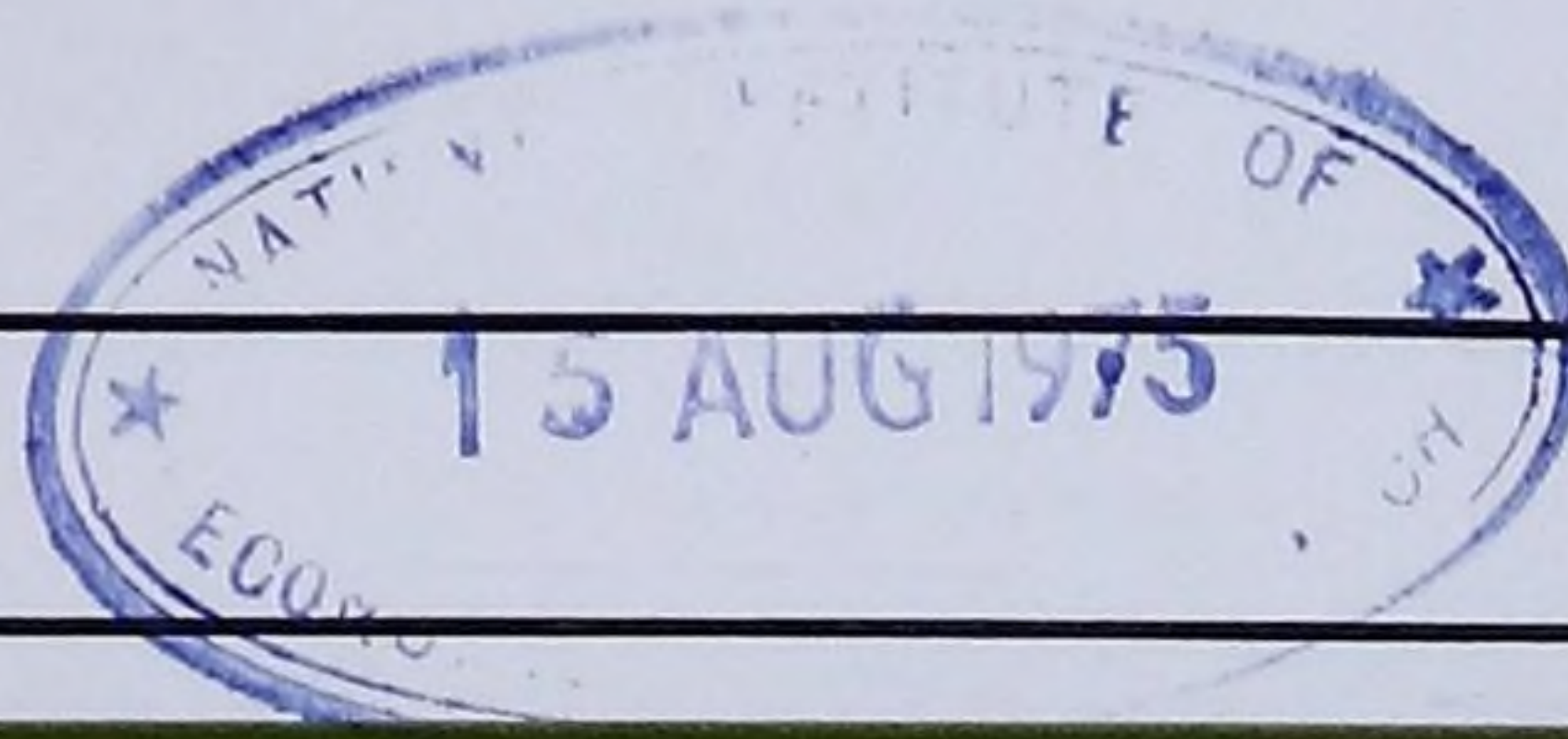


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STATISTICAL NEWS

**Developments
in British Official
Statistics**

A publication of the Government Statistical Service

Note by the Editor

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

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

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

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MAY 1975

Statistical News No. 29

**Developments
in
British
Official
Statistics**

LONDON
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Problems of seasonal adjustment

P. B. Kenny, *Chief Statistician, Central Statistical Office*

Introduction

The Research and Special Studies Branch of the Central Statistical Office, besides dealing with problems referred to it by other members of the Government Statistical Service, carries out a programme of research in areas of statistical methodology which are particularly relevant to Government statistical work, and also keeps in touch with research results in these areas which are published by other workers. One such topic, to which a great deal of attention has been devoted in recent years, is seasonal adjustment. The purpose of this article is to give a non-technical account of the concepts underlying some recent research work in seasonal adjustment.

General concepts of seasonal adjustment

The ideas underlying seasonal adjustment of economic series were explained in an earlier article in *Statistical News* 6.15. Briefly, the objective is to enable the statistician or economist to see more clearly the effect on the series of factors which are relevant to economic interpretation, by filtering out the predictable effects of the annual cycle of climate, holidays and so on. The key word in this sentence is 'predictable'. To go from, say, the observed unemployment for January of a given year to the seasonally adjusted unemployment, we have to predict how much seasonal effects will contribute to the January figure; this prediction will be based on observation of how much the January figure in each of a sequence of years has diverged from the underlying trend. In essence, the problem of seasonally adjusting any given series reduces to deciding the appropriate relationship between the observed deviations from the trend and the predicted seasonal effects.

Naturally, this brief explanation sidesteps a number of complicating factors which may be of great practical importance. For one thing, it pre-supposes that we have some knowledge of the underlying trend; in practice, the trend must be estimated from the same data from which we estimate the seasonal effects. Since estimating the seasonal requires knowledge of the trend, and estimating the trend involves eliminating the seasonal, there are clearly some logical problems. Secondly, the deviations of individual months from the trend are not solely due to seasonal effects. There are

always irregular month-to-month variations; they represent the effects of economic factors whose fine detail is ignored in the aggregation of the series and, in some cases, also sampling errors in the estimation of the original data. By definition, the irregular variations are unpredictable from month to month, but it is possible to make estimates of their typical magnitude. Other contributions, much larger than any irregular variation, may be the effects of unique exceptional causes, such as strikes or unusually severe weather. We can hope to reduce the effect of the irregular variations on the estimated seasonal component to an acceptable level by averaging successive years, but some special procedure must be devised to detect and deal with the extreme movements.

Since seasonal adjustment methods have been in use for many years, practical solutions to these problems have been devised. For instance, the simultaneous estimation of trend and seasonal is dealt with by a process of successive approximation; a rough estimate of the trend is made by some form of moving average, this is used to give a first estimate of the seasonal, from this we obtain a better estimate of the trend, and so on. Usually only two or three cycles of these operations are necessary. Extreme deviations are defined by comparing the predicted seasonal effect for each month with the actual deviation from trend; any divergence much greater than the general run of irregular variations is regarded as an extreme deviation, and the observation is modified to bring the deviation within normal limits. The modified observation is used only for the next cycle of estimation of the trend and seasonal; once a final estimate of the seasonal effect has been obtained, it is applied to the original unmodified series.

With the general introduction of computer methods, these practical solutions have been incorporated into 'package' programmes, which may be applied to any series with very little trouble. Probably the best known package is one produced by the United States Bureau of the Census, known as 'Census Method II Variant X-11', or simply X-11 for short. Many official statistical series throughout the world, including a large number of British series, are seasonally adjusted using X-11; the procedure has been found fairly 'robust' and seldom gives unacceptable results. Other well-known packages

have been produced by the Statistical Office of the European Communities (SOEC) and by the Bank of England.

Although the use of a standard package will generally give satisfactory results, there are occasions when problems arise. The two most usual difficulties are over- or under-adjustment and instability. The first is shown by the fact that the supposedly seasonally adjusted series still shows evidence of seasonal variation; if the remaining seasonality is in the same direction as the original, the series is under-adjusted, while if the seasonal variation is now in the opposite direction the series is over-adjusted. (An interesting account of the difficulties caused by over-adjustment of the British unemployment series was given by the present Prime Minister in his presidential address to the Royal Statistical Society.) Instability refers to the situation in which, when the seasonal effects are re-estimated after the inclusion of further data, the previously adjusted values are substantially revised. Either of these problems will indicate the possibility that the simple models of seasonality incorporated in the package programme are inadequate to describe the behaviour of the particular series.

Models of seasonal behaviour

Any procedure for seasonal adjustment is based on some model or conceptual mechanism which is assumed to describe the seasonal behaviour of the data. The simplest such model is one which takes the seasonal effects to be a set of twelve values, the same for each year, which are added to the underlying trend and the irregular variation to give the observed series; seasonal adjustment in such a case involves merely estimating the seasonal effects and subtracting the estimates from the observed data. For obvious reasons, such behaviour is described as additive seasonality.

Another simple model is one which assumes that, as the trend level varies, the seasonal effect varies in proportion. The seasonal effects are represented as a set of numerical factors, by which the trend level is multiplied to produce a seasonal series. Seasonal adjustment in such a case involves estimating the factors, and dividing the observed series by them. This case is called multiplicative seasonality.

Most package programmes for seasonal adjustment offer us little more than these two options; in some cases we can also allow the estimates to vary slowly over the historical time-span of the series. Yet, clearly, more complicated forms of behaviour are possible, and often it is obvious that the breakdown of a package adjustment is due to the series behaving in a way which does not fit the simple models. To deal with these more

difficult cases, the Central Statistical Office has developed a more flexible package which allows the user to choose from a more extensive variety of models.

The first generalisation is to allow a mixture of additive and multiplicative seasonality. That is to say, the seasonal effect in any month is assumed to be the sum of two parts, one (the additive component) being independent of the trend, and the other (the multiplicative component) being proportional to the trend. Evidence has been found that many 'difficult' series display such a mixture.

The next step is to allow the seasonal pattern to vary over time. In practice it has been found sufficient to allow the additive component to be time-dependent; we may either let the rate of change be constant (linear time-variation) or allow it to vary also (quadratic time-variation).

Other workers have attempted to use such complex models, and have encountered difficulties in estimation. It must be realised that a model which includes mixed seasonality, with quadratic time-varying terms, contains four numerical factors for each month, or forty-eight in all (though these factors are not all independent), and estimates of these must often be obtained from only a few years' data. There may be an ambiguity in some models, which makes it difficult to assign seasonality to specific sources. For instance, if the observed data show a steadily rising trend, it may be impossible to say whether an increase in seasonal variation is due to multiplicative seasonality or to a linear time-trend.

These problems have led to instability in estimation, and as a result the estimates of the seasonal effects have large measures of uncertainty. To avoid such difficulties, the Central Statistical Office programme uses a mathematically complex method of analysing the seasonal pattern into components of different frequencies, and includes in the estimated model only those components which are judged to be statistically significant. By this method the number of numerical factors to be estimated is greatly reduced, often by a half or more, and those factors which are found significant are estimated much more reliably.

A final refinement in the Central Statistical Office family of models deals with a situation which has been found in some series, in which the seasonal variation retains the same 'shape' in the sense that the effects in different months remain in the same proportion to one another, but the actual size or amplitude of the variation undergoes short-term fluctuations unrelated to trend movements. Having fitted a model by the process described above, we may modify the estimated seasonal effects by a 'local amplitude scaling factor', which adapts the model to give a close fit over a short run of

data. It is easy to find values of this factor which will improve the fit of the model to the historical data; it is sometimes more difficult to provide a stable prediction of its value for the latest observations. For this reason, it must be used with care.

Choosing a model of seasonal behaviour

If we are planning to use a standard package like X-11, the choice of models is limited to additive or multiplicative; with the more flexible Central Statistical Office package, the choice is much wider. In either case, however, the user has to make a choice, and needs some way of examining the historical behaviour of the series. Two diagnostic tools have been used in Central Statistical Office research, and a third is under investigation.

The first tool was developed in conjunction with the Central Statistical Office seasonal adjustment package; it is a subsidiary programme, known as the model test programme. In essence, it may be thought of as a process of fitting a mixed model in stages. First we estimate an additive model, and then see whether the inclusion of multiplicative terms gives an appreciably better fit. Next we start with a multiplicative model, and see the effect of including additive terms. The programme goes through these processes automatically, and carries out statistical tests of significance on the improvements caused by the extra terms. The results of the tests lead us to one of four conclusions; additive only, multiplicative only, additive and multiplicative, or no definite conclusion. This last case may occur, for example, when the trend level does not vary much over the observed course of the series; in such a situation, additive and multiplicative models may be virtually indistinguishable.

The model test programme is a powerful way of analysing a series whose seasonality does not vary too abruptly, but it may not give a very clear result if there are sudden changes. This is because, like the main Central Statistical Office seasonal adjustment, the model test programme has to use a run of data, usually about seven years, to estimate the models. If the period used includes a sudden change, the fitted models may well be compromises which do not fit well either before or after the change. For this reason, the model test results are usually supplemented by a simple graphical display, which may be used to detect and locate changes in seasonal behaviour.

The basis of this method is the observation mentioned earlier, that the seasonal effects may be thought of as a combination of a shape and an amplitude, and that often the seasonal shape is relatively more stable over time than the amplitude. Assuming that this is

true, we simply chart the relative variations of amplitude and trend. We measure the amplitude for each year by simply averaging the deviations of the twelve observations from the trend, disregarding whether deviations are negative or positive. The trend for the year is the average of the twelve trend values. Thus the graph has one point for each year, showing seasonal amplitude on one axis and trend on the other. To show the evolution of the pattern, the points are linked up in chronological order.

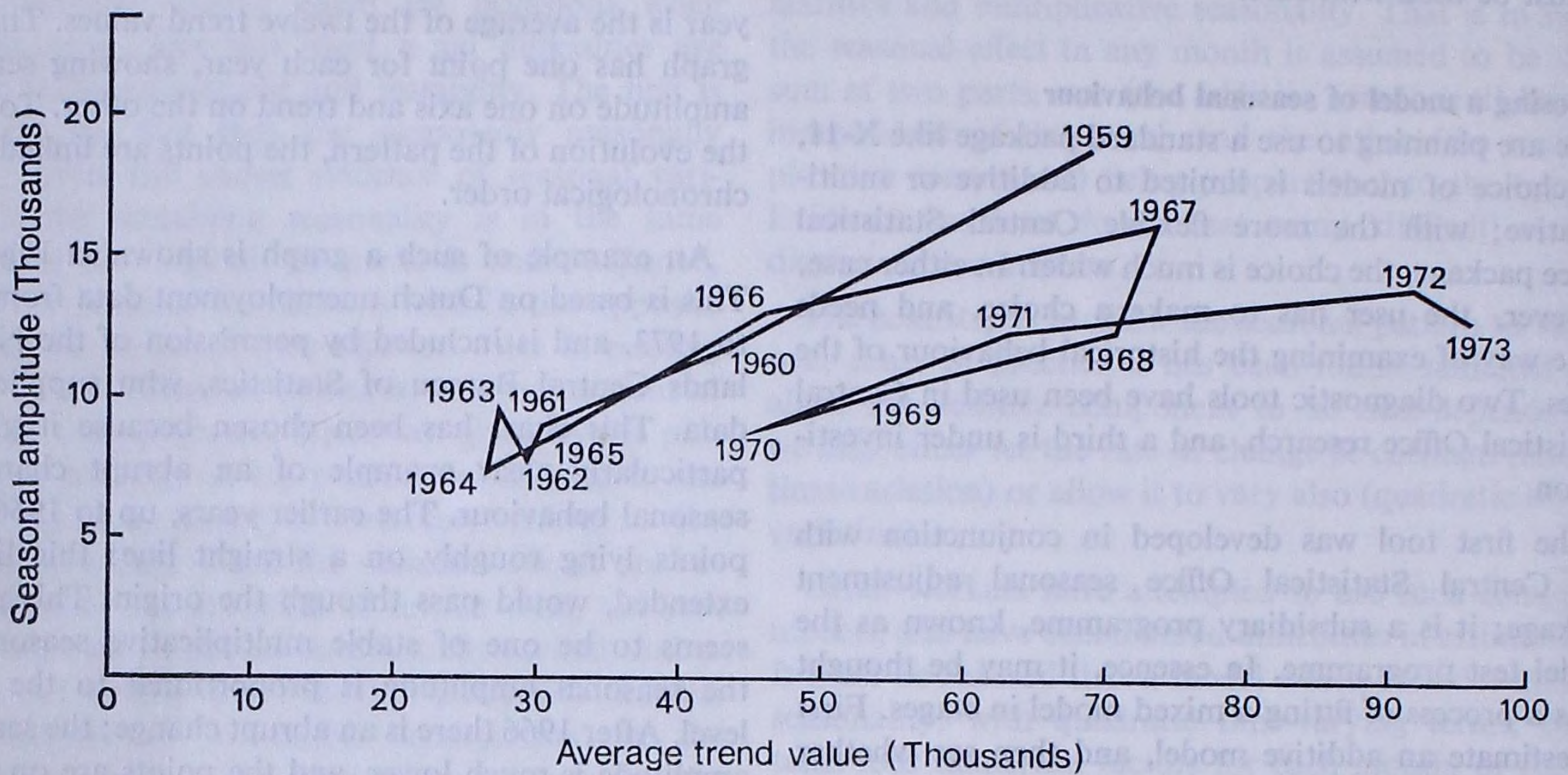
An example of such a graph is shown in Figure 1. This is based on Dutch unemployment data from 1959 to 1973, and is included by permission of the Netherlands Central Bureau of Statistics, who supplied the data. This chart has been chosen because it gives a particularly clear example of an abrupt change in seasonal behaviour. The earlier years, up to 1966, give points lying roughly on a straight line; this line, if extended, would pass through the origin. This period seems to be one of stable multiplicative seasonality; the seasonal amplitude is proportional to the trend level. After 1966 there is an abrupt change; the seasonal amplitude is much lower, and the points are on a line passing above the origin, indicating mixed seasonality. Towards the end of the series the line seems to be flattening still further; it is almost horizontal, which would indicate that the seasonality is becoming additive. However, further data would be needed to confirm this last suggestion.

Such a chart may be useful in two ways. To the economist it may suggest a search for physical or institutional changes which could have produced the observed effects. To the statistician concerned with seasonal adjustment, it shows the need to look at separate portions of the series when choosing a model, and it gives confirmation of the selections of the model test programme.

These examples show that it is seldom possible to rely on a single test procedure; it is better to have a battery of tests, and to be aware of the particular strengths and weaknesses of each one. The weakness of the amplitude-trend chart is simply that it concentrates on amplitude changes and ignores any change in the shape of the seasonal pattern. A further test has been examined, which takes the other side of the coin and looks at shape changes after eliminating amplitude changes. The basic idea has been discussed by several other research workers under the name of 'frequency demodulation'; it involves analysing the seasonal pattern into components of different frequencies, in the same way as is done by the Central Statistical Office seasonal adjustment programme, and then observing changes in these components over time. It is too early

Figure 1.

Dutch Unemployment Series (Male all age groups under 65)
Seasonal amplitude vs Trend 1959-1973 (Annual averages)



yet to say how effective a tool this can be, but the initial results seem promising. Like the amplitude-trend chart, it produces patterns which require interpretation rather than hard and fast decisions.

The performance of seasonal adjustment packages

There has been much comment on the adequacy with which some of the standard seasonal adjustment packages deal with the type of series for which they are intended. For instance, if we take a series which seems to have additive seasonality, and apply the additive version of X-11 to it, will the result be a 'good' seasonal adjustment? The answer to this is complicated by the fact that there is no generally agreed criterion for good seasonal adjustment. The first step in this research was to arrive at some plausible definition of good adjustment. Next some of the standard packages were compared with this definition. Finally, some tentative suggestions were made for designing seasonal adjustment procedures which could meet this definition.

To describe this approach, it is necessary first to explain in a little more detail something which has been mentioned already in passing, namely, the decomposition of a series into components of different frequencies.

The first step is to think of the simplest form of

periodic series, that is to say, a series which repeats exactly the same sequence of values at fixed intervals. The form usually considered is a sine wave; this can be described by only two numerical factors, one measuring the length of the period, that is the interval between repeats, and the other measuring the size or amplitude of the fluctuations occurring in each period. An alternative way of looking at the length of a period is to say how many periods occupy a given length of time, say a year. Thus, a series which repeats its value every three months will go through four periods a year. This is referred to as the frequency of the wave.

Next, we note that if we add together a number of sine waves of different frequencies, the result will be a more complicated series, which may show behaviour quite unlike the simple form of the sine wave. By choosing appropriate combinations of frequencies and amplitudes, it is possible to combine sine waves so as to approximate closely to any given time series. The more sine waves of different frequencies we allow ourselves to combine, the closer the approximation we can make to the given series.

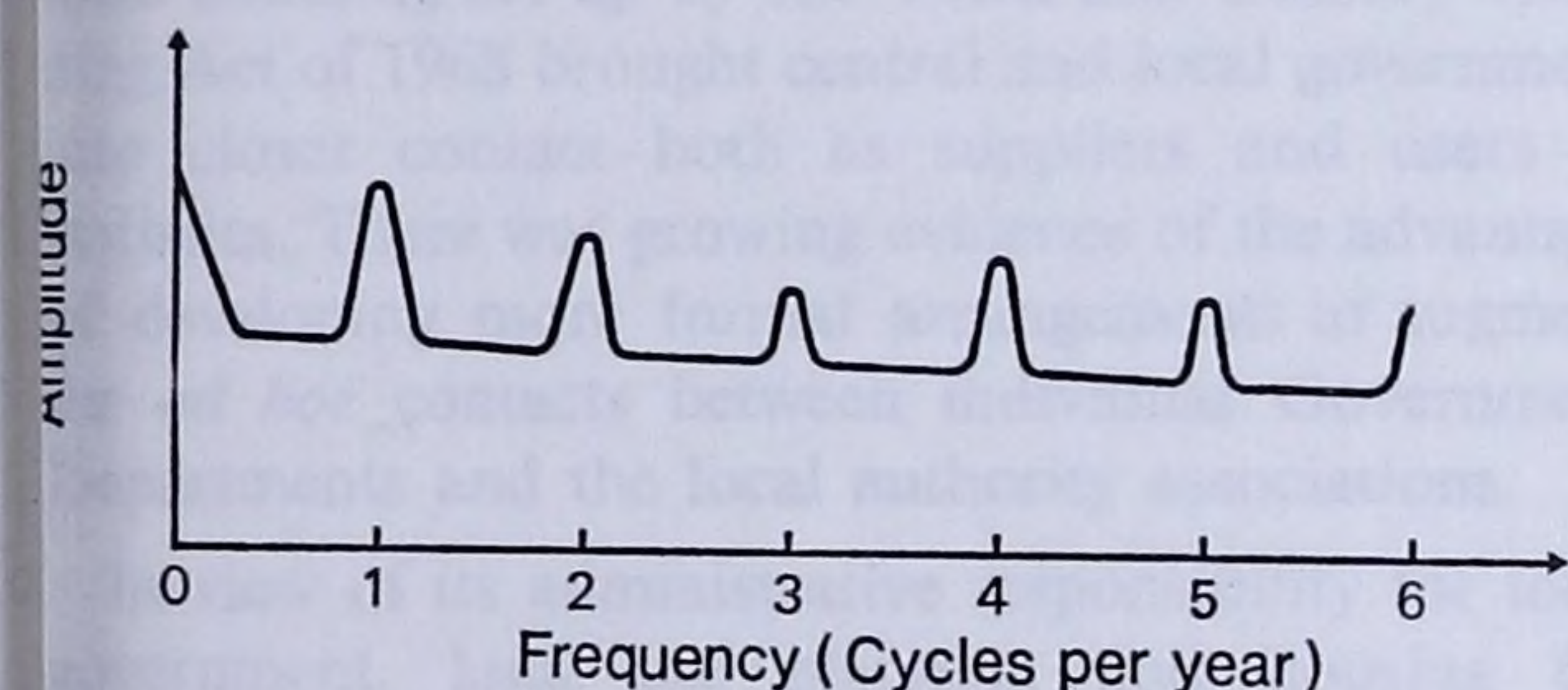
Now we consider this process in the opposite direction. Given any time series, we see how it could be built up out of sine waves of all possible frequencies. Against each possible frequency we show the amplitude

of the sine wave of that frequency which is necessary. If we plot amplitude against frequency, we obtain a diagram of what is known as the spectrum of the series. It can be shown mathematically that the spectrum is unique, that is, that there is only one way of decomposing any given series into sine waves. Thus the spectrum represents in the frequency domain exactly the same information as the original series does in the time domain.

Figure 2 shows a fictitious illustration of the spectrum of a typical monthly time series showing seasonal behaviour. The most significant features are the peaks in the spectrum around the frequencies which correspond to an exact number of cycles per year. Usually

Figure 2.

Spectrum of typical series with seasonal behaviour



we will find peaks at all frequencies from one to six cycles per year. (Note that with a monthly series it is not possible to represent a cycle repeating more than six times a year.) This does not mean that it is necessary to find some physical interpretation for a cycle occurring five times a year; we would say that there is a periodic wave, repeated once a year, and that this may be represented by adding together appropriate sine waves at frequencies ranging from once to six times a year.

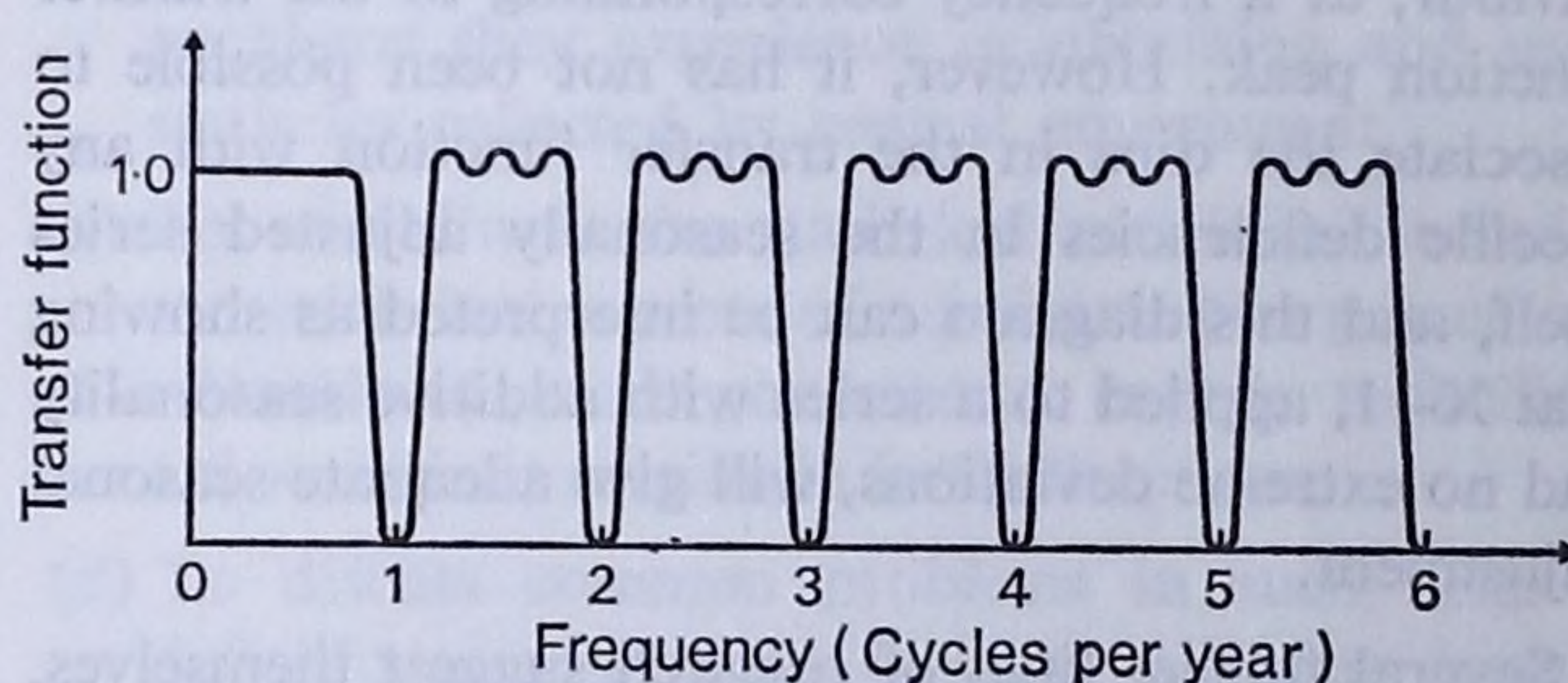
Now that we can see what the spectrum of a series with seasonal behaviour looks like, it is possible to suggest what a 'good' seasonally adjusted series should be. It should be a series whose spectrum does not show any noticeable peaks at the seasonal frequencies. There should be a smooth transition from the amplitude on one side of the seasonal frequency to the amplitude on the other. So the problem is to examine what sort of spectrum the seasonally adjusted series will have, knowing the spectrum of the original series and the form of the seasonal adjustment used.

Fortunately, this problem is simplified a little because many seasonal adjustment processes, at least those defined for additive series, can be approximately

represented in a very simple form, namely as weighted moving averages. This means that the seasonally adjusted value at any given point in the series can be obtained by multiplying the value at that point, and at a range of points either side, by suitable weighting factors, and totalling the weighted values. This fact simplifies things, because there is a mathematical operation which gives the spectrum of a moving average series from the spectrum of the original series. All that is necessary is to multiply the spectrum of the original series, at each frequency, by a weighting factor which depends only on the weights of the moving average. If these weighting factors are plotted against frequency, exactly as is done for a spectrum, the result is called the transfer function of the moving average.

Figure 3.

Transfer function for moving average representation of X-II



It is now clear that one way to examine the behaviour of a seasonal adjustment process is to represent it as a moving average process, and study the transfer function of the moving average. This will indicate the effect that seasonal adjustment may be expected to have on the spectrum of a seasonal series; given the definition of a seasonally adjusted series in terms of its spectrum, this gives a way of judging the adequacy of the seasonal adjustment.

The research project involved obtaining the transfer functions of the moving average equivalents of several of the better known seasonal adjustment procedures. The number of transfer functions produced was very large, because the equivalent moving averages are not that same at the end of series as they are in the middle, and also because the processes give as by-products estimates of the trend, seasonal and irregular series, and these may also be represented as moving averages. A typical example is shown in Figure 3, which shows the transfer function used by X-11 near the centre of the series.

Where the value of the transfer function is close to one, it will leave the corresponding frequencies in the spectrum substantially unchanged. The most interesting

parts of the transfer function are those where it is appreciably different from one; examination of Figure 3 shows that these are concentrated around the seasonal frequencies, and that exactly at the seasonal frequencies the transfer function is zero. The conclusion, therefore, is that X-11 will give a seasonally adjusted series whose spectrum dips to zero at the seasonal frequencies, but which otherwise reproduces the spectrum of the original series very closely.

The dips in the spectrum at the seasonal frequencies have been mentioned and criticised by a number of research workers, who have regarded them as a form of over-adjustment. It is certainly true that sharp peaks and dips in a transfer function may be regarded as a sign of potential trouble. For instance, if a moving average whose transfer function shows one definite peak, is applied to a completely random series, the result will be a series showing apparently cyclic behaviour, at a frequency corresponding to the transfer function peak. However, it has not been possible to associate the dips in the transfer function with any specific deficiencies in the seasonally adjusted series itself, and this diagram can be interpreted as showing that X-11, applied to a series with additive seasonality and no extreme deviations, will give adequate seasonal adjustment.

Several further lines of research suggest themselves, and some have been explored to some degree. For example, it is possible to specify a desired transfer function and deduce a moving average which gives a close approximation to this function. One use of such a procedure is to take a well-known seasonal adjustment procedure, such as X-11, find its transfer function, and obtain a shorter moving average which closely approximates it; the shorter process has the advantage that it can be used unchanged closer to the end of the series.

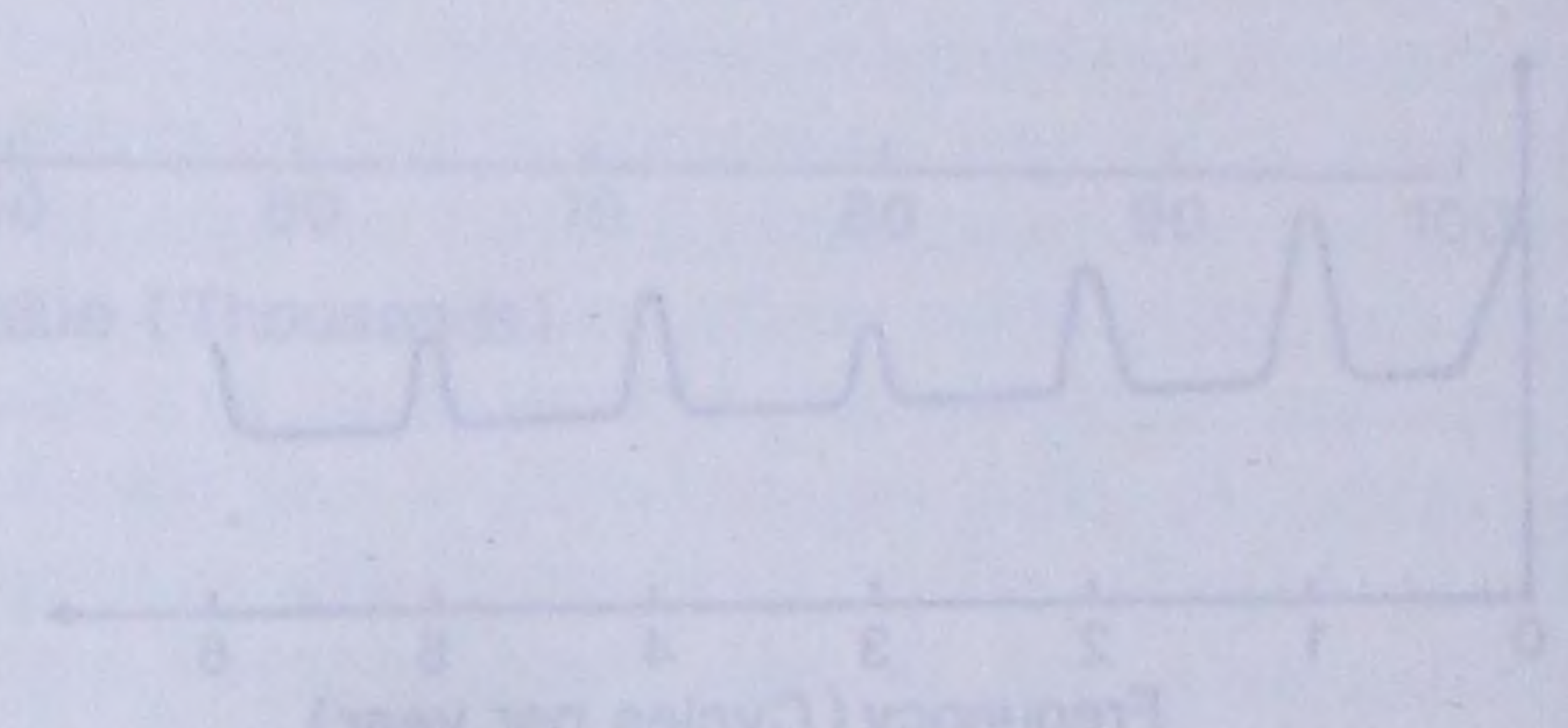
One last possibility is to find a way of deriving, from the spectrum of a series, a seasonal adjustment procedure which will give an adjusted series with exactly the right spectrum. Some tentative suggestions have been made, but it has not been possible to confirm their feasibility.

Other publications

Little of this work has so far been published in books or journals. The flexible seasonal adjustment procedure developed by the Central Statistical Office was first reported, in an early form, in *Studies in Official Statistics*, Research Series No. 2, by Brown, Cowley and Durbin. The current, much more highly developed form of the system is described in a paper by Durbin and Murphy, which will appear in the *Journal of the*

Royal Statistical Society during 1975. A related piece of research done outside the Central Statistical Office, which is of interest in connection with the spectral study of seasonal adjustment, is the spectral study of the United Kingdom overseas trade series and their seasonal adjustments, published in *Economic Trends* in August 1973.

Apart from these publications, all the work mentioned here is described more fully in a series of internal Central Statistical Office memoranda called Research Exercise Notes. These notes are circulated within the Government Statistical Service, and copies are available to other interested research workers. Anybody who wishes to have more details of any of this work should get in touch with the author.



The National and Local Government Statistical Liaison Committee

by Jane Peretz, *Statistician, Central Statistical Office* and Ron Cooke, *Statistician, Department of the Environment*

The last decade has seen a large increase in the needs of both central and local government for statistical information. Factors such as the growth in the responsibilities of local government, the creation of the Regional Economic Planning Councils, and the need to provide data for the new system of structure and local planning set up by the Town and Country Planning Act of 1968 brought central and local government into closer contact both as suppliers and users of statistics. There was growing evidence of the advantage of developing more formal arrangements to augment the *ad hoc* contacts between individual Government Departments and the local authority associations.

In view of its administrative responsibility for local government, land use planning and housing the Ministry of Housing and Local Government had a particular interest in improving contacts. Local authorities approached the Ministry about their concern that new developments in central government statistics such as the Census of Employment and the Central Register of Businesses would not take into account local authority needs. The possibility of setting up a Standing Committee under Ministry of Housing and Local Government chairmanship with representatives of central and local government was therefore mooted both in the Ministry and in discussions with local authorities. As a result the National and Local Government Statistical Liaison Committee was set up in 1970 with the support of the local authority associations to improve co-operation on statistical matters between central and local government in England and Wales.

The first meeting of the Committee was held in September 1970, the Chairman being provided by the Ministry of Housing and Local Government and joint secretaries by Ministry of Housing and Local Government and Central Statistical Office. (A brief note on the Committee appeared in *Statistical News* (13.30). Subsequently the Ministry of Housing and Local Government responsibilities passed to the Department of the Environment. The Committee's terms of reference were agreed as follows:

- (a) To bring to the notice of local government the statistics which are already available, particularly from the Government Statistical Service, including both published material and material available on application.
- (b) To bring to the notice of central government, local government needs for statistical information and problems they experience in obtaining and using statistics collected by central government.
- (c) To co-ordinate the statistical activities, including the statistical aspects of administrative procedures, of local and central government, in order to facilitate a flow of information in both directions.
- (d) To discuss common problems in such fields as definitions and classifications, working towards common standards where these are appropriate.

Government Departments are usually represented on the Committee by Chief Statisticians when topics of interest to their Departments are being discussed. The local government associations nominate representatives who include some of their own officers and local government officers from a variety of disciplines and experience including chief executives, statisticians, planners and treasurers. A more detailed account of the composition of the Committee is given in the Appendix at the end of the article. Extra local authority members are co-opted from time to time as required.

Method of working

The Committee meets about three times a year. The need for specific data to fill information gaps is considered and statistical problems are raised by members from central or local government and discussed in general terms in the main Committee. If members agree that it is appropriate to do so, a joint central government/local government working group is established to investigate the problem and report back to the main Committee. Lately the character of these groups has become more varied and present arrangements range from informal liaison groups to standing working

groups set up to consider long term developments in particular statistical fields. The central and local government sides also meet separately both to consider whether problems faced by individual Departments and authorities should be brought to the notice of the Committee and to enable each of the two sides to crystallize its own views and to agree on a common approach.

The main Committee, in making recommendations, reflects the views both of customers for particular sets of data and those who are expected to provide the data. Whenever it is considered necessary, a pilot survey is carried out in order to assess the feasibility and cost of a new enquiry. The Committee has no executive powers and recommendations approved by it are not formally binding on the departments or associations represented. However it is almost always possible to reach a consensus of view in the Committee. Once proposals have been agreed by the Committee they are generally supported by associations and by central government.

The Committee has issued a recommended code of practice suggesting that all major new statistical enquiries potentially of interest to local authorities should be brought to its attention. This has been widely welcomed by central government departments as a means of obtaining reactions and suggestions from local government about their statistical plans. As most enquiries are discussed at a formative planning stage, local authorities can make suggestions on content and format which often result in changes that make new returns easier to fill in and of more use to local authorities without affecting their value to central government. A formal approach to the local authority associations for comment is made in the knowledge that the proposal has already been considered by their representatives on the Committee.

The Committee spends a substantial proportion of its time discussing proposals for new enquiries, whether directed to local authorities or designed to collect from other sources information which interests local authorities. For example, it has recently looked at the Department of Trade's proposals for reviewing the system of statistical enquiries into the distributive trades, because local authorities are interested in getting more data on shops and shopping in their areas for planning purposes. And it has also been consulted from an early stage about the Department of the Environment's new system of annual land use change statistics. This new enquiry will show the acreage of land moving from one to another of fifteen broad land use categories. The Committee has also recently examined the Department of the Environment's proposals for computerising the

returns from local authorities on house building statistics, and the Department of Employment's plans for collecting quarterly employment statistics from local authorities – and other employers – to supplement the data from the annual Censuses of Employment.

Topics referred to sub-groups include employment, population and social services statistics, and data required for structure planning. Working groups are normally chaired either by a Chief Statistician whose Department is particularly concerned, or by a representative of the local authority side who is an authority in the field. Terms of reference for sub-groups are usually fairly narrow and specific. Members are asked to set out the difficulties involved in meeting a particular need, taking evidence as they see fit, and to make recommendations about how they might be overcome which are then considered by the main Committee. The work of the Committee and the various sub-groups has been comprehensively documented and a substantial set of papers on statistical topics of interest to local authorities has been built up. A complete list of these is available from the Joint Secretary at the Department of the Environment. The work of some of these sub-groups is described in more detail below.

Census of employment

One of the issues which led to the setting up of the main Committee was the potentially serious consequences to local authorities of the replacement of local area employment statistics based on counts of national insurance cards by statistics from the annual Censuses of Employment. Employment statistics were thus one of the first topics to be considered by a sub-group chaired by the Department of Employment. The group subsequently produced a report which identified in some detail the needs of local authorities for data about patterns of local employment for use in work on both structure and local plans. It stressed the importance to local authorities of the card-count statistics. It also underlined the need for information about the numbers of employees and the types of industrial or commercial activity in areas smaller than those for which statistics were currently produced by the Department of Employment. It recognised that because the Census of Employment was held under the Statistics of Trade Act, 1947 the more detailed information, although available, could not be disclosed to local authorities without further legislation and the sub-group strongly recommended that the Act should be amended. The group also recommended that central government should provide a data processing service for local planning authorities capable of giving them routine statistical summaries from the Employment Censuses and which could also be expanded to provide varied zonal aggre-

gations. The recommendations were accepted by the Committee.

The Employment and Training Act 1973 took account of the needs of local authorities for employment information for their areas. Section 4(3) (e) of the Act authorised the Secretary of State for Employment to disclose (from 1 January 1974) the name and address of any establishment, the numbers of persons of different descriptions employed there and the nature of the activities carried on there to an authorised officer of the local planning authority but confined the use of the information to the purposes of the functions conferred on the authority by Part II of the Town and Country Planning Act 1971.

Local authorities were asked whether they would prefer to receive data from the Census of Employment on tape to process themselves or would like a central processing service to be provided. It became clear that most local authorities, particularly outside London, wanted a central processing service. So in consultation with local authorities and in conjunction with the Department of Employment the Department of the Environment is now carrying out a pilot study in six local authority areas to look at the practical problems of providing such a service and to find out what forms of analysis are in practice most useful to local authorities.

Local population statistics

A sub-group on Migration and Population Statistics was also set up in 1971 to examine local authorities' planning and other requirements for intercensal estimates of population, and to consider how far these could be met from existing data sources. Planners particularly were very concerned because the results of the 1971 Census had shown that in many areas the local population estimates went seriously adrift by the end of the period 1961-1971. The estimates for about one-fifth of all local authority areas in 1971 were out by more than 5 per cent and discrepancies ranged from minus 16 per cent to plus 27 per cent of the total population. As the numbers of births and deaths occurring in each area were known accurately, the errors resulted almost entirely from uncertainty about the effect of migration both within England and Wales and to and from other countries.

The sub-group, chaired by the Chief Statistician from the Office of Population Censuses and Surveys responsible for local population estimates, considered various ways of improving population and migration statistics in the short term. These included the possible use of new sources such as records held by the authorities themselves, by Government Departments, and by

the National Health Service Central Register. In the longer term the group felt that the best hope would be an improved electoral registration system and quinquennial censuses, perhaps supplemented by intercensal large-scale sample surveys covering at least the basic demographic topics.

Some improvements have since been made in the Office of Population Censuses and Surveys' method of making population estimates and new data sources are being developed. However further examination of records held by local authorities showed that the Office of Population Censuses and Surveys were already using the most useful of these records. The Office of Population Censuses and Surveys and local government are now represented on a Committee looking into the possibility of improving the accuracy of the electoral register, which might lead to better population estimates.

Local Authority social services statistics

Another important sub-group was set up in 1972 to examine the statistics relating to local authority social services and to advise the Department of Health and Social Security on the way that the needs of both central and local government could be met most effectively. A major change approved by the sub-group was the provision of data based on individual but anonymous returns for senior and professional staff employed by the local authority social services departments. This scheme has been successfully piloted, and it is planned to implement the new returns as from September 1975. Similar anonymous returns for children in care are currently being tried out, with the expectation that they will be introduced shortly after the staff returns.

The work of this sub-group was described in more detail in *Statistical News* (24.1) and D S S Hutton, Valerie Imber and H D Mitchell of the Department of Health and Social Security read a paper on personal social services statistics covering the work of the sub-group at a meeting of the Royal Statistical Society in May 1974.

Data for structure plans

Another sub-group was set up in 1972 to look at the availability of statistical information particularly in the financial and economic fields, to enable local authorities to meet the requirements of the Town and Country Planning Acts that in preparing Structure Plans they should have regard to the resources likely to be available for carrying out the proposals of the plan.

This group felt that structure planning was an integral part of the local authority decision making process and that the value of financial and economic data should be judged against improvements in decision

making generally. It concluded that the usefulness of much statistical information collected at present could be improved by standardising definitions and boundaries, and that programmes such as the ten-year plans for the social services should be taken into account. The group stressed that the precise form and type of information to be provided needed to be systematically identified.

The sub-group's detailed recommendations were accepted by the Committee and it was wound up early in 1974. Considerable progress has since been made on many of the specific actions proposed by the group. For example, the Department of the Environment has made arrangements to deal with statistical queries through their regional offices. Queries can in the first instance be sent to the Principal Planner at the Regional Office of the Department of the Environment for the region in which the structure planning authority is situated. The co-ordinator for this advice service is T F J Hobson, of Statistics (Planning and Regional) Division in the Department of the Environment.

Current sub-groups

There are, at the time of writing, sub-groups on:

- i. The statistical implications of local authority social services ten-year development plans;
- ii. land use, development control and related planning statistics;
- iii. urban transport statistics;
- iv. housing statistics; and
- v. data needs for structural plan evaluation.

Future work

The Committee is relatively young but has already demonstrated its value in several fields. The topics it has discussed cover a very broad range of existing statistics – as must be clear from the foregoing summary – and monitoring the progress made in relation to its recommendations on some of these topics is expected to be an important part of the Committee's future work.

Another task is to make the work of the Committee better known among suppliers and users of statistics, particularly at the local level. Since local authorities are major users of census data and major customers for the small area tables, which the Office of Population Censuses and Surveys produces, discussion of past and future censuses of population is always likely to be part of the Committee's work. The Committee will continue to provide a valuable forum for discussing statistical matters affecting both central and local government. It is expected that this aspect of its work

will grow in importance as greater and more widespread use is made of statistics, and as computerised information systems are set up by local authorities.

APPENDIX

COMPOSITION OF THE COMMITTEE

The organisations represented on the local authority side are:

The Association of Metropolitan Authorities
(six members).

The Association of County Councils
(six members).

The Association of District Councils
(four members).

In addition, the local authority side includes two co-opted specialists, Mr A Brandon Howell, the Technical Secretary of the Standing Conference on London and South East Regional Planning; and Mr P Wood, the Deputy County Planning Officer of Merseyside County Council. Mr C A F Russell, Director of Intelligence at the Greater London Council and an Association of Metropolitan Authorities representative on the Committee, acts as Chairman of the local government side.

Central Government Departments represented on the Committee include the Central Statistical Office, Business Statistics Office, Office of Population Censuses and Surveys, Home Office, Inland Revenue, Ministry of Agriculture, Fisheries and Food, Welsh Office and the Departments of the Environment, Employment, Education and Science, Industry and Health and Social Security.

The Chairman of the Committee is Mr G Penrice, Director of Statistics at the Department of the Environment. The Joint Secretaries – the authors of this article – are Mrs J Peretz (Social Statistics Division, Central Statistical Office) and Mr R L Cooke (Statistics (Planning and Regional) Division, Department of the Environment). The Committee's papers are circulated by the Department of the Environment to the local authority associations represented on the Committee. (Anyone in a local authority wanting information about the papers should contact their association.)

Social Statistics: Comparison of various national publications

R. A. J. Webb, *Assistant Statistician, Central Statistical Office*

Introduction

The regular collection and publication of economic statistics has now become an accepted part of the function of central government in almost every nation. However, it is only more recently that governments have turned their attention to collecting and publishing social statistics in the same way. The United Kingdom Government led the way with *Social Trends No. 1* in 1970, since which time the United States, Canada, France and Germany have brought out similar compendia and Sweden and Norway are planning to follow suit. This article compares *Social Trends* with the other national publications currently available.

In general, there are two approaches to be seen in the publications, reflecting two approaches to social statistics as a whole. The first is the move towards the concept of a set of indicators which will provide a statistical measure of the social standing of the country. The second approach is more pragmatic, and could be called social monitoring, as emphasis is not so much upon defining a rigorous set of exhaustive indicators. Rather it is upon providing a measure of some social changes, how they affect the life styles of the population, and in particular, to provide information on some particular groups of people, or particular problem areas. The kind of data included, is also to some extent dictated by the availability of suitable information.

Two of the publications appear annually; *Social Trends* has appeared since 1970, and the French *Données Sociales* since 1973. Each of the others has appeared once only, although new versions of the United States *Social Indicators*, and *Perspective Canada* are planned for 1976 or 1977.

Presentation

Each of these publications has made some attempt to include output measures. To quote the introduction to *Perspective Canada*:

'We would have liked to concentrate our data on the results of various social processes and questions. In most cases, this turned out to be impossible, not only because much of the material does not lend itself

to this treatment, but mainly because there is a general paucity of operational concepts to measure results . . . many of our statistics . . . deal with inputs, costs or means'.

This comment could equally well be applied to all the publications. *Social Indicators* perhaps is the most rigorous in following this line, selecting eight major social areas, and within each of these selecting 'social concerns'.

The indicators have been chosen, as far as is practicable, to measure end products of social systems and are intended to relate to individual and family well-being, rather than that of institutions. No data are given on the family, presumably because 'output' data is so much more difficult to define in this area.

Données Sociales presents a more academic style of analysis, producing a selection of indicators in not so closely defined areas. In the introduction the editor states that the eventual aim is to produce a system of social accounting, but admits this is a premature objective. The first step is seen as 'the organisation of thematic statistical information' with subsequent steps involving 'the elaboration of *satellite* accounts from the central system of national accounting, elaboration of *social-demographic* accounts, and finally, the perfection of *social indicators*'.

The German *Gesellschaftliche Daten* declares its intention to be that of setting up a system of social indicators, with the current publication as a first step.

Social Trends and *Perspective Canada* are not so systematic. In the introduction to *Social Trends* no 5 the editor declares its purpose to be:

'to bring together some of the more significant statistical series relating to social policies and conditions. The underlying theme is about people rather than government or institutions'.

In its latest issue *Social Trends* includes two sections on particular groups of people – children and the elderly. This reflects a change in editorial policy, to include sections on groups of particular interest, while retaining the broader analyses of previous editions.

Perspective Canada is subtitled *A compendium of Social Statistics*, which perhaps throws some light on its intentions as a publication. Quoting from the introduction:

'Selection criteria included the relevance of the statistics to social concerns, their ability to portray change over time and their potential for showing distributional aspects by geography, occupation, age sex, schooling and other characteristics'.

General format

The various publications lay out their information in different formats. *Social Trends* contains a regular set of articles, giving general comments on social developments as well as particular analyses of some areas of social concern. It is the only publication to include a calendar of events, which consists mainly of details of changes in Government legislation and various Government actions, but also contains other associated events of some general interest.

The main body is divided into chapters on broad social areas of interest. Each starts with a short introductory note, followed by data presented in either table or chart form, some data appearing in both forms.

In its five editions about half the tables and charts appear as regular features, the remainder vary from year to year. Although independent studies of a one-off nature do appear, they do not play a very large part in the publication. The same is true of tables which come from research work, either within government or by outside bodies. In the present expenditure and wealth sections *Social Trends* includes several tables and charts on the effect of taxation and various benefit payments on wage earners, which are the results of internal government studies.

Social Indicators, the United States publication, makes the chart its primary technique for data presentation. Each chapter begins with a set of charts, followed by short technical notes and a table for each chart given. It makes more use of data provided by non-government research organisations and unpublished data from its own sources than the other publications. This extra analysis is primarily to enable it to include as much data as possible in the closely defined areas on which it focuses.

Perspective Canada has a similar format to *Social Trends*, with a short introduction followed by a mixture of tables and charts. It depends less upon the use of outside bodies than does its American counterpart.

In contrast the German publication *Gesellschaftliche Daten* spurns the use of charts altogether, each table having accompanying comments, so that the text is

almost continuous throughout the publication. The chapter headings also differ from the other publications.

Données Sociales also has a different format with only four chapter headings, each covering a very broad aspect. Within each chapter the format is similar to the German publication, with text providing a more continuous commentary on the individual tables. In the latest issue two special articles studying the elderly and professional mobility are included.

Most sections contain some analytical work. It also contains more attitudinal data than any other publication, and features a survey of opinions on the economic state and future of the country, taken on an annual basis.

Content

Some of the differences can be seen by comparing the chapter headings used. Table 1 sets these out for each publication, with the exception of *Données Sociales*, for which headings have been taken for each of its four main chapters.

Each chapter contains a selection of data on each subject, and some comparison at this level is made in Table 2. In this table reference is made to the *System of Social and Demographic Statistics (SSDS)*, a selection of social statistics drawn up by the United Nations. This is at present a very tentative selection of indicators and is used here simply as a basis for comparison between the publications. In the table a cross shows that data is included in the relevant National Statistical Publication, and a dash shows no information is given for that particular subject. However Table 2 fails to show up some important differences of detail, which are set out below.

Special Groups

Although Canada presents more data on the position of special groups, other publications include some data. For instance, *Social Trends* has some information on persons of foreign birth and ethnic origin in its population section, and also includes special chapters on children and the elderly. The United States *Social Indicators* breaks down a number of its tables by colour. *Données Sociales* gives the breakdown of population by nationality, and includes a section on the elderly.

Crime

In examining criminal statistics, *Social Indicators* includes more data on the victims of crime than any of the other publications. *Social Trends* includes data on the functioning of the civil courts, and also shows the number of times offenders have been convicted and

whether they have spent any terms in prison, which might be regarded as being some measure of the performance of prison institutions.

Health

Social Trends includes tables on family planning and abortions in addition to the regular features of morbidity, mortality and hospital services. *Donnees Sociales* and *Perspective Canada* include suicides. *Gesellschaftliche Daten* and *Social Trends* give data on the staffing of hospitals and Public Health Departments.

Leisure

That very little attention is paid to the provision of leisure activities is presumably due to the lack of reliable data collection especially from non-government sources. *Social Trends*, *Social Indicators* and *Gesellschaftliche Daten* all present data on time use, which is absent from the other publications. One of the articles in *Social Trends No 5* presents a study of the theory of time use budgets and their application to social studies.

Environment

In its environment section *Perspective Canada* includes several measures of pollutants and some information on land use. Both *Social Trends* and *Gesellschaftliche Daten* extend this definition to include transport. These approaches contrast with the United Nations, where consideration of the environment is restricted to housing.

APPENDIX

Table 1 – Contents of Publications

SOCIAL TRENDS No. 5	SOCIAL INDICATORS	PERSPECTIVE CANADA	DONNÉES SOCIALES	GESELLSCHAFTLICHE DATEN
Population (25 tables and charts)	Population (15 charts)	Population (16 tables and charts). Family formation and composition (12 tables and charts)	Population (5 tables and charts). Family formation and dissolution (6 tables and charts)	Population (7 tables)
Children (10 tables and 6 charts)				
Elderly (19 tables and charts)				
Employment (24 tables and charts)	Employment (28 charts)	Work (43 tables and charts)	Employment (6 charts and tables). Hours of work and work patterns (11 tables and charts). Active population (12 tables and charts). Accidents at work (2 tables and charts). Working disputes (3 tables and charts). Social mobility (8 tables and charts)	Employment (15 tables)
Leisure (15 tables and charts)	Leisure and recreation (11 charts)	Allocation of time (19 tables and charts)	Free time and cultural activities (6 tables and charts). Holidays (5 tables and charts)	Some data included in participation section
Personal income and wealth (38 tables and charts). Personal expenditure (13 tables and charts)	Income (24 charts)	Income (21 tables and charts). Consumption of goods and services (14 tables and charts)	Pay and real income (17 tables and charts). Distribution and redistribution of income (15 tables and charts). Consumer expenditure and Ownership of consumer durables (17 tables and charts)	Income (9 tables). Expenditure and real standard of living (6 tables)
Health (33 tables and charts)	Health (29 charts)	Health (45 tables and charts)	Health (23 tables and charts)	Health (13 tables)
Education (30 tables and charts)	Education (20 charts)	Education (40 tables and charts)	Education (22 tables and charts)	Education (10 tables)
Housing (32 tables and charts)	Housing (17 charts)	Housing (18 tables and charts)	Housing (5 tables and charts)	Included under physical environment
Environment (23 tables and charts)		Quality of the environment (12 tables and charts)		Physical environment (25 tables)
Justice and law (32 tables and charts)		Criminal justice (24 tables and charts)	Crime (12 tables and charts)	Administration of justice (4 tables)
Resources (19 tables and charts)			Social security payments (11 tables and charts)	Public finance (1 table)
International (22 tables and charts)				
	Public safety (21 charts)			
		Bilingualism (26 tables and charts). Native cultures (27 tables and charts). Cultural diversity (29 tables and charts)		
				Social environment (14 tables). Participation (3 tables). Scientific research and development (2 tables)

TABLE 2

SSDS (UN, 1974)	SOCIAL TRENDS No.5 (United Kingdom 1974)	DONNÉES SOCIALES (France 1974)	SOCIAL INDICATORS (United States 1974)	PERSPECTIVE CANADA (Canada 1974)	GESELLSCHAFTLICHE DATEN (Germany 1974)
POPULATION	Population	Total population	Population	Population	Population
Growth of population	X	X	X	X	X
Geographical distribution of the population	X	X	X	X	—
Family stability and cohesion	X	Family formation and dis- solution (includes fertility)	—	Family formation and composition	X
EDUCATION (Learning and the educational services)	Education	Education	Education	Education	Education
Educational attainments of the population	X	X	X	X	X
Use and distribution of educational services	X	X	X	X	X
Educational achievement and efficiency of the educational services	X (Also appears under resources)	X (Limited expenditure data)	X (No expenditure data)	X	(X) (Expenditure data only. Also under Public finance.)
EMPLOYMENT (Earnings activities and the employment services)	Employment	Active population	Employment	Work	Employment
Labour force participation	X	X	X	X	X
Employment opportunities and security	X	X	X	X	X
Employment mobility	—	X	—	—	—
Employment compensation	Appears under Personal income and wealth	X	X	X	—
Working conditions	X	X	X	X	X (Also under social environment)
Availability of and performance of manpower	—	—	—	—	—
Distribution of income, consumption and wealth	Personal income and wealth, personal expenditure	Distribution and redistri- bution of income. House- hold consumption and durables. Savings	Income	Income, consumption of goods and services	Income expenditure and living standards
Levels of household income and wealth	X	X	X	X	X
Growth in household income	X	X	X	X	X
Levels of household consumption	X	X	X	X	X
Growth of household consumption	X	X	X	X	X
Re-distribution of income and consumption	X	X	X	X	X
Inequality in the distribution of income consumption and wealth	(X) (Figures on wealth)	X	X	X	—
Social security and welfare services	Included under personal income and wealth, and also under resources	Social security payments	—	—	Included under social en- vironment and public finance
Protection against loss of in- come and other hazards	X	—	—	—	—
Use and magnitude of pro- tection against loss of income and other hazards	X	X	—	—	X

TABLE 2 (continued)

SSDS (UN, 1974)	SOCIAL TRENDS No. 5 (United Kingdom 1974)	DONNÉES SOCIALES (France 1974)	SOCIAL INDICATORS (United States 1974)	PERSPECTIVE CANADA (Canada 1974)	GESELLSCHAFTLICHE DATEN (Germany 1974)
HEALTH (Health and health services)	Health	Health	Health	Health	Health
Length of life	X	X	X	X	—
Disabilities	X	—	X	X	X
Performance of health services	Included under resources	—	—	—	X
Availability and use of health services	X	X	X	X	X (includes health insurance)
HOUSING	Housing	Housing	Housing	Housing	Housing
State and distribution of housing	X	X	X	X	X
Adequacy of supply of housing	X	X	X	X	X
Tenure and outlays on housing	X	Expenditure on construction only	—	X	—
Public housing assistance	X (Also under resources)	X	X	—	—
Public order and safety	Justice and law	Crime (including suicides)	Public safety	Criminal justice	Administration of justice
Frequency and severity of offences and victimisation	X	X	X	X	X
Characteristics and treatment of offenders	X	X	X (No information on treatment)	X (Treatment only)	X
Performance of institutions	(X) Limited data	—	—	—	—
The allocation of time and leisure	Leisure	Vacations; free time and cultural activities	Leisure and recreation	Allocation of time	Some data included under participation and under employment and public finance
The use of time	X	X	X	X	X
The use of leisure	X	X	X	X	(Membership of clubs)
The availability and use of leisure time facilities	X (Partially covered through use only)	X (Partially covered through use only)	X (Partially covered through use only)	X (Partially covered through use only)	X (Partially covered through use only)
Social stratification and mobility	—	Social mobility	—	—	—
Social stratification	Some data under personal income and wealth	X	—	—	—
Intra-generational mobility	—	X	—	—	—
Inter-generational mobility	—	X	—	—	—
	Environment			Quality of the environment	Physical environment
	International comparisons			Bilingualism. Native peoples cultural diversity	Scientific research and development

X indicates that data on the subject are included in the publication.
 — indicates no information on the subject is included in the publication.

Multivariate socio-economic area classifications - Readers' comments

The article on this topic in the last issue concluded with an invitation to readers to comment. Several letters have been received and they are reproduced in an edited form below followed by the author's reply.

From: Mr S L Edwards

Department of the Environment
South West Economic Planning Board
Bristol

Two points in particular were made in the article to which I would like to put an alternative view. The first refers to the need for classifications to be made on a pragmatic basis rather than a purposive one. It is my belief that classifications must, at first at least, be aimed at a specific use (or uses). Having satisfied that use then it is conceivable that they can be extended to meet other needs, but having a particular goal is valuable if only because it instils discipline on the project.

The second point refers to the statement that it is advisable to concentrate only on population census based variables. One reason given for this is that to date, only census based variables have been considered in area classifications. This is not true of all work in this field. Nor *should* only census based variables be considered; other variables are just as relevant to the measurement of, say, territorial social well being as are census variables. There is a danger that these other, admittedly diverse and in many cases non-computerised, sources will be ignored.

Thus, when current work on constructing indicators of local prosperity for Great Britain as a whole was started about a year ago, following similar work for the South West Region, it was decided to cast the net for relevant data as widely as possible given time and resources. And to date information on forty five variables less than half of which are census based, has been collected (or is in the process of being collected) for each of the seventeen hundred or so old local authority areas. This task has not been without its difficulties (particularly in relation to standardisation of data to local authority areas) and drawbacks, but it is believed that the availability of a single, computer based data bank will prove its worth. Moreover, the list can be added to and variables ultimately updated to give time series as well as cross sectional analysis.

Although the data were collected for a specific purpose, other purposes can be served either from the existing data or by their combination with additional variables. Again the areal unit can be varied. Codes are incorporated to provide data if necessary for counties, sub-regions or regions; this is useful if the work were to be extended to cover other countries in the EEC when areas larger than our old local authorities would need to be used. Also incorporated are codes for the new districts and city regions.

From: Mr P Golder

Luxembourg G. D.

I would suggest that you may find the article in *Applied Statistics* Vol. 22 No. 2 by myself and K. A. Yeomans useful. Also I feel the methodological arguments tend to obscure the problem for the following reasons -

- (a) If the results are too sensitive to the technique used then the classification is a mirage produced by the method. Provided this degree of sensitivity is avoided methodological details are secondary.
- (b) People who happily use multiple regression, principal components analysis and (principal) factor analysis - all based on minimum sums of squares - suddenly query the measure when confronted with cluster analysis.
- (c) In your problem similarity involves being 'near' in 'n' dimensional space; for this one scale is likely to be as good as any other increasing function of it *if* clusters exist.
- (d) The problem of weighting is almost a non-problem. The act of selecting some variables and excluding others, and including variations on a theme - income - housing - age etc. is clearly of greater importance than the act of subjectively weighting the variables.

I would suggest a principal components analysis of your selected set of variables but unweighted; followed by Euclidean clustering of the major components; whether an observed clustering is real or imaginary can be checked by repeating the process with another sample of areas. Although it may be tidier, in our experiment the extra variable 'geographical contiguity' was not necessary.

Why not allow the nearness in the variable space to

determine classification and arbitrarily reclassify any 'lost sheep' on a geographical basis afterwards? I expect that you will examine the results for spatial effects so why prejudge the issue with a spatial variable? Another point is that although principal component analysis economises on dimensions for the clustering process it involves reference to all variables for the allocation stage. This could be avoided by using discriminant analysis, after the clusters have been derived, to produce an economical rule for classifying observations in terms of the original variables.

From: **Mr T Marshall**
The Medical School
Edgbaston, Birmingham.

The aspect which I found most interesting was the suggestion that it would be worthwhile examining the effect of different levels of aggregation of areal data on a subsequent multivariate classification for, so far as I know, no one has used the same set of data with different aggregation levels.

At the same time I feel that informed guesses can be made as to what to expect – or at least, what not to expect. Moser and Scott's study identified groups such as the 'railway towns' and the spas; clearly, in the context of intra-city structure, such a classification would not and indeed could not emerge. My point is that the type of aggregation required for (say) planning purposes must depend on the level for which plans are formulated, and quite possibly would need to be one level of aggregation lower than the planning level; that is regional data for national planning, local authority or city data for regional planning, ward and (perhaps) enumeration district data for city planning. Analysis of a national sample of enumeration districts might identify 'national' types of enumeration districts, but the detail would be far greater than that required for national planning, and would anyway concern a level at which such large-scale planning would have little specific effect.

How much practical use such a study would be is, I feel, open to question. It is a *sine qua non* of all such studies that what comes out is no more than what goes in. Thus, to include variables concerning (for example) car ownership, house-hold facilities, educational attainments and occupation inevitably tends to generate a heavily social-class biased classification. A further point, very much tied up with this, concerns preconceived ideas. Inevitably, those variables are selected which are thought to be 'important' in some discriminatory sense. That a multivariate classification confirms their importance in this respect should not be surprising; indeed, it would be surprising were it

otherwise. And once clusters have been generated it usually proves not too difficult to find some external rationalisation of the grouping, based on pre-existing knowledge; or else you find something of no use because you cannot interpret it and therefore do not know how to use it.

Finally, it seems to me that there is a certain amount of confusion as to how such a study might be used. On p 28.5 you write 'the kind of multivariate classification envisaged are not primarily designed to test specific hypotheses and so solve particular problems'; but on the following page, we read '. . . any multivariate classification would not be an 'end' in itself but only a means to an end'. I am afraid I find it difficult to reconcile these statements given the context in which they appear.

From: **Mr P. A. Talmage**
Product Surveys Limited
Ipswich.

Mr Craig's article offers a tantalising prospect to the market research industry. Many goods and services tend to be associated with particular types of user, notably the more affluent. There is a continuing need for economic procedures, which will deliver samples weighted towards these people. The classification could also prove of value as a standard breakdown, to accompany or perhaps to replace, for some surveys, usual classifications such as area, age, sex, and class. Its potential use for studies of retail sites is readily apparent.

For market research purposes, the success of the classification depends on three things. Will it work? Will it be easy to use? And will it be generally adopted?

To 'work' it will have to show sufficient discrimination, across a wide range of goods and services, to justify the extra cost of using it. To make it easy to use, the classified list of areal units must be in a form suitable for sampling purposes – bearing in mind that most market research sampling is at present based on the use of electoral registers, and is clustered within wards or polling districts selected by multi-stage procedures, following stratification of the constituencies by region, and sometimes by other criteria. It should also be taken into account that few market research companies employ expert statisticians. Undoubtedly there will be a demand for all areal units to be included in the classification, to suit different surveys. The various sampling applications will include using the classifications to help stratify primary units such as constituencies, ranging to use of the smallest available units, which being more homogeneous, are likely to show the greatest discrimination in usage of minority goods and services.

The utility of a general classification for individual surveys is also enhanced if it is employed in widely-used on-going research, such as the National Readership Survey, as well as in OPCS work. The Market Research Society is best able to represent the views of the industry and I trust that consultations with this body will prove helpful to Mr Craig, and that he will be encouraged to pursue his proposals.

The author of the article, John Craig, writes:

Firstly thanks to those concerned for taking the trouble to write and for participating in this innovation. Secondly I think it is noteworthy that comments on methods outnumber those on potential applications. (This, of course, is in no way an oblique criticism of my correspondents who write from their own particular interest). It may be that there are few potential applications; or that *Statistical News* does not reach the people involved; or that it reaches them but they see no point in communicating; or that classifications are the type of commodity which reveals its usefulness only when you have it. I do not know if I or the Editor should be the more worried! Thirdly I shall be glad to receive further communications though *Statistical News* cannot be expected to continue to publish them.

On points of detail I found Mr Golder reassuring; his thinking is very similar to our own. Mr Edwards makes two main points but I do not see these as an alternative view for I did not argue that non-Census data should *never* be used or that classifications should *never* be purposive; I was simply trying to justify the approach we were proposing. Different circumstances, such as those Mr Edwards outlines, will justify different approaches.

Mr Marshall asks whether a national classification of, say, enumeration districts would be of any relevance apart from the planning purposes of the districts. Mr Talmage's letter indicates one other use – which also applies to government statistics – the aggregation of data. Also comparisons could be made of the pattern of the grouping of enumeration districts within different cities or whatever. The question of how far a classification should fit in with preconceived ideas or at any rate be explicable in 'common sense' terms seems to be a vexed one. Space prevents a discussion of the issue – which is as well since I have always found it inconclusive. But I accept that a wave of the magic wand and a cry of *Eureka* will not be good enough; it will be necessary to demonstrate that a classification actually does something worthwhile. This must wait until we have some results – the pragmatic approach again. I would

also agree that there is some uncertainty as to the uses of such classifications but not that the references quoted are incompatible. Both were referring to the fact that the use being stressed was that of providing more efficient stratification (as opposed to, say, testing a theory about urban structures). The kind of application spelt out by Mr Talmage is very much in our minds, but again I would prefer to have some results to manipulate before becoming too involved. A point to stress is that I regard this project as at least semi-experimental; naturally it would not even be started if it did not seem to have something to offer but I hope my feet are somewhere near the ground – even if that is where the rainbow usually ends.

Notes on current developments

POPULATION AND VITAL STATISTICS

1971 Census of Population

England and Wales - new local authority areas

Publication has now started of the series of new county reports in which the results of the 1971 Census are re-grouped to present a picture of the new counties and their districts which came into being on 1 April 1974. The new series will form an important basis for administration for the remainder of the 1970's.

The tables in these reports follow the same pattern as those in the county reports (published during 1972 and 1973) relating to the county and local authority areas before the reorganisation of local government.

Reference

Census 1971, England and Wales: Report for the county of . . . as constituted on 1st April 1974 (HMSO Various prices).

1976 Census of Population

The Government's decision not to proceed with the mid-term census planned for May 1976 was announced in the Budget speech on 15 April.

Scotland

The housing report for Scotland has now been published with commentary and a provisional assessment of the quality of the data. The first fertility report is due shortly, and arrangements for 'unpublished' release of the remaining reports are being made.

Population estimates

England and Wales: revised figures for 1961 to 1971

Revised estimates of the population of England and Wales by sex, age and marital condition, for the period 1961 to 1971, have now been published. These estimates take into account the final results of the 1971 Census of Population.

Also included are estimates, for the intercensal period, of the population in the pre-April 1974 Subdivisions and the post-April 1974 Districts together with an analysis of population change for England and Wales for each year during the decade.

Reference

The Registrar General's Revised Estimates of the Population of England and Wales, Regions and Local Authority Areas, 1961 to 1971 (HMSO 58p net).

Scotland

The Annual Estimates of the Population of Scotland at 30 June 1974 were published recently. Estimates of

the population of the new local government regions, island areas and districts and of health board areas for mid 1971 to mid 1974 are also included.

The Registrar General's fourth quarterly return for 1974 will be published next month. In addition to the usual quarterly tables it will include the provisional annual return for 1974 by old and new local government areas, abridged life tables for Scotland based on 1972-74, and a table comparing the mortality experience of the countries of the United Kingdom in 1973.

Local Government Reorganisation

Now published is a guide to changes in administrative areas and their populations resulting from local government reorganisation. The booklet (previewed in *Statistical News* 27.22) shows the relationship between the local government areas as constituted before and after 1 April 1974 at the district, county and regional levels. The tables in this publication can be used as a basis for converting data from pre-April 1974 areas into data for the new areas and vice versa. Also included are quick reference charts and a map.

Reference

Reorganisation of Local Government Areas: Correlation of new and old areas (HMSO 48p net).

Population projections

New Standard Regions of England

The Office of Population Censuses and Surveys has produced projections of the home population of New Standard Regions of England (boundaries as at 1 April 1974) based on the mid-year estimated population at 1973. These regional projections are constrained to the 1973-based national home population projections (a brief summary of which appeared in *Abstract of Regional Statistics* 1974, Table 2.)

This set of Regional projections includes adjustments for projected inter-regional and overseas migration.

Results are now published by sex and broad age-group for selected years to 1991 together with a commentary on the assumptions used. Included in the booklet are projections for the three main divisions of the South East Standard Region (Greater London Council Area, Outer Metropolitan Area, Outer South East Area).

Reference

Regional Population Projections: mid-1973 based (HMSO 34p net).

Statistical Review – annual statistics

The Registrar General's Statistical Review of England and Wales, 1973 pt II is now published. It brings together demographic material already published in the Quarterly Returns and the more detailed analyses that are made annually. It includes tables showing analyses of births, marriage, divorce and migration.

To avoid delaying publication of certain tables, the *Statistical Review* 1973 pt I is to be published in two parts. The first of these two, pt I(A) including details of deaths by cause, sex and age (Table 17) is due to be published shortly.

As reported in *Statistical News* (28.24) these volumes relating to 1973 statistics are the last to appear in this form. Following a review of OPCS publications, the *Statistical Review* pts I and II are being replaced by a series of smaller volumes each dealing with one topic or a number of closely related topics.

The first of these smaller volumes, on electoral statistics has recently been published. It includes figures of the electorate compiled from the electoral registers which came into operation on 16 February 1974 together with the total number of votes cast in each constituency at the General Elections held on 28 February 1974 and 10 October 1974. Figures for earlier years have been published in the *Registrar General's Statistical Review of England and Wales*, pt II, Tables U and V.

Electorates compiled from the electoral register which came into operation on 16 February 1975 are to be published in the OPCS Monitor series.

References

Registrar General's Statistical Review of England and Wales, 1973: Pt I(A) Tables, Medical (HMSO £2.75 net), Pt II Tables, Population (HMSO £2.95 net).

Electoral Statistics 1974 (HMSO).

OPCS Monitor; Electoral Statistics (reference EL 75/1) available direct from

Information Branch (Dept M)
OPCS
St. Catherines House
10 Kingsway
London WC2 6JP

HEALTH AND SOCIAL SECURITY

Mental illness in-patients and day-patients statistics

A report published in April highlights the changing patterns in the use of mental illness hospitals and units in England and Wales. The main part of the report is devoted to the results of a census of in-patients at the end of 1971 and the remainder of the report to the results of a census of day patients in April 1972.

The report sets out the age, sex, and marital con-

dition of the 111,601 in-patients at the time, together with such particulars as diagnosis, mental category, legal status, length of stay and the extent to which patients have some form of occupation. Regional analyses are given and comparisons of the 1971 census findings are made with previous censuses conducted in 1954 and 1963. At the end of 1971, for example, there were 2.2 people per 1,000 population in England and Wales in mental illness hospitals and units compared with 3.4 in 1954 and 2.8 in 1963. However, for those aged 75 and over there were 11.4 mental illness in-patients per 1,000 population of that age in 1971 compared with 10.3 in 1954.

The report of the day patient census includes details of the age, sex, marital condition, diagnosis, source of referral, length and frequency of attendance of the 13,186 day patients at the time and compares the characteristics of day-patients with in-patients.

Reference

Censuses of (a) Patients in mental illness hospitals and units in England and Wales at the end of 1971.

(b) Mental illness day patients in England and Wales at April 1972.

Statistical and Research Report Series No 10 (HMSO) April 1975 (Price £2.13 net).

Submission of evidence by the Central Statistical Office to the Occupational Pensions Board

The Secretary of State for Social Services asked the Occupational Pensions Board (OPB) to advise her on three matters affecting occupational pensions schemes, namely, Solvency, Disclosure of Information, and Member Involvement in operating occupational pension schemes. In turn the OPB asked, in August 1974, for written evidence from interested parties on any or all of these three remits. The second of these, which was concerned with the extent to which there should be statutory provision about the disclosure, both to members and generally, of information (particularly financial information) about occupational pension schemes, has considerable relevance to the responsibility of the Central Statistical Office (CSO) for compiling statistics of personal sector saving and the flows of investment funds for the national accounts.

The evidence which the CSO submitted outlined the weaknesses in the present methods of estimation of the revenue account and financial transaction accounts, in particular with respect to the private sector schemes and stated the need for a comprehensive and constantly updated register of schemes, together with certain limited information which would indicate the importance of each scheme, from which representative sample enquiries could be conducted. In particular, to improve the statistics on the revenue account it would be necessary to introduce a new statistical return using

a sample drawn from such a register. In addition the CSO suggested that the compilation of the register should be preferably a statutory requirement and that a central authority such as the OPB might be the vehicle by which all statistics concerning pension schemes could be integrated.

The Report of the Occupational Pensions Board was presented to Parliament on 20 February 1975 (Cmnd 5904).

Reference

Social Security Act 1973. Report of the Occupational Pensions Board in accordance with Section 66 of the Social Security Act 1973 on the questions of Solvency, Disclosure of Information and Member Participation in Occupational Pension Schemes (Cmnd 5904) (HMSO Price 38p net).

HOUSING

Homelessness statistics

A joint circular was sent in February 1974 to the London boroughs and the new English and Welsh county and district councils, from the Department of the Environment, the Department of Health and Social Security and the Welsh Office. This circular recommended that responsibility for dealing with homeless people should pass from social service departments in local authorities to the housing departments, a change which had already been implemented by some authorities, particularly in London. In parallel with this recommendation to local government, the Department of the Environment took over the lead in England from the Department of Health and Social Security and this included responsibility for the collection of statistical returns on homelessness cases.

Statistics of applications for temporary accommodation and of temporary accommodation provided, were formerly returned by social service departments to the Department of Health and Social Security on form H41, an aggregate return which presented a snapshot picture of the situation at the end of each quarter. From 1 January 1974 in London and 1 January 1975 in the rest of England and Wales, a new system of statistics was introduced under which two forms are used for individual cases.

The first of these forms (H1) is to be returned to the Department of the Environment when a decision is made by the local authority whether to accept the applicant as homeless or not. The second of the forms (H2) is completed to record the solution found to the applicant's problem; if a solution is not found within the calendar quarter, then an H2 is returned showing the type of temporary accommodation provided and this procedure continues at the end of each quarter until a permanent solution has been reached. As a

result of this unit approach, much more detailed information on the needs of individuals will become available.

For London, simple analyses of the returns for 1974 which have been received from each borough, have been produced and fed back to the boroughs. The format of analyses to be sent to other authorities in England and Wales is currently being discussed with representatives of local government.

Re-lets enquiry

In 1973 the Department of the Environment collected from a sample of English and Welsh local authorities, statistics on numbers of their dwellings which had been let to new tenants during each of the years, 1970, 1971 and 1972, how much of their housing was vacant at the end of each year and how many existing tenants had moved to other council dwellings. Corresponding information about 1973 has been collected and it is intended to repeat the enquiry annually.

These data provide a valuable source of information on the demand for council housing, on mobility within the local authority housing sector and variations from year to year in the numbers of council tenants moving to other tenures. Further details of this enquiry may be obtained from:

S R Tyler,
Room S14/21,
Department of the Environment,
2 Marsham Street,
London, SW1P 3EB.

Armed Forces accommodation and family education survey

A report was published in October 1974 on the findings of an enquiry into the accommodation of married Service personnel, the size and age distribution of their families, and certain educational details of their children. It was the second in what will be a series of such surveys – the first was carried out in 1970 – to provide current information required by management within the Ministry of Defence to help formulate long term plans for the provision of public quartering and educational facilities in the Services.

Questionnaires were sent, worldwide, to a sample of 11,300 married Service personnel and a response rate of 83 per cent was achieved. A report has been written which sets out and comments on the extensive information produced by the enquiry.

Of particular interest was the increase in house ownership among Service personnel, especially officers, since the first survey in 1970. In spite of this, the overall proportion living in married quarters had also increased

slightly during the three year period between the two surveys, but there was a significant decrease in the occupation of hirings (ie privately owned property rented by the Ministry of Defence for the accommodation of entitled Service families) and rented private accommodation. Just over a quarter of all married Service personnel now own their own house: 50 per cent of these are occupied by the Serviceman and his family and a further 29 per cent by the family only.

Further information can be obtained from:

Mrs J M Iggulden,
Stats 5, Room 145,
Northumberland House,
Northumberland Avenue,
London, WC2 5BP.

HOUSEHOLD INCOME AND EXPENDITURE

Northern Ireland Family Expenditure Survey 1973

The *Northern Ireland Family Expenditure Survey Report* for 1973 was published in February. The survey, the latest in the annual series of surveys completed from 1967 onwards, covers the expenditure of private households in Northern Ireland. The same schedule is used as is employed in the rest of the United Kingdom, and in the 1973 report comprehensive information is provided on 540 households (72 per cent of those visited). The sampling fraction used in Northern Ireland is larger than that for the rest of the United Kingdom.

Twenty nine tables describe the patterns of household expenditure, household income and the distributions of households by income and other characteristics.

The report is produced by:

The Statistics and Economics Unit,
Department of Finance,
Belfast.

Reference

Northern Ireland Family Expenditure Survey 1973. February 1975 (HMSO Belfast Price 98p net).

MANPOWER AND EARNINGS

Unemployment Statistics and their interpretation

A recent article on the unemployment statistics and their interpretation, published in the *Department of Employment Gazette* discusses a range of points of topical interest. It summarises the basic facts about the unemployment statistics compiled by the Department and the definition of unemployment on which they are based. It also examines the current state of the debate

on the interpretation of movements in unemployment statistics since 1966 and considers the use of the statistics as an economic indicator. It finally discusses alternative sources of unemployment statistics and improvements in the presentation of the monthly figures.

Reference

Department of Employment Gazette March 1975 (HMSO Price 70p net).

Unemployment and Vacancy Statistics

Because of industrial action at Employment Service Agency Offices, the normal monthly counts of the registered unemployed, the temporarily stopped and notified vacancies remaining unfilled were not made at most offices throughout Great Britain in December 1974 and January 1975. Counts were not made at some offices in October and November. In consequence, the Department of Employment published October and November count figures which included estimates for some offices but no December or January count figures. Some national and regional estimates of the total unemployed on 20 January 1975 were published based on a simplified procedure. Comprehensive figures again became available from the February counts.

New estimates of employment analysed by industry, 1959 to 1973

The *Department of Employment Gazette* recently published a new series of annual estimates of employees in employment, analysed by industry, for the period 1959 to 1973 on a consistent basis. The estimates for each year in the new series are comparable with the more recent statistics based on current methods of collection and classification. The article in the *Department of Employment Gazette* describes the adjustments made to remove the various discontinuities present in previously published figures. The 1959 to 1973 estimates for Great Britain are given at industry (SIC Minimum List Heading) level. In addition regional estimates for 1965 to 1973 are given at industry group (SIC Order) level.

Reference

Department of Employment Gazette March 1975 (HMSO Price 70p net).

Unemployment by Travel-to-Work areas in Northern Ireland

From 1953 Great Britain published local unemployment percentage rates based on a local unemployment exchange office or a combination of local offices which, in a local exchange manager's judgement, were self-contained labour markets. In the 1951 Great Britain Census of Population there was a question on not only a worker's residence but also his place of work. When this travel-to-work information became available in

1956 it became possible to calculate labour markets on a more scientific basis.

No such workplace question was included in the 1951 nor indeed the 1961 Census of Population in Northern Ireland. However in response to a strong demand for local unemployment percentage rates a special home address analysis of national insurance cards was carried out each year from which the calculation of local office area unemployment percentages was undertaken. This special analysis was only carried out in Northern Ireland. These rates have been published regularly since 1963. With the abolition of National Insurance cards this year, this type of analysis is no longer possible.

Prior to 1971, numbers in employment were calculated from the number of cards exchanged at Local Offices. In the knowledge that this data source was shortly to disappear, a Census of Employment was instituted in 1971 as an alternative source of statistics on the numbers in employment.

This changeover from measuring employment at the home address (National Insurance Card) to measuring at the workplace (Census of Employment) means that Northern Ireland has had to adopt the Great Britain system of measuring unemployment based on travel-to-work areas.

Identification of a 'travel-to-work' area rests on the relationship between workplace and residence. The important factor is the degree of self-containment, the extent to which an area's residents work in their home area or travel to another, and the extent to which an area's workers reside within its boundaries. A method of establishing the degree of self containment based on the travel-to-work data from the 1971 Northern Ireland Census of Population was developed and thirteen travel-to-work areas were identified. These areas will, from April 1975, replace the former twenty seven local office areas as the spatial basis for local unemployment rates. It is stressed that numbers unemployed will continue to be available for local office areas.

Labour force survey, 1975

Labour force surveys are an important feature of the programme of the European Communities for obtaining internationally comparable statistics, not otherwise available, on the working population including unemployment.

The arrangements for the 1975 survey are similar to those for the previous, 1973, survey (*Statistical News* 20.42, 21.32, 22.33). The fieldwork in the United Kingdom was being undertaken in April and May, when about one half of one per cent of the population were interviewed. As usual, participation was voluntary.

Most of the questions were virtually unchanged from 1973; new topics concerned working conditions and education and training since completing full-time education. Some questions for the United Kingdom survey were tested in pilot surveys last December.

Articles on manpower planning

Further manpower planning articles in the *Department of Employment Gazette* quarterly series were published in the April issue (*Statistical News* 28.15 etc). One described an Engineering Industrial Training Board survey of the functions, educational background, training, mobility and career progression of engineering manpower. Another related to the employment prospects for new graduates in 1975.

Reference

Department of Employment Gazette April 1975 (HMSO Price 70p net).

Service Manpower Statistics Published by the Ministry of Defence

The main medium through which Service manpower statistics are available to the general public is the annual Statement on the Defence Estimates, published as a White Paper, normally in February each year.

The figures are presented in a special statistical annex to the Statement and cover separately the Royal Navy (including Royal Marines), the Army and the Royal Air Force. The series give strengths over recent years of United Kingdom and Non-United Kingdom personnel, male and female; recruitment of Officers, Servicemen and Servicewomen from civilian life; strengths of the Reserves and the Auxiliary Forces; prolongations of service (ie formal extensions of basic periods for which personnel have contracted to serve).

Further information, illustrated by statistical tables, is given in the text of the White Paper, mainly in the 'Manpower and Conditions of Service' section. Recruitment is usually a major topic and is dealt with in more detail than in the statistical annex.

Statistics of service personnel are published in a Press Release, copies of which go to the House of Commons, Vote Office. A monthly return gives detailed figures of the recruitment of servicemen, summarises the recruitment of servicewomen and presents current strengths of all uniformed United Kingdom personnel. Each quarter statistics of officers entering the Services are issued together with details about the types of servicemen entrants (for example adults or juniors), an analysis of the initial periods of service to which recruits have committed themselves and the latest information on prolongations of service.

Much information also becomes available in *Hansard*

through answers to Parliamentary Questions covering a wide range of Service manpower topics.

The published information mentioned above represents a much condensed summary of the wide range of detailed manpower statistics produced for internal use by the Ministry of Defence as an aid to management of the Services.

Further information can be obtained from:

Mr A. W. Bown,
Stats 1, Room 144,
Northumberland House,
Northumberland Avenue,
London, WC2N 5BP.

Labour Costs Survey 1975

The regulation about the organisation of an EEC sample survey of 1975 labour costs in industry (*Statistical News* 27.14) was made by the Council of the European Communities on 10 February 1975: Regulation (EEC) No. 328/75 of the Council, published in the Official Journal No. L37 on 12 February 1975.

New surveys of salaries

The Department of Employment has resumed collecting information on average earnings of administrative, technical and clerical workers in index of production industries through annual sample surveys in October. Since information on average earnings of manual workers in these industries in October is available from other regular surveys, the Department of Employment can thus provide information relating to both manual and non-manual workers within the system of harmonised statistics of earnings developed by the Statistical Office of the Communities.

The first of the new series related to October 1974. Earlier surveys of this kind were discontinued after October 1970 (*Statistical News* 10.24), following the introduction of the New Earnings Survey on an annual basis. Information for October 1973 was obtained from the survey of labour costs carried out at the request of the Statistical Office of the European Communities (*Statistical News* 20.42). The new series of surveys are on the same scale as that survey and so much smaller than the 1970 and earlier surveys.

New Earnings Survey 1974

Publication of Parts E and F of the six-part *New Earnings Survey 1974* booklet completes the publication of the results of the survey; only six months after the publication of the single volume 1973 survey booklet. Part E contains analyses of earnings and hours by region and by age-group, together with analyses of

employees in the sample relating to labour turnover, trainees and various distributions of employees. Part F contains analyses of hours and holidays with pay and of earnings and hours of part-time women workers.

References

New Earnings Survey 1974 - a publication in six parts (HMSO) (Price 60p net each and binder £1.25 net).

Top salaries in four public sector groups

The Report on Top Salaries by the Top Salaries Review Body under the chairmanship of Lord Boyle of Handsworth was published in December 1974. It followed three Interim Reports (in 1972, 1973 and 1974) on the remuneration of Chairmen and members of the Boards of nationalised industries, the higher judiciary, senior civil servants and senior officers of the armed forces. The Secretariat was provided by the Office of Manpower Economics.

The report is the first substantive review of the four groups since 1969. Certain statistical and other enquiries were carried out for the purpose of the review, the results of which are in a series of appendices to the Report. The main ones are:

- (1) a survey of the salaries and other remuneration of top management in private and nationalised industries over the period from September 1971 to September 1973. The survey covered nearly two thousand seven hundred posts in a hundred and eighty companies or other organisations in the two sectors. An analysis of pension arrangements in detail and of certain other benefits was included.
- (2) a survey of the earnings of practising barristers of fifteen to forty four years' standing, analysed by seniority and age and showing the relationship between gross and net earnings (after the deduction of expenses).
- (3) comparisons with certain top salaries in both public and private sectors in EEC countries.
- (4) Report by an Advisory Group on a study of job comparability for senior posts in the Higher Civil Service and Armed Forces with a reasonable sample of jobs at comparable levels of responsibility in industry (both private and nationalised), commerce and finance.
- (5) the findings of a job evaluation study of senior management posts in nationalised industry and compared with corresponding posts in private industry.
- (6) a historical study of the remuneration of the grades covered by the Report.

(7) a comparison of superannuation benefits between the public and private sectors.

Reference

Review Body on Top Salaries, Report No 6: Report on Top Salaries Cmnd 5846 December 1974 (HMSO Price £1.75 net).

Nurses, midwives and professions supplementary to medicine

Two related Reports and a Supplement by the Committee of Enquiry under the chairmanship of the Earl of Halsbury were published in September 1974 and in January and February 1975. The first related to the pay and conditions in the National Health Service of nurses and midwives and the second to the pay and conditions of the professions supplementary to medicine (radiography, physiotherapy, occupational therapy, remedial gymnastics, chiropody, orthoptics and dietetics) and speech therapy. Both Reports contain major reviews of the pay structures of the professions and recommend substantial changes. The Supplement relates to the first report and brought certain of the recommendations up-to-date. The Secretariat was provided by the Office of Manpower Economics (OME).

For each Report a detailed survey of earnings was carried out by the Department of Health and Social Security; that for nurses also covered hours of work. In addition the OME carried out staffing surveys to show the patterns of manning in London teaching and other hospitals by day and night, on weekdays, Saturdays and Sundays. The results of these are given in appendices to the Reports. Studies were also made of the earnings of staff employed by agencies and in private industry.

References

Report of the Committee of Inquiry into the Pay and Related Conditions of Service of Nurses and Midwives with Supplement, September 1974 and February 1975 (HMSO Price 78p and 12p net).

Report of the Committee of Inquiry into the Pay and Related Conditions of Service of the Professions Supplementary to Medicine and Speech Therapists, January 1975 (HMSO Price 80p net).

Non-university teachers

The Committee of Inquiry into the pay of Non-University Teachers under the chairmanship of Lord Houghton of Sowerby reported in December 1974. The Report contains a comprehensive review of the pay structures for teachers and lecturers in schools, colleges of education and further education in both England and Wales and Scotland and recommended a major restructuring of the pay systems in both countries, including the merging of the separate pay structures for higher and further education in each country.

The Secretariat was provided by the Office of Manpower Economics, which obtained from the Education Departments new statistics illustrating the career patterns of teachers – age distribution by grade, ages

on promotion and grades on retirement. These are given in the Statistical Appendix.

Reference

Report of the Committee of Inquiry into the pay of Non-University Teachers Cmnd. 5848 December 1974 (HMSO Price £1.75 net).

Wages Councils

The Paper Box Wages Council for Great Britain is being abolished on 1 June 1975 under an order (SI 1975 No. 41) made by the Secretary of State for Employment, as foreshadowed in *Statistical News* (27.14). The Hollow Ware Wages Council was also abolished on 1 April 1975 under an order (SI 1975 No. 00).

INCOME AND WEALTH

Inland Revenue publications

Distribution of income and wealth

Two new survey booklets have been produced to meet the demand for this information pending the publication in due course of *Inland Revenue Statistics 1975*. It appeared right to make available to the public data which was in any case being released to the Select Committee on the Wealth Tax and the Royal Commission on the Distribution of Income and Wealth.

The income tables include distributions of personal income before and after tax and distributions by marital status, size of family and type of income. There is also a summary table showing regional incomes.

The wealth tables include numbers of holdings of certain items and classification of property by range of total estate, as well as a wealth concentration analysis. The tables in both booklets will appear in greater detail in the main volume.

References

The Survey of Personal Incomes 1972-73 price 15p net.

Estimated Wealth of Individuals in Great Britain 1973 (price 15p net).

The booklets are obtainable from

Room 8, New Wing,
Somerset House,
Strand,
London WC2R 1LB.

INDUSTRIAL STATISTICS

New Business Monitor covering one hundred and fifty industries

The Business Statistics Office is introducing a new Business Monitor PQ1002 which will give *total* sales figures for each industry (as opposed to industrial commodity figures) in respect of one hundred and fifty industries. It will be published within thirteen weeks of the end of the quarter to which the figures relate.

The Business Statistics Office collects quarterly sales figures for more than four thousand products manufactured by some thirty thousand establishments (above an employment level of, normally, twenty five employees) in the industries covered by PQ 1002, and quarterly Monitors giving details of sales of individual products in each of these industries have been available for some time. How soon these Monitors can be published after the quarter to which they relate depends mainly on how long companies take to send in returns for the commodities they produce. The Business Statistics Office cannot publish until response is high enough for the overwhelming majority of the figures in a Monitor to be reliable. For some Monitors the delay can be as short as nine weeks after the end of the quarter concerned; for others it can be as long as six months. Reliable estimates of the *total* sales of a particular industry can be made well before the Monitor giving detailed information about the individual products of that industry can be published. PQ 1002 is therefore being introduced to meet the demand for early estimates of quarterly movements in manufacturers' sales. It supplements the commodity Monitors, bringing together, for the first time under one cover, all quarterly sales information on the manufacturing and mining industries.

The data for PQ 1002 are compiled in the eleventh week after the end of the quarter to which they relate, by which time the response rate is usually over 80 per cent for at least one hundred of the industries reported. The one hundred and fifty industries are grouped by the following broad sectors: mining and quarrying; food, drink and tobacco; coal and petroleum; chemicals and allied industries; metal manufacture; mechanical engineering; instrument engineering; electrical engineering; shipbuilding and marine engineering; vehicles; metal goods; textiles; leather, leather goods and fur; clothing and footwear; bricks, pottery, glass, cement; timber and furniture; paper, printing and publishing; other industries.

Reference

Business Monitor PQ 1002: *Manufacturing industries total sales* is available from HMSO, price 52p for a year's issues (including postage).

Other new business monitors

Since the last issue of *Statistical News*, two new Business Monitors, containing the results of new quarterly inquiries into sales by United Kingdom manufacturers, have been added to the Business Monitor production series. The inquiries are being conducted by the Business Statistics Office as part of the new system of industrial statistics.

The reference numbers and titles of the Business Monitors are:

PQ 101 Coal mining

PQ 601 Gas

These publications are appearing for the first time in the Business Monitor Series.

Business Monitors are available on subscription from Her Majesty's Stationery Office, PO Box 569, London SE1 9NH, at 52p per annum for each title. Copies may be purchased over the counter at either the Department of Industry's Central Library, 1 Victoria Street, London SW1H 0ET, or at the Department's Statistics and Market Intelligence Library, Export House, 50 Ludgate Hill, London EC4. Copies of specific issues can be ordered by post (payable in advance) from the Business Statistics Office Library which will supply prices on request; the address is:

The Librarian,
Business Statistics Office,
Cardiff Road,
Newport,
Gwent,
NPT 1XG.

Telephone: Newport (0633) 56111 Ext 2399.

Monthly estimates of manufacturers' stocks

Estimates of monthly changes in manufacturers' stocks and work in progress are being published for the first time, starting with figures for January and February 1975. They are intended to provide a broad indication of monthly changes in stockbuilding since the figures for the previous quarter were published. The monthly estimates are inevitably less reliable than the existing quarterly series (themselves subject to error and revision), partly because they are based on returns from a smaller number of firms. The monthly estimates, therefore, may be subject to considerable revision as later and more complete information becomes available. In spite of this weakness, it is believed that they represent a useful extension of the quarterly statistics.

The figures for January and February are to be published about the end of April with an introductory press notice and subsequent months are being published in *Trade and Industry* about two months after the end of the month to which they relate. There will only be one figure for each month, the overall volume change in stocks and work in progress by manufacturing industry, but some indication will be given of movements by asset.

The Department of Industry collects, on a voluntary basis, figures of stocks and work in progress from a panel of mainly larger manufacturers some of whom make monthly and some quarterly returns; quarterly estimates have been published since early 1956. Monthly estimates for internal official use have been made for

some time. They are necessarily less reliable than quarterly ones as they are based on a much smaller coverage. The final quarterly estimates are based on returns covering about 60 per cent of manufacturing industry's stocks, whereas monthly figures calculated after a similar time lag would probably have a coverage of only about 35 per cent; for the first provisional estimates the coverage is much less for both. In order to improve the coverage and reliability of the monthly estimates it is intended to ask quarterly respondents if they can reply on a monthly basis instead.

Inventory control in the Royal Navy

The Systems Division of Defence Statistics has developed a new statistical inventory control process for use over a broad range of Naval stores. This will replace the current system which has been in operation since 1968.

The inventory consists of seventy thousand items valued at around sixty million pounds, servicing the Fleet and Royal Dockyards. Stores held at the main Naval bases are managed centrally from an inventory control point supported by an ICL 1906A at Ministry of Defence Headquarters.

It has been necessary to develop a specialised technique to deal with the unusual nature of the demand distribution and the requirement to satisfy immediately a high proportion of the military customer's needs. The formulation of an optimal strategy was first set out in a paper read to the Royal Statistical Society by Mr A R Thatcher. In addition, Defence Statistics has, in recent years, been involved with a number of other aspects of the new system, and is contributing towards its implementation within the Royal Navy Stores and Transport Service. Some advanced simulation and analytical studies have been carried out to assess the implications of changeover from current methods and to facilitate evaluation of the necessary control parameters for management.

Further information can be obtained from:

Mr D Wallage,

Def. Stats. 21,

telephone: 01-387-5040 Ext. 8169.

Reference

Journal of the Royal Statistical Society Series B Volume 24 No 1 1962 (pp1-45).

Improvement to GDP(O) estimate

The quarterly estimates of gross domestic product based on output data (GDP(O)) incorporate the index of industrial production as the measure of industrial output. Some of the indicators used in the index relate to deliveries or sales rather than production. Deliveries

and production in a quarter may differ because of changes in stocks of finished goods and in work in progress. While this distinction is often unimportant in the interpretation of the index and the estimate of GDP(O), it can be significant in some periods when substantial changes in stocks take place. For example, in the first quarter of 1974, at the time of power restrictions, deliveries were affected less than production since they were partially maintained by running down stocks. In this period the use of delivery indicators for some manufacturing industries led the estimate of GDP(O) to overstate the level of output.

It is possible to make an estimate of the extent of under or over statement in the index each quarter using information collected by the Department of Industry on manufacturers' stocks. Estimates taking account, as far as is practicable, of the industrial breakdown of stock changes were made during 1974 and used in comment on the quarterly movements of the index of industrial production and of GDP(O). Subsequently, in the National Income and Expenditure Press Notice published on 20 March 1975, the estimates were incorporated in the published figures for GDP(O) for all quarters back to 1970; the practice of publishing estimates of GDP(O) adjusted for the use of delivery indicators will be maintained in the future. Since, at present, estimates of the adjustment to be made are only available quarterly, no adjusted version of the monthly index of production is published.

Capital expenditure

Assets acquired for leasing out

The quarterly capital expenditure inquiry into the distributive and service industries was extended from the first quarter of this year and the coverage of companies engaged in leasing was improved. These companies are being asked to give separate figures of their capital expenditure on assets acquired for their own use and on assets acquired for leasing, hiring or renting out. The inquiry form further asks them to distinguish financial leases (full payout agreements in which the full cost of the asset is recovered by the lessor within a fixed (contractual) period) to manufacturers and others from all other leasing, hiring and rental agreements. The expansion of leasing activity in recent years has increased the need for this type of information particularly in order to monitor the extent to which assets are being leased to manufacturing industry. The new statistical series will be published in due course, once they appear to be running satisfactorily.

Further information may be obtained from Mr A P Hornett, Telephone 01-215 3345 or Mrs M S Dolling, Telephone: 01-215 3162, Department of Industry.

Input-output statistics

The Central Statistical Office has recently completed the preparation of input-output tables for 1971. A summary version of these tables, distinguishing thirty four industry and commodity groups was published in the April 1975 issue of *Economic Trends* and the full tables are expected to be published as a Business Monitor in July of this year.

The full tables distinguish fifty nine industry/commodity groups, compared with the ninety groups shown for 1970. This is because, like those for 1970, the tables are largely based on the sales and expenditure patterns observed in the last firmly-based input-output tables, for 1968, and it is known that the reliability of the detailed results diminishes as the base year recedes. However, in view of the growing importance of North Sea oil and gas, a new input-output industry has been distinguished in the full 1971 tables. This is MLH 104 (petroleum and natural gas), which previously was combined with other mining and quarrying. The data on output and expenditure for this industry have been compiled with the co-operation of the Department of Energy.

References

Summary input-output tables for 1971, *Economic Trends* No 258, April 1975. (HMSO Price £1.15 net).

Business Monitor PA 1004: *Input-Output Tables for the United Kingdom 1970*, September 1974, (HMSO Price £1.00 net).

Business Monitor PA 1004: *Input-Output Tables for the United Kingdom 1971*, (HMSO) forthcoming.

Research and development survey 1972

Two articles have been published in *Trade and Industry*, giving the results from the survey of research and development in British Industry 1972. These are (5 September 1974) 'Industrial expenditure on scientific research and development: provisional results of the 1972 survey'; and (13 February 1975) 'Employment on scientific research and development in British industry'. The first article gave details of Research and development expenditure which, in total, was estimated at £835 million. The second article covered Research and development employment, estimated at one hundred and eighty two thousand in 1972. The employment estimates from 1967 to 1972 were published for the first time.

A third article will analyse the expenditure and employment on Research and development by size of company.

Reference

Trade and Industry weekly (HMSO Price 15p net).

CONSTRUCTION

Project-based construction statistics

Improved methods of collecting output and employ-

ment statistics from private contractors have recently been considered by the industry, the Department of the Environment and other interested parties. It has been agreed that statistics of new construction work should in future be collected by sampling projects rather than firms, and the Department of the Environment is introducing a series of pilot tests from the first quarter of 1975 to examine the practicability of the new type of enquiry.

Some two hundred contractors, most of whom obtain over £3 m of new orders per year, are being invited to take part in the first stage of the tests. They will be asked to supply information on the total output to the end of each quarter and the average employment during a week in the quarter on a sample of sites for which they act as main contractor. A list of their projects in progress can be derived from the Department's monthly new orders enquiry, on which details of location, type of work and value are reported for each successful tender.

As the tests proceed more firms will be brought into their scope and eventually a full-scale enquiry will be implemented based on a sample of all new construction projects in progress.

The new system will enable much more detailed output and site employment statistics to be estimated, by region and by type of work. The existing series, published in Tables 5 and 10 of *Housing and Construction Statistics*, is limited to five types of new work, and the available regional breakdowns are only approximate. Data on work outstanding and on the rate of conversion of orders to output will also be derivable. It is hoped to publish some quarterly data, though not in full detail, from the pilot test returns.

From the contractors' point of view the new enquiry should be simpler to complete, since the questions should fit in more closely with the way in which they keep their own records, and firms working wholly as sub-contractors will not need to be approached. The form-filling costs to contractors will be investigated during the pilot tests, along the lines of an earlier cost study carried out in 1973 (*Statistical News* 20.31).

Further information can be obtained from:

Mr M J Clary,
Department of the Environment,
Room 1320, Thames House South,
Millbank,
London SW1P 4QH.
Telephone 01-211 5665.

Reference

Housing and Construction Statistics (HMSO Price £1 net).

FOOD AND AGRICULTURE

National Food Survey

The latest publication in the series of Annual Reports of the National Food Survey Committee presents the full Survey results for 1973. The Report describes the levels of food consumption, expenditure, prices and nutrition in private households in Great Britain during the first year of membership of the European Economic Communities and makes various comparisons with the previous year. In addition to national averages the Report presents the standard breakdowns of data according to income group, family composition, region and type of area.

Although food prices continued to rise more sharply than other prices in 1973, in real terms expenditure on food rose hardly at all and the increase that occurred in consumers' purchasing power was mainly devoted to durables, motoring and alcoholic beverages. Overall, there was a fall of just under 1 per cent in the real value of household food purchases per head, with a similar fall in energy value, but estimated intake of energy and nutrients continued to be well above the levels recommended by the Department of Health and Social Security.

In the nutritional section some estimates are given of the contributions made to total energy and nutrient intake by sweets, chocolates, alcoholic drinks, soft drinks, meals out and certain other foods not recorded in the Survey. These estimates are, however, based on statistics of available supplies at national level and cannot be apportioned between households of different types. The section of the Report dealing with nutrition also gives a comparison of the cost of nutrients from different food sources.

Special sections of the Report examine the differences in food consumption, expenditure, prices and nutrition between households owning a deep-freezer, those owning only a refrigerator, and other households, and also the differences between farm and other households. Special attention is also given to a comparison of food expenditure and nutritional patterns in various categories of pensioner household.

A further year's information is now presented about the quantities of milk being drunk in the home by children of various age-groups and by other categories of person in a variety of families since the school and welfare milk provisions were changed in 1971. The Report also contains an analysis of the number of meals eaten outside the home, showing variations according to income, family composition and geographical location. The number and source of mid-day meals eaten away from home by children of school age is also tabulated.

Up-to-date estimates of income elasticities and of price and cross elasticities of demand for various foods have been derived from the Survey data and these are included in the Report.

Summarised results of the Survey are published in the *Monthly Digest of Statistics* as soon as they become available. They are supplemented by brief quarterly commentaries in *Trade and Industry* usually within three months of the end of the quarter to which they relate. Additional information in a more detailed form is also obtainable each quarter; applications for such data should be addressed to:

National Food Survey Branch,
Ministry of Agriculture, Fisheries and Food,
Tolcarne Drive,
Pinner,
Middlesex HA5 2DT.
Telephone: 01-868 7161 Ext 43 or 44.

Reference

Household Food Consumption and Expenditure: 1973, (HMSO Price £2.33 net).

Agricultural land prices

The Ministry of Agriculture, Fisheries and Food has, since 1966, published six-monthly summaries of agricultural land transactions based on returns made to the Inland Revenue. These summaries now give total acreage and average price of sales in twelve regions of England and Wales, subdivided by a five-size group classification, by vacant or tenanted possession, and by the presence or absence of buildings. Changes in this classification scheme were made in 1969, and thus the detailed results suffer a discontinuity at that point; however, overall figures for England and Wales, form an unbroken series since 1946.

This published information is now being extended by the calculation of a variety of price indices which will eliminate changes in the distribution of transactions by size or region from the average price. Unfortunately the conventional problems of choosing fixed base or linked indices are here compounded by the existence of two widely divergent base frameworks: the total acreage of agricultural land or the acreage actually sold in a given period. Thus it is necessary to calculate three new indicators of agricultural land values; these being available since 1966, although with a small but unquantified break in 1969.

These will be made available regularly in this Ministry's publication *Agricultural Land Sales in England and Wales* together with a description of their construction. A more general note discussing their purpose and interpretation will appear in the Technical Report

20/6 of the Agricultural Development and Advisory Service.

References

Agricultural Land Sales in England and Wales No 8: 1 April 1974–30 September 1974. Published by Economics Division I, Ministry of Agriculture, Fisheries and Food, Whitehall Place West, London SW1A 2HH. Tel: 01-839 7711 Ext 660.

ADAS Technical Report No 20/6: Agricultural Land Prices. Published by the Ministry of Agriculture, Fisheries and Food, Tolcarne Drive, Pinner.

Agricultural Censuses and Surveys (1)

The April 1974 Orchard Fruit Census

The results of this census in England and Wales were published in a Statistical Information Notice on 6 March 1975.

The 1974 June Agricultural Census (2)

The final results of the June census in the United Kingdom were published in a Statistical Information Notice on 30 January 1975.

The 1974 October Census of Vegetables and Flowers (3)

The results of this census in England and Wales were published in a Statistical Information Notice on 13 March 1975.

The total area of vegetables covered by the census showed an increase of about eight hundred acres (0.6 per cent) but the total area of bulbs and the total area of flowers showed a decrease of about two thousand four hundred acres (15.1 per cent) and three hundred and seventy acres (17.9 per cent) respectively.

The 1974 December Agricultural Census (4)

The raised results of this sample census in England and Wales were published in a Press Notice on 24 February 1975.

Compared with December 1973, they show that beef cows increased in number while the number of dairy cows decreased over the year. The size of the sheep breeding flock was almost unchanged, but fewer lambs were retained for breeding than a year previously. Numbers in the pig breeding herd were smaller than in December 1973. The egg-laying flock decreased; growing pullets increased, but breeding fowls showed a decrease, as did broiler fowls. About 1.7 million acres of wheat were sown by 2 December, about a million acres less than at the same time in 1973.

The results of the December census in the United Kingdom were published early in April 1975.

References

(1) Statistical Information Notice (Stats 60/75) issued by the Ministry of Agriculture, Fisheries and Food.

(2) Statistical Information Notice (Stats 32/75) issued by the Ministry of Agriculture, Fisheries and Food.

(3) Statistical Information Notice (Stats 65/75) issued by the Ministry of Agriculture, Fisheries and Food.

(4) Press Notice No. 66 issued by the Ministry of Agriculture, Fisheries and Food.

The 1974 December Agricultural Census Scotland

The final results of this census in Scotland were published as a Scottish Office Press Notice on 20 March 1974. These results show that within a small increase in the total number of cattle, beef cows and animals for fattening have increased while the numbers of dairy cows, beef heifers – both in calf and intended for breeding, and calves under six months old have decreased. The overall size of the sheep flock and the number of sheep put to the ram show little change from December 1973. Both the total number of pigs and the breeding herd have declined compared with a year earlier. Poultry numbers have also fallen, small increases in the laying flock being more than offset by decreases in breeding birds, broilers and turkeys. The number of regular male workers employed shows a greater rate of decline than has been recorded in recent years.

Reference

Press Notice No 252/75 issued by the Scottish Information Office, Edinburgh.

Agricultural Statistics for England and Wales 1973 Censuses

This volume, which has just been published, gives for the year 1973 the acreage and production of crops, the numbers of livestock, agricultural holdings and agricultural workers in each county of England and Wales, and estimated numbers of certain types of machines and implements in England and Wales. Tables are also included showing, for 1973, the main crop and livestock items analysed by holding and acreage/herd or flock size groups. The volume contains detailed agricultural and horticultural price series for the years 1972 and 1972/73 based on prices collected by market reporters.

Reference

Agricultural Statistics for England and Wales 1973 Censuses, Production and Prices (1972/73) (HMSO, Price £2.30 net).

Food and drink industries

Data on the financial performance of companies is freely available from published company accounts. There are also available a wide range of data on market shares held by different brands in the food and drink sectors based on investigations by market research organisations. Using this published information, the Ministry of Agriculture, Fisheries and Food have compiled two booklets which serve as handy references to those concerned in the food and drink industries both manufacturing and distribution.

Food and drink manufacturing industry:

United Kingdom market shares estimates

This booklet shows estimated market values and company market shares for manufactured foods, classified according to their Minimum List Heading. The market share estimates have been obtained from reports on the food industry by marketing research organisations and from other published material. The market share estimates usually cover only household purchases from grocers (omitting the important catering sector). For this reason trade-estimates of market values consistent with the market share data are given. These market values are not comparable with estimates of consumers' expenditure prepared for the National Accounts.

United Kingdom food and drink companies:

Key financial and employment data

These data cover companies having a large interest in the food and drink industry and a turnover of twelve million pounds or over in their last available financial year. The main activities of each company are shown and figures are given from published sources for turnover, capital employed, pre-tax profit and number of employees. The most recently published bulletins are available from:

Food Economics Unit,
Whitehall Place (West Block),
London SW1A 2HH.

TRANSPORT

Passenger transport in Great Britain 1973

Passenger Transport in Great Britain 1973, published in February by the Department of the Environment, contains tables of passenger transport by rail and road for 1973. Other tables show the number of privately licensed vehicles and estimates of households with the use of a car. Time series from 1963 to 1973 are given for most of the data.

Summary tables include estimates of passenger mileage since 1954 by air, road and rail. Passenger journeys and receipts are compared for train and public service vehicles over the last ten years. Consumers' expenditure for the different modes is also given.

The tables of railway traffic and operations show for 1963-1973 train and passenger miles, average length and receipt per journey, route mileage open for passenger traffic, stations used, carriages and seating capacity available, etc.

The bus passenger transport section gives, for bus operators by type and size, details of numbers of buses and employees and traffic in terms of journeys, vehicle miles and passenger receipts. Passenger journeys and

receipts are given from 1954 to mid-1974. An index table of stage service fares is given covering 1961 to mid-1974. There are also tables covering seating capacity and capital expenditure.

Reference

Passenger Transport in Great Britain 1973 (HMSO) January 1975 (Price 82p net).

Air transport 1972 origin/destination survey

In 1972 an origin/destination survey was conducted at five airports in the London area - Heathrow, Gatwick, Luton, Stansted and Southend - with some thirty seven thousand passengers being interviewed. The 1972 survey was wider in scope than the 1970 and 1971 origin/destination surveys, which were held at thirteen major regional airports. The results from the 1972 survey are due to be published in detail this month. The report will also incorporate the information collected from the regional airports, weighted up to 1972 passenger levels to enable a national picture of air passenger movements to be shown. The results from the 1968 origin/destination survey also held at airports in the London area, are compared with the 1972 survey results. Changes in origin/destination patterns, and characteristics of passengers using the London area airports over this period are analysed in depth.

Other aspects of air travel examined in detail include, airport access, time spent travelling to/from airport, booking patterns, passengers' incomes, standard industrial classification of business passengers, demographic information, and the analysis of major air routes. Tables showing origins/destinations of international and domestic passengers in considerable detail for eighteen major airports appear in the appendices.

Reference

Origins and destinations of passengers at United Kingdom Airports. Civil Aviation Authority, Printing and Publication Services, Greville House, 37 Gratton Road, Cheltenham, Gloucestershire GL50 2BN.

DISTRIBUTION

Retail stocks

The information given each month in the *Trade and Industry* article on retailers' stocks has now been extended to include an estimate of the seasonally adjusted value of physical increase of retailers' stocks at constant (1970) prices. The new statistics together with a short note on their significance were first introduced in the *Trade and Industry* article of 28 March 1975.

Motor Fuel Retailers' Margins

A report by the Price Commission, published in March, makes the interim conclusion that motor retailers' margins were, in general, not unreasonable - at around

10½ per cent gross and 2·3 per cent net – in the summer quarter of 1974. The report includes average results of a sample survey conducted into forecourt sales, revenue, costs and margins.

Reference

Motor Fuel Retailers' Margins An Interim Report (HMSO Price 35p net).

PRICES

Retail prices index: Advisory Committee Report

The following changes have been introduced, from January 1975, in the method of compilation of the retail price index, as a result of the acceptance by the Secretary of State for Employment of recommendations made by the Retail Prices Index Advisory Committee (*Statistical News* 23.29, 24.22 and 25.29).

- Owner-occupiers' housing costs (other than expenditure on repairs and maintenance, rates, water charges etc) are now represented in the index by the cost of mortgage interest payments. Previously they were represented by the 'equivalent rent' which the house would fetch in the free market.
- The index weights are now generally based on the pattern of expenditure over the latest twelve-month period for which data are available, rather than over the previous three years.
- The weights for some fruit and vegetables are to vary to reflect seasonal changes in the pattern of purchases.

Effects of these changes are reflected in the weights being used in the compilation of the index throughout 1975 which were published in the March 1975 issue of the *Department of Employment Gazette*. The changes did not affect the level of the index for January 1975 but could influence the index for February onwards.

The full report of the Advisory Committee, including a report of a technical working party, was presented to Parliament as a White Paper. No change was recommended in the measurement of rents net of rebates or in the retention, within the coverage of the general index, of households receiving supplementary benefits but which are not pensioner households.

The Committee also recommended that the possibility of constructing a more elaborate index of what is sometimes described as the 'social wage' should be considered by an appropriate body. Such an index would take account of elements of social spending and subventions on incomes of all kinds.

Reference

Retail Prices Index advisory Committee Report: Housing costs, weighting and other matters affecting the retail prices index Cmnd 5905 (HMSO) February 1975, (Price 38p net).

European Economic Community surveys of retail prices
A survey of retail prices of a common list of articles was made in the autumn of 1974 in most countries of the European Economic Community, as foreshadowed in *Statistical News* (24.24). Neither Denmark nor the United Kingdom took part, but it is expected that all member countries will participate in an autumn 1975 survey.

Meanwhile a further trial survey, made in April 1975, in the United Kingdom was concerned primarily with identifying appropriate specific products and assessing the representativeness of the Community list of articles. Also, since clothing items present difficulties, the United Kingdom is to be the host this summer for international discussions about these problems.

For the 1974 survey, a revised Community list of articles was used and new techniques were adopted to overcome problems arising where identical articles were not available in every country.

Fresh food prices

The Price Commission's *Report on Fresh Food Reference for the period July to December 1974* was published in March showing price movements for individual Fresh foodstuffs by different types of shop in the period. It also contains results of surveys conducted into prices of fresh foodstuffs in medium and small towns.

Reference

Report on Fresh Food Reference for the period July to December 1974 (HMSO Price 55p net).

FINANCE

Non-profit-making bodies

An article estimating accounts for private non-profit-making institutions serving persons is expected to appear in the May issue of *Economic Trends*. Income and Expenditure accounts for 1970 have been obtained by analysing the accounts of a sample of charities and from other sources: the estimated current account for these bodies is then used to partially disaggregate the personal sector in the national accounts. Capital items have also been estimated and both current and capital accounts extended to cover the period 1966–72.

This work, which has been done jointly by the CSO and John Moyle of the Department of Applied Economics, Cambridge is being used to provide data on non-profit-making bodies to the Statistical Office of the European Communities; but, in addition, accounts of this subsector provide an important link in reconciling total personal sector figures in the national accounts with various data sources on the household

part. It is hoped to publish a balance sheet for non-profit-making bodies in a later article.

Reference

Economic Trends monthly (HMSO Price £1.15 net).

The domestic financial implications of financing a balance of payments deficit on current account

An article in the Bank of England's March 1975 'Bulletin' shows what are likely to be the main flows of funds among the various sectors of the economy when the country is in a balance of payments deficit on current account. It concentrates in particular on the differing consequences of the various ways in which the deficit may be financed, including the outcome for the money stock and the banks' reserve ratios.

The finance of medium and long-term export and ship-building credits

An article in the Bank of England's March 1975 'Bulletin' describes how the scheme for financing medium and long-term export credits has been slightly amended and how the arrears of interest which had become due to the clearing banks have been paid off.

Copies of the Bank's Bulletin may be obtained, free of charge, from the Economic Intelligence Department, Bank of England, London, EC2R 8AH.

Companies' unit costs and profits

The quarterly Report of the Price Commission includes statistical tables on price rises and increases in unit costs, by broad sections of industry in the three months September–November 1974. They are based upon notification made by companies to the Price Commission during this period. It also contains figures on companies' profit margins based upon regular returns made to the Commission.

Reference

Report for the period 1 September to 30 November 1974 (HMSO Price 86p net).

Insolvencies

An article in the March issue of *Economic Trends* introduces a new quarterly series of insolvency statistics for England and Wales based upon the information available within the Department of Trade. The article presents the statistics since 1960 and compares them with certain economic indicators. It concludes that changes in the number of insolvencies generally reflect changes in the level of economic activity but the relationship is not particularly close. The tables also include industrial analyses of receiving orders and company liquidations since 1969.

Reference

Economic Trends monthly (HMSO Price £1.15 net).

EUROPEAN COMMUNITIES

Publications of the European Communities

The following publications of the European Communities have been received since the last issue of *Statistical News*.

Agricultural Statistics
(Statistique Agricole)

1974

No. 10–12 Selling prices of agricultural products.

P1 Fruit and vegetables, processed vegetable products
cereals and wines

P2 Animals, meat and poultry.
Animal products.

Milk, eggs and dairy products.

P3 Index of producer prices of agricultural products.

For the nine member countries of the European Communities, also showing world market prices.

Agricultural Prices (Special Series)
(Prix Agricoles)

1973

S5 Animals and meat

S6 Fertilizers

S7 Animal feeding stuffs

S8 Fruit, vegetables and potatoes

S9 Equipment and tractors

Social Statistics
(Statistiques Sociales)

1973

No 5 Presentation of the educational system within the nine member states of the European Communities. Number of pupils and students, 1962/63–1972/73. Numbers of pupils and students by level, type of education, second and third year level by sex and level by region.

1974

No 1 Labour costs in industry, hourly earnings and hours of work.

Labour costs in industry 1966–1973.

Hourly earnings.

Hours of work.

Methods and definitions.

Statistical Studies and Surveys
(Etudes et enquetes statistiques)

1974

No 1 Public expenditure on research and development in the nine European Community countries, 1969–1973 (*d.f.i.n.e.dk.*)

2. Annual investment in fixed assets in industrial enterprises of the (nine) member countries of the European Communities, 1970-1972.
 - (A) Detailed results for the six original members 1970-1972 in national currency.
 - (B) Detailed results for the three new members 1968-1972 in national currency.
 - (C) Aggregate results for the European Community, in units of account.
 - (C1) Results by classes of NACE, 1964-1972.
 - (C2) Results by groups and classes of NACE 1970-1972. (*d.f.i.n.e.dk.*)

National Accounts
(Comptes nationaux)

1974

- No. 1. E.S.A. aggregates, 1960-1973
 - a. Comparative tables for the European Communities as a whole, and for the United States and Japan, corresponding data according to the SNA.
 - b. Community tables
 1. In national currency.
 2. Aggregates related to population and employment.
 3. Use and supply of goods and services. (*f.e.*)

SURVEY CONTROL

Survey Control Unit

Surveys assessed

The table below shows the number of surveys which the Unit has assessed in the first quarter of 1975, in terms of the description given of the gradings used in the brief article in *Statistical News* (21.15). The number assessed compares with a total of forty five in the first quarter of 1973, and with one hundred and fifty two in the same period in 1974. The increase reflects the growing work of the Unit.

Surveys assessed during 1st quarter 1975

Type of survey	Initial grading				No grading given	Total
	Un-recognised	Under consideration	Provisionally recognised	Fully recognised		
Small <i>ad hoc</i>	-	4	28	54	31	117
Other <i>ad hoc</i>	-	6	2	59	1	68
Continuous	-	-	21	11	1	33
Total	-	10	51	124	33	218

Many of the *ad hoc* surveys have originated from the Department of the Environment reflecting the nature of the work of that department, especially in the transport and structure plan sectors; a number of regular local authority financial returns were also assessed. Several agricultural surveys are also included, as are recent studies by the Central Office of Information and statutory returns by the Industrial Training Boards, but the majority of government departments initiated at least one new survey during the period.

Of the ten surveys graded 'under consideration' two have since been upgraded.

Form Design Exhibition

Preparations for the Exhibition and Seminar (*Statistical News* 28.23) to be held on 10 June 1975 are now almost complete. Under the title 'Ask a Silly Question!' papers are to be presented on the respondent's view of good questionnaire design, the narrative and visual aspects of good design and data processing applications. Speakers include senior representatives of market research and similar organisations, as well as the Graphic Design Unit of HMSO and the Social Survey Division of OPCS. Professor Sir Claus Moser, Head of the Government Statistical Service will kindly chair the proceedings. Places are extremely limited, but further information can be obtained from P W Brierley,

Survey Control Unit,
Central Statistical Office,
Great George Street,
London,
SW1P 3AQ.
Telephone: 01-930 5422 extension 566.

OTHER PUBLICATIONS

Economic Trends

During the last year the Central Statistical Office has been reviewing the style and content of *Economic Trends*, in consultation with various users. The March issue was the first to appear in the new style. The aim of *Economic Trends* is to present a balanced view of the economy - putting the latest developments into the context of longer-term movements and backing the data with explanatory and interpretive articles. The publication has been divided into four distinct sections, the first of which contains summaries of press releases issued during the month, economic events and a table of main economic indicators. This section is finalised about ten days after the rest of the publication and, therefore, contains more up-to-date information than is shown elsewhere.

The main section of tables and charts has been expanded to present many more economic series together with much longer runs of data. As before, series are seasonally adjusted where this is possible; and index numbers have been given a common base date, in some instances, for convenience of comparison. In addition, percentage changes and various ratios are shown where relevant. The charts have been redesigned and colour has been introduced where it aids interpretation – for instance, by creating a background grid on those charts drawn to a logarithmic scale. Within this section the tables appear on left hand pages and related charts on the facing right hand pages. The charts are intended to provide a means for quick assimilation of the data.

After the tables and charts, there is a new regular section on reference cycles which shows a reference chronology of peaks and troughs representing growth cycles in the United Kingdom economy, and groups of indicator series which have in the past had a consistent timing relationship with the reference cycle. Hence it identifies leading and lagging indicators of the business cycle. The subject was introduced with an article in the March issue. It is the first time that any official work on reference cycles has been published in this country.

Articles now appear at the back of the publication in order to allow the regular tables and charts to appear on the same pages every month. Balance of payments and national accounts articles will continue to appear each quarter and there will be the usual range of special articles on new series, new analyses and new methodology. In addition there will be notes and summaries about relevant articles appearing in other government publications and news of developments in economic statistics.

The index has been revised completely but continues to list the sources for each of the series contained within *Economic Trends* and guides users to further related statistics.

It has also been decided that there will be an annual supplement to *Economic Trends* which will be published in the autumn and which will contain very long runs of data for major series in the monthly publication. Further information on the content of the supplement will be given in a later edition of *Statistical News*.

Reference

Economic Trends (HMSO) monthly. Price £1.15 net (Annual subscription inclusive of annual supplement and postage, £16.64).

Calendar of economic events

The latest in this annual series, covering the years 1972 to 1974, is published in the March issue of *Economic Trends*. Regular users of the calendar will welcome the

introduction in the same issue of a monthly calendar, which will provide a more comprehensive and up-to-date coverage.

PUBLICITY

Publicity for Government Statistics

The Central Statistical Office conducts a continuous publicity campaign on behalf of the Government Statistical Service with the aim of encouraging greater use of official statistics.

February and March this year saw a £14,000 advertising campaign in the national press. A bold advertisement headlined 'To all businessmen: This free booklet can save you time and money' encouraged readers to send for a copy of the 1975 edition of *Government Statistics – a brief guide to sources*, which is regarded as a key booklet for would-be users of statistics. A similar campaign last year resulted in some thirteen thousand copies of the 1974 edition being sent out.

At present a display produced for the Central Statistical Office by the Central Office of Information is touring ten major cities. It is appearing in the windows of the Small Firms Information Centres of the Department of Industry with the object of encouraging greater use of official statistics by small firms.

Another display – a large six-panel presentation of the Government Statistical Service and its 'wares' – should be available for general use by early summer.

This should be suitable for conferences, seminars, exhibitions, universities, colleges of education, public libraries – anywhere which attracts people potentially interested in official statistics. Organisations interested in making free use of this display should write for details to :

Press and Information Section,
Central Statistical Office,
Great George Street,
London SW1P 3AQ.

GOVERNMENT STATISTICAL SERVICE

Appointments and changes

Central Statistical Office

Mr M. J. Erritt, Chief Statistician, Central Statistical Office, has transferred to the Department of Industry EcS6, Branch A vice Mr Richardson.

Department of the Environment

Mr P S MacCormack, Statistician, has been promoted to Chief Statistician with effect from 1 January 1975, to head Statistics (Planning and Regional) Division,

following a period as acting head of the Division since last July.

Miss G P Ford, Chief Statistician in the Department of Industry, has transferred to the Department of the Environment to fill a new post on housing and construction statistics.

Department of Industry

Mr P H Richardson, Chief Statistician, Branch A, EcS6 Division, Department of Industry, has transferred to Branch C vice *Miss Ford*.

Welsh Office

Mr D A Jones, Statistician, Welsh Office, was promoted to Chief Statistician with effect from 3 February 1975 to fill a new post at this level in the Welsh Office, Cardiff.

LATE ITEMS

United Kingdom Mineral Statistics 1974

The second edition of this publication appeared on 31 December 1974. It includes a substantial amount of new material as well as up-to-date figures for the series published in the first edition.

Historical series of production are given for coal, iron ore, pig iron and a number of other metals and stone. Statistics of mineral production in the Isle of Man are shown separately for the first time.

This publication is well illustrated with diagrams, maps and charts. The final section gives, for the years 1965-73, commodity summaries of production, consumption and international trade for a number of minerals produced in the United Kingdom.

Reference

United Kingdom Mineral Statistics 1974 Published for the Institute of Geological Sciences by HMSO (Price £2.20 net)

Research and development survey 1975

The latest in the series of surveys of expenditure on scientific research and development will be held in respect of 1975. The Business Statistics Office will shortly be sending advance information copies of forms to all the private sector businesses covered by the survey. Forms for completion will be issued early in 1976.

For details of the reports so far published of the survey in 1972 see page 29.30.

List of Principal Statistical Series and Publications

1974 EDITION

Amendment list no. 3 — January to March 1975

Introductory note

The *List of Principal Statistical Series and Publications*, first published in 1972, has been revised. In the 1974 edition, published in November 1974 (HMSO Price 80p net), it is stated that details of important amendments and additions to the list will appear quarterly in *Statistical News* thus enabling users to keep their copies up to date. Accordingly a list of amendments, covering the period from January to March 1975 is given below. Off-prints of this list can be obtained from the Central Statistical Office, Telephone: 01-930 5422, extension 545.

Amendments to Part 1. List of Principal Series

Population and vital statistics

1. Population Statistics

Page

1

(a) Census of population figures

'National volumes . . . on the following topics'

Add footnote (2) to Demography

Country of birth

Non-private households

Persons of pensionable age

Migration

Housing

2. Migration

2

(b) Inter-regional migration

Delete 'Sample Census 1966, Migration Tables'

Insert 'Census 1971, Migration Tables pt I'

Delete sentence 'Census 1971 tables are not yet published'

(c) Immigrants

Add 'Census 1971, Country of Birth Tables'

3. Vital statistics

2

(a) Births, marriages and deaths registered.

Delete entry and substitute the following revised entry:

Weekly *OPCS Monitor References WR and VS*

Weekly Return of the Registrar General, Scotland

The *OPCS Monitor* publication which superseded the *Weekly Return of the Registrar General for England and Wales* in January 1975, shows for England and Wales: births and deaths, totals and by counties. The *Weekly Return* for Scotland shows: births marriages and deaths in 18 principal towns.

Social statistics

3. Health and personal social services

4

(a) Notifications of infectious diseases.

Delete entry and substitute the following revised entry:

Weekly *OPCS Monitor Reference WR*

Weekly Return of the Registrar General, Scotland

The *OPCS Monitor* publication which superseded the *Weekly Return of the Registrar General for England and Wales* in January 1975, shows for England and Wales: original notifications by local authority area. The *Weekly Return* for Scotland shows: from April 1974 notifications by National Health Service 'Health Board' areas.

(b) Deaths by cause. Weekly

Delete *Weekly Return for England and Wales*

Insert *OPCS Monitor Reference WR*

4. Social Security

(a) General social security statistics.

Delete from listing of publications *Weekly* and *Quarterly Returns* of the Registrars General for England and Wales, Scotland. 6

Insert

Weekly *OPCS Monitor*

Monthly and *Weekly Return of the Registrar General, Scotland*

Quarterly *Quarterly Returns of the Registrars General for England and Wales, Scotland*

Delete penultimate sentence of text 'For England and Wales . . . by region'.

Insert: 'The *OPCS Monitor* publication which superseded the *Weekly Return for England and Wales* in January 1975, shows for England and Wales new claims to sickness benefit and injury benefit, analysed by region and the *Quarterly Returns* monthly figures of persons sick and injured, by region'.

(c) Abortions

Delete from note *England and Wales Weekly Returns*

Substitute *OPCS Monitor, Reference AB*

4. General social security statistics

Monthly and Quarterly: delete reference to England and Wales

add '*OPCS Monitor, Reference WR*'

Line 5, delete the *Weekly Returns*

substitute *OPCS Monitors, Reference WR*

5. Housing

(b) Stock of dwellings

Add '*Census 1971, Housing Tables*'

Transport and Communication

2. Road Transport

(b) after the words '*Business Monitor: Motor vehicle*' insert the word 'new'

(d) Add to the note beginning '*Monthly Digest*' the following sentence 'The seven Passenger Transport Executives in Great Britain also publish annual reports'.

National Income and Expenditure

4. Stocks

(d) Retailers' Stocks

Delete first two sentences. Substitute Index numbers of total retailers' stocks at book values and at constant prices and figures of the seasonally adjusted value of physical increase at constant prices are published monthly. The index of book values alone is given in the *Monthly Digest of Statistics*.

Amendments to Part II. List of Publications

Page 33

Annual Estimates of the Population of England and Wales and of Local Authority Areas

Delete 22½p (1973) Substitute 44p (1973 and 1974)

Annual Report of the Registrar General for Scotland

Delete 1972 £3.90 £1.45 Substitute 1973 £5.67 £2.47

British Aid Statistics

Delete £2.10 (1968 to 1972) Substitute £3 (1969 to 1973)

Page 34

Delete symbol ⁽⁴⁾ against Business Monitor PQ263

Page 37

Delete symbol ⁽⁴⁾ against Business Monitor PQ601

Page 41

Census 1971, Great Britain, Economic Activity Part 1 (100%)

Add after this entry the following new entry:

Census 1971, Great Britain, Migration Tables, Part 1
(10% sample) £3.15

Quinquennial OPCS 1, 2

Census 1971, Scotland, County Reports

Add after this entry the following three new entries:
Census 1971, Scotland, Gaelic Report, £1.05

Census 1971, Scotland, Housing Report, £6.35

**Census 1971, Scotland, Migration Tables, Part 1
 (10% sample) £3.20**

Quinquennial	GRO (Scotland)	1
Quinquennial	GRO (Scotland)	1
Quinquennial	GRO (Scotland)	1, 2

Digest of Housing Statistics for N Ireland
 Delete 15p Substitute 18p

Digest of Port Statistics
 Delete £5.00 Substitute Vol 1 £10.00, Vol 2 £10.00

Digest of United Kingdom Energy Statistics
 Delete £3.50 Substitute £5.00

Page 42

First Destination of University Graduates
 Delete 85p (1971-72) Substitute £1.35 (1972-73)

Housing and Construction Statistics
 Delete 75p Substitute £1.00

Housing Return for Scotland
 Delete 16p Substitute 25p

Inland Revenue Statistics
 Delete £1.75 (1973) Substitute £3.00 (1974)

Insert new entry:
Income 1972-73 Distribution of ⁽²⁾ 15p. Annual Board of Inland Revenue

Monthly Digest of Statistics
 Delete 63p Substitute 85p

Page 43

Offences relating to Motor Vehicles

Add after this entry the following new entry:

OPCS Monitor, gratis	Weekly	OPCS	2, 4, 6
Insert new entry:			
OPCS Monitors ⁽²⁾		Office of Population Censuses and Surveys	4, 5
Reference WR	Weekly		4
Reference VS	Weekly		4
Reference AB	Monthly		4

Alphabetical Index

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number e.g. 26.31 signifies issue number 26, page 31.

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

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

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