporated in the system.

It will be clear from these remarks that this present development of the techniques of computerised

forecasting represents a significant step forward by providing the basis in the next few years for a fast conversational use of forecasting models and research. It will also make possible a major experiment in improving the link between the makers and users of the forecasts. Nevertheless, it must be seen as only the first step of a series in this direction. At present, only one Visual Display Unit can be linked to the satellite computer, whereas ideally, a number of screens are wanted. Secondly, although the system will be used for both model simulation and research analysis, it will probably be more desirable ultimately to separate these roles by equipping the researchers with individual desk Visual Display Units linked into a time sharing system. Such units are already appearing on the market, although the computer technology to implement the combined system envisaged for the Treasury is not widely available. Nevertheless, the system at present being introduced is an advanced management information system in the truest sense.

Towards a better understanding of the balance of payments figures

J. Hibbert, *Chief Statistician, Central Statistical Office*

Recent developments

Recently the form of presentation for the United Kingdom balance of payments accounts was revised in order to focus attention on two measures which are thought to be of particular importance. These are the *current balance*, that is the balance of current income over current expenditure, and the *total currency flow* resulting from all external transactions – those on current account, investment, trade credit, other capital flows, and the net total of unidentified transactions reflected in the balancing item. This new form of presentation was formally introduced in the 1970 issue of the Balance of Payments Pink Book.⁽¹⁾

The current balance may be regarded as an indicator of whether (in layman's terms) the nation is 'paying its way'. Put in another way, it is a measure of the extent to which the nation has on balance added to or consumed its net external assets as a result of current transactions – as distinct from changes in existing assets or liabilities resulting from changes in valuations.

The total currency flow shows the net result of all external transactions leading to official financing movements; that is to say, it shows (if positive) the amount available for building official reserves and repaying official borrowing in support of the reserves, or (if negative) the amount required to be financed from the official reserves and borrowing in support of them. (In some periods, official financing movements are also affected by gold subscriptions to the International Monetary Fund and allocations of Special Drawing Rights, but these are not regarded as part of the total currency flow).

The total currency flow is known precisely, whereas most of the balance of payments figures (including the current balance) are subject to errors of estimation. But the implications of a given currency flow cannot be understood unless its causes are understood. Some of these – (e.g. an inflow of 'hot' money) – may be of a temporary nature, while others will have more lasting implications. The total currency flow is therefore published in conjunction with a fairly full account of our external transactions; this is possible when the full quarterly balance of payments estimates are published some two months after the end of the period to which they relate.

The current balance is much less subject to major short-term influences and is more appropriate as a continuing indicator of our external performance. Ultimately, the extent to which the nation is adding to or consuming its net external assets has a major bearing on the strength of its external position.

Even though figures of the surplus or deficit on current transactions provide a useful and important indicator of the country's external performance, they should be used with caution. First, it should be remembered that most of the figures are statistical estimates subject to margins of error; conclusions should not be drawn from relatively small changes. Secondly, the current balance is affected to some extent by transitory factors (e.g. strikes in the UK or abroad).

Margins of error

A detailed examination of the margins of error attached to individual components of the current account is beyond the scope of this article. (Those interested should refer to Chapter XV of *National Accounts Statistics: Sources and Methods*⁽²⁾ and the Balance of Payments Pink Book). Nevertheless, an understanding of the kind of errors involved, and their relative importance, is assisted by distinguishing between errors which stem from the use of sampling and those which arise from approximations in the measurement process.

For most categories of transactions with non-residents it is impracticable to obtain complete data and sampling is employed. The magnitude of errors arising from the use of sampling will depend mainly upon the variability of the data and the size of the sample; biases from non-response and the practical difficulties of maintaining an accurate sampling frame will also contribute to the overall error. The problems posed by variability of data differ as between various components of the accounts. In estimating the overseas profits of United Kingdom companies, for example, a fairly large sample, particularly of the more important firms, is clearly desirable. But it is usually difficult for businesses to provide up-to-date figures of this kind, and an uncomfortably high sampling error in the quarterly estimates for these earnings cannot be avoided. Other series present fewer difficulties of this

kind and a sample with narrower margins of sampling error can be designed accordingly (for example, the International Passenger Survey which is used to estimate expenditure on travel and tourism by United Kingdom and overseas residents⁽³⁾).

Measurement errors may arise from the fact that it is either impracticable or too costly to collect figures of the actual transactions we wish to identify. For example, we wish to establish for a given period of time the value of goods passing into or out of United Kingdom ownership. The principal source of data is the *Overseas Trade Statistics*, compiled from documents lodged with Customs. These figures relate to goods passing into or out of the United Kingdom (irrespective of whether a change of ownership has occurred); their reported basis of valuation may differ from the actual transaction values; and the figures represent the value of goods reported to Customs during a given period of time which because of delays in reporting may differ from the value of goods crossing the boundaries of the United Kingdom during that period. Thus, starting with these data, it is necessary to investigate how they may differ from the data actually required for the balance of payments accounts, and to quantify these differences by means of supplementary data. (The estimates of these differences are the balance of payments valuation and coverage adjustments to visible trade.)

The reader may well have begun to wonder whether one can draw any useful conclusions from figures subject to all these qualifications. In practice, how significant are the sampling and measurement errors described above? As random sampling is not always feasible, and since the figures are subject to estimation errors other than those arising from the use of sampling, it is not possible to calculate margins of error of the kind that are derived from random samples. It is possible however, from knowledge of the data, to form subjective judgements of the probable range of doubt to be attached to the estimates. Experience suggests that the annual estimates of the current balance for all years but the most recent (for which the figures are less firm) might be regarded as subject to an error of up to £50 million in either direction. This judgment may be taken to mean that, in the opinion of the estimators and in their present state of knowledge, there is roughly a 90 per cent chance that the true current balance lies within these limits.

Some of the errors tend to be in the same direction in successive years, so that to the extent that this is true the absolute error in the change from one year to another is less than that implied by the margin of error for an individual year. Although this is also true of the quarterly estimates, it is likely to be outweighed by other factors which make small changes between

quarters of less significance. The main value of the quarterly estimates is as a means of keeping up-to-date with the way in which trends are moving rather than following closely the short-term developments taking place.

Short-term factors affecting the current balance

Quite apart from errors of estimation the balance of payments current account outcome may be influenced by short-term factors which distort the picture of our underlying external performance. For example, the incidence of export shipments may be such that in some periods they overstate, and in other periods understate, the extent to which resources are being devoted to producing goods for export. In this respect the balance of payments current account cannot be regarded as analogous to a commercial enterprise's operating account in which changes in stocks and work in progress would be taken into account in addition to sales. Other influences on the outcome in the short term would include factors such as the timing of government aid expenditure, major fluctuations in charter rates, strikes (at home and abroad), temporary restrictions on certain types of transaction and so on. Some of these factors are recognisable at the time they occur and it may sometimes be possible to quantify their effects in order to help in assessing the underlying position. This is only possible however when specific important influences are known to be at work, whereas from time to time there may be a number of minor factors mostly operating on the outcome in the same direction.

Optimal period for current account estimates

Estimates of the balance on current account transactions are compiled and published for each calendar quarter. Because of the degree of reliability of the figures and the extent to which the outcome may be influenced by short-term factors, it is thought that this is the minimum period for which estimates should be prepared. A balance has to be struck between considerations of reliability and the costs of preparation on the one hand and the need for up-to-date information about the external position on the other.

Figures of visible trade are published monthly and are found valuable by a wide range of users, including industry and government departments. They provide regular up-to-date analyses in great detail of recent trends in imports and exports. Unlike most economic statistics, which are based on reports by businesses relating to a given period of time, the *Overseas Trade Statistics* are based on a system where separate documents are required to be lodged for each shipment entering or leaving the country. The information can be processed very quickly and the frequency with which these statistics are published in no way affects the costs incurred by the firms providing them.

By contrast, estimates of invisible earnings, based on actual monthly returns, would place a very heavy additional burden on firms providing data; indeed, in some important categories of invisible transaction (such as the profits of United Kingdom overseas branches and subsidiaries) monthly data would just not be available. It is for these reasons that no attempt is made to collect monthly data on invisibles; however, an assessment of the current trend of net invisible earnings (expressed as a monthly rate) is issued with the figures of visible trade.

Monthly assessment of invisible earnings

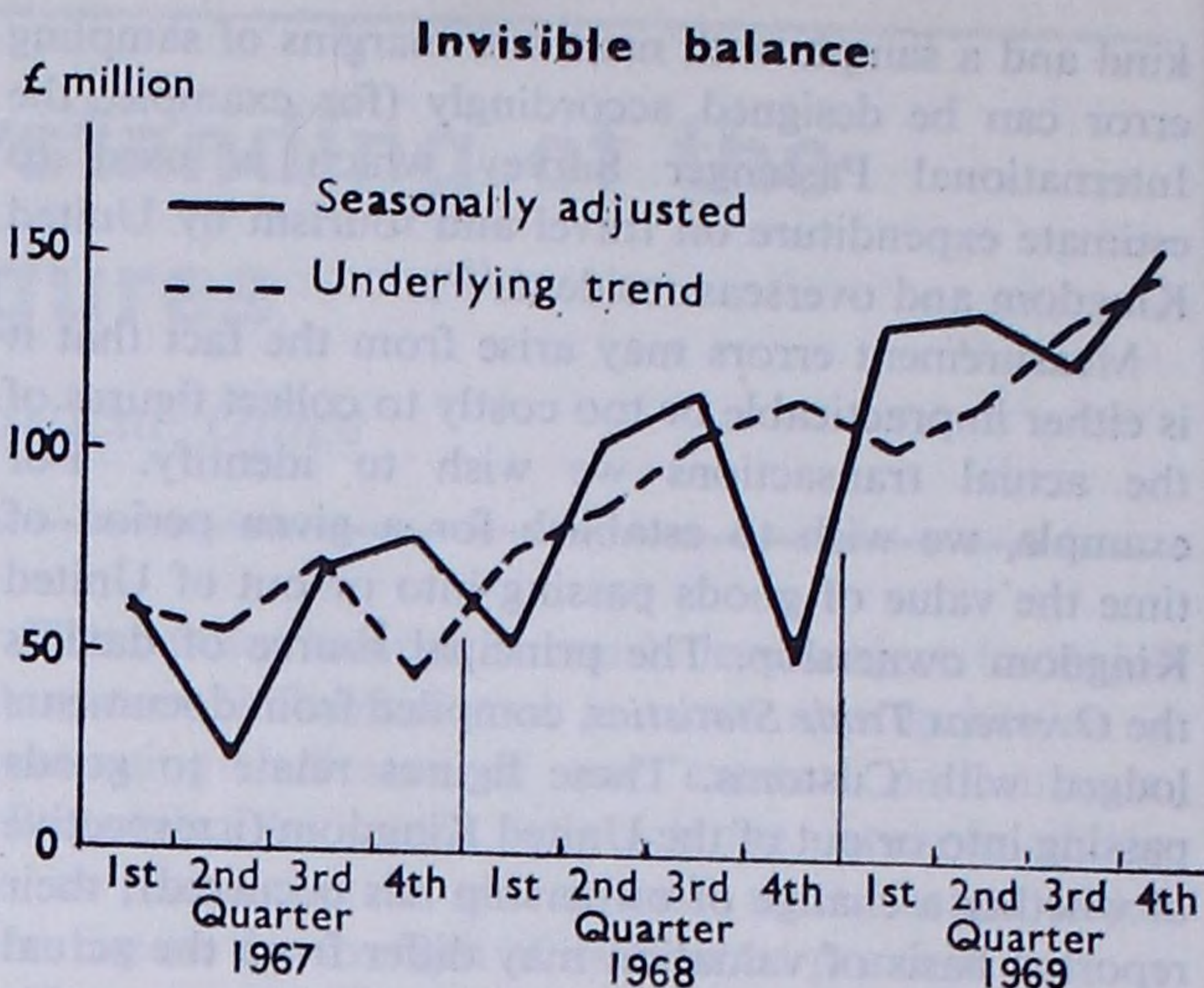
In order to understand the basis on which the monthly assessment of invisible earnings is made, it is useful first to describe certain characteristics of the quarterly estimates. These may be regarded as consisting of three separate components:

- A. Estimates either based on quarterly returns of invisible transactions or estimated from supplementary quarterly data, which are not subject to significant estimation errors.
- B. Estimates based on quarterly returns which are subject to significant estimation errors.
- C. Estimates for items about which no quarterly data are available and which are based on annual returns or a projection from the last firm annual figure.

In assessing the quarterly trend of invisible earnings, component C is normally, by definition, a trend estimate within each calendar year. There will be occasions when supplementary information suggests that the quarterly path through the year may have taken a particular course, but in normal circumstances the path assumed will simply be a smooth one. Quarterly fluctuations in component B (which comprise certain elements of interest, profits and dividends) need to be at least partially discounted in view of the estimation errors involved. Component A, though subject to estimation errors, is thought to provide some useful indication of actual quarter-to-quarter movements in invisible earnings. The chart below shows the effect of replacing component B with a five-quarter moving average of seasonally adjusted data in order to estimate the underlying trend of net invisible earnings as a whole over the period 1967 to 1969.

The assessment of invisible earnings issued each month does not aim to provide an advance estimate of the current quarter's seasonally adjusted earnings as eventually recorded. It provides, in round figures, an estimate of the current trend obtained by smoothing out fluctuations which are regarded as more likely to be the result of estimation errors than the result of real factors.

The process of smoothing out fluctuations in a series always carries with it the risk that turning points may



not be identified as early as they would have been otherwise. This risk has to be set against that of drawing premature conclusions from changes in the series. Thus the 'underlying trend' shown in the chart above is in no sense a unique picture of the development of invisible earnings over the period 1967 to 1969. In the process of smoothing certain components we may have lost certain useful information while, at the same time, by leaving other components unsmoothed we may have left in the underlying trend spurious short-term movements in the series. It seems undeniable, however, that where sharp fluctuations occur in certain components of the invisibles account (elements of interest, profits and dividends) it is wisest to discount them in assessing our underlying performance.

References

- (1) *United Kingdom Balance of Payments 1970* (HMSO) September 1970 (Price 15s. 0d.)
- (2) *National Accounts Statistics: Sources and Methods*, prepared by the CSO, (HMSO) September 1968 (Price 45s. 0d.)
- (3) *Board of Trade Journal*, 23 August 1963 and *Board of Trade Journal*, 23 September 1970.

Statistics of British aid

W. L. Kendall, Chief Statistician, Ministry of Overseas Development

The coverage of the Ministry of Overseas Development's annual publication *British Aid Statistics* has already been described in some detail in the Note in *Statistical News* 8.31 dealing with the fourth issue of *British Aid Statistics* published last year. The current issue⁽¹⁾, the fifth, which brings the information up to and including the calendar year 1969, is presented in an entirely new format. Bold headings and table indicators, and the lining of the columns, have been freshly designed to give a clearer presentation of the detailed information.

The volume consists of three parts. Part I provides summary tables of the *Aid Programme and Other Financial Flows*; Part II covers the *Aid Programme: Finance*, that is financial aid, costs of technical assistance and the geographical distribution of these items, and of loan indebtedness; and Part III deals with the *Aid Programme: Persons*, that is persons working overseas, students and trainees in Britain, and geographical distribution or origins. The main information in Part I is summarised further in Tables 1 and 2 below.

With the imminent opening of the Second United Nations Development Decade, references are frequently made to the volume of aid and to the United Nations Conference on Trade and Development target of 1 per cent of GNP. The presentation of these figures in *British Aid Statistics* is designed to conform to internationally agreed definitions and it may be useful to clarify these.

The target for aid performance set at the Second UNCTAD Conference in Delhi, 1968, was that '... each economically advanced country should endeavour to provide annually^(a) to developing countries financial resource transfers of a minimum net amount of 1 per cent of its gross national product (GNP) at market prices in terms of actual disbursements.'⁽²⁾ The appropriate financial resource transfers are defined by UNCTAD as follows:

- (i) Official cash grants and grants in kind including grants for technical assistance but excluding grants for defence purposes; sales of commodities against local currencies exclusive of utilization of such currencies by the donor country for its own purposes; government lending for periods exceeding

one year net of repayments of principal; grants and capital subscriptions to multilateral aid agencies, and net purchases of bonds, loans and participations from those agencies.

- (ii) Private capital on the basis of net long-term movements originating with residents of the capital-exporting countries; they are thus net of repatriation of principal, disinvestment and retirement of long-term loans, portfolio assets and commercial debt. They are not net of reverse flows of capital originating with residents of less-developed countries, nor of investment income.⁽³⁾

It will be noted that net financial flows are the gross flows net of repayments of principal and other forms of amortisation. Interest payments are not deductible nor are reverse capital flows. The concept is that of net capital flows to the developing countries. Subsequently, a committee of aid donors, the Development Assistance Committee (DAC) of OECD, has agreed further clarifications particularly for the purpose of the statistical reporting by DAC countries both for the Aid Review that each donor country submits annually to DAC and for DAC's own publications. Two types of flow not mentioned by UNCTAD are now specifically excluded from items reckoned against the UNCTAD target, namely, flows from governments, other than as part of technical assistance programmes or related programmes, to individuals in developing countries, for example, social security pension payments; and export credits for military transactions.

The inclusion of private financial flows^(b) (export credits and private investments) in the UNCTAD 'aid' target has given rise to some confusion since these flows are primarily commercial in character and privately motivated. Progress in clarifying these terms is noted below. There are other statistical complications. Whereas official flows are known within ODM three months after the close of the calendar year in question, the magnitude of private investment for that year can only be assessed roughly at that time (mainly on the basis of the figures for earlier years) as figures classified in the requisite detail cannot be obtained from industry until later. The full records are often not available in this country and collection of the data may take up

(a) With recorded reservations by some donors, including the UK. Thus 'several developed countries expressed the view that their progress towards the target is affected by their relative aid-giving capacity, and may, from time to time, be affected by certain temporary difficulties.'

(b) ODM follows DAC practice in describing private capital transactions as financial flows.

to a year. If an early indication is required of the UK performance for the year in question under the 1 per cent resource flow target, assessment of the contribution of private investment must nevertheless be made. Since private investment flows tend to show considerable annual variation, the possible error in this early assessment for a particular year can be very large. On the occasion of the current publication of *British Aid Statistics* it was necessary to include an erratum slip showing that a later correction of the private investment estimate had 'raised' the UK performance, between 30 April (the date of going to press) and mid-August (the date of publication), from 0.84 per cent of GNP to 0.97 per cent. The figures of the performance 1965 to 1969 are given in Table 1. It will be clearly seen that the contribution from net private flows is considerable, and that there are large year-to-year fluctuations.

British Aid Statistics is concerned with export credit and private investment statistics only to the extent that an aggregate of flows to less-developed countries is necessary for calculating the UNCTAD target performance. The major part of the volume provides a detailed account of the Aid Programme, the principal features of which are summarised in Table 2.

While, on the one hand, describing private flows as 'aid' has caused confusion, on the other, the scope of

the official flow itself has also been felt to be ambiguous and the DAC have recently attempted to clarify the whole position. It has been recognised that some official flows have a commercial motivation not unlike that of private flows, the major illustration being the provision of export credit funds by an official export credit institution either direct, or by discounting bank advances. Both these techniques exist in some other donor countries some of whom have hitherto reported them as private flows, and some as official flows. The use of public funds is still an important characteristic of such flows so that they are consistently counted technically as part of the official component of the UNCTAD target performance.^(c) Nevertheless, the difference between such official export credit flows and those providing aid as more strictly conceived has led to the recent adoption, internationally, of a new terminology which distinguishes between: official development assistance flows; other official flows; and private flows. The distinction between official and private flows is essentially that of source of funds. That between official development assistance flows and other

(c) Unlike the rediscounting by central monetary authorities of private trade instruments, which has hitherto been and will continue to be ignored as not affecting the 'private' nature of the transaction.

TABLE 1
Total flows of official and private and financial resources to developing countries

	1965		1966		1967		1968		1969	
	£m	% GNP	£m	% GNP	£m	% GNP	£m	% GNP	£m	% GNP
Gross aid programme	194.8	—	207.2	—	200.9	—	203.0	—	210.8	—
Net aid programme	168.5	—	173.6	—	173.3	—	173.0	—	179.7	—
Other official flows (net) (1)	4.8	—	9.6	—	5.9	—	5.6	—	-1.2	—
Total net official flows	173.3	0.48	183.3	0.48	179.2	0.45	178.6	0.42	178.5	0.39
Net private flows	195.3	0.55	142.1	0.37	116.3	0.30	138.1	0.32	266.8	0.58
Total net financial flows	368.6	1.03	325.4	0.84	295.5	0.74	316.7	0.74	445.5	0.97

(1) See text

TABLE 2
Composition of the Aid Programme

	1965		1966	1967	1968	1969	
	£m	%				£m	%
<i>Bilateral</i>							
Grants - financial aid	61.2	31.5	56.6	56.9	46.7	42.9	20.3
- costs of technical assistance	31.7	16.3	30.4	33.5	41.4	43.7	20.7
Loans - inter-government	74.7	38.4	93.2	83.8	86.8	78.7	37.3
- advances to Commonwealth Development Corporation (CDC)	8.6	4.4	7.2	7.8	9.4	13.9	6.6
<i>Multilateral contributions</i>	18.4	9.4	19.8	19.0	18.7	31.8	15.1
Total	194.8	100.0	207.2	200.9	203.0	210.8	100.0

official flows is that the former have the following criteria:

- (i) the primary motivation is development assistance; and
- (ii) they are intended to be concessional.

With the unavoidably subjective character of the first criterion an attempt has been made to provide an objective minimum standard of concessionality for the second in order to ensure consistency in international reporting, but this has not so far proved feasible. One approach has been to set up a grant element^(d) threshold for each transaction. But to set the standard too high would conflict with the policy of those donors who (like the UK) believe it right to vary the concessionality of their assistance to different countries according to the economic circumstances of the recipient. To set it too low could encourage the substitution of official aid on hard terms for essentially commercially motivated private or official export credits. No agreement has yet been reached on this issue but DAC intends to scrutinise at the Annual Aid Review any individual transactions with a low grant element, recognising that the question of the volume of official aid merges into that of its quality, as is noted below.

The statistical problems of recording aid for the Annual Aid Reviews (and for the 'league tables' of performance subsequently published by OECD⁽⁴⁾) necessitated the establishment of a Group on Statistical Problems to report to DAC. It is of interest that the Group does not necessarily consist of statisticians although the UK has always been represented by professional officers and the two Chairmen so far elected by the Group have been from the UK. Examples of the matters, in addition to the definition of official development assistance flows, currently before the Group are: the treatment of administrative costs incurred by aid ministries or organisations; the definition of private development assistance flows, that is, the funds provided by voluntary bodies such as churches and foundations for development purposes; the treatment and measurement of cost of benefits received in donor countries by students from developing countries as part of the benefits available to all students in such countries; and the recording of the transactions of non-operational companies (brass plate companies) located in developing countries with a view to their exclusion.

The quality of aid, as distinct from its volume in relation to the UNCTAD target, has also been the subject of investigation by DAC, in this case by its Working Group on Financial Aspects of Development

Assistance. While adopting a grant element approach to the measurement of the terms of aid, the Group has recognised the need for flexibility of the kind noted above and has produced a set of three targets, the achievement of any one being considered a satisfactory performance by a donor country. These targets are that

- (i) grants should amount to at least 70 per cent of a country's total official development assistance; *or*
- (ii) each transaction in at least 85 per cent of all official development assistance commitments should have a grant element of at least 61 per cent; *or*
- (iii) 85 per cent of official development assistance commitments should have an average grant element of at least 85 per cent.

The UK aid programme in 1969 recorded levels of concessionality well above those laid down in (ii) and (iii) above, but grants (including the appropriate part of multilateral contributions) were at a level of 47 per cent in 1969. It has to be stressed that the targets are alternatives, devised to reflect the varying structures of aid programmes in different donor countries. The changes over the five years in the composition of the UK Aid Programme are the increased proportions of technical assistance costs, of loans to the Commonwealth Development Corporation and of contributions to multilateral agencies.

References

- (1) *British Aid Statistics 1965 to 1969* (HMSO) August 1970
- (2) United Nations Conference on Trade and Development, New Delhi, 1968, Cmnd. 3649 (HMSO) May 1968, p.78
- (3) *Ibid.* Footnote to p.78
- (4) *Development Assistance*, Report by the Chairman of the Development Assistance Committee. Published annually by OECD. See 1969 Review December 1969, Tables 1 and 2 pp. 292/3 and Table 13, p. 311.

(d) The grant element of a grant is 100 per cent. That of a loan is the amount of the loan less the present value, discounted at an appropriate rate, of interest and dividend payments receivable on account of the loan. That is to say, the loan is notionally divided into a grant and a loan carrying a rate of interest equal to the selected discount rate representing the cost of capital.

Civil Service sickness absence survey

J. A. Rowntree, *Chief Statistician, Civil Service Department*

Introduction

This article describes the first in a series of sample surveys into sickness absence in the Civil Service. In the first instance these surveys will cover the period 1967-69. Following that stage the Civil Service Department, in consultation with other Departments, will assess the information collected and decide the most effective line of future development. It is the results for 1967 which are discussed here. They will shortly be published in more detail in one of a new series of 'Management Studies' which the Civil Service Department is preparing to promulgate some of its work involving the central management of the Civil Service which is thought to be of more general interest.

The conditions under which civil servants may be absent through illness may be usefully considered under the headings of certificated and uncertificated absence. Certificated absence is supported by medical evidence in the form of a medical certificate signed by a doctor. For established staff, if there is a reasonable prospect of return to work, certificated leave on full pay may be allowed for a period of up to six months in any period of 12 months, followed by a further six months' absence on half pay subject to a maximum of 12 months' sickness absence in a period of 4 years or less. For unestablished and temporary staff reduced allowances which are related to length of service are applicable subject to the same 12-month limitation in a period of 4 years or less as mentioned above. Uncertificated absence is not supported by a medical certificate. This is permitted when the period of absence does not exceed 5 days and subject to a limitation that such absence does not exceed 10 days in any 12-month period. Maternity leave has been treated as sickness absence.

Detailed records of sickness absence are maintained on a regular basis for all staff by departments for their own management purposes.

Prior to this survey no comprehensive survey of sickness absence in the Civil Service had been published. However, a few studies had been conducted earlier, including a sample of sickness absence during 1946-53 which was analysed in 1954 and a sample analysis of sickness absence among clerical staff which was carried out in 1961.

The Survey

For this survey a 5 per cent sample of non-industrial civil servants, excluding the Post Office and staff in the Diplomatic Service, was selected, the sampling frame being those staff who were on the Civil Service Central Staff Record at 1 January 1968. Staff who left during the course of 1967 were therefore excluded from the sample. Staff were selected according to the final digit of their identifying staff number. In the event sickness absence data were obtained from departments in respect of slightly less than 5 per cent of the defined population. The achieved sample size was some 21,000 and tests have shown that this was an unbiased selection of the full population not only as regards the whole group but also when analysed by staff group, age group, region and sex. The use of stratified sampling techniques, which would have improved the estimation of sickness absence for small groups of civil servants, would have entailed more work for departments, would have complicated procedures for the continuous aspects of the survey and was not therefore considered practicable.

Main results

From the survey it is estimated that nearly four and a quarter million days of sickness absence were taken by members of the non-industrial Civil Service (excluding those in the Post Office and Diplomatic Service) in 1967. Just over one in six of these days were taken without supporting medical evidence.

Estimated total number of days sickness absence taken in 1967

Type of sickness absence	Number of days (thousands)		
	Men	Women	Total
Certified	1,851.9	1,706.5	3,558.4
Uncertified	329.4	356.2	685.6
Total	2,181.3	2,062.7	4,244.0

These figures include weekends and public holidays which occurred during a period of sickness absence. In terms of working days it is estimated that about three million days were lost. This is equivalent, in rounded terms, to the loss for the whole year of about 11,500 staff, or about 2½ per cent of all staff in the population sampled. High as these figures may appear, in terms of days per person at risk, they were substantially below

TABLE 1
Percentages of staff taking no sick leave in 1967

Age	No sick leave			No certificated sick leave			No uncertificated sick leave		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Under 25	32.2	19.7	24.7	68.6	57.0	61.6	40.1	27.9	32.8
25-34	38.5	21.4	32.0	69.4	52.8	63.1	49.9	31.5	42.9
35-49	47.3	25.7	39.5	72.8	54.4	66.2	60.5	39.9	53.1
50-59	48.4	26.5	41.7	70.5	53.3	65.2	63.7	42.2	57.1
Over 60	46.6	33.5	43.7	66.7	59.6	65.1	64.7	48.7	61.1
All ages	44.4	23.8	36.4	70.5	55.0	64.5	57.8	36.0	49.3

national rates of days of certified incapacity in the period June 1966–May 1967, published by the Ministry of Health and Social Security⁽¹⁾.

36 per cent of all staff had no sickness absence of any kind. This overall proportion, however, concealed a marked difference between the sexes; only 24 per cent of women took no sick leave compared with 44 per cent of men. The proportion of all staff with no sickness absence at all during 1967 increased with age for each sex: this apparently surprising result was attributed wholly to the incidence of uncertificated absence (see below). For the two sexes together, while almost a quarter of the under-25's had no sickness absence, the proportion rose to 44 per cent among the over-60's. More details are shown in Table 1.

Proportion of staff having no certificated sickness absence

Table 1 also shows that almost 65 per cent of all staff had no *certificated* sickness absence in 1967. The differences between the sexes was less marked than when considering total absence, the proportions being 55 per cent for women and just over 70 per cent for men. The proportion remained fairly stable with age, for each sex. Clearly comparisons between groups of staff could merely reflect differing sex and age distributions. The relatively small numbers of staff in some groups makes it difficult to eliminate this effect and restrict interpretation of apparent differences between staff groups. However, it appears that the higher-paid groups had a higher proportion of staff with no sickness absence than the lower-paid groups. No very clear pattern emerges from analysis by region, although there are indications that the rural areas have higher proportions of staff having no sickness absence.

The final section of Table 1 indicates that nearly half of all staff had no uncertificated sickness absence. The sex differential was more marked than for certificated absence, the proportions being 36 per cent for women, 58 per cent for men. The proportion, for each sex, rose substantially, with age. For the two sexes together it

was about 33 per cent amongst staff under 25, rising to over 60 per cent for staff over 60.

Average number of spells and days of certificated sickness absence

For all staff, Tables 2 and 3 show the average number of spells of certificated absence per person was 0.55, and the average number of days of certificated absence 7.8. For those staff actually having certificated sickness absence the corresponding figures were 1.6 spells and 22 days respectively. For men the highest average number of certified spells occurred in the under-25 group, but the variation by age was not large. For women the peak occurred in the 25–34 age group with 1.8 spells compared with under 1.5 spells for those over 60. The average number of days of sickness absence for both men and women rose steadily with age. For men it rose from just over 14 days for the under-25's to about 32 days for the over-60's. For women the number rose from 16 days for the under-25's to about 26 days for those over 50.

For all staff the average number of spells and average number of days of sickness absence per person showed marked differences between staff groups. Again, it would seem that the higher-paid groups had fewer spells and fewer days per person of sickness absence. Regionally, the average number of spells per person for all staff showed some differences, being highest in the north, but no clear pattern emerged regarding the average number of days.

Average number of spells and days of uncertificated sickness absence

On average each member of the Civil Service had one spell of uncertificated sickness absence during 1967. For each sex this was double the average number of spells of certificated leave. For staff actually taking any uncertificated sickness absence the average number of spells was 2.0. For all staff the average number of days absence was 1.5 and for those staff who in fact had uncertificated sickness absence the average was 3.0.

(1) In *Digest of Health Statistics for England and Wales* (HMSO) 1969.

Other analyses

Analyses were also prepared showing certificated absence classified into broad cause groups and these will be discussed in the published report. In the meantime it is perhaps worthy of mention that 35 per cent of all spells, and 22 per cent of all days, of certificated sickness absence ending in 1967 were accounted for by the 'influenza, bronchitis, colds, etc.' category. The average length of spell for this category was, at 9 days, shorter than for any other identified cause.

Conclusion

The report is offered as representing an important start

which it is hoped will be developed considerably in the future. The continuation of this work will allow data to be accumulated until the analysis of cause in greater detail is statistically justifiable. In the same way, continuation will enable a number of existing differences, which cannot yet be fully supported from the statistical evidence, to be analysed on the basis of greater numbers in order to establish whether or not they are real. It is hoped that suggestions will be forthcoming on how the presentation and analysis might be developed so that later reports become progressively more useful, not only to ourselves but to others working in this important field.

TABLE 2
Average number (per thousand staff) of spells of certificated and uncertificated sick leave in 1967

Age	Certificated spells			Uncertificated spells		
	Men	Women	Total	Men	Women	Total
All staff						
Under 25	471	719	620	1,312	1,815	1,613
25-34	451	850	603	958	1,575	1,193
35-49	390	747	519	683	1,217	876
50-59	431	738	525	606	1,113	762
Over 60	488	594	511	602	1,025	697
All ages	431	743	551	773	1,420	1,022
Staff taking -						
(a) certificated		(a)			(b)	
(b) uncertificated sick leave						
Under 25	1,501	1,672	1,616	2,189	2,516	2,399
25-34	1,474	1,801	1,633	1,911	2,299	2,088
35-49	1,434	1,640	1,534	1,732	2,026	1,868
50-59	1,464	1,579	1,511	1,671	1,927	1,777
Over 60	1,466	1,472	1,467	1,706	2,000	1,793
All ages	1,461	1,653	1,555	1,828	2,217	2,018

TABLE 3
Average number (per individual) of days of certificated and uncertificated sick leave in 1967

Age	Certificated days			Uncertificated days		
	Men	Women	Total	Men	Women	Total
All staff						
Under 25	4.54	6.97	6.00	1.86	2.54	2.27
25-34	4.84	9.99	6.80	1.39	2.20	1.70
35-49	5.91	10.91	7.72	1.07	1.76	1.32
50-59	7.75	12.13	9.09	0.97	1.74	1.20
Over 60	10.56	10.46	10.54	0.94	1.55	1.08
All ages	6.59	9.80	7.83	1.17	2.04	1.51
Staff taking -						
(a) certificated		(a)			(b)	
(b) uncertificated sick leave						
Under 25	14.47	16.21	15.64	3.11	3.52	3.37
25-34	15.83	21.18	18.44	2.76	3.21	2.97
35-49	21.76	23.93	22.82	2.70	2.93	2.81
50-59	26.31	25.96	26.17	2.66	3.01	2.81
Over 60	31.70	25.92	30.21	2.67	3.01	2.78
All ages	22.37	21.77	22.08	2.78	3.19	2.98

The effect of variations in output on colliery profitability

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This article describes the latest in a series of studies carried out in the Statistics Department of the National Coal Board. Although the conclusions derived from this work are of direct application only to the Board's collieries, the general implications of the study in the fields of budgeting and forecasting are thought to have sufficient wider application to interest the general readership of *Statistical News*.

Data analysed

In order to demonstrate the scope for increased production and the difficulties in forecasting and budgeting output, an earlier study had been carried out of the week-to-week movements in output and the relationship between average and peak levels of production. That study demonstrated that there were appreciable week-to-week variations in output at most collieries. It remained possible, however, that these variations might even themselves out over long periods, so that quarterly and annual statistics might reveal greater stability and predictability. To extend this study, it was decided to examine afresh the annual data for collieries.

Annual totals covering the nine years from 1960 to 1968/9 were extracted for each colliery in production on 29 March 1969, to show the trends for that colliery over a long period of time. In some cases it was necessary to adjust some of the earlier years' data to maintain comparability with the March 1969 position: for example, where the present colliery was the result of a merger of two or more collieries, the data for the previously-existing individual collieries in earlier years were totalled.

The data extracted for the units were total saleable output (tons), total sterling cost (£), total overall manshifts worked, and average manpower on colliery books for each year, these being the most important basic figures from which other data such as overall output per manshift (OMS), cost per ton, etc. could be derived.

Variability of annual results

Examination of the annual output figures for the individual collieries revealed that, although the variability was not as great as noted in the weekly output data, there was an appreciable amount of variation

from year to year in colliery output. In certain cases there was an immediately obvious explanation of the changes, for example where a new colliery was working up to its full level of production. But in the great majority of cases there was no such immediate explanation for quite appreciable changes in annual output, which went up or down from one year to the next in an apparently random manner. This again underlines the difficulties in forecasting or budgeting colliery output.

Examination of the other three series (sterling cost, overall manshifts and average manpower) revealed that, apart from the few exceptional cases such as new sinkings, these series showed much greater stability from year to year than output. Generally speaking, sterling costs tended to increase (an effect of inflation) and manshifts tended to decrease (an effect of productivity increases). There was still some apparently random year-to-year variation in these data, although its extent was much less than that of output. Also, there was no strong relationship between the noted changes in output and the corresponding changes in costs and manshifts, although there was a slight tendency for costs and manshifts to increase with output.

The large degree of independence of cost changes from output changes was illustrated by an analysis of 280 collieries selected from the 316 sets of available data by eliminating the few exceptional cases referred to earlier. The percentage changes from one year to the next in total sterling cost and total saleable output for each of these collieries were plotted on eight scatter diagrams (1961 change on 1960 up to 1968/9 change on 1967/8). The scatter diagrams each showed that there were wide differences in total cost changes for collieries with similar changes in output. To take the changes between 1967/8 and 1968/9 as an example, for collieries experiencing between 10 per cent and 20 per cent reduction in output, changes in total cost varied between a decrease of 23 per cent and an increase of 14 per cent. Conversely a given change in cost was not necessarily associated with a corresponding change in output. For instance, in those collieries where total cost increased by about 10 per cent the output change varied between -16 per cent and +33 per cent. On each diagram there was a wide scatter of points showing a poor relationship, but in each case a statistically significant regression

line could be fitted. For every diagram the slope of the fitted line indicated about 1 per cent change in cost for each 5 per cent change in output, but the position of the intercept on the vertical axis was different for different years, showing the differing effects of inflation from year to year. The average inflationary effect on total sterling cost at collieries over the whole nine-year period was 3.7 per cent per annum.

Budget and forecasting implications

The results of the above analysis lead to several important conclusions. Firstly, output appears to be subject to appreciable variations from year to year, which make output budgeting and forecasting rather difficult, while total sterling cost and manshifts worked showed more stable trends with less apparently random variations, so that these last two items are more suitable for budgeting and forecasting. Secondly, as changes in costs and manshifts show a very poor relationship to output changes, they can to a large extent be budgeted and forecast independently. Thirdly, from the stability and relative independence of costs and manshifts against output it appears wise to consider adopting a budgeting procedure in which total costs are budgeted, and an output *target* is set from this at such a level as to provide sufficient return on the expected costs at the expected level of proceeds per ton. The emphasis would then be concentrated on ways in which to obtain this required output. An outline of such a possible budgeting procedure is given later in this article.

A further consideration resulting from the analysis is a reassessment of the value of the commonly used indices of cost per ton and OMS, particularly in the field of budgeting and forecasting. With output in many cases varying considerably while total costs and manshifts move in a more stable manner, OMS simply follows the shape of the output graph while cost per ton is a mirror image of this curve. Any budgeting procedure which uses average cost per ton or OMS as a basic factor in its forward estimating seems therefore doomed to a considerable amount of uncertainty, as these items are the effects of change and not in any way causative factors. More important in estimating possible future results are not *average* cost per ton or OMS, but the marginal values.

Marginal effects of production changes

The fact that there is a slight, though not very marked, tendency for costs and manshifts to increase when output increases suggests that, although total costs and overall manshifts can be budgeted independently of output and an output target set as a result of these, some allowance to costs and manshifts needs to be made for any changes in output implied in that target.

To determine the necessary allowance, an analysis of all the available years' data for the 280 collieries was made by regression analysis, akin to the analysis of fixed and variable costs in accounting procedures.

To perform such an analysis, the absolute changes from year to year were used. That is, the change in output from one year to the next in tons was related to the corresponding change in the number of manshifts worked and the change in £'s of the total sterling cost, with the proviso that for costs the effects of inflation were first of all removed from the year to year changes by applying the previously-determined annual coefficients of inflation mentioned above. The previous analysis of percentage changes had suggested about a 5 to 1 relationship between output and cost changes, and this was borne out by the marginal analysis.

The analysis of marginal effect gave the result that a change of 1 ton in output was related to a change of 17s. 1d. in sterling cost or a change of one-eighth of a manshift. Thus the marginal cost of production was only 17s 1d. compared with the average cost of production in 1968/9 of 96s. 7d., while marginal OMS was some 160 cwt. compared with average OMS of 42½ cwt. These marginal effects were the average over all collieries whether profitable or not and, before firmer conclusions could be drawn which might have an impact on policy for the whole industry, it was necessary to see whether marginal effects were different in unprofitable as compared with profitable pits. The collieries were therefore divided into two groups, according to whether they made a profit or a loss in 1968/9. For the 159 profitable pits the marginal cost worked out at 15s. 5d. per ton, while for the 121 unprofitable pits marginal cost was 19s. 10d. per ton. These variations from the overall average of 17s. 1d. per ton were not sufficiently great to invalidate the general conclusions drawn from these results, the implications of which in budgeting and assessing performance against budget are considerable.

A possible budgeting procedure

This analysis suggests that a good estimate of total sterling cost for a colliery for a future year can be obtained by fitting a regression line to data for several past years and extrapolating that line. Such an estimate would of course assume an average inflationary tendency and no major technical changes, but could readily be adjusted if there were definite evidence on which to assume a different inflationary effect or if there were definite plans for major technical changes. Thus a first estimate of cost can be obtained. To this estimate of cost any required rate of return can be applied to give required total proceeds. Dividing required total proceeds by the expected proceeds per ton gives a required level of output. Expected output can now be assessed

separately, either by fitting a regression line to past years' results or, if changes in the working of the colliery are intended, by a technical assessment of the results from various working districts in the light of past experience. In cases where this expected output exceeds the output calculated to give the required proceeds, the data on costs, proceeds and output can be accepted as budgets. Where the expected output appears unlikely to reach the required level, a re-assessment of the colliery will be necessary.

Where output appears unlikely to reach the required level, the expected output when multiplied by expected proceeds per ton gives a level of receipts which will be less than the required total proceeds already calculated. The shortfall must therefore be made up by the marginal profitability of extra tonnage. Therefore, dividing the shortfall between expected receipts and required total proceeds by the marginal profitability gives a required extra tonnage. The first estimate of total costs must then be increased by the marginal cost of this extra tonnage and the technical plans for working the colliery recast to provide the extra tonnage. The process described in this paragraph and the previous one can then be repeated until a set of working plans are evolved which lead to an acceptable budget.

Assessment of achievement against budget

Data used in assessing performance include the calculation of average cost per ton, average proceeds per ton, and the difference, average profit/loss per ton. Although these figures have some value in assessing past performance, they can be very misleading in considering the possible implications of future variations from planned performance. Where a budget anticipated a profit of say 5s. 0d. per ton and it later appears likely that there will be a shortfall in output, this shortfall on profitability should not be assessed at the average profitability of 5s. 0d. per ton. The effect on profitability is not at the average profit per ton, but at the *marginal* profit per ton, which, being the difference between *marginal* cost and average proceeds, is £4 per ton. Thus the effects of shortfalls in output (or the benefits from over-achievement of budget) are considerably greater than would appear at first sight.

Summary of findings

- (a) Colliery outputs can vary appreciably from year to year often in an apparently random manner, causing difficulty in forecasting and budgeting.
- (b) Colliery sterling costs (£) and overall manshifts do not exhibit as much variation as output and tend to show steadier trends of increase or decrease. Total cost and manshifts worked can therefore be more readily forecast and budgeted.

- (c) Observed changes in total cost and manshifts worked appear to be largely unrelated to changes in output and can therefore be forecast or budgeted independently of output.
- (d) There has been an inflationary element in coal production costs of about 3.7 per cent per annum in recent years.
- (e) What relationship there is between output and total cost or overall manshifts worked shows a marginal effect different from the average cost per ton or overall OMS, marginal cost per ton amounting to some 17s. 1d. and marginal OMS being about 160 cwt.
- (f) The probable effects of shortfalls or over-achievements in output should be assessed not at *average* profitability per ton but at *marginal* profitability per ton, i.e. average proceeds per ton *less* 17s. 1d.

The burden of form-filling on small firms

Note by the Central Statistical Office

In July 1969, the President of the Board of Trade announced that he had appointed an independent Committee of Enquiry 'to consider the role of small firms in the national economy, the facilities available to them and the problems confronting them; and to make recommendations . . .'. The Committee, which expects to report during 1971, is chaired by John E. Bolton, D.Sc.

In evidence to the Committee some organisations have drawn attention to the number, scope and complexity of forms which small firms are asked to complete; as a consequence the Central Statistical Office was invited to give evidence, on behalf of the Government Statistical Service, on the incidence and burden of form-filling on small firms. This evidence, which was submitted during August this year, and relates to statistical forms only, is reproduced below.

Introduction

A number of organisations in their evidence to the Committee of Inquiry on Small Firms have mentioned the burden of form-filling on small firms⁽¹⁾ and the purpose of this paper is to present some evidence on this subject to the Committee. The evidence relates only to the requirements made on business by the Government Statistical Service and has been prepared by the Survey Control Unit of the Central Statistical Office in consultation with Statistics Divisions of Government Departments.

The burden of form-filling is an issue of considerable importance to the Government Statistical Service. Both Government and business require statistical information on the state of the economy if informed policy decisions are to be made. The basic data on which this information is based can only come from the records of business; there is no magic source of this data as some commentators on this subject appear to imply. In this situation it is in the interest of the Government Statistical Service, as the principal producer of statistics about business activity in this country, to ensure that the basic data is collected in an economic fashion; equal care and attention must be devoted to the supply situation as to the demand for statistics. This paper attempts to demonstrate this fact.

The paper first discusses and defines the area of form-filling with which the evidence is concerned. The subsequent section, together with Appendices I and II A-H⁽²⁾, analyses the current incidence, at the end of

1969 and including the pre-1969 situation as regards infrequent enquiries, of form-filling in this area. (It is known that the current situation will be subject to certain proposed developments though the precise impact of these developments on small firms is not certain; the more important of these changes are outlined in Appendix III). A general discussion of the future prospect, with particular attention to factors relevant to the alleviation of form-filling then follows and finally, some concluding remarks.

Coverage

It is most important to define at the outset the area covered by this evidence, since, in discussions on the subject of form-filling, matters relating to the origin, content and purpose of the forms completed are sometimes lost to sight. Thus, while most forms ask for quantitative information and are therefore often described as statistical, this is a very broad definition and is much wider than that with which this paper can be concerned. Specifically the evidence does not, and for obvious reasons cannot, relate to enquiries which originate from bodies which are not central government departments. Secondly, within the central government area, the note only relates to information collected by the Government Statistical Service. It is difficult to delimit the boundaries of this definition in a few words but in effect the field covered can be said to relate to information gathered for general statistical purposes only. Thus information provided for purposes such as revenue collection or disbursement and other administrative purposes is excluded (though it is stressed that the existence of this information in certain areas reduces considerably the need for purely statistical returns from firms of all sizes). Again, the evidence does not cover information collected for statistical purposes only by organisations e.g. statutory bodies, trade

(1) The definitions of small firms, and of sectors of business, used in this note follow those adopted by the Committee and are given in the prefaces of Appendices II A-H (see (2) below).

(2) Appendices II A-H, which list for each business sector the names and frequencies of the enquiries summarised in Appendix I, could not be included with this article for reasons of space. They can be obtained from Mr. W. J. Brooks, Central Statistical Office, Great George Street, London SW1 (Tel. 01-930 5422 Ext. 382).

associations, which in other circumstances, might be collected by the Government Statistical Service. However, in the context of the burden on small firms, these are not very significant exclusions.

Estimates of the relative magnitudes of the reporting burdens on the business community for statistical purposes and for all other purposes cannot be given. However, a certain amount of information on this subject exists in the United States and it may not be too unreasonable, given the somewhat broad similarities in this matter between the United Kingdom and the United States, to assume a similar position in this country. In the United States the position at the end of 1969 was that general purpose statistical enquiries were estimated to account for about 22 per cent of the reporting burden placed on business by Federal agencies. This calculation takes no account of tax reporting and since the burden of this could appropriately be added into the non-statistical purposes category, the proportionate burden for statistical purposes only should be considerably less than 22 per cent – say 15 per cent.

The order of magnitude of this estimate endorses the impression received from the examination of most lists of forms completed by individual businesses which have been publicly produced, which is that a minority only of these forms are concerned with Government statistics as conventionally defined and understood. This fact should be borne in mind in considering the remainder of this paper.

The present situation

The present impact of statistical enquiries on small businesses is broadly summarised, in Appendix I and, for each business sector, in Appendices II A–H⁽²⁾. These analyses describe the end-1969 situation, but since it is known that certain developments are likely to affect this situation, the probable impact of these developments is outlined in Appendix III. It can be said, however, that these presently known developments are not expected to alter very radically the general picture described in the following paragraphs.

The first point worth remarking is that virtually all small businesses, as defined by the Committee of Inquiry, are exempted from the completion of a wide range of statistical enquiries, many of which are nevertheless vital in providing essential information about the state of the economy and are also, in a number of cases, relatively more onerous for the respondent to complete. These include, for example, short-term enquiries into stocks, capital expenditure, profits, investment intentions, liquidity, overseas financial transaction, wholesale price quotations, use and stocks

of fuel and steel and transport activities. Obviously more accurate statistics could be produced if some, if not all, small businesses were asked to contribute to various of these enquiries but it is recognised that the burdens involved would be very substantial for small businesses.

Statements about the precise incidence of statistical enquiries on small businesses, which would involve detailed analysis of the respondents to every enquiry, are more difficult to make as one moves on to areas where the impact commences to become of measurable significance. Estimates of the incidence of various enquiries are quoted in terms of ranges of proportions affected, and while reference is made to the frequency and, occasionally, complexity or simplicity of enquiries, quantitative estimates of burdens e.g. man-hours involved, have not been attempted. There will also be some differential impact from industry to industry and sector to sector which should be kept in mind in considering general situations. Again, a very important point about the estimates in the Appendices which should be stressed is that the respondents to enquiries on different subjects will differ to some extent so that if each of, say, 3 enquiries is sent to, say, 10 per cent of all small firms in a sector, it is quite likely that many of the respondents will contribute to one of these enquiries only i.e. the burden is more widely spread than might be inferred from casual inspection of the Appendices.

Enquiries relating to sales or output, in one form or another, are probably the most widespread type of enquiry and are to be found in all sectors. A typical example in this field is one asking simply for a total sales figure, usually monthly; occasionally one or more other summary totals e.g. orders on hand, may also be asked for. Despite widespread use, such forms are completed by a minority of small firms only because of the sampling and exemption arrangements discussed later – under 10 per cent in manufacturing, and considerably under 5 per cent in retailing, motor trades, construction and miscellaneous services. It is also the situation in some sectors for there to be forms asking for some commodity breakdown of sales to be provided, typically quarterly. This happens principally in manufacturing and construction, with about one-sixth of small firms currently involved. Short-period enquiries of a somewhat similar nature have a more widespread impact in certain other sectors e.g. in mining and quarrying, owing to the size-structure of the industry, and in wholesaling where there are a large number of coal merchants responding to enquiries relating to their retail sales.

Aside from these short-period enquiries concerned with output which affect, in the main, small proportions of the total numbers involved, there are typically larger

(2) See footnote (2) on page 11.16

scale, infrequent enquiries of a census nature in most sectors which ask for other information besides output, e.g. input, stocks, capital expenditure, etc. These enquiries yield information about the structure, size and inter-relationships of business and provide essential benchmark material on which to base the simpler short-period enquiries and for many other uses. Inevitably, given the many basic needs they are intended to serve, census forms are relatively detailed, though the aim is always to relate the information required to data available from company accounts. Simplified versions of the standard form are almost invariably used where smaller firms are concerned. It is not possible to say much by way of broad generalisations about these enquiries, and the details are given in the Appendices but it is worth remarking that while a number of these enquiries are annual, the frequency has been as little as ten-yearly intervals.

The other important area of statistical enquiries is that relating to labour, e.g. employment, earnings, hours worked, occupational statistics, etc.; most of these enquiries are conducted by the Department of Employment and Productivity. The incidence of the short-period enquiries in this field is very low in some industrial sectors; the highest level of incidence reached, in one sector only, is around one-quarter. As with the output enquiries, these short-period enquiries are, in the main, fairly simple. A census-type enquiry affecting most firms also occurs in this field – at present there is an annual exchange of national insurance cards but it is possible that this will be replaced by an annual Census of Employment (see Appendix III) – but this enquiry is considerably less wide-ranging in content than the output censuses.

Aside from these two main fields of enquiries, there are a number of other enquiries which tend to be of a more specific nature e.g. transport activities, consumption and stocks of solid and liquid fuels and of steel, which, as the Appendices reveal, are received by relatively few small firms in almost all sectors of business.

Looking at the overall position some broad conclusions can be drawn from the Appendices, and in particular Appendix I:—

- (a) In all but one of the business sectors which concern the Committee, about seven in every ten enquiries either do not go to small firms at all or affect less than 1 per cent of small firms. (Many of the enquiries in the less than 1 per cent category are completed by only a handful of small firms). The exception is the manufacturing sector where the proportion is five in every ten.
- (b) A further two enquiries in ten directed at these sectors (and four in ten in manufacturing) go to between 1 per cent and 19 per cent of small firms.

The firms involved in these enquiries normally are found among the larger 'small' firms.

- (c) The remaining tenth of enquiries, which reach proportions of 20 per cent or more of small firms, are nearly all infrequent – annual, five-yearly or ten-yearly – and usually, as mentioned above, employ greatly simplified versions of the standard form.

It would be very illuminating if conclusions of a similar level of generality could be derived from the Appendices from the viewpoint of the individual recipient of statistical forms, but to do this in a thorough-going fashion would entail comparisons of the names and addresses of many thousands of firms on various departmental registers which would be a massive task. Nevertheless, some remarks on the general situation are possible. The number of small firms, as defined by the Committee, is estimated to be of the order of three-quarters of a million; of these, more than half a million will typically receive forms in respect of one statistical enquiry only, or much less typically, two; the frequency of receipt would be rarely more often than annual and could be as infrequent as five or ten-yearly. At the other end of the range – the largest 3 per cent or 4 per cent of small firms – respondents are typically likely to contribute to a short-period output enquiry and a census output enquiry, the latter at annual or less frequent intervals, and probably to one, or perhaps two, enquiries in the labour field. Examples of firms contributing to more than four enquiries will doubtless exist but the number would be very few indeed.

The future prospect

Looking to the future, there is the question whether even more can be done than at present to reduce the burden of form-filling by small business. It is clear that this aim cannot be readily achieved, with demands for data continuing to grow in regard to the range, frequency and detail of the information to be collected. A good deal of the demand comes from the business sector itself including companies and other organisations that in other contexts, complain about the burdens involved in form-filling. It is not easy therefore to make inroads into the overall burden, or even contain it, in the face of this fairly widespread ambivalent attitude towards statistics and form-filling.

In part, given that there is acceptance of a need for some statistical information about the activities of small firms – and much of the evidence presented to the Committee implies this either directly or indirectly – the problem is to achieve a more general acceptance of this fact and to make the completion of forms as palatable as possible. The Government Statistical Service therefore has traditionally devoted effort towards this

end. New enquiries in all fields are discussed with bodies representing the various industry interests concerned at all levels. For example, in the case of the new arrangements for industry statistics mentioned in Appendix III, the consultations are very detailed and involved many dozens of individual trade associations. Again, use of official statistics is encouraged in explanatory leaflets, statistical publications and via other information channels. Nevertheless more could usefully be done to widen acceptance of the need for information, and equally the use of official statistics by the business community, and the Government Statistical Service intends to intensify its efforts, in so far as resources permit, towards these objectives.

Aside from these matters of the need for, and the use of, statistics there is the question whether there are current indications suggesting some increase or decrease in the present modest average burden of statistical forms completed by the majority of small businesses. Certainly, on the one hand the demand particularly from users outside central government, for increasingly detailed statistics seems likely to intensify. On the other hand, the Government Statistical Service is very conscious of the need to balance this demand against the supply situation and to strive for alleviation of form-filling wherever possible. This question of alleviation will be of interest to the Committee of Inquiry; progress in this direction will be aided by various aspects of the work of the Government Statistical Service, of which the following merit mention.

(a) *The Survey Control Unit of the Central Statistical Office*

This recently established Unit has been charged with ensuring that the collection of necessary data by the Government Statistical Service is conducted in an orderly manner as regards phasing and frequency of enquiries, use of definitions and classifications, elimination of unnecessary overlap among enquiries and, in general, to examine critically all new and existing enquiries from a supplier viewpoint. The Unit is not solely concerned with the supply of information from small businesses, but this aspect is given substantial attention in its activities.

Projected new enquiries have been shelved or reduced in content and existing enquiries reduced or eliminated as a consequence of joint examinations by Departments and the Unit and announcements about changes in enquiries have appeared in *Statistical News* and departmental publications such as the *Employment and Productivity Gazette*. The reorganisation of industry statistics, (see Appendix III), has afforded an opportunity to question present official and other e.g. trade association requirements, and as a result it is expected that some reduction in burden will be achieved in a

number of industries. Some of these alleviations are of a relatively modest nature which is to be expected, since the primary purpose of the reorganisation is to meet the demand from industry for more, rather than less, information; nevertheless, the achievement of these reductions underlines the wish of the Government Statistical Service to alleviate the form-filling burden wherever possible. Similarly, some reductions have been made, or are contemplated in labour earnings enquiries consequent upon the 'new earnings survey' sample approach to this subject (see Appendix III).

(b) *Sampling and exemption procedures*

There is already widespread use of sampling procedures in many statistical enquiries and also, of particular importance to smaller businesses, the use of exemption limits whereby firms below a certain size are not asked to complete statistical returns.

The extensive employment of these methods explains why many major enquiries, as mentioned earlier, are not sent to small businesses. In general, these procedures are more suitable in situations where the information required is of a fairly summary nature, e.g. total sales of a firm, and where the need is for a measure of change, e.g. an index, rather than absolute figures, and indeed these are areas in which their use mainly arises in official statistics. However, a great deal of the current demand for statistics, particularly that coming from outside the Government is for information in relatively fine detail by, for instance, commodity, industry, occupation, geographical location and, in general, it is not possible to produce worthwhile information at these more detailed levels if sampling methods are adopted very extensively or exemption lines drawn at higher levels than those used currently.

Nevertheless the question of more extensive use of sampling or exemption will continue to receive close attention. One possibility which will be examined – and it requires the existence of a good common register of respondents to various enquiries to be operated – is to share out the burden of reporting more evenly, particularly among the smaller firms. Developments on these lines are to be introduced into enquiries conducted in the construction industry (see Appendix III). In general, this approach seems most promising in areas of related enquiries conducted concurrently. Another alternative whereby the sharing is through time within the same enquiry will also be considered where possible.

(c) *A central register of businesses*

The existence of such a common register of respondents on which the Government Statistical Service is now working will, besides facilitating operations of a burden-sharing nature as mentioned above, also help to lessen the risk of overlap among enquiries conducted by different agencies, particularly as it is intended that

most of the enquiries directed to the business sector will be conducted by one processing agency (the Business Statistics Office).

(d) Nature and design of forms

There are two general points worth mentioning here. One type of easement is to have a simpler form, usually with fewer and less detailed questions, for smaller firms. This procedure is already followed by the Government Statistical Service in the collection of certain statistics and will continue to be used as widely as possible. Very widespread use of these arrangements is not possible for precisely the same reasons mentioned above in connection with sampling, i.e. a great deal of the current and likely future demand is for detailed and comprehensive statistics, and this obviously militates against the use of simplified forms.

Another matter of common complaint from respondents is that some forms are long and ask questions which are not closely relevant to the business of the respondent. The most typical example here is forms asking for break-down of sales, etc., with the respondent being asked to complete the appropriate product headings and, of course, to ignore the rest. (A recent analysis of forms of this type revealed that, though up to one hundred or more product headings may be included on any one form, on average five headings were completed by larger firms and, only three in the case of small firms). This arrangement, besides producing better statistics, arises from the obvious advantage from the processing viewpoint in having as few different forms as possible, and from the fact that the sponsoring agency will not know beforehand which headings the respondent will complete; even if past returns can help here, the nature of the respondent's business can, and does, change. It could also be argued that it may be easier for the respondent to classify his own sales under a more narrowly defined list of products. Nevertheless, it is accepted that it may be psychologically upsetting to the respondent to be confronted with a long form. It should be possible, in the longer term, and with the increasing use of automatic data processing, to get nearer to 'tailor-made' forms, if this is what the majority of respondents would prefer, though as suggested above, the matter is really one of presentation, rather than of reduction, of content.

Conclusion

The evidence submitted in this paper suggests that the burden of form-filling on small firms which arises from Government Statistical Services enquiries is slight. This follows mainly from the fact that the distribution of these statistical enquiries is deliberately weighted towards larger firms. Continuing attention will nevertheless be given to the level of the statistical form-filling burden in general.

APPENDIX I

Incidence of statistical enquiries sent out by Government Departments

Numbers of enquiries, or enquiry-types, received by firms

Sector of business	(1) Total No. of enquiries received by each sector	(2) Enquiries in column (1)	
		(A) completed only by large firms	(B) completed by small firms as well as large
Mining and quarrying	25	14	11
Manufacturing	34	6	28
Construction	35	17	18
Road transport	18	9	9
Wholesaling	25	8	17
Retailing	26	12	14
Motor trades	20	8	12
Miscellaneous services	23	(1)	(1)

Enquiries in column 2(B) allocated to the estimated percentage of small firms affected

Sector of business	Under 1	1-5	6-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90 and over
Mining and quarrying	5	1		2				1		1	1	1
Manufacturing ...	12	8	2	2	2					1		1
Construction ...	7	3	2	2		1						3
Road transport ...	4	4			1							
Wholesaling ...	11	1	1	2			2					1
Retailing ...	8	2	1	1	1							1
Motor trades ...	6	3			1	1						
Miscellaneous services (1)	16	2	2	1	2							

(1) The Committee did not distinguish small and large firms in Miscellaneous Services and the figures for this sector therefore relate to all firms.

Note:
1. Columns 1 and 2 refer to the maximum number of enquiries which theoretically could be received by firms in each category, though in practice very few organisations would receive this number. The further analysis of column 2(B) allocates enquiries according to the proportion of small firms affected by each enquiry. Taking Mining and Quarrying as an example, this means that 5 enquiries have each been independently assessed as reaching under 1 per cent of small firms. It is not possible to state, without making a detailed examination of all the registers involved, whether the same firms are affected by all 5 enquiries, or entirely different firms are involved each time, or there is some partial overlap between them.

2. Column 2(B) also includes the very small number of enquiries that are completed only by small firms.

APPENDIX III

Developments in the immediate future

Appendices I and II A-H* analysed the situation at the end of 1969, but did not take into account, because the precise impact on small firms is not certain, of some developments which are or will be taking place within the next year or more. The sum total of these new developments will not affect the general situation already described to any very substantial extent but should be noted – they illustrate on the one hand the demand mentioned elsewhere for improved statistics and, on the other, the efforts in meeting these demands of the Government Statistical Service to reduce the form-filling burden wherever possible. These known developments include:

(a) *An annual census of employment*

It is probable that the compilation of the comprehensive employment statistics from exchanges of national insurance cards will be discontinued being replaced by an annual Census of Employment, on which trials are now taking place. The new arrangements will yield improved information in various ways but will add marginally to the overall burden of form-filling on small businesses.

(b) *Earnings statistics*

The 'new earnings survey' will be based on a doubled sample size from 1970. As the Appendices show this survey, prior to this doubling did not have a heavy impact on small business, and it is estimated that despite this increase in the sample the percentage of small businesses affected in all sectors, except possibly manufacturing, will still be well under 5 per cent.

This improvement in the information available on earnings will make it possible to reduce the impact of other enquiries mentioned in the Appendices. In future the six-monthly WE enquiry will become, in part, annual. The SL enquiry will be discontinued after this year, and the future of the EO enquiries is under discussion with the users in industry of the statistics.

(c) *Occupational and training surveys*

The annual L7/L8 enquiries were restricted in coverage in 1969 and 1970, largely because, in the eyes of respondents, they duplicated information being collected by some Industrial Training Boards. Government statistical needs in this area are not being met by these ITB enquiries, so much information is being foregone until a new system of collecting occupational and training statistics currently under investigation and which it is hoped will meet all needs, is worked out.

(d) *A new system of industry statistics – Manufacturing industry*

The general outline of the new arrangements for industry statistics has been described elsewhere, e.g. *Statistical News*, May 1968, 1.7. The general effect of this complete overhaul of existing Census of Production and short-period industry statistics will be to radically improve, in response to growing demands from official and, particularly, industry users, the existing statistics as regards detail, coverage, comparability and frequency. The proportion of small firms reporting output, etc. quarterly will increase from under one-fifth to about one-third; the frequency of reporting aggregative information on sales, purchases, capital expenditure, etc. will be annual rather than quinquennial; and detailed purchases information will be asked rather more frequently than in the past. All these changes will only affect the larger small firms, i.e. those with 25 or more employees in most industries, or 11 or more in the remainder. *Prima facie*, the achievement of these aims will markedly add to the volume of form-filling by firms, including small firms, in manufacturing industry. However, the implementation of this system involves a review of the existing statistics to be replaced and the opportunity is being taken to cut back on existing requirements wherever possible. Examples here include raising the exemption line of enquiries, reducing content, e.g. discontinuing the collection of information on export deliveries, orders or stocks, reducing the frequency of some enquiries, and discontinuing parallel enquiries made by trade associations.

In summary, while it is probable that the overhaul of the statistics of the output, etc. of manufacturing industry will lead to a net increase in form-filling by small business, it does not appear likely that the increase, viewed overall, will be substantial.

(e) *The Census of Distribution*

The next full Census in respect of 1971, following demands for further information about activity in the distributive sector, will involve a heavier burden on small firms in this sector than did its predecessor in 1961.

(f) *Surveys in the construction industry*

(i) Changes have been made this year in the private enterprise housing enquiry with the specific aims of reducing the burden of this enquiry. The effect will be a very considerable decrease in form-filling for the firms with small or medium sized housing programmes.

(ii) Changes with the specific object of spreading the burden of form-filling more evenly among respondents will be introduced later this year into the sample design of the enquiries directed to building contractors.

(iii) Another change being considered involves the

*See footnote (2) on page 11.16

amalgamation of the April and September censuses. Amongst other things, this means that about 26,000 of the smallest firms will be required to supply employment returns only once rather than twice a year.

(g) *Other surveys*

(i) It is probable that the survey of labour costs last conducted in respect of 1968 will not be repeated in the near future.

(ii) It is proposed that the next three-yearly survey of engineering, technological and scientific manpower will not be directed to firms with less than 200 employees.

Notes on current developments

POPULATION AND VITAL STATISTICS

1966 Sample Census of Population

The *Economic Activity Sub-Regional Tables* contain details of employment, occupation and industry for sub-divisions of regions of England and Wales and economic planning sub-regions of Scotland.

The five tables included in this volume are:

1. Economically active persons by area of residence: occupation and status by sex
2. Persons in employment by area of workplace: occupation by sex
3. Persons in employment by area of workplace: industry and status by sex
4. Economically active males by area of residence and socio-economic group
5. Economic activity: males by age, females by age, and married females by age.

Reference

Sample Census 1966, Great Britain, Economic Activity Sub-Regional Tables (HMSO) October 1970 (Price £4 15s. 0d.)

Population and population projections

An analysis of change, 1968-69, in the estimated home population of standard regions, economic planning sub-divisions, and conurbations is to appear in the *Registrar General's Quarterly Return No. 486*. The analysis displays the total population change in each area in terms of natural increase, change in military personnel, and a balance that is roughly equivalent to net civilian migration. A similar table for Hospital Regions covering the periods 1951-61, 1961-66, 1966-67 and 1967-68 is also published.

Also to appear in this issue are tables of the estimates of the population for standard regions each Census year since 1801, and of revised, 1969-based, population projections for these areas for the years 1971, 1981 and 1991. The estimates for past years with the projections are presented graphically on semi-logarithmic scale. Brief explanatory notes describe the assumptions incorporated in the projections and the salient features of the revisions since the 1965 round of projections.

Reference

The Registrar General's Quarterly Return for England and Wales No. 486. Quarter ended 30th June 1970 (HMSO) October 1970 (Price 4s. 6d.)

Scottish statistics

The Second Quarterly Return for 1970 of the Registrar General for Scotland will be published in December. In addition to the usual quarterly tables, it will contain

estimates of migration in the second half of 1969 and an analysis of local elections in 1969.

Occupational mortality (Scotland)

The *Occupational Mortality Supplement* to the Registrar General's *Annual Report for 1968* was published in September 1970. Based on the 1961 Census and mortality experienced in Scotland in 1959-63, the Supplement compares mortality in social class and occupation for males, single females and married females (by husband's occupation) for all causes and a selection of causes.

Population and household projections

The Ministry of Housing and Local Government has recently published the first in an occasional series of bulletins concerned with population and households. The first issue contains two papers the first of which, 'Population Projections within Regions 1968-1991' discusses, from a planning viewpoint, the Registrar General's 1968-based population projections for the sub-divisions of the standard regions of England and Wales. The paper includes a discussion of the rationale behind the migration assumptions incorporated into these projections and a brief note on the projection methods employed. The tables present the projections in more detail than had previously been published and contain various analyses including comparison with past trends.

The second paper, 'The Projection of Households' by D. E. Allnut, R. T. S. Cox and P. J. Mullock (Economics and Statistics Division), describes in considerable detail the techniques and definitions used in the Ministry for calculating household projections. The regional headship rates (percentage of a population group who are heads of households), both observed and projected, are presented and the variations from area to area are discussed. Some consideration is given to the extent to which various socio-economic factors influence headship rates. The sub-divisional household projections derived from the population projections described in the first paper are presented and discussed. Another section of the paper deals with the nature and extent of possible errors in such projections and finally there is a brief description of the computer system used to make the calculations.

Reference

Statistics for Town and Country Planning, Series III Population and Households: No. 1 Projecting growth patterns in regions: (a) Population projections within regions 1968 to 1991 (b) The projection of households. (MHLG) October 1970 (Price 7s. 0d.)

HOUSING

Private enterprise housing enquiry

This periodic enquiry has been conducted jointly by the Ministries of Housing and Local Government and of Public Building and Works for several years, to collect information about current and future private housebuilding in Great Britain.

Forms have been sent out at the end of March, June and October each year to well over 10,000 building firms known to undertake speculative building and to a number of property developers. Their returns form a basis for estimates of the expected level of private housing activity up to eighteen months ahead and the estimates of starts are published in *Housing Statistics, Great Britain*.

Starting with the enquiry despatched at the end of June, forms are being sent only to samples of little more than one-tenth of all the firms. The builders have been stratified on the basis of the number of private houses started in 1969 – information given in the March 1970 enquiry – and within these strata are listed region by region.

The few builders who started over 150 private houses accounted for some 40 per cent of speculative building in 1969 and all these firms will be approached in every enquiry. For each enquiry a fresh interval sample is being drawn from the rest of the builders; 1 in 5 of those which started more than 20 houses and 1 in 10 of the others. A sample of new firms entering the market will be added.

It is intended to conduct five enquiries using the 1969 starts to classify firms, and then to reclassify firms to take account of changes in their scale of private housebuilding activity.

The change to sampling reduces the cost to the departments, but more significant is the reduction in the numbers of forms which builders are being asked to complete. From analysis of past enquiries it has been calculated that, at the 95 per cent confidence level, the errors due to sampling should not be more than about 3 per cent of the estimates; there are, of course, other errors arising from non-response and from the assumptions made about housing not built speculatively. Any further reduction in the sample size seems unlikely because of the relatively large variations from year to year in the level of housebuilding activity even of quite large firms.

Reference

Housing Statistics, Great Britain (Quarterly) (HMSO) (Price 15s. 0d.)

Housing progress

The monthly press release on housing progress issued by the Ministry of Housing and Local Government has now been expanded to give more information about

housebuilding performance and to include figures for improvement grants and, in the quarter months, for slum clearance. The quarterly information is thus made available to the public some six weeks before it would normally be published in *Housing Statistics, Great Britain*.

The section on housebuilding progress gives details for the latest month of dwellings started, under construction and completed in the public and private sectors of England, Wales, Scotland and Great Britain. It also includes for Great Britain past figures for comparison and seasonally adjusted figures. Information on improvement grants includes details for the previous three months and selected figures for earlier periods for grants approved for local authorities and private owners in England and Wales.

In the quarter months there is additional information on improvement grants, including figures for Scotland and for grants paid, and figures are also given of houses demolished or closed in England and Wales, showing the latest quarter and selected earlier periods. Charts are included which illustrate the progress of housebuilding and of improvement grant approvals during the past few years.

EDUCATION

Scottish Educational Statistics

Scottish Educational Statistics 1969, published in August 1970, reveals that almost one-third (32.8 per cent) of all the registered teachers employed whole-time in nursery, primary, secondary or special education in Scotland at December 1969 were married women. The total number of registered teachers employed whole-time at that date had increased by almost 6 per cent in the preceding year and stood at 42,245. Of that number, 19,623 were employed in secondary education, an increase of nearly 8 per cent. In addition there had been very substantial reductions in the number of conditionally registered teachers in employment (from 1,189 to 334) and of unregistered teachers, who can now be employed only in secondary or special education (from 2,145 to 495). The net result of these changes was that the size of the whole-time teaching force remained almost unaltered (—157).

In the teacher-training sector the number of students entering colleges of education continued to increase both for graduates (1,709 in 1969–70 compared with 1,584 in 1968–69, an increase of 7.9 per cent), and for non-graduates (4,353 as against 4,196, an increase of 3.7 per cent). Because of the high initial intakes to the Primary Diploma course in 1965–66, the number who completed training in 1967–68 (2,225) was exceptional, and understandably the 1968–69 figure (1,978) showed

a decrease (—11.1 per cent). The number of other non-graduates completing training in 1968–69 was 17.9 per cent higher than in 1967–68 (1,122 as against 952). The number of graduates completing training also continued to rise, from 1,260 in 1967–68 to 1,461 in 1968–69, an increase of 16 per cent; it is particularly heartening to note the 18.3 per cent increase in graduates with secondary qualifications, from 1,052 to 1,245.

The number of pupils at school continued to increase, and it is now forecast that, if present trends continue, the total number of pupils at all schools will exceed one million (1,006,300) in 1972. The 1969 volume also shows that nearly 60 per cent of education authority pupils were in schools with a comprehensive intake and that there were 90 secondary schools or departments (67 comprehensive) with over 1,000 pupils compared with 76 (51 comprehensive) in 1968. The general trend for pupils to stay on at school was maintained and half of the 15-year-olds were at school in 1969 compared with 2 out of 5 in 1965. In the older age groups a little over a quarter of the 16-year-olds and about 1 in 6 of the 17-year-olds stayed on against a fifth and about 1 in 8 respectively in 1965. This trend was naturally reflected in the continuing and proportionate rise in the numbers leaving school with SCE qualifications. For the first time the table showing presentations and passes in the SCE examination is broken down to give separately the numbers of school, further education and external candidates and, in addition, the number of presentations in the Certificate of Sixth Year Studies.

In further education the total number of students in non-advanced courses was still increasing; it is interesting to note that the number of those who attended evening classes only, a number which had been declining steadily since 1965, rose last year by slightly more than 1 per cent from 58,741 to 59,441. The numbers of students in advanced level courses went up substantially from 15,311 in 1968 to 18,322 in 1969 (19.7 per cent) compared with an increase of 19.4 per cent over the period from 1965 to 1968 (12,822 to 15,311): this may be a direct result of the larger number of school leavers with SCE 'H' grade qualifications.

Figures for the Scottish universities provided by the UGC are reproduced in a table giving the ages of under-graduate new entrants. These suggest that boys and girls are now tending to be older on entry to university. While the proportion of those aged 17 and under remains virtually unchanged in the academic session 1968–69, males and females aged 18 who in the previous session represented 45.5 per cent and 59.4 per cent respectively of all entrants now account for only 40.5 per cent and 55.8 per cent.

Comparisons of the subject groups of study followed by full-time students at under-graduate level entering for the first time show some interesting changes from

the previous year and seem to suggest that, at least in 1968–69, there was a swing in popularity away from science and social science in favour of arts. Science which in 1967–68 attracted 32 per cent of men and 21.5 per cent of women accounted for only 27.9 per cent and 18.8 per cent respectively in 1968–69. The numbers of men and women following the social, administrative and business group of studies fell from 24.7 per cent and 30.4 per cent to 22.3 per cent and 27.7 per cent of the total number of full-time students, while those following the arts other than languages group increased to 9.9 per cent of men and 25.9 per cent of women compared with 5 per cent and 12.4 per cent respectively.

Reference

Scottish Educational Statistics, 1969 (HMSO) August 1970 (Price £1 13s. 0d.)

MANPOWER AND EARNINGS

Sub-regional employment statistics

A special article on estimates of employees in employment in the standard sub-divisions of the regions in Great Britain was published by DEP in the *Employment and Productivity Gazette*, September 1970. Mid-year estimates compiled from DEP sources are given for 1966 and 1968.

For 1966, comparisons are made between the DEP annual estimates and those derived from the 1966 sample Census of Population, after making some adjustments to both sets of figures for known deficiencies in the basic information. The article gives several reasons, quite apart from sampling variations, for differences between the estimates from the two sources. Some of the reasons for differences at the sub-divisional level are those which give rise to differences at the national level, although their relative effect will vary in different areas. Others only affect the breakdown of the national totals between the sub-divisions.

In 1968, special arrangements were made by DEP to obtain improved information about the areas of employment of those employees whose national insurance cards are exchanged in other areas. The article compares a set of sub-divisional estimates which take account of this extra information with another set based only on information obtained regularly each year.

Regional earnings

The regional statistics of earnings produced by the Department of Health and Social Security from information contained in the Department's records of graduated insurance contributions, were described in *Statistical News* 1.22 and 7.32. Figures are now available for the 1968–69 tax year. Summaries of the

tables will be published in November in the *Abstract of Regional Statistics*. Further details can be obtained from the Department of Health and Social Security, 10 John Adam Street, London WC2.

PRODUCTION

Input-output statistics

At the beginning of this year, a comprehensive study *Input-output Tables for the United Kingdom 1963* was issued by the Central Statistical Office. As soon as the analysis had been completed, steps were taken to update the tables to the year 1968, and provisional results of this exercise will shortly be made available. The statistical basis for this updating exercise were the provisional results of the 1968 Census of Production, published in the December issue of the *Board of Trade Journal*, and the recently published National Income Blue Book for 1970.

The procedure for updating firmly based tables to a more recent year is now reasonably well established, but the particular exercise which has been carried out was complicated by the recent change in the Standard Industrial Classification. Both the National Income Blue Book for 1970 and the Census of Production for 1968 are based on the 1968 Standard Industrial Classification, whereas the input-output tables for 1963 are based on the previous 1958 Classification. This has meant that, before the updating exercises could be carried out, the basic tables for 1963 had to be re-classified so far as possible according to the later Standard Industrial Classification. This involved about one man-year's effort and resulted in a considerable number of small adjustments being made to the original tables.

The compilation, on a provisional basis, of the updated tables for 1968 has now been completed. It is planned to publish summary provisional input-output tables for 1968 in the January 1971 issue of *Economic Trends*. More detailed provisional tables, including the 70×70 industry×industry table and its inversion, either in the form of a computer print-out or in computer-readable input, will be available on request from the Information Officer, Central Statistical Office, Great George Street, London, SW1 for a small fee.

In addition to this updating exercise, the CSO has been compiling an experimental investment matrix for 1963. This provides an analysis by commodity group of the capital expenditure of each purchasing industry. In terms of the 1963 Study it provides an industrial dimension to column 77 of Table B. It is proposed to update this investment matrix to 1968 and publish the results in *Economic Trends* in the near future.

Reorganisation of industrial statistics

The new system of quarterly sales enquiries will be extended to cover a further six industries in the 4th quarter 1970:

Cocoa, Chocolate and Sugar confectionery – MLH 217

Pharmaceutical Chemicals and Preparations – MLH 272

Timber – MLH 471

Wooden Containers and Baskets – MLH 475

Miscellaneous Wood and Cork Manufactures – MLH 479

Miscellaneous Stationers' Goods – MLH 495

In each of the above industries the Business Statistics Office will conduct a comprehensive sales enquiry covering all establishments with 25 employees or more. The results of the above enquiries will be published on a regular basis in the Business Monitor series.

Together with the new quarterly enquiries the above industries will also be covered by the following short-period enquiries:

Cocoa, Chocolate and Sugar Confectionery (MLH 217): 4-Weekly enquiry sponsored by the Cocoa Chocolate and Confectionery Alliance into despatches and production of finished products.

Pharmaceutical Chemicals and Preparations (MLH 272): Quarterly sample survey, sponsored by the Department of Health and Social Security (DHSS), into the value of National Health prescriptions dispensed by chemists in England and Wales.

An annual survey, sponsored by the DHSS collects data on total sales divided between exports, home ethicals, and home proprieties.

Timber (MLH 471): Monthly enquiry into imported softwood, hardwood and plywood stocks and contract balances. The collection of figures for United Kingdom production and United Kingdom manufacturers' stocks of plywood will be deleted from this enquiry.

Monthly enquiries into wood chipboard production and timber consumption by wood chipboard manufacturers and paper makers.

As a result of the reorganisation in the industries listed, the following enquiries have been discontinued:

Monthly enquiry into output of sawn home grown timber and stocks; and quarterly enquiry into sales of pens and pencils.

Further information on these enquiries can be obtained from the Department of Trade and Industry, Economic and Statistics (B) Division, 1 Victoria Street, London SW1 and the Ministry of Agriculture, Fisheries and Food, Statistics Division, Great Westminster House, Horseferry Road, London SW1 (for the enquiry into Cocoa, Chocolate, and Sugar Confectionery).

New Business Monitors

Monitors have been published in the Business Monitor Series presenting the first results of new quarterly inquiries into metal furniture (Minimum List Heading 399/1 of the Standard Industrial Classification), wooden furniture and upholstery (MLH 472), bedding and soft furnishings (MLH 473), shop and office fitting (MLH 474) and wallcoverings (MLH 484/1). These inquiries are amongst the first to be designed to fit into the new system of industrial statistics, which was described in an article by Mr. J. Stafford, Director of Statistics, Board of Trade in *Statistical News*, No. 1.

The monitors give manufacturers' sales with a breakdown of product detail which is intended to meet industry's growing need for information for marketing and management purposes. Apart from figures for domestic furniture and bedding, no short period statistics have been available previously for these industries.

The monitors are published in the Production Series under the following references: metal furniture P84, wooden furniture and upholstery P83, bedding and soft furnishings P24, shop and office fitting P 85, wallcoverings P 86. They are available on annual subscription at 7s. 6d. per year for each title from Her Majesty's Stationery Office, P.O. Box 569, London SE1.

Index of production for Wales

An index of industrial production for Wales has now been constructed and is being published in the 1969 *Digest of Welsh Statistics*. It follows the general principles of the United Kingdom index with weights derived from the 1963 Census of Production. It will be compiled and published quarterly and will give the results in unadjusted and seasonally adjusted form. A full account of the index will appear in a forthcoming issue of *Economic Trends*.

FUEL AND POWER

National Coal Board

The *Annual Report of the National Coal Board* for the financial year 1969/70 was published in two volumes by HMSO in September 1970. Volume 1 reports on the financial results and prospects, and describes significant aspects of all the Board's work, not only those concerned with the coal industry, under the principal headings of Production and organisation, marketing, coal products, chemicals and gas, bricks, and the Board as an employer. It includes charts of the most commonly used coal industry statistics for the years 1951-1969/70.

Volume II contains accounts and statistical tables including details for wholly-owned subsidiaries, and

loans and directions from the Minister of Technology. The main body of this volume is divided between:

- (a) *Financial tables*: Profit and loss accounts for collieries (on a national and area basis), opencast, and coke ovens –
Income and expenditure, assets, cash flow and major capital schemes.
- (b) *Statistical tables* (national and Area): Production, disposal, stocks and consumption; manpower – age distribution, recruitment and wastage, deployment, accidents and earnings.

Summary tables for a selection of both financial results and statistics are also included for the period 1946-1969/70.

Reference

National Coal Board Report and Accounts 1969/70 (HMSO) September 1970 (Price Vol. I – Report – 8s. 6d.; Vol. II – Account and Statistical Tables 19s. 0d.)

Gas Council and Area Gas Boards

The twenty-first report of the Gas Council and of each of the twelve Area Gas Boards were published in October. The Gas Council report summarises the progress of the whole industry and a statistical appendix compares for each Board the main activities – production of gas, distribution of gas, consumer service and administration. Production statistics include capacity of plant, input of materials and of purchased gas, including the purchase of North Sea natural gas, and the output or 'availability' of gas. Distribution is covered by the mileage of mains in use and consumer service by one of the activities in this section, that is, by the sales of appliances. Manpower statistics for numbers employed at the end of the financial year are published for each of the main activity groups.

Gas sales statistics are given by class of consumer – domestic, industrial and commercial for each Area Board. These statistics are complementary to the revenue accounts which also are supported by schedules for each of the main activities. The supporting statements to the Balance Sheets analyse capital investment on fixed assets in the year and the net balances of additions (since vesting day) less displacements and depreciation.

In the text of the Gas Council's report further statistics are given on aspects of the industry of topical interest which may vary from year to year. In each Area Board's report the emphasis is on aspects of regional significance though the topics discussed follow a common pattern.

References

Gas Council Annual Report and Account 1969-70 (HMSO) October 1970 (Price £1 0s. 0d.)

Area Gas Board Annual Reports and Accounts 1969-70 (HMSO) October 1970 (Twelve volumes, prices vary between 7s. 6d. and 10s. 0d.)

Electricity supply industry publications

Annual reports

The annual reports of the electricity supply industry in England and Wales, the 1969/70 issues of which were published in October, consist of the reports of the Electricity Council, the Central Electricity Generating Board and twelve Area Boards responsible principally for the supply of electricity to the consumer. For Scotland, separate reports each covering production and distribution were issued by the North of Scotland Hydro-Electric Board and the South of Scotland Electricity Board in July.

The Electricity Council Report

This brings together under one cover the main statistics published in the annual reports of the Area Boards and the CEGB.

Consolidated accounts covering the electricity supply industry as a whole are given, and to support these a considerable amount of financial and other statistical information is made available. This deals, among other things, with unit sales, revenue per unit sold, charges against revenue – which are analysed by function and nature – distribution costs and capital expenditure.

As well as following the general rule of comparing current with previous year's figures, some appendices provide comparable data going back over ten years. Figures showing numbers of consumers at end of year, unit sales to consumers, electricity generated, and transmission circuit miles are presented in this way, and from these it is possible to trace the development of the industry within the last decade. Other figures in the appendices give details of employees in the industry's service and accidents to employees during the financial year, whilst elsewhere in the report research work is described together with its costs; also included are details of appliance sales.

Area Board Reports for England and Wales

Beside the annual accounts of the Electricity Board, these reports include statistics covering purchases of electricity from the CEGB, inter-Board transfers and peak demand during the financial year. Sales of electricity are dealt with in terms of consumers by class and in total. Also included are statistics covering the distribution system owned by the Electricity Board which in these latest reports take account of the transfer of the 132,000 volt network from the CEGB. This transfer represents something of a landmark in the development of the electricity supply industry in that a system formerly used in the distribution of electricity to the Area Boards now becomes part of the system of distribution of electricity by the Area Boards. Appliance sales are also dealt with in the reports.

The CEGB Report

Together with the annual accounts, this report includes details of electricity supplied, analogous to the Area Board purchases mentioned above.

The appendices contain details of the generation of electricity in the five regions covered by the CEGB, a statement of new plant brought into operation during the financial year, and new power stations under construction at the end of the year. Other figures associated with the supply of electricity include installed capacity of generators, maximum output capacity and thermal efficiency. With the help of supporting figures the report also discusses development in the main transmission system and the use of the various fuels in electricity production.

Other associated information

In addition to the annual reports, there are a number of other sources of statistical and general information on the electricity supply industry, and these include the following.

Handbook of Electricity Supply Statistics

This gives an overall view of the industry in numerical terms and includes a great deal of historical data. The book is divided into sections relating to the main aspects of the industry's work, and these take account of the power stations, the national grid, the distribution systems, generation, finance and commerce. There is also a general section which, among other things, includes a selection of price indices appropriate to electricity supply.

Market surveys

Part of the work of the Load and Market Research of the Electricity Council is published from time to time; for example, domestic surveys representing a detailed investigation of appliance ownership and utilization by some 15,000 consumers in England and Wales have been published for 1955, 1961 and 1966 (the last one was extended to cover Great Britain).

CEGB Statistical Yearbook

Considerable detail is given of the generation and distribution of electricity under the headings operations and plant, power stations, transmission and finance.

The section dealing with operations and plant includes production and distribution figures from the pre-war period to the present time and a summary of the latest plant and operating results. Individual station details are given under the second heading which covers existing power station operation and capacity as well as providing information on generating plant under construction and commissioned. The third heading deals with the transmission system with

particular reference to recent developments, (including the supergrid), and the last gives the main financial statistics including comparative figures over the previous ten years.

The Electricity Supply Handbook

Details of tariffs and other financial and statistical information of the type mentioned under previous headings are given in this book which is also a reference guide to the industry in Great Britain in terms of organisation and basic figures. Each section, i.e. the Electricity Council, the Area Boards, the CEGB and the two Scottish Boards is dealt with separately, and in respect of the Area and Scottish Boards (for which information on districts is included), environmental data such as population statistics are provided. At the end of the book there is a miscellaneous section in which information is given on organisations associated with the electricity supply industry.

Electricity sales – unbilled units

Since the 1963 recommendations of the Select Committee on Nationalised Industries, the financial statistics of the industry have included an estimate of units supplied to consumers but not billed by the financial year end. From 1967/68 onwards these estimates were formally included in the accounts and it may be useful to note these changes when making use of the historical data mentioned above. A fuller description of the change was given on Page 6 of the Council's *Annual Report* for the year 1967/68 and was also mentioned in *Statistical News* 2.25.

Electricity supply – unpublished figures

The Electricity Council is willing to consider making available, or helping to obtain, in respect of bona fide requests by research students and others certain of the detailed information which lies behind the publications mentioned above, e.g. quarterly as opposed to yearly data. Initially, such requests should be made to Mr. G. G. Petersen, Commercial Department, Electricity Council, who will either arrange for the information to be supplied direct or give details of the appropriate source.

The addresses of the Electricity Council and CEGB are: The Electricity Council, 30 Millbank, London, SW1 and The Central Electricity Generating Board, Sudbury House, 15 Newgate Street, London, EC1.

References

Annual Reports of the electricity supply industry in England, Wales and Scotland are available from HMSO.

The *Handbook of Electricity Supply Statistics and Domestic Surveys* are published by the Intelligence Section, Secretary's Department and the Load and Market Research Section, Commercial Department of the Electricity Council, respectively.

The *CEGB Statistical Yearbook* is available from Information Services, CEGB.

The *Electricity Supply Handbook* is published by Electrical Times Ltd., 33-39 Bowling Green Lane, London, EC1.

FOOD AND AGRICULTURE

Food consumption levels

Revised estimates of food consumption in the United Kingdom, together with detailed nutritional analyses for the period 1966 to 1969 were published on 29 July 1970 in the *Board of Trade Journal*.

The estimates relate to total supplies of food moving into consumption (after deductions for exports, waste and non-food uses), divided by the estimated population to give average consumption per head. They are the only available figures for the total food consumption of the population as a whole, and enable the overall food position to be compared over different periods of time.

Estimates of the consumption of alcoholic drinks have for the first time been included in the tables. They are based on statistics collected by HM Customs and Excise of quantities of spirits, beer and wines retained for use in the United Kingdom.

A further innovation is a series of estimates of some of the major foods measured at the final point of sale.

Farm rents in England and Wales

Part of the economic information discussed at the Annual Price Review by the Agricultural Departments and the Farmers' Unions, is an aggregate trading account for the agricultural industry in the United Kingdom. The 'National Farm' is assumed to be wholly tenanted, since when the price review system was established the majority of farmers were tenants and the main purpose of the trading account is to measure changes over time in agricultural prosperity on a consistent basis. Rent is an important item of expenditure and it is necessary to have a sound basis for calculating its level and rate of change.

Although the area of tenanted land has been decreasing since before 1914, both in absolute terms and as proportion of total agricultural area (for a discussion of trends in agricultural tenure in England and Wales, see the article by C. R. Orton in an earlier issue of this publication⁽¹⁾), it represented some 46 per cent of total agricultural land in England and Wales in 1969. Thus, accurate information on the price of this factor of production is also important in assessing the distribution of the total value added in agriculture. There is also an interest in the relationship between rents and land prices and between rents and net farm income.

With this background of a need for firm statistics within government and the importance of rents to the agricultural community in general, the Ministry of Agriculture, Fisheries and Food, through its Economics and Statistics Group and Agricultural Land Service (the estate management advisory service), undertakes an annual survey of rents in England and Wales. The

Department of Agriculture and Fisheries for Scotland are responsible for their own agricultural rent statistics, and in Northern Ireland there are very few tenanted holdings.

The first survey was carried out in October 1961. The survey is administered in the field by the regional staff of the Agricultural Land Service, who contact land agents and ask them to participate voluntarily in the enquiry. The land agents are requested to complete a two-part questionnaire for each agricultural estate under their management. The first part of the questionnaire relates to the whole estate. The information requested is a broad classification of the estate into a type-of-land category, the total acreage of the estate and details of the estate rent roll as at mid-October in the current year and the previous year. The second part of the questionnaire relates to the individual farms on the estate which had a rent and/or acreage change between the two dates. The questions relate to the rent and acreage of each holding at the two dates, the date of the previous rent change and the value of any investment made on the holding by the landlord since the previous rent change. In addition, the land agent is requested to classify the rent change into one of four types:

- (a) a change in rent to a new tenant where the rent is arrived at by tender;
- (b) a change in rent to a new tenant where the rent is arrived at by agreement;
- (c) a change in rent to the sitting tenant where the rent is arrived at by agreement;
- (d) change in rent to the sitting tenant where the rent is arrived at by arbitration, i.e. the tenant and the landlord disagree over the level of the rent, so the new rent is then determined by a third party.

Because the Ministry does not have a complete list of agricultural estates it is not possible to select a random sample. Instead, the Agricultural Land Service select a representative sample. This has averaged some 3½ million acres of tenanted land and 20,000 holdings each year, which represents between 25 and 30 per cent of the total tenanted land in England and Wales.

The results of the enquiry show that the average rent in England and Wales rose from £2 7s. 0d. per acre in 1960 to £4 15s. 6d. per acre in 1969. In all but the earlier years of the survey the average percentage increase in 'all rents' has been in the region of 7 per cent, and in each of the last three inquiries it has been remarkably constant at 7.1 per cent. On those holdings which had a rent change, the average annual increase has been in the region of 20 to 25 per cent in each enquiry. The largest rises were recorded for farms let to new tenants by tender, where rents rose on average by some 90 per cent in each year of the inquiry. This

category, however, provides less than 0.5 per cent of the total sample.

A short article describing the main results is published in the April issue of the Ministry of Agriculture, Fisheries and Food's magazine *Agriculture*. Full results have since been published as an Agricultural Land Service Technical Report⁽²⁾.

References

- (1) C. R. Orton, 'Tenure of Agricultural Holdings in England and Wales', *Statistical News* No. 9, May 1970
- (2) *Farm Rents*, Agricultural Land Service Technical Reports 19 and 19/1. Both these technical reports are available free from the Ministry of Agriculture, Fisheries and Food, Publications Branch, Block C, Government Buildings, Tolcarne Drive, Pinner, Middlesex.

Agricultural landowners' expenses

An indication of the average level of annual outgoings and capital investment in fixed equipment on agricultural property is a valuable measure against which the expenses occurring on individual holdings may be compared. It is also helpful when assessments are made of agriculture's use of national resources.

Between 1946 and 1951 the Country Landowners' Association, with the co-operation of the Ministry of Agriculture, carried out a series of enquiries into these aspects of ownership. The enquiries showed that improvements, and annual outgoings on maintenance management, insurance and statutory charges on let land estates in 1938 amounted to 59 per cent of the gross rental. By 1947 the figure had risen to 85 per cent, and by 1951 it was 122 per cent.

Since 1951 there have been many changes and developments affecting ownerships and management policies as well as continuing inflation. Factors of particular importance have been the advent of the Farm Improvement Scheme, the market value rent formula contained in the Agriculture Act 1958, the trend towards increased farm size and the greater importance of owner-occupation.

New information now available about the situation in England and Wales in 1967/68, obtained as a result of an enquiry carried out last year, is therefore especially interesting. For example, it shows that on let land the average gross outlay by owners on annual outgoings, excluding depreciation and interest charges, and improvements (including grant) was equivalent to 70 per cent of gross rental. This reversal of the situation in 1951 is a reflection, in the main, of the movement in rent levels since the change in the basis of assessment brought about by the 1958 Act. Thus 20 years ago the average gross rent was found to be 33s. per acre and annual outgoings 24s. an acre; in contrast, by 1967/68 gross rent averaged 92s. per acre and outgoings 37s. an acre – a much lower proportion. Investment in improvements was previously running at 16s. per acre, as against 28s. in 1967/68.

In this enquiry, for the first time, information was also obtained about average annual outgoings and improvement costs occurring on owner-occupied property. Expenditure on maintenance and statutory charges recorded by owners averaged 67s. per acre. They estimated market rental value on average at 143s. per acre and fixed capital investment at 92s. per acre (inclusive of grant aid). These figures for let land are not properly comparable since owner-occupiers were asked to return their information on a somewhat different basis. The differences may also reflect different management policies.

The source of these figures was an enquiry carried out by the Agricultural Land Service and Economics Division of MAFF in co-operation with the CLA, the NFU and the professional societies. The basic objective was to obtain factual data about the extent of annual outgoings and expenditure on improvements occurring on a variety of properties differing in size and location, so as to enable national and regional average levels of expenditure to be calculated. The enquiry was conducted on an entirely confidential and voluntary basis by means of a questionnaire completed by a random sample of landowners, or their agents, and owner-occupiers. The survey sample was selected using a stratified random sample of agricultural properties from the 1967 agricultural census. It related to some 2 million acres of agricultural land or 7½ per cent of the total agricultural area in England and Wales. Out of the total 1·8 million acres were tenanted, the remainder being owner-occupied. Altogether, 780 individual properties were involved. Of these 471, comprising 737 holdings, were owner-occupied farms averaging 442 acres in size. The remaining 309 ownerships, involving 13,460 let holdings, varied from single farms to very large institutional estates such as those belonging to the Crown, the Church Commissioners and the National Trust. On average their size was about 3,800 acres.

The main results of the enquiry are to be published this winter in a short article in *Agriculture*, the journal of the Ministry of Agriculture. A full report will appear at about the same time in the Technical Report series published by the Agricultural Land Service and Economics Division of the Ministry.

Agricultural wages – England and Wales

Statistics of the earnings and hours of hired workers in agriculture are collected continuously by the Ministry of Agriculture, Fisheries and Food in its Wages and Employment Enquiry. There is an unbroken series of earnings and hours data since 1946, when the Wages and Employment Enquiry was begun. In 1948 the Agricultural Wages Act was enacted, consolidating all

previous legislation concerning the basic minimum wage and conditions of service of agricultural workers. The Agricultural Wages Board prescribes the national agricultural minimum wage. In order to ensure that the Wages Board Orders are complied with, a national Wages Inspectorate was instituted by the Ministry of Agriculture, Fisheries and Food, to enforce the basic minimum wage. The inspectors visit a randomly selected stratified sample of holdings to collect data on workers' earnings and hours.

The stratified sample is selected from agricultural holdings recorded as employing labour at the previous June agricultural census. (An article describing the Agricultural Census appeared in *Statistical News* No. 6 August 1969 – 'Changes envisaged in the agricultural Census for England and Wales', by P. G. Horscroft.) The strata are size groups of holdings in which size is defined according to the numbers of regular whole-time men employed. Out of about 115,000 holdings employing labour about 4,000 (3½ per cent approximately) holdings employing 12,000 regular whole-time men workers were selected in the 1969 sample. The latest data indicate that there are about 550,000 persons engaged in agriculture in England and Wales of whom 347,000 are classed as agricultural workers, the remainder being farmers. Of the 347,000 workers returned in the June 1970 agricultural census, some 200,000 were hired regular workers who formed the bulk of the agricultural labour force. It is from these hired workers that data on earnings and hours in agriculture are obtained.

The purpose of stratification by labour size-group is because absolute earnings per worker vary by size of farm, being perceptibly higher on larger farms. The larger size groups are given higher sampling fractions, than those with few workers. For instance, in the most recent sample the sampling fraction for the highest size group is about 1/5 while that for the holdings with only one regular whole-time man is about 1/30. These sub-samples are selected in such a way as to be proportional to the within-strata standard deviations.

Ideally, the sample of an enquiry measuring earnings of workers should be based on workers rather than holdings. In practice, this is not possible but the selection of holdings by the method described attempts to overcome this problem. An additional advantage of this method is that data for the main farm occupations such as dairy cowmen, foremen or tractor drivers are obtained, since specialist farm workers are mainly to be found on the larger farms. Thus the sample is randomly distributed over the country and over all types of farming. In fact the annual sample is composed of four separate quarterly sub-samples, each random in itself to ensure that an even distribution of farms in all

size-groups are visited throughout the year. This is to obtain an accurate reflection of the seasonality of agricultural earnings which fluctuate considerably throughout the year.

The enquiry is at present being modified. The basis of the sample is being changed so as to include all regular whole-time hired workers as opposed to all regular whole-time men. This brings hired youths and females into the base of the sample and results from changes in the coverage of the Agricultural Census. Distributions providing medians, quartiles and deciles of earnings and hours will become available as a result of re-programming following the transfer to a new computer.

The data produced by the enquiry are used within the Ministry of Agriculture, Fisheries and Food to estimate the aggregate costs of labour to agriculture for the purposes of the Annual Price Review discussions between the Agricultural Departments and the Farmers' Unions.

Statistics of the earnings and hours of agricultural workers are made available in:

- (a) a monthly index of total earnings which appears in the *Employment and Productivity Gazette*;
- (b) a press notice which gives the quarterly earnings and hours for all hired men and the different farm occupations;
- (c) an annual report for the year ended September, which contains a complete record of the analyses provided and includes (i) the average weekly earnings and hours and their components, e.g. overtime, bonuses, payments-in-kind, etc. for all classes of regular whole-time hired agricultural workers, (ii) distribution of earnings and hours for all classes, (iii) additional data on payment-in-kind, age of workers, length of service, etc.

An article describing the Wages and Employment Enquiry results appears annually in the October edition of the *Employment and Productivity Gazette*; and half-yearly statistics of agricultural earnings are published in the February and August issues of the *Employment and Productivity Gazette*.

Corn returns

Grain prices have been collected in England and Wales through the Corn Returns since 1771 and are the oldest officially published series of commodity prices on a national basis. Under the Corn Returns Act of 1882, statutory returns were required from merchants and other dealers in grain in certain prescribed towns showing their weekly purchases (quantities and price paid) of wheat, barley and oats. The returns were limited to transactions taking place within the boundaries of these towns.

From the returns the average price of each type of grain is ascertained and this is published. The information is also used for other purposes including the calculation of corn rents and to ascertain average market prices in order to determine deficiency payments for barley and oats.

The Act of 1882 has been amended on a number of occasions. It was extended to Scotland in 1954 (but does not apply to Northern Ireland) and the list of prescribed towns has been varied from time to time. Under the latest regulations the Act applied to a total of 195 towns in Great Britain.

It has long been realised, however, that a radical change was necessary to bring the provisions of the Act up to date in the light of modern conditions. This change was made in Section 108 of the Agriculture Act, 1970 as a result of which the returns provide a much improved source of market intelligence. This has been achieved in the following ways:

- (i) Returns are now required from buyers in about 400 local government areas instead of the prescribed towns; they cover transactions anywhere within these areas and thus take account of the movement of trade away from the traditional corn exchanges and business centres of the towns. (Returns for the first weeks of the new scheme show the quantities of grain now covered to be many times greater than under the former arrangements.)
- (ii) Only purchases from growers are now called for and not transactions between merchants which were apt to give a distorted picture of the trade; average prices should now be more meaningful.
- (iii) Only weekly aggregate totals of the quantity and price of each sort of grain are required. Previously, full details of each transaction were recorded on the returns.
- (iv) Rye and maize have been added to the returns.
- (v) Total purchases of each grain have still to be reported but, in addition, separate figures are asked for in respect of corn bought on an ex-farm forward fixed price contract and on an ex-farm spot basis. These two categories are further subdivided for wheat, barley and oats, according to the quality of the grain.

As required statutorily the weekly, quarterly and annual average prices of corn in England and Wales are published in the *London Gazette* and those for Scotland in the *Edinburgh Gazette*. In addition publicity is given to the figures in the weekly Agricultural Market Reports of the Ministry of Agriculture, Fisheries and Food and the Department of Agriculture and Fisheries for Scotland, in the annual volumes of Agricultural Statistics of the respective departments, and in various farming and trade journals.

The returns go to the Home-grown Cereal Authority

in the first instance and provide them with much more information than they were receiving previously from their own sources. Their weekly bulletin will in future include spot prices for the different grades of grain in 40 separate localities.

TRANSPORT

Seasonal adjustment factors for new car registrations

It is the normal practice to recalculate seasonal adjustment factors annually, since an additional year's data is available which may significantly affect the seasonal pattern. The last review of this series was at the beginning of 1969 (reported in *Statistical News*, August 1969, 6.25). Major difficulties noted at that time were the effects of the transfer of the new year index letter from January to August in 1967, and of pre-budget anticipatory buying occurring in a number of recent years, particularly in 1968.

This year it was decided that a more thorough-going review should be undertaken. The analytical programme used was the latest (X-II) variant of the American Census Method II which has a number of discretionary options. Two, which are of importance in the present case, modify 'extreme' values for individual months to varying extents and enable greater weight to be given to observations in more recent years.

The main questions examined were:

- (a) Is the effect of external influences on the series so large as to dominate the seasonal influences
- (b) Is there advantage in using data for a long period (from 1954) or for a shorter one (from 1960)
- (c) Is there apparent advantage in making prior adjustments to the data to allow for some of the known external influences or should one rely on the 'exclusion rule' mentioned in the second paragraph
- (d) Is it likely that the number of working days of the recording offices has a significant affect on the reported registrations
- (e) How can one best take into account the important new seasonal factor resulting from the transfer of the new year index letter from January to August in 1967.

Analysis showed that although external factors had a significant influence on the series, they did not dominate it; seasonal factors were many times more significant. There appeared to be no advantage in using data for the period back to 1954. Prior adjustments to the data to allow for external factors are necessarily subjective and gave no better result than a statistical exclusion rule which modified about one-fifth of the observations: this rather large proportion of modifications reflects the variability of the series. The number of working days did not seem to be a significant factor, though a detailed and expensive investigation would be

needed to assess its effect accurately. It proved possible to take the transfer of the new year letter into account by using an option provided in the X-II programme for the calculation of seasonal factors by means of weighted averages. Instead of using the standard options of a 3×3 moving average followed by a 3×5 , a 3×3 average was used for all months except August for which a straight 3-term moving average was used. In this way the bias in the estimation of the August seasonality is reduced at the expense of increasing the variance of the estimates. As further data become available the use of 3×3 term moving averages for August will be tried and eventually, if there has been no further change in the seasonality, the standard options will be adopted.

The new set of seasonal factors thus calculated suggests that since August 1967 sales have tended to rise from August to December and to fall in the earlier months of the year. Only about half the rise in August has been reflected in July and there have been substantial falls in June and earlier months. Consequently the biggest change in the seasonal factors has occurred in June (reduced from 114 to 100) and there are significant alterations to the factors for May and March (downward) and October and November (upward).

Further details can be obtained from the Department of Trade and Industry, Engineering Industries Statistics Branch, Dean Bradley House, Horseferry Road, London SW1 (Tel: 01-799 5688, Ext. 37).

OVERSEAS FINANCE

United Kingdom balance of payments – new presentation

As foreshadowed in a Parliamentary Answer on 22 July (Hansard col. 151), the UK balance of payments figures given in the annual 'Pink Book' (HMSO, September 1970) were presented in a new form. Attention is now focussed on two measures which are of particular importance:

First, on the *current balance* (rather than on the 'basic balance' which has become less meaningful in recent years). The current balance shows whether the nation is paying its way abroad – *i.e.* whether there is an excess of current income over expenditure on overseas transactions. It provides a measure of how the nation is adding to or using up its net overseas assets. Second, the less familiar *total currency flow*. This figure shows the net result of all external currency flows which are reflected in official financing movements – changes in the country's reserves or in official borrowing drawn or repaid. The total currency flow includes, in addition to the current balance, all investment and other capital flows, and the balancing item. Detailed tables giving a long run of quarterly figures in the new form were

included in the September 1970 issue of *Economic Trends*.

Balance of payments of the overseas sterling area

Seasonal adjustments of the current account of the overseas sterling area balance of payments, introduced in the September 1969 issue of *Economic Trends* and referred to in *Statistical News* 8.32, has been extended (from September 1970) to cover the long-term capital account as well. A note on the methods used is given on page xlv of *Economic Trends*, September 1970.

In presentation, the figures of the overseas sterling area balance of payments have been re-arranged to conform more closely to the new presentation of the United Kingdom's balance of payments. The change is described on page xli of *Economic Trends*, September 1970.

NATIONAL ACCOUNTS

Taxes and subsidies

An article in the November issue of *Economic Trends* describes the methods used by the Central Statistical Office in estimating the amounts of the taxes and subsidies associated with the various categories of national expenditure (consumers' expenditure, investment, etc.). The tables accompanying the article show how each type of tax on expenditure and subsidy is allocated in the national accounts.

NATIONAL BOARD FOR PRICES AND INCOMES

Fletton brick industry

A report by the NBPI was published in July 1970 giving the results of a sample survey of pay and conditions of manual workers in the Fletton brick industry. A comparison was made between a week in October 1969 and one in February 1970 for hours of work and earnings of a 10 per cent sample of employees.

Reference

Pay and Other Terms and Conditions of Employment in the Fletton Brick Industry and the Prices Charged by the London Brick Company, National Board for Prices and Incomes, Report No. 150, Cmnd. 4422 (HMSO) July 1970 (Price 4s. 6d.)

Bakeries

The NBPI in July 1970 made its second report on *Bread Prices and Pay in the Baking Industry*. The results are shown of a sample survey of hours and earnings in March 1970 of manual workers in production and distribution with particular reference to the level of overtime, shiftworking, absenteeism and labour turnover.

Reference

Bread Prices and Pay in the Baking Industry, National Board for Prices and Incomes, Report No. 151, Cmnd. 4428 (HMSO) July 1970 (Price 5s. 6d.)

Water supply

A report by the NBPI was published in August 1970 which included results of a sample survey of the pay and conditions of both manual and non-manual employees in statutory water supply undertakings in Great Britain.

Reference

Pay and Productivity in the Water Supply Industry, National Board for Prices and Incomes, Report No. 152, Cmnd. 4434 (HMSO) August 1970 (Price 8s. 6d.)

Coal prices

The NBPI's second report on *Coal Prices* was published in November 1969. The report contains the results of a study by the NBPI of methods used by the National Coal Board for forecasting output. The report also shows the outcome of NBPI's experiments in extending statistical techniques in this field particularly at area level and gives the results obtained.

Reference

Coal Prices: Second Report, National Board for Prices and Incomes, Report No. 153, Cmnd. 4455 (HMSO) August 1970 (Price 9s. 6d.)

INTERNATIONAL

Statistics in the United States

The President of the United States has announced the appointment of a Commission to undertake a thorough study of the Federal Statistical System in order to maximise this service to the American people and to the Government. The Chairman of the Commission is to be Mr. W. Allen Wallis, President of the University of Rochester, with Dr. Frederick Mosteller, Professor of Statistics at Harvard University as Vice-Chairman. The remaining 12 members include recognised experts in the field of economic and social statistics as well as individuals from business, labour and the law.

The Commission has been asked in particular to provide answers to three basic questions: (1) What are our present and future needs for information about the functioning of our economy and society? (2) How can we minimize the burden on respondents and insure that privacy and confidentiality are protected? (3) How can we organize Federal activities for the most effective production and utilization of statistics?

The Head of the staff of the Commission has written to the Central Statistical Office asking for any relevant information about similar activities in the United Kingdom. In reply, Professor Moser has sent to him a copy of the *Fourth Report of the Estimates Committee*, 1966-67, on the Government Statistical Services together with a copy of his own article in *Statistical News* No. 1 on the future role of the Central Statistical Office and a note on subsequent developments in the United Kingdom statistical system.

Statistical models for education and training

An Advanced Study Institute, sponsored and largely financed by NATO, entitled 'Statistical Models for Education and Training' was held at the Civil Service College, Sunningdale Park, from 31 August–11 September 1970. It was attended by 45 participants from 13 countries drawn from as far apart as Venezuela, Norway, Turkey and Israel. The course was presented by lecturers from the USA, Denmark, Canada and the UK, and administrative and technical support were provided by members of the Statistics Division of the CSD and the University of Kent. The facilities and surroundings of the Civil Service College admirably suited this residential course, providing excellent opportunities for formal lectures in the new lecture theatre, and for syndicate discussion and practicals, informal discussion and relaxation.

Major contributions to the course were provided by Professor D. J. Bartholomew (UK) who described the basic statistical theory used in constructing educational and training models; Professor Robert M. Oliver (USA) who applied the theory to specific educational institutions; and Mr. C. S. Leicester (UK) who considered the theory underlying macro-economic models with special reference to education requirements. There were practical exercises which involved using a computer to forecast and control such things as the total size and structure of systems over several periods of time. For these the terminal at Sunningdale was linked to four computers: HMSO at Norwich, GEIS, the Titan at Cambridge and the ICL 4130 at the University of Kent. Participants found that the results stimulated lively discussion as to what the aims of planning were and how best to achieve them.

Further lectures describing particular projects were given by Professor Donald Clough (Canada) on secondary school system models in Ontario, Dr. H. J. Rasmussen (Denmark) about the application of models to a University budget system, and Mr. Gareth Williams and Mr. Peter Armitage (U.K.) on models of the UK secondary school system. Much benefit was gained in the discussions from the presence of several participants who had made significant contributions of their own in these fields. It became apparent that the planning problems in the countries represented were remarkably similar in spite of their diverse occupational and educational structures, and that statistical models were being successfully applied to education and manpower planning. The proceedings of the Institute will not be published commercially, but it may be possible to make papers available. Interested persons should contact Mr. A. D. Butler, Statistics Division, Civil Service Department, Steel House, Tothill Street, London SW1, if they would like to obtain copies of the papers.

Manpower planning models

The next event in this NATO-sponsored series will be a conference on 'Manpower planning models' at Trinity College, Cambridge, from 6–10 September 1971. The Director of this conference will be Professor D. J. Clough of the University of Waterloo, Canada, and the Administrative Director Mr. C. G. Lewis of the UK Ministry of Defence, Statistics Division.

The conference will aim to achieve an exchange of opinions and information among experts on the problems of analysis and model-building, and the application of models to case studies in the field of manpower planning. Particular attention will be paid to the solution of real manpower planning problems.

Participants will be drawn from all NATO countries and other countries if accommodation permits. The proceedings of the conference will be published in due course. The number of places is limited and UK participation will almost certainly need to be rationed. Early application is advisable. Further particulars can be obtained from the Administrative Director, Mr. C. G. Lewis, Statistics Division, Ministry of Defence, Northumberland House, London SW1.

UN Statistical Commission

The sixteenth session of the United Nations Statistical Commission will be held in Geneva from 5–16 October. The Statistical Commission is one of the functional commissions of the Economic and Social Council and is the senior body dealing with official statistics. It normally meets every other year, and usually in New York but to relieve pressure on the Conference services of the United Nations in New York it is sometimes necessary for a functional commission to meet in Geneva.

There are 24 members of the Commission who are elected by the Economic and Social Council and are on a rotating basis. Of the 24 members, 5 must be Africans, 4 Asians, 4 Latin Americans, 7 Europeans and others, and 4 Eastern Europeans.

The Secretariat of the Commission is provided from the UN Statistical Office in New York; heads of the statistical offices of all the specialised agencies and several international organisations outside the United Nations family, e.g. OECD and the European Community, participate.

The agenda for the forthcoming Commission includes several aspects of national accounts, the integrated system of demographic, manpower and other social statistics, co-ordination and integration of international statistical programmes, balance of payments statistics, industrial statistics, including central directories of the establishments and enterprises, statistics of distributive and service trades, external trade statistics and demographic and housing statistics.

The United Kingdom delegate is Professor C. A. Moser, Director of the Central Statistical Office, who will be accompanied by Mr. R. E. Beales, Deputy Director and Mr. J. N. C. Hancock, also of the CSO.

Business statistics

During September officials from the Business Statistics Office visited the United States Bureau of the Census in Washington and the Canadian Dominion Bureau of Statistics in Ottawa to discuss matters of common interest in the field of business statistics, including the application of computer techniques.

PUBLICATIONS

Statistics of Science and Technology 1970

Statistics of Science and Technology 1970 published in October is the third in a series which aims to provide statistical information on various aspects of scientific and technological activities in this country. To a large extent the presentation of this information follows that of the previous volume, published in November 1968. The latest volume includes the results of the 1967-68 survey of expenditure on scientific research and development. This information which is contained in Section I of the volume shows for 1967-68 a total expenditure in the United Kingdom of £962 million which was 2.7 per cent of the gross national product at factor cost. This percentage has remained relatively stable for the years covered since 1961-62, and although there is some lack of comparability in the figures for different years the proportions spent in the largest sectors have not changed appreciably. Thus from 1964-65 to 1967-68 the proportions of expenditure on research and development carried out in Government and private industry have remained steady at 25 per cent and 60 per cent respectively. Similarly the proportions of research and development financed by Government and by private industry which in 1967-68 were 50 per cent and 38 per cent respectively, show no change from the figures for the previous years. However, for those years for which information is available the proportion of government-financed research and development taken by defence has declined consistently since 1961-62. Section I also contains revisions to some figures given for the year 1966-67 in the previous volume. Section II gives, in more detail than in previous volumes, figures for central government expenditure on research and development.

As in previous volumes of the series Section III gives details of overseas technological royalty transactions as supplied by the Board of Trade. New entrants to the nation's stock of qualified manpower are dealt with in both Section IV which gives details of new supply via the formal education system and the professional

institutions and Section V which gives details of the first employment of university graduates.

Various facets of the education system are enumerated in: Section VI, Staff in Education, which gives details of graduates employed in various types of educational establishment; Section VII, Students in Education; and Section VIII, Examinations, which gives details of activity in various examinations from CSE upwards.

The final Section IX presents some results from the 1968 Triennial Manpower Surveys, further details of which are shortly to be published by the Department of Trade and Industry as part of a comprehensive study of engineering and scientific manpower from 1959 to 1968.

Business Statistics Office

An article by Mr. M. C. Fessey, Director of the Business Statistics Office, appeared in the September issue of *The Secretary* the journal of the Chartered Institute of Secretaries. Reprints of this article, entitled 'What's All This About Statistics?', can be obtained from the BSO Librarian, Lime Grove, Ruislip, Middlesex, HA4 8RS (Tel. 01-866 8771, Ext. 17).

National Institute Economic Review

The August issue of the *National Institute Economic Review* includes articles on the use of engineering orders for forecasting and on the weaving of cotton and allied textiles in Great Britain. (Copies of the issue can be obtained from the National Institute Economic Review, 2 Dean Trench Street, Smith Square, London SW1).

The article on the use of engineering orders in forecasting suggests that one requires the knowledge of three basic relationships. First, the relationship between orders and deliveries in the two markets concerned must be determined; secondly, a behavioural relationship which determines new orders over the forecast period and thirdly the relationship between the published series for deliveries and those for investment or for exports of engineering goods. Econometric estimates of these three types of relationships are presented - with a variable weight distributed lag formulation employed for the order-delivery equation, whilst in the subsequent section the determination of home and export new orders is considered. The final section presents some simple relationships between engineering deliveries, United Kingdom investment in plant and machinery, and exports of machinery.

The other article, 'The weaving of cotton and allied textiles in Great Britain: an industry survey with special reference to the diffusion of shuttleless looms', arose out of investigations into the process of the diffusion of new technologies undertaken by the NIESR in col-

laboration with research institutes in five other industrial countries. The article takes the form of a general industry survey, in which particular reference is made to the shuttleless loom. The first section is devoted to a summary dealing with the declining situation in the British cotton weaving industry and the particular difficulties which it faces, whilst in the second section the overall results of the survey are set out. These inquiries revealed a certain amount of conservatism in the unwillingness to change outputs or amalgamate with other firms. The Textile Council believes that the 279 firms in the weaving trade in 1968 will dwindle to 100 or so by 1975 and that the large firms in the industry will by that time account for more than half the total output. This would greatly favour the use of shuttleless looms which, though less versatile than the conventional type, provide greater scope for economies of scale, particularly with the multi-shift systems which the bigger firms appear to be more willing and better able to operate.

GLC Bulletin

The June 1970 issue of the *Quarterly Bulletin*, produced by the GLC Research and Intelligence Unit, contains several articles of considerable statistical interest.

'Forecasting retail expenditure and floorspace' describes the methods of detailed appraisal employed to reach decisions on size and location of proposed shopping centres in Greater London.

'Population of London Boroughs by sex, age and marital status' presents in tabular form and illustrates in colour charts an overall comparison of the age/sex structure and marital status distribution of the population of three London boroughs, Greater London and England and Wales as a whole.

'Analyses of census data - 3' continues the summary tabulations for the GLC area of data derived from the 1966 Sample Census of Population. The analysis is here concerned with exploring further the inter-relationships of various factors. Journey-to-work tables in the London Traffic Survey Area are outlined and there are special analyses of data on employment, housing stress and migration.

Reference

GLC Research and Intelligence Unit *Quarterly Bulletin* No. 11, June 1970. Obtainable from the Information Centre, The County Hall, London SE1. (Price 5s. 0d. net, postage 1s. 3d.)

GOVERNMENT STATISTICAL SERVICE

Business Statistics Office, Newport

An ICL 1906A computer has been ordered for delivery in the first half of 1971 to the new building in Newport, Monmouthshire, of the Business Statistics Office. The computer is scheduled to become fully operational

during the following few months. Processing work now being executed at Eastcote, Middlesex, by the existing LEO 3 and 1905E machines will be transferred to the new computer in stages as part of its forward programme.

A limited configuration will be available at first but depending upon progress of the project, including development of the Central Register of Businesses, further direct access equipment and terminals are likely to be added in due course.

For some time now BSO has been building up a team of systems and programming staff for the new machine, occupying temporary office accommodation at Newport. The team contains a nucleus of staff dispersed from Eastcote and the rest have mostly been recruited locally.

Official actuarial services

Following a recent re-arrangement, the work of the Government Actuary's Department is now organized into two main groups. The first group consists generally of matters affecting the nation as a whole; the second relates to the problems of particular public organisations. Each group consists of two divisions.

In the following statement of subjects upon which work is done, attention is directed to matters having some interest from a statistical point of view:

Group 1

Division 1: National insurance and industrial injuries

Insured Population

Sickness Experience

Earnings Statistics

Division 2: Demographic studies

Population projections

Life tables

Family allowances

Insurance companies' returns

Friendly societies' returns

Group 2

Division 3: Public service pensions

Various other superannuation and benevolent funds

Occupational pension scheme statistics generally

Division 4: Commonwealth pension schemes

Nationalized industries' superannuation schemes

International organizations' staff welfare

ADP Statistics Group

An informal group of chief programmers and systems analysts from various government departments meets at about six-monthly intervals in the Central Statistical Office to discuss experience in using statistical pro-

grammes and packages and in developing computer techniques for statistical work. Special presentations on particular subjects of common interest are arranged from time to time. The meetings are organised by the Computer and Data Systems Unit, CSO, and provide the opportunity for people engaged on the ADP aspects of statistics to make contact across departments at a practical, rather than at a theoretical, level.

Appointments

CENTRAL STATISTICAL OFFICE

Mr. S. F. James, has been promoted from Chief Statistician to Assistant Director.

Mr. J. Hibbert, Statistician, has been promoted to Chief Statistician.

MINISTRY OF TRANSPORT

Mr. J. A. Rushbrook, Statistician, Central Statistical Office, has been promoted to Chief Statistician to fill the vacancy caused by the appointment of Mr. K. G. Forecast as Director of Statistics at the Department of Education and Science.

MINISTRY OF DEFENCE

Mr. A. H. Gould, Statistician, has been promoted to Chief Statistician to fill the post of Head of Naval Manpower Statistics (and Director of Naval Manpower Resources).

OFFICE OF POPULATION CENSUSES AND SURVEYS

Mr. C. A. F. Russell, Chief Statistician, has resigned to take up the appointment of Director of Intelligence, Greater London Council.

Release dates of economic statistics

In reply to a written Parliamentary Question on 29 October, the Prime Minister stated that the Central Statistical Office will publish each month and in advance a list of the release dates for all major economic series. The first such list was issued on 29 October. It will, in future, be issued on or around the 15th of each month and will be reproduced in *Economic Trends* and *Trade and Industry*.

Alphabetical Index

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number e.g. 5.31 signifies issue number 5, page 31.

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

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