47

NOVEMBER 1979



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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.

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

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London, SW1P 3AQ.

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CENTRAL
STATISTICAL
OFFICE

NOVEMBER 1979

# Statistical News No. 47

## Developments in British Official Statistics

LONDON
HER MAJESTY'S STATIONERY OFFICE

*First published 1979*



ISBN 0 11 723301 3

ISSN 0017-3630

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Mr. David Mitchell MP, Parliamentary Under-Secretary of State for Industry, is welcomed to the Central Statistical Office by Mr. John Boreham, Director of the CSO and Head of the Government Statistical Service.

Mr. Mitchell visited the CSO to learn at first hand how Government and industry use statistics collected from the business community and to ascertain the absolute minimum of statistics required for the management of the economy.

David Mitchell has special responsibility for small firms and is currently reviewing how statistical form filling affects them.

# Revision of the Standard Industrial Classification

**R. A. Bowditch,** *Principal, Standards and Classification Unit, Central Statistical Office*

Before the end of 1979 the Central Statistical Office expects to publish a summary new Standard Industrial Classification (SIC) for the United Kingdom which will replace the 1968 edition([1]). A Standard Industrial Classification was first introduced in this country in 1948 for use in classifying business establishments and other statistical units by the type of economic activity in which they are engaged. The classification provides a framework for the collection, tabulation, presentation and analysis of data about economic activities. Its use promotes uniformity and comparability in the presentation of data collected by various government departments and agencies.

Since 1948 the classification has been revised regularly. This is because over a period of time, new industrial processes emerge and some long established industries decline in importance. Thus, there were earlier revisions in 1958 and again in 1968.

Broadly, the United Kingdom classification follows the same general principles as the United Nations International Standard Industrial Classification of All Economic Activities (ISIC). Differences occur in detail because the ISIC provides a generalised framework suitable for economic structures across the world as a whole rather than that in a particular country.

In the 1980 revision of the SIC, particular attention has been paid to the European Communities standard, the 'Nomenclature général des activités économiques dans les Communautés européennes' (NACE), produced by the Statistical Office of the European Communities. This classification is also broadly compatible with ISIC but differs in detail to allow for use by the highly industrialised economies of Western Europe. One of the main objects of the present revision is to develop an SIC which follows NACE as closely as possible after making allowance for special features of the structure of United Kingdom industry. Use of such a revised classification will enable data collected in the United Kingdom to be used more easily for making comparisons with other EEC countries and to make the statistical returns required of member states. As with previous revisions the present classification was prepared by an inter-departmental committee representing the main government departments collecting and using economic statistics. Consultations also took place with a number of trade associations and other organisations, whose assistance is gratefully acknowledged.

**Structure of the new classification**

The revised classification has a decimal structure. Whereas the 1968 SIC had 27 Orders, each divided into a number of Minimum List Headings (MLH), the revised classification has ten divisions (denoted by a single digit) each in turn divided into Classes (two digits), Groups (three digits) and Activity Headings (four digits). There are 10 Divisions, 60 Classes, 222 Groups and 334 Activity Headings. The Activity Headings will be the main level at which detailed statistics will be presented. Where Activity headings are further divided into numbered sub-divisions with separate descriptions, these are descriptive sub-divisions intended primarily for ease of exposition. The presentation of data at these levels will be limited.

One of the most noticeable features in the structure of the classification is the prominence accorded to the energy producing industries which are grouped, together with the water supply industry, in a self-contained Division early in the classification. Other features are that the various raw material producing industries are followed by the corresponding processing industries (with the exception of food processing which does not follow agriculture but is included with other manufacturing industries); the slaughtering of animals is now included with food production; and the production of man-made fibres is a separate class adjacent to the chemical industry.

The revised classification draws a distinction, where possible, between principals and agents. This is apparent in the distributive trades and in financial services. In distribution, agents are classified separately from wholesalers who own the goods in which they deal. In the financial services the distinction is between insurance companies, banks, building societies and investment companies who handle funds on their own account and

[1] *Standard Industrial Classification* 1980 Revised (HMSO forthcoming)

insurance brokers, stockbrokers and dealers in foreign exchange who do not.

The first three digits in the classification follow the NACE numbering as far as is practicable. Where the SIC departs from NACE, the Groups or Activity headings have been allocated numbers unused in NACE to avoid confusion. This has resulted in some gaps in the numbering sequence. The use of 0 as the final digit for a Class, Group or Activity heading normally indicates that it is the only division at that level. Thus, Group 140 is the only Group in Class 14 (Mineral oil processing) but is itself divided into two Activity headings 1401 and 1402. Class 16 (Production and distribution of electricity, gas and other forms of energy) on the other hand has three Groups numbered 161, 162 and 163. Since none of these is further divided, the corresponding Activity headings are numbered 1610, 1620 and 1630.

Differences between the revised SIC and NACE occur where the structure of industry in the United Kingdom differs from that implied by NACE. For instance, the SIC Class 32 (Mechanical engineering) has an additional Group (320) to incorporate structural steelwork and boilermaking with the engineering industry instead of with Class 31 (Manufacture of metal goods not elsewhere specified as in NACE. Similarly, the manufacture of footwear from materials other than leather is included in Class 45 (Footwear and clothing industries) and the glove-making industry is separately identified in Group 453. The manufacture of linoleum is included with plastics floorcoverings instead of with the textile industry and the manufacture of pencils and crayons is included with miscellaneous stationers' goods rather than with the chemical industry.

**Introduction of the revised classification**

This revision of the SIC will be generally introduced in 1983 when the major economic statistical series are rebased on to 1980. Provision will be made for many time series to be converted to the new classification as far back as 1974 for the wholesale prices index and the index of industrial production. National accounts estimates published in the National Income Blue Book will be provided on as consistent a basis as possible. The first statistical inquiry to be conducted wholly on the revised SIC will be the survey of industries' purchases in respect of 1979 which will be conducted in 1980.

**Further information about the SIC**

The current summary booklet has been released in advance of the full scale implementation of the classification so that respondents to, and users of, the 1979 Purchases Inquiry will be aware of the classification in use.

Further information about the classification should be available during 1980. A detailed guide is planned which will include lists of characteristic products for each heading in the classification and a full index.

Later the Central Statistical Office plans to make available reconciliations between the revised SIC and the 1968 edition (and vice versa), between the revised SIC and NACE and between the revised SIC and ISIC. Their availability will be announced in *Statistical News* when firm details are available.

# The rise in expenditure on Invalidity Benefit

J. B. Dearman, *Chief Statistician, Department of Health and Social Security*

**Background**

Between the financial years 1974–75 and 1977–78, expenditure on Invalidity Benefit (IVB) rose by about 28 per cent more than was to be expected on the basis of rates at which incapacity for work was being certified for the insured population in 1974–75. Increases of a similar nature have been experienced in a number of other countries. In the *Eighth Report from the House of Commons Expenditure Committee* (Cmnd 600), it was recommended that DHSS publish a full analysis of the reasons. This article uses statistics of certified incapacity for work to assess the likelihood of a number of hypotheses for explaining the rise. ('Incapacity' will be used as shorthand for certified incapacity for work i.e. a period for which a medical certificate of incapacity or medical advice to refrain from work is submitted for purposes connected with the receipt of sickness benefit or IVB.)

The statistics available at present cover only part of the period during whch the substantial rise took place. The statistical years 1974–75 and 1976–77 ran from the beginning of June 1974 and June 1976, and figures for the year 1977–78 have too recently become available to be included in this analysis. Between the financial years 1974–75 and 1976–77, expenditure on IVB rose by nearly ten per cent more than to be expected from 1974–75 incapacity rates. This figure is based on the financial accounts: the statistical returns imply an increase in expenditure of only about half of this. There was a known shortfall of one and a half per cent in the number of returns on which spells of IVB in 1976–77 were recorded. But with the possible exception of spells that had already started before the beginning of the statistical year, there is no reason to think that any shortfall was disproportionately composed of spells by particular types of claimant so as to invalidate the analysis that follows. The analysis is confined throughout to men, who accounted for 83 per cent of those receiving IVB at the end of the period, a slightly higher percentage than at the beginning.

Invalidity Benefit is payable to those who have been incapable of work for 28 weeks, during which they must have been entitled to Sickness Benefit. But the 28 weeks do not have to be a continuous period: separate spells of incapacity can be added together and treated as one provided they are not separated from one another (or from an intervening spell of unemployment) by more than 13 weeks.

**'Short-term' explanations**

The 28-week qualifying rule suggests that only hypotheses about incapacity which lasted for long periods would be capable of providing an explanation. But the provision for linking separate spells together means that explanations in terms of a rise in repeated short-term spells of sickness cannot be ruled out without examination. Examples of the sort of hypothesis to explain more short spells of incapacity are that the working population is becoming better able to afford a period off sick, or that more frequent spells of unemployment are helping to maintain entitlement to IVB.

The total days (working on a six-day week) for which IVB was payable to men in the statistical years 1974–75 and 1976–77 can be estimated and split as in Table 1.

It can be seen from the first and last lines that over two thirds of the increase in the days for which IVB was payable to men (and so almost certainly of the expenditure increase) was paid to those qualifying for IVB throughout the year. The breakdown of the remainder has been made by making a number of assumptions, for example that of spells which terminated during the year, the same proportion did so in the first as in the second week of the year, and in the third as in the second, and so on (but their length was known). Some of the men included in the bottom half of the table (v to viii) may also have been included in those in (ii), (iii) or (iv) (i.e. they could have been receiving IVB, ceased to qualify, and then restarted its receipt).

Even if short-term incapacity is defined as spells lasting up to as much as three months, it is clear that at most 0.6 million days of the increase of 12.1 million days could be accounted for by spells of those durations. This is 'at most' because part of this increase (under iv) in fact refers to spells which had not yet been completed, and both elements in it (iv and viii) refer to the length of spells on IVB, many of which would have run continuously on from a spell of incapacity of up to six

*Table 1*

**Days of incapacity for which IVB was payable (men)**

| | 1974–75 millions | 1976–77 millions | Change |
|---|---|---|---|
| To men still qualifying at the end of the year: | | | |
| i) who had qualified throughout the year | 78·0 | 86·2 | +8·2 |
| ii) who had qualified for the whole of the second half | 10·3 | 12·2 | +1·9 |
| iii) who had qualified for the whole of the last three months | 2·9 | 3·8 | +0·9 |
| iv) who had qualified for only part of the last three months | 1·8 | 2·1 | +0·3 |
| To men who ceased to qualify during the year: | | | |
| v) after continuously qualifying for at least a year | 8·5 | 8·0 | –0·5 |
| vi) after continuously qualifying for six to twelve months | 3·6 | 4·2 | +0·6 |
| vii) after continuously qualifying for three to six months | 3·2 | 3·7 | +0·5 |
| viii) after continuously qualifying for less than three months | 4·9 | 5·2 | +0·3 |
| Total: | 113·3 | 125·4 | +12·1 |

months during which sickness or injury benefits were being received.

**Possible explanations of the rise in long-term certified incapacity**

In seeking explanations for much the greater part of the rise in expenditure on IVB, that attributable to those eligible for the benefit throughout the year, it is worth noting that the rise in the number of these men seems not to have arisen from increasing numbers becoming incapacitated in the first place but from a higher propensity to remain so. In mid-1973 there were about 749,000 men with a certified incapacity of whom 222,000 were still incapacitated (and had been continuously so) by mid-1975, or 30 per cent. In mid-1975 a somewhat lower total of about 735,000 were incapacitated, of whom 236,000, or 32 per cent, were still so two years later.

Part of the explanation is that an increasing number of men have been carrying their entitlement to IVB (with its financial advantages over retirement pension) past the age of 65. The number of men over 65 with incapacity of a year or more had increased from 14,000 to 20,000 between mid-1973 and mid-1975 whereas all other age groups combined had increased by under 2,000. The growth in the numbers of men in this age group grew less strongly between mid-1975 and mid-1977, by about 4,000. This increase amongst men receiving IVB rather than retirement pension would account for about 15 per cent of the extra 8.2 million days in 1976–77 for which IVB was payable throughout the year.

For other age groups, possible explanations for the increasing length of time that men have been remaining incapacitated might include the following, which are looked at in turn:

(a) a tendency for return to work to be slower because income from employment appeared increasingly unattractive compared to income from IVB.

(b) a tendency for return to work to be slower because there were fewer work opportunities suitable for those with chronic health problems as unemployment rose.

Evidence to support or positively reject the explanation of a declining incentive to return to work is hard to come by. The effect, if it existed, could be expected to operate most strongly amongst those with several

*Table 2*

**Men incapacitated continuously for one year or more (thousands)**

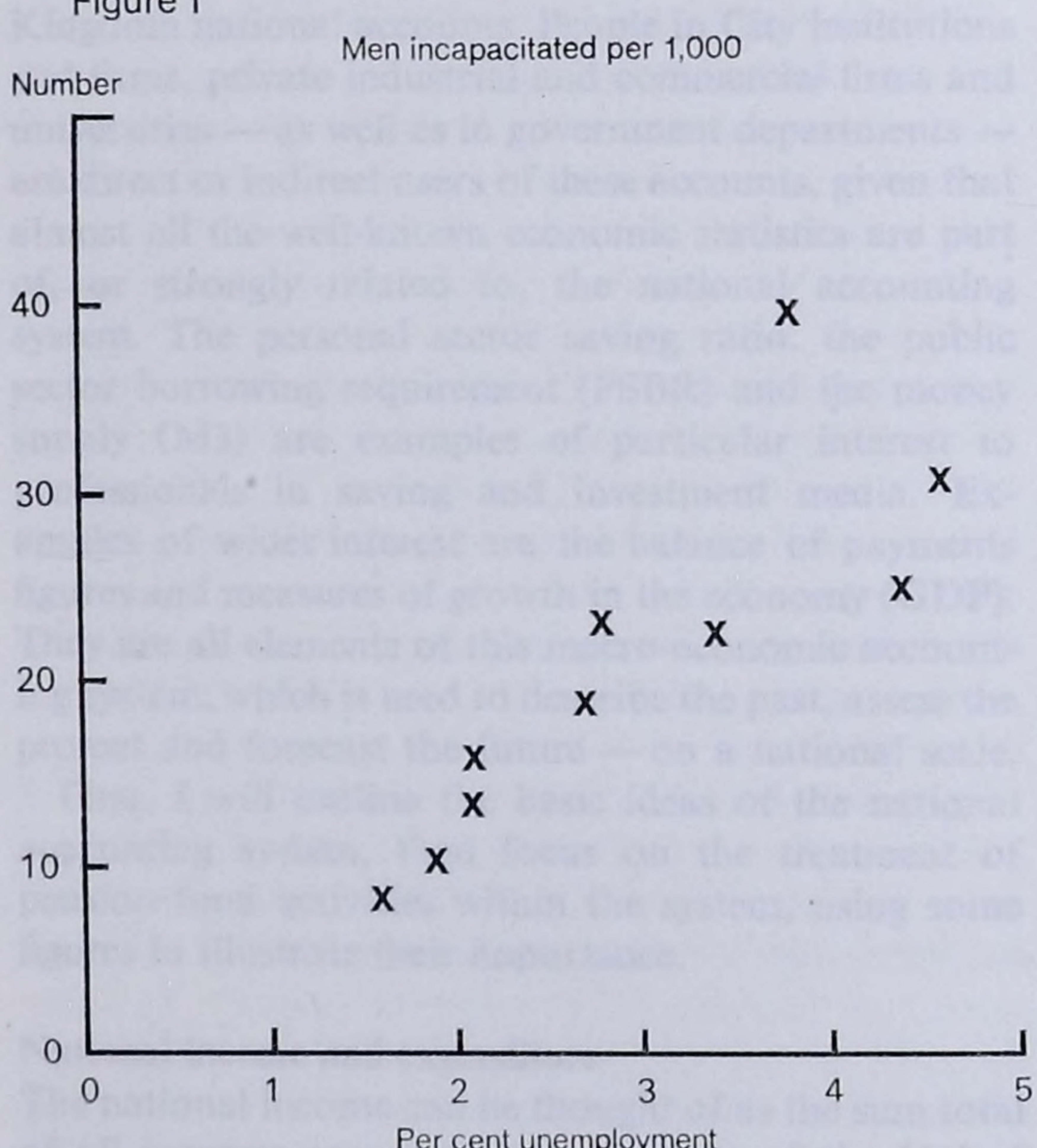
| | At 31.5.75 | At 4.6.77 | Change Thousands | Change (Per centage) |
|---|---|---|---|---|
| 20–29 | 6·0 | 6·0 | — | — |
| 30–39 | 14·0 | 18·6 | +4·6 | *+32·8* |
| 40–49 | 35·7 | 40·1 | +4·4 | *+12·3* |
| 50–54 | 37·0 | 40·3 | +3·3 | *+8·9* |
| 55–59 | 55·4 | 60·8 | +5·4 | *+9·8* |
| 60–64 | 121·5 | 126·2 | +4·7 | *+3·9* |
| 65+ | 20·0 | 24·1 | +4·1 | *+20·5* |
| Total: | 289·6 | 316·1 | +26·5 | *+9·2* |

dependants, where the likelihood of income from employment falling short of or not much above income from IVB would be the greatest. The age groups most likely to have children are the 25–49 groups, and at least among those aged 30–49, there has been a higher than average growth in the numbers of men incapacitated for a year or more, as shown in Table 2.

The 30–39 age group is the one that both shows by far the most substantial percentage increase and is also the one with the highest proportion of men having a dependent child (nearly 60 per cent). But the proportion aged 30–39 who had a dependent child was if anything slightly lower at mid–1977 than at mid–1975, so that the increase in the numbers was just as great for those not having a dependent child as for those that did. The average number of children per father was slightly lower in the second year. While this pattern does not entirely rule out a contribution to the rising cost of IVB being attributable to a declining incentive to return to work, it does make it improbable that the contribution could be a substantial one.

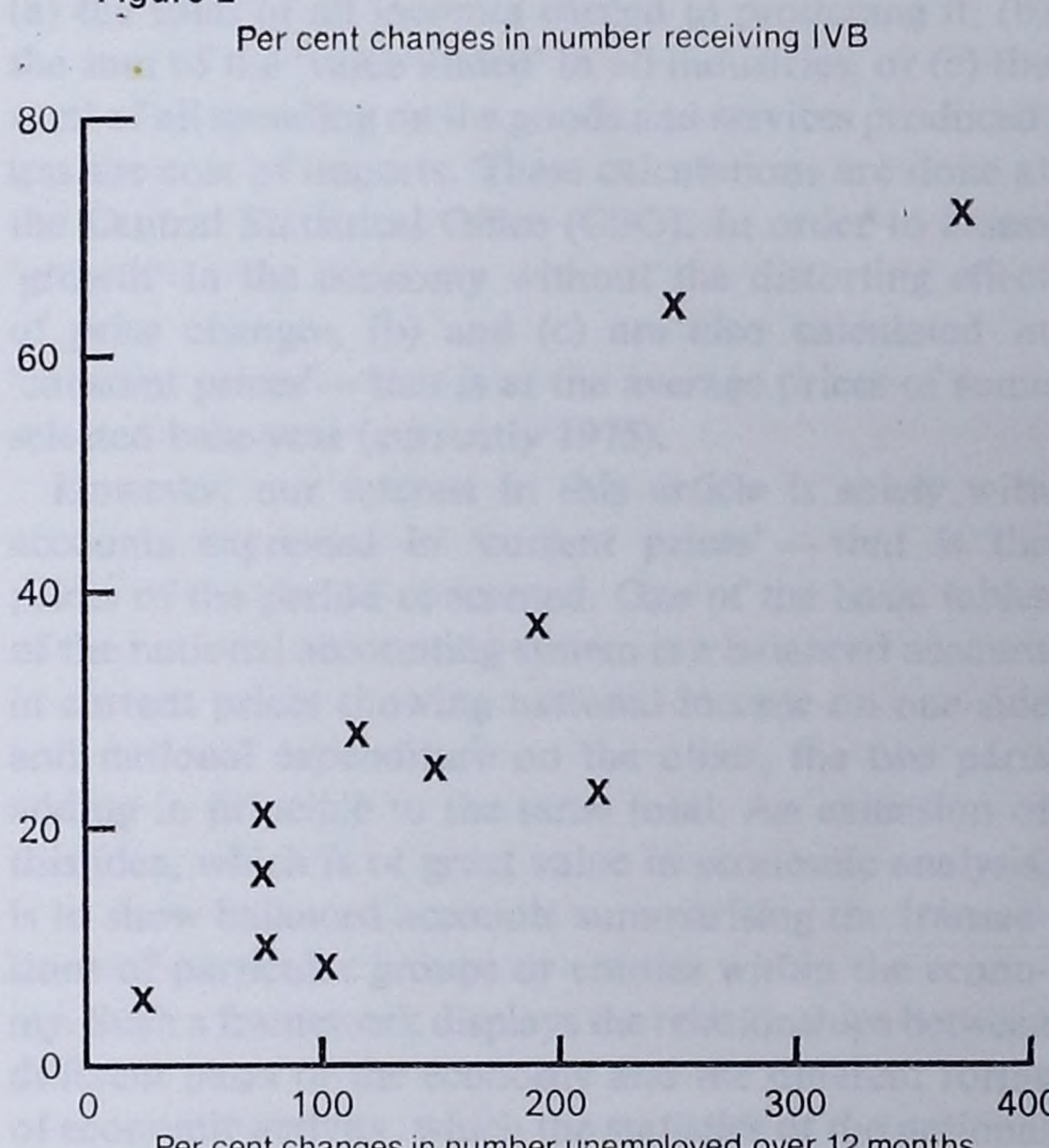
To turn to the possible link between rising unemployment and rising expenditure on IVB, there is normally, at a point in time, a fairly strong relationship between the numbers of men in a region who have been incapacitated for a long period, and the rate of unemployment. Figure 1 shows this regional relationship between the number of men incapacitated throughout 1974–75 (per 1,000 at risk in 1973–74, the latest available) and the percentage rate of unemployment at the beginning of 1974.

Figure 1




However, there is a difference between an association between long-term incapacity and unemployment at a point in time, and an association between changes in them over time. The relationship between changes in long-term incapacity and unemployment by region is rather weak between mid–1975 and mid–1977. It is possible that the relationship is masked by a complicated lag structure or by the strongly rising national trend of unemployment. A quite clear relationship is apparent when the breakdown is done on an age basis rather than a regional basis. Figure 2 relates percentage changes in the number of men getting IVB between mid–1975 and mid–1977 with the percentage changes over the same period in the number of men unemployed over 12 months for various age groups:

Figure 2




The two age groups where numbers receiving IVB were very small but which increased by over 60 per cent (under 20, and 20–24) contribute strongly to the correlation but even if they are excluded the coefficient of correlation is still 0.7.

This relationship strongly suggests that the explanation for the rise in expenditure on IVB between 1974–75 and 1976–77 is to be found in the rise in long-term unemployment. Though the hypothesis under (b) above seems a plausible one, the nature of the causal connection could be different e.g. unemployment having an adverse effect on health.

**Conclusion**

Statistics available at present enable some light to be thrown on the reasons for the part of the recent rise in expenditure on IVB that took place between 1974–75 and 1976–77. Some explanations of the rise can be rejected as improbable, particularly those which hypothesise an increase in short spells away from work. A small part of the increase is the result of IVB being paid to those over pension age in lieu of retirement pension, but the explanation for the major part is probably to be found in rising unemployment. The nature of that connection is not however clear.

# Pension funds and national accounting

**Peter Stibbard,** *Chief Statistician, Central Statistical Office*

*The following is a slightly abridged version of an article which first appeared in the September, 1979 issue of 'Pensions World' a journal published with the co-operation of The National Association of Pension Funds. It is reproduced with the kind permission of the Editor of 'Pensions World'.*

When the *Financial Times* featured the excellent new Year Book of the National Association of Pensions Funds earlier this year, the reviewer remarked that "information on such things as the current value of pension funds, their cash flow and the split of investment portfolios are not tabulated or monitored by any central body". Whilst this may be true as far as figures for *individual* pension funds are concerned, it is not so for pension funds collectively. Quarterly figures of transactions in assets, and annual figures of asset holdings have been collected and published in aggregate by the Government Statistical Service for over 15 years.

This article describes how and why these figures are compiled. In brief, the figures are compiled and estimated as one of the raw materials for the United Kingdom national accounts. People in City institutions and firms, private industrial and commercial firms and universities — as well as in government departments — are direct or indirect users of these accounts, given that almost all the well-known economic statistics are part of, or strongly related to, the national accounting system. The personal sector saving ratio, the public sector borrowing requirement (PSBR) and the money supply (M3) are examples of particular interest to professionals in saving and investment media. Examples of wider interest are the balance of payments figures and measures of growth in the economy (GDP). They are all elements of this macro-economic accounting system, which is used to describe the past, assess the present and forecast the future — on a national scale.

First, I will outline the basic ideas of the national accounting system, then focus on the treatment of pension fund activities within the system, using some figures to illustrate their importance.

**National income and expenditure**

The national income can be thought of as the sum total of all incomes earned by the residents of the United Kingdom — whether by wages, salaries, profits, rent or whatever — from productive activity in a given period. The same total figure can also be arrived at by two other routes — by aggregating the 'value added' in each industry producing goods and services, or by adding together all the expenditure on 'final' purchases of goods and services (ie, excluding 'intermediate' purchases used in productive activities) and deducting imports of goods and services.

Thus, the total value of the nation's output is equal to (a) the total of all incomes earned in producing it, (b) the sum of the 'value added' in all industries, or (c) the total of all spending on the goods and services produced, less the cost of imports. These calculations are done at the Central Statistical Office (CSO). In order to assess 'growth' in the economy without the distorting effect of price changes, (b) and (c) are also calculated at 'constant prices'— that is at the average prices of some selected base-year (currently 1975).

However, our interest in this article is solely with accounts expressed in 'current prices' — that is the prices of the period concerned. One of the basic tables of the national accounting system is a balanced account in current prices showing national income on one side and national expenditure on the other, the two parts adding in principle to the same total. An extension of this idea, which is of great value in economic analysis, is to show balanced accounts summarising the transactions of particular groups or entities within the economy. Such a framework displays the relationships between different parts of the economy and the different forms of economic activity, which the statistics of the national aggregates cannot show.

These groups or entities are termed *sectors*. How are they defined? Ideally, so the economic units in each can be expected to behave in ways that are broadly similar and transactions between the sectors have special economic significance. The choice of boundaries is very important, for all flows and transactions within sectors are omitted from the system. In practice, limitations in the available data make it necessary to modify the sector definitions one would ideally like. Basically, a six-sector system is used (although aggregations and disaggregations are introduced for particular purposes), see Table 1.

*Table 1*

**The six-sector system**

| | | |
|---|---|---|
| General government | Public sector | United Kingdom domestic sectors |
| Public corporations | | |
| Financial companies and institutions | | |
| Industrial and commercial companies | | |
| Persons | | |
| Overseas | | Rest of the world |

Such a system also requires a method of classifying transactions, which can be applied consistently to the various forms of economic activity. There are two main points of view from which transactions are classified. First, all transactions can be divided between payments made for the supply of goods and services on the one hand, or — on the other — transfers, such as taxes, grants and gifts, interest payments and transactions in financial assets. Only the former enter into the *national* income and expenditure. The transfer payments represent a redistribution of income and wealth without adding to the national total, except in so far as transactions are with the overseas sector. Transfer payments thus appear in the accounts for individual domestic sectors of the economy, but not in the national aggregates, where they cancel out.

The second way that transactions are classified is according to three basic kinds of economic activity: production, consumption and adding to wealth. Accounts are compiled for each of these kinds of economic activity for individual sectors. The production account records the transactions involved in the production and supply of goods and services. The consumption account (also called income and expenditure account) records current expenditure out of income generated in production or received by transfers. The account for adding to wealth (or capital account) records the use of net savings derived from the income and expenditure account.

This system provides the framework for virtually all macro-economic analysis.[1]

The main presentation and full detail of the accounting system appears annually in the CSO publication popularly known as the *Blue Book*[2]; it provides data for the past 11 calendar years and longer for certain summary tables. To provide a more-up-to-date picture of the economy, quarterly accounts are compiled and published in the monthly CSO publications *Economic Trends* and *Financial Statistics* and advance information on many of the main elements is released by CSO press notice, which in turn is widely reproduced in the Press. Thus the accounts provide the chief means for describing trends in the economy both in most recent quarters and over decades. Figures from the national accounts have been used extensively in evidence to the 'Wilson Committee' on the Functioning of Financial Institutions, including that by the National Association of Pension Funds.[3]

The national accounts framework is also used by international organisations such as the United Nations, Organisation for Economic Cooperation and Development, International Monetary Fund and the European Economic Communities to compile data on the economies and financial structure of member countries, and it assists international comparisons.[4]

Analysis of past relationships between economic series provides a basis for predicting the future. Thus the Treasury forecasting exercise which provides a basis for Budget judgements, and the growing number of private economic models, all use the national accounts framework; related financial models use the financial accounts framework described below to forecast, for example, Sterling M3 and how the PSBR is to be financed.

**The financial account**

Because of the part it plays in recording the activities of pension funds, it is useful to provide some detail on the content of the capital account and financial account. The capital account for the nation as a whole shows the sum of domestic saving as a receipt, together with any net capital transfers from overseas. These total receipts are balanced by spending on additions to wealth both in the form of physical assets (fixed assets or stocks) and financial assets in the form of financial claims on the overseas sector (UK residents' financial claims on each other of course cancel out as far as the nation as a whole is concerned). Thus the national capital account demonstrates the equality of saving and investment across the whole economy, one of the fundamental concepts of national accounting.

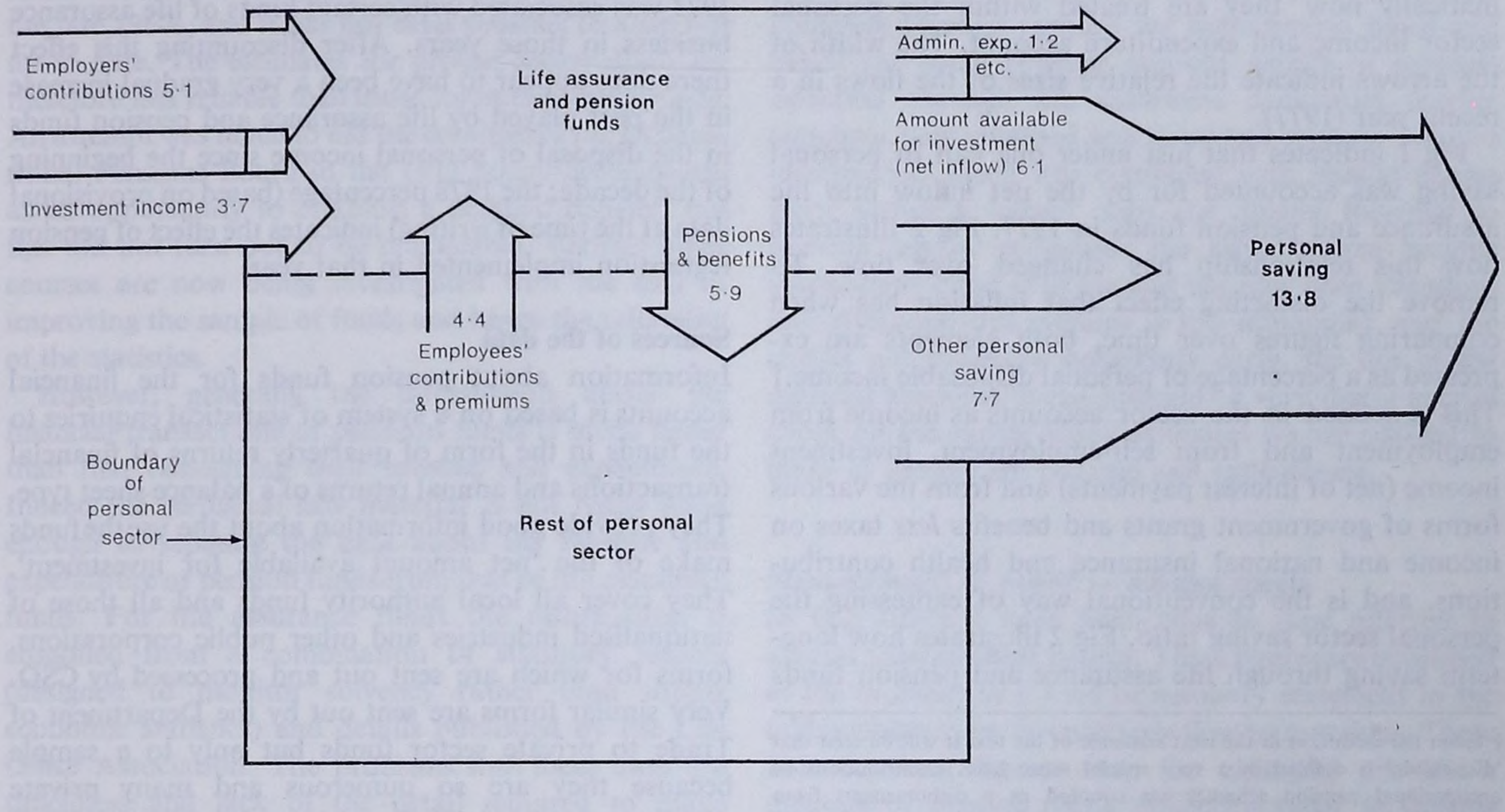
The capital account for each sector shows receipts from saving in its income and expenditure account, capital transfers received both from other domestic sectors and from overseas and liabilities contracted to other sectors. This is balanced on the expenditure side by capital transfers paid, and the increase in the physical assets and financial assets acquired as claims on other sectors.

A common presentation is to restrict the capital account to the acquisition of physical assets and to show only one net item for financial assets acquired *less* liabilities contracted. This 'net acquisition of financial assets' is then carried forward to another account, described as the 'financial' or 'flow of funds' account, which shows changes in the various financial liabilities such as borrowing and the issue of securities, and the

Figure 1

**Treatment of life assurance and pension funds within the personal sector income and expenditure account**

Figures are in £ billion, relate to 1977, and are from 1967 – 77 Blue Book




various financial assets such as loans made, deposits with banks and building societies, and acquisitions of stocks and shares.

**Life assurance and pension funds**

There are two special features of the way pension funds are treated in the national and sector accounts that need to be noted. First, their figures are usually combined with those of life assurance funds. This is because these types of long-term saving are quite similar and because, for practical reasons which are described later, it is difficult to distinguish the two elements in personal sector saving flows. Second, life assurance and pension funds* are treated as part of the personal sector in the income and expenditure account but as part of the financial companies and institutions sector in the capital, and financial, accounts. This treatment is selected as the simplest way to account for special economic functions of these institutions.

In keeping with this treatment, the income and expenditure of the funds is dealt with in the following manner. The funds' income arises from three sources: employers' contributions, investment income and employees' contributions. The first two of these flows cross the personal sector accounting boundary and are therefore items of personal sector income; while the third is a transfer within the sector. The expenditure of the funds is of two kinds: administrative expenses and the payment of pensions and benefits. The first of these crosses the sector boundary and therefore forms an item of personal expenditure (although a considerable part will re-enter the sector as wages and salaries on the income side of the account); while the latter is a transfer to the rest of the personal sector (which can be used to finance household consumption or saving). The difference between the funds' three items of income and their two items of expenditure gives the net amount which the funds have available for investment.[5] This is a major component of personal saving (the balance of the sector's income and expenditure account). It is recorded in the personal sector financial account as an increase in persons' claims on the funds and as a corresponding liability in the accounts of financial accounts and institutions. Transactions of the funds — their investment of this money in securities, property, etc. — are recorded in the capital and financial accounts of the financial companies and institutions sector. In balance sheet terms the funds thus remain the property of the personal sector in the form of a financial claim by the personal sector on them, but the assets held by the funds to match this liability to the personal sector are assets of the financial companies and institutions sector.

* In this context no distinction is made between pension funds serving employees in the private sector and those serving employees in the public sector (eg, nationalised industry and local authority funded schemes). They are both treated the same way in the sector classification.

Fig 1 illustrates the treatment described above; it isolates the components of the revenue account of life assurance and pension funds and shows diagrammatically how they are treated within the personal sector income and expenditure account. The width of the arrows indicate the relative sizes of the flows in a recent year (1977).

Fig 1 indicates that just under one half of personal saving was accounted for by the net inflow into life assurance and pension funds in 1977. Fig 2 illustrates how this relationship has changed over time. To remove the distorting effect that inflation has when comparing figures over time, both elements are expressed as a percentage of personal disposable income.† This is defined in the sector accounts as income from employment and from self-employment, investment income (net of interest payments) and from the various forms of government grants and benefits *less* taxes on income and national insurance and health contributions, and is the conventional way of expressing the personal sector saving ratio. Fig 2 illustrates how long-term saving through life assurance and pension funds provides a kind of 'base load' of personal saving, varying very little as a proportion of disposable income since records began in 1963. The increase in 1972 and 1973 was associated with certain kinds of life assurance business in those years. After discounting this effect there does appear to have been a very gradual increase in the part played by life assurance and pension funds in the disposal of personal income since the beginning of the decade; the 1978 percentage (based on provisional data at the time of writing) indicates the effect of pension legislation implemented in that year.

† From the definition in the next sentence of the text it will be seen that 'disposable' is defined in a very special sense here. Contributions to occupational pension schemes are counted as a disbursement from disposable income even though, for many people they are a contractual obligation associated with employment. Analyses of personal saving into the 'contractual' or 'committed' and 'discretionary' elements help to overcome these difficulties of definition.

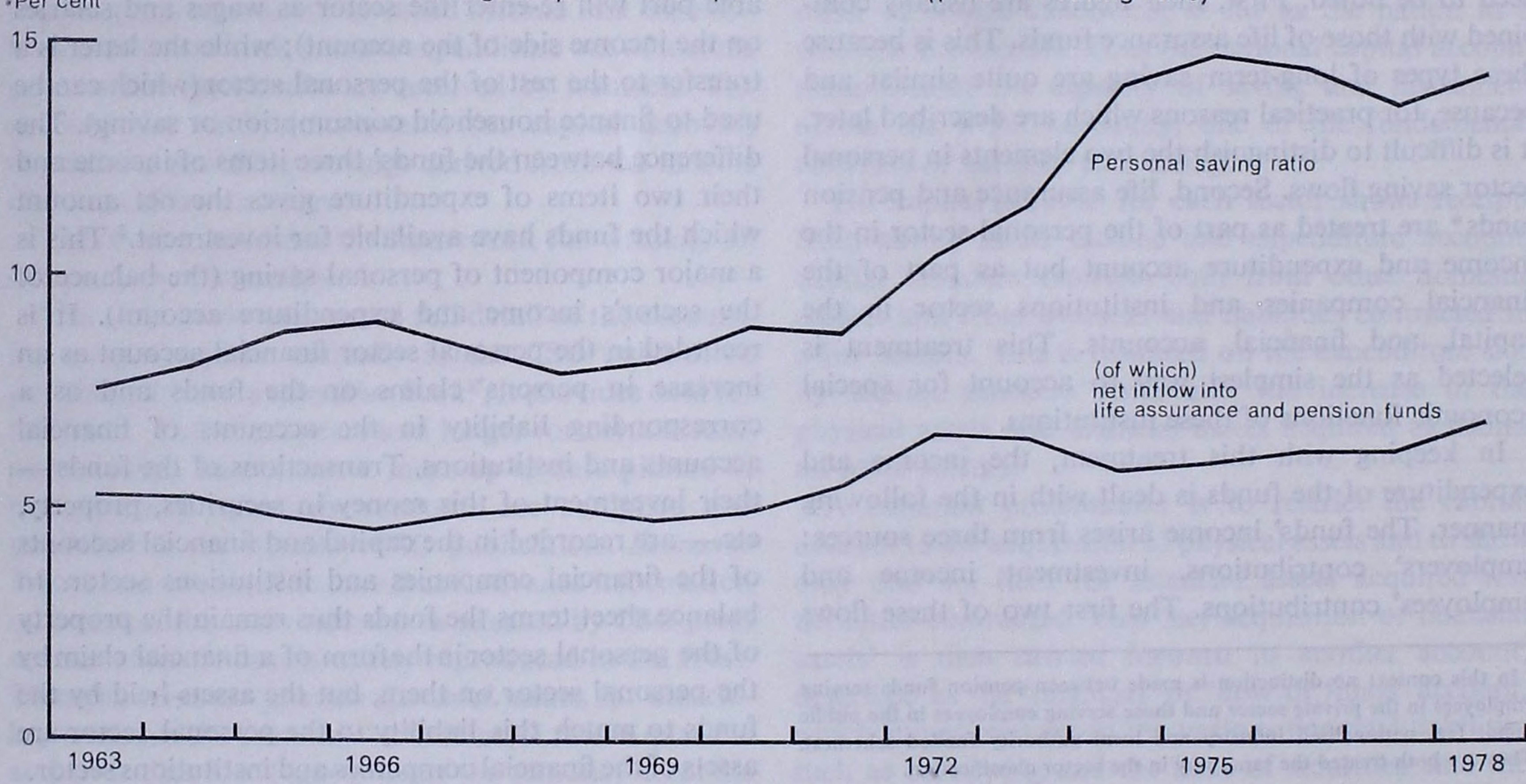
### Sources of the data

Information about pension funds for the financial accounts is based on a system of statistical enquiries to the funds in the form of quarterly returns of financial transactions and annual returns of a balance sheet type. They provide good information about the use the funds make of the 'net amount available for investment'. They cover all local authority funds and all those of nationalised industries and other public corporations, forms for which are sent out and processed by CSO. Very similar forms are sent out by the Department of Trade to private sector funds but only to a sample because they are so numerous and many private schemes are very small. To make satisfactory estimates on the basis of a sample requires a comprehensive and up-to-date list of funds with a certain amount of

Figure 2

**Personal saving and net inflow into life assurance and pension funds**

Percentage of personal disposable income (personal saving ratio)



information on their importance, from which to draw the sample. Unfortunately no such list exists. The present sample is derived from a list of private sector funds which was compiled by the Inland Revenue in the late 1960s, and it has not been possible to keep this up to date. The estimates for private sector funds are therefore less reliable than those for public sector funds. An attempt was made to use the creation of the Occupational Pensions Board in the 1973 Social Security Act as an opportunity to establish a detailed register[6] but this did not turn out to be practicable. Various other courses are now being investigated with the aim of improving the sample of funds and hence the reliability of the statistics.

However, generally the information about the financial transactions of pensions funds is much better than that concerning their revenue and expenditure. Indeed the statistical raw material is not really good enough to separate the data about the revenue and expenditure of pension funds from that of life assurance funds. For life assurance funds the information is compiled from a combination of statutory returns (designed to monitor solvency rather than supply economic statistics) and details published by the Life Office Association. The problems with these data are timeliness and lack of the detail required to make allocations of income and expenditure to the categories relevant to the national and financial accounts. For example, they do not, apart from premium income, provide the information to separate pensions business from other business. Direct reporting from assurance companies will probably be necessary in the future. However, recent discussions with the insurance industry has given greater priority to dealing with deficiencies which also exist in the figures of financial flows and balance sheet returns. Examples are the provision of market values of assets rather than book values, a split between home and overseas securities and a comprehensive reporting of financial liabilities.

Besides being affected by uncertainties in the life assurance figures, revenue account information is also very deficient for pension funds themselves — except for local authority funds, which make a statutory return. In fact, constructing the revenue account of life assurance and pension funds, especially for the latest years, involves much 'guesstimation' and extrapolation, using the net figures of new money which has gone into the funds collected through the financial transactions returns — as an overall plausibility check. Obviously, this is unsatisfactory and more direct reporting is needed. This has begun with returns from nationalised industries schemes for 1978 and it is hoped that negotiations for its extension to the private sector schemes can be initiated before too long.

The Government Actuary conducts a 4-yearly enquiry into pension schemes, which is mainly concerned with socio-economic rather than financial matters. However, the latest enquiry, for 1975[7], introduced a request for a complete revenue account for autonomous funds and asked for some revenue account details of schemes operated through life assurance companies (earlier enquiries had obtained less complete revenue account information which was combined with annual figures from accounts lodged with the Inland Revenue to provide regular estimates; the latter source became increasingly difficult to use and has now been abandoned). Although this enquiry is too infrequent, and the results not available sufficiently early, for use in the national accounts, it has provided a very useful overall check on the rather shaky estimates we are obliged to make at present on revenue and expenditure.

**Measurements of wealth — balance sheets**

In this article I have from time to time referred to annual balance sheet figures. These figures are published at the moment as a kind of auxiliary statement in the tables which show the quarterly flow transactions. These balance sheet figures can, for example, provide a measure of pension funds 'collective stake' in various definitions of 'British industry', if they are supplemented with analyses based on the FT Share Index categories; or that element of personal sector wealth accounted for by equity held in life assurance and pension funds. The system of national accounts is now being extended to include statements of sectoral wealth measured at annual intervals, thus bringing these balance sheet figures of pension funds into an accounting system. This is a research project at present although some preliminary results have been published.[8] Thus, figures for holdings of physical and financial assets of pension funds will become, like their flow counterparts, a raw material for an economy-wide accounting system.[9]

It should be noted that no figures of the actuarial values of pension fund liabilities are collected or estimated. This is because we have not found the actuarial value of funds in aggregate a particularly meaningful concept for economic analysis. Of course there is an interest in the supervision of solvency of funds but this is best done by looking at individual funds rather than for all funds taken together. In the national and sector balance sheet project we are generally endeavouring to follow the United Nations system of national accounts guidelines[10] but there are some exceptions, one of which relates to pension funds. The guidelines state that the equity of members of pension funds should be valued independently of the net value of the assets held by the funds, leaving the funds, therefore, with an independent net worth. At first, we thought we might do this by collecting information on the actuarial value of funds, which seem to correspond to an independently calculated value of expected future liabilities. We immediately struck practical problems in discussing this possibility with fund managers. There were problems of whether this valuation should include just vested liabilities already incurred, or whether it should include liabilities currently expected to result from future increases in the incomes of members (with allowance for corresponding increased contributions) but based on the years of service already completed; in addition there is a further type of actuarial valuation that is concerned with the ability of the fund to meet its current liabilities out of reserves. But the main problem seemed to be the fact that any actuarial valuation is essentially a matching of future income against payments, discounting the differences back to the present at some assumed rate. Actuaries can and do differ in the discount rates they use. Moreover, there is the difficulty of the frequency of valuations. The main purpose of these valuations is to determine solvency of the funds and therefore the rate of contributions required and they are normally made only every three years. We found that it was not practicable to seek information on a consistent basis—i.e. using a common discount rate and for the same point in time.

We were impressed by an argument put forward by the fund managers that ultimately the only uses that can be made of the assets held, except in very special circumstances, is to pay pensions and benefits to members and that if the fund were to cease operating the claims of members would be limited to the value of the assets held. This suggested an approach in sector balance sheet accounts identical to that adopted in the transactions accounts (i.e. to define members' equity as the market value of net assets of the fund, giving the fund no independent net worth). Furthermore, given the general preference for market values in the system, it seems entirely appropriate that the market value of assets held, which in principle reflects the markets' discount of their expected future income, should be used in preference to the various discounts chosen by actuaries to value the liability of funds to their members. This seems to be the best approach for measurement on a macro-economic scale and it is the one we have adopted in the sector balance sheet project.

**Publication media**

Financial flows into pension funds and their financial transactions are very large. Much attention has been drawn recently, not least by the Wilson Committee, to the large and influential part played by pension fund investment in the capital markets. It is not surprising, therefore, that users of these statistics continually press for them to be available earlier. Up till about a year ago it was not possible to publish figures of pension funds' financial transactions until four months after the quarter to which they relate. Figures for these big institutions were generally the last to arrive in the information system which in turn prevented the compilation of the complete quarterly financial sector accounts until four months had elapsed. This is still generally so, although some improvements have been made in the last year. First, the greater printing flexibility of press notices, as compared with the regular monthly publication of *Financial Statistics* has enabled availability to be hastened by about a week (figures from the CSO press notice now appear regularly in *Pensions World*[11]). Moreover, in the last year local authority funds were invited to send in their completed returns earlier each quarter; their response was very gratifying and as a result it has been possible to bring forward publication of their figures by two months. A similar invitation to nationalised industries' funds brought forward publication by one month and it is hoped that this can be further improved in 1979. Improvements in speed of response by the private sector funds are still needed but the Department of Trade has cut by 2 or 3 weeks the lead time on printing by publishing summary results of the private sector funds and insurance companies in their weekly publication *Trade and Industry*.[12] However, there are limits to streamlining our processing and publication methods. In the end we are dependent on the individual pension funds supplying their completed forms to us in good time.

The prime publication medium for all the detail that is collected on quarterly financial transactions and annual figures of assets held is the quarterly *Business Monitor*[13] which for some time now has presented results of the CSO's figures of public sector funds alongside those of the Department of Trade's figures of private sector pension funds and life assurance. Summary figures are published in the monthly CSO publication *Financial Statistics* as they become available.[14] Figures on the revenue account are compiled and published only once a year and appear as one of the tables in the *Blue Book* and as a supplementary table in *Financial Statistics*.[5] We hope to introduce some disaggregation this year, mainly the publication of a separate revenue account for public sector funds, based on the direct returns referred to earlier and, to meet the apparent interest in the different portfolios pursued by small and large funds, we intend to publish the annual assets return results by size of fund for public sector funds.

## Conclusion

In this article I have tried to provide some insight into the need for statistics collected from pension funds by Government. In essence, they are collected as raw material for a national accounting system. This provides the means to study past events in proper perspective[15] and to provide a foundation for forecasting, which in turn can be used as a basis for budgetary and monetary policy decisions by the Treasury and the Bank of England, and in their general oversight of financial markets and institutions. People inside and outside Government require early information on pension fund activities because they are such large operators in the security markets, and balance sheet statistics particularly are important in analysing the behaviour of institutions which are important in the gilt edged market.

This use of the figures in an accounting system, integrated with figures from other financial intermediaries and various other sources, means that definitions and detailed categories have to be consistent with that system. Definitions which may seem strange to respondents themselves and with little significance for them in their every-day work, are often required. We are very grateful indeed for the continuing efforts of the people working on the administration and investment sides of pension funds who supply this information to the Central Statistical Office and the Department of Trade.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# Multiple electoral registration amongst students

**Dr David Bruce,** *Statistician, Scottish Office*

### Introduction

This report describes the results of a survey undertaken by the Scottish Office to estimate the extent of multiple electoral registration in Scotland of students in higher education. The report also provides information on the extent of electoral registration in this group, the knowledge of individuals about their electoral registration status, and the extent of change between draft and final electoral registers. A similar survey of student nurses, pupil nurses and student midwives was also undertaken but is not described here.

The estimate was required in connection with the devolution referendum held in Scotland on 1 March 1979, the immediate need being to assist the Secretary of State for Scotland in carrying out his statutory duty under section 85(2) of the Scotland Act 1978 which provided that:

> 'If it appears to the Secretary of State that less than 40 per cent of the persons entitled to vote in the referendum have voted "Yes". . . he shall lay before Parliament the draft of an Order in Council for repeal of this Act.'

### Sampling procedure

All Scottish domiciled students in higher education in Scotland may claim an award from Scottish Education Department (SED). There is no evidence that any students do not claim (though some receive minimum awards); nearly all who apply and attend these institutions receive an award. Each student's particulars are recorded on a computer file and a sequential reference number is allocated. From this file it was possible to select those students aged 18 or over at 1 March 1979 who were attending Scottish institutions and were receiving the 'away' rate of Standard Maintenance Allowance. From these students, two distinct groups were selected:

i. Single students (male or female) who were not exempt (on grounds of age or previous employment) from a parental contribution (though there are cases where there is no contribution on means grounds), i.e. all single students with two homes.

ii. Married students (male or female) who were in receipt of a two-homes allowance.

The students thus selected constituted the sampling frame. Their records were arranged in reference number order and a ten per cent sample drawn by selecting the fourth (random number between one and ten) record and every tenth thereafter. The number of students in the sample was 2,311.

### Questionnaire

A questionnaire, laid out as shown in the Annex, was printed out by the computer. The address used was the home address and the questionnaires were despatched (with a covering letter and a reply paid envelope) by first class post on 3 January 1979, when it was anticipated that a large number of students would be staying at home. Duplicate papers were sent to those students from whom a reply had not been received by 24 January. A check was kept that not more than one reply from each student was counted.

### Number of replies received

Of the 2,311 students selected 1,951 (84 per cent) had replied by 7 February when it was necessary to close down. Of the 1,951 replies 77 were found to relate to students with one address outside Scotland or to people who were no longer students. Further analysis was restricted to the remaining 1,874 replies.

### Analysis of the replies

As shown on the questionnaire in the Annex the recipients were asked to give their addresses at 10 October 1978 and to state whether they expected their names to appear at each address on the *final* (as opposed to draft) electoral register effective from 16 February 1979. At the time of analysis of the replies the draft electoral registers were publicly available; the final versions were not generally available till 16 February. Copies of the draft electoral registers were examined to determine whether they showed the respondents as being registered at the addresses which they had given. The results were then cross-classified by the students' registration expectations. The results of this analysis are shown in Table 1.

*Table 1*

**Student registration expectation compared with draft electoral registers**

| *Student reply to question on expectation* — *Term time address* | *Vacation address* | *Draft registers show registration at:* *Both addresses* | *Term time address only* | *Vacation address only* | *Neither address* | *No of students* *Total* |
|---|---|---|---|---|---|---|
| Yes | Yes | 299 | 24 | 97 | 10 | 430 |
| | No | 80 | 51 | 49 | 21 | 201 |
| | Don't Know | 45 | 9 | 32 | 3 | 89 |
| No | Yes | 169 | 16 | 511 | 26 | 722 |
| | No | 3 | 3 | 8 | 11 | 25 |
| | Don't Know | 1 | 1 | 16 | 4 | 22 |
| Don't Know | Yes | 107 | 8 | 123 | 7 | 245 |
| | No | — | 4 | 3 | 4 | 11 |
| | Don't Know | 49 | 10 | 49 | 18 | 126 |
| Reply Unclear | | — | — | 3 | — | 3 |
| Total | | 753 | 126 | 891 | 104 | 1874 |

The table shows that whereas the draft registers indicated double registration for 753 respondents only 430 students expected double registration (and many of these were not part of the 753). 104 students (5.5 per cent) were found not to be entered in the draft registers at either address and 25 (1.3 per cent) did not expect to appear in the final registers. Only 872 (47 per cent) had (final) registration expectations which corresponded to the draft register findings. This is partly due to changes between draft and final registers, discussed below, and partly due to lack of knowledge by students of their registrations.

**Relationship between draft and final registers**

Where the respondents' expectations coincided with the draft electoral registers (or the respondents did not know whether they expected to be registered) the draft registers were taken as representing the final register position. Where the respondents' expectations did not agree with the draft registers an additional analysis was made. Although, as already mentioned, final versions of the registers were not generally available at the time of the analysis, Electoral Registration Officers (EROs) had available to them material for preparing the final registers. A sample of 74 names and addresses where the respondent expected no registration but the draft registers indicated registration were sent to EROs to check against this material; it was found that 73 of these names (99 per cent) would appear at these addresses on the final registers. A sample of 80 names and addresses where the respondent expected registration but the draft registers indicated no registration were similarly checked; it was found that 45 of these names (56 per cent) would appear at these addresses on the final registers.

**Estimates of final registration**

On the basis of these percentages and assumptions the estimates shown in Table 2 were made. The table shows possible small variations in brackets for 'doubtful' replies where the draft registers indicated single registration and the respondent expected single registration but at the other address; it seemed quite possible in such cases that the respondent had made an error in completing the questionnaire.

Table 2 shows:—

i. the number of students replying to the questionnaire whose names appear twice in the final registers is 820 (42 per cent of replies); there were an additional 58 'doubtful' double registrations (3 per cent of replies).

ii. the number of students who are registered only at their term time address is 116 (6 per cent of replies).

iii. the number of students who are registered only at their vacation (home) address is 870 (45 per cent of replies).

iv. the number of students who are not registered is 68 (4 per cent of replies).

**Respondent registration expectation related to final registration**

Table 2 also relates respondents' expectation of their final electoral registration to estimates of their final

*Table 2*

**Student registration expectation compared with estimated registration on final registers**

| *Student reply to question on expectation* | | *Estimated final register entries* | | | | *No of students* |
|---|---|---|---|---|---|---|
| *Term time address* | *Vacation address* | *Both addresses* | *Term time address only* | *Vacation address only* | *Neither address* | *Total* |
| Yes | Yes | 369 | 11 | 43 | 7 | 430 |
| | No | 79(+27) | 52 | 61(—27) | 9 | 201 |
| | Don't know | 45(+18) | 11 | 32(—18) | 1 | 89 |
| No | Yes | 167(+9) | 16(—9) | 528 | 11 | 722 |
| | No | 3 | 3 | 8 | 11 | 25 |
| | Don't know | 1 | 1 | 16 | 4 | 22 |
| Don't know | Yes | 107(+4) | 8(—4) | 127 | 3 | 245 |
| | No | — | 4 | 3 | 4 | 11 |
| | Don't know | 49 | 10 | 49 | 18 | 126 |
| Reply unclear | | — | — | 3 | — | 3 |
| Total | | 820(+58) | 116(—13) | 870(—45) | 68 | 1,874 |

Figures in brackets show variation due to 'doubtful' forms.

registration produced using the information described above. It shows:—

i. of the 820 students double registered only 369 (45 per cent) students expected double registration.

ii. of the 116 students registered only at their term time addresses 74 (64 per cent) expected to be registered there.

iii. of the 870 students registered only at their vacation (generally home) address 698 (80 per cent) expected to be registered there.

iv. of the 68 students registered at neither address 11 (16 per cent) expected not to be registered.

**Extent of double registration nationally**

Ignoring non-response bias, the estimate of the number of students double registered is 9,715, if 'doubtful' double registrations are excluded, and 10,415 if they are included. The standard error of the estimate is approximately 200.

ANNEX

SCOTTISH EDUCATION DEPARTMENT

Reference No:

Student's Name

3 January 1979

Address

Please complete this form and return using the reply- paid envelope provided.

1(a) Please enter your term-time address as at 10 October 1978

* * * BLOCK CAPITALS PLEASE * * *

(b) Do you expect your name to appear at this address on the Electoral Register to be effective from 16 February 1979

Please Tick

Yes
No
Don't Know

2(a) Please enter your non-term time address as at 10 October 1978

* * * BLOCK CAPITALS PLEASE * * *

(b) Do you expect your name to appear at this address on the Electoral Register to be effective from 16 February 1979

Please Tick

Yes
No
Don't know

# Managing the Royal Navy's manpower

**J. M. Griffin** *and* **R. K. Willmer,** *Statisticians, Ministry of Defence*

*This is a condensed version of a paper presented at the Annual Conference of the Operational Research Society in September* 1979. *It demonstrates the part played by statisticians in the recognition and alleviation of manpower problems in the Royal Navy. Similar work is carried out for the other Services. This paper shows the present state of the art; the techniques are of course constantly being improved within the Ministry of Defence. Requests for copies of the full text of the paper may be addressed to the authors at:*

*Ministry of Defence,*
*Stats (M)2,*
*Ripley Block,*
*Old Admiralty Building,*
*Whitehall,*
*London SW1A 2BE.*

It may seem strange in these days of disturbingly high unemployment to speak of manpower as needing careful management. However, we are dealing in this context with a special kind of manpower. The men and women who serve in the Royal Navy:

i. have to be able to live and work within a rigidly hierarchical and highly disciplined Service, with, for the men, long periods spent at sea;

ii. are skilled — each is trained in a skill of value to the Navy, and frequently these skills are recognised in the civilian world and sought by civilian employers;

iii. are experienced, and need to be to carry out their work responsibly.

Since the Royal Navy only recruits into the lowest levels of the hierarchy, it follows that today's recruits will be the senior men and women in 20 and 30 years' time — and they have to be recruited now or never.

This paper explains how the Navy is attempting to solve its manpower problems. It looks at the problems themselves, how they affect the Navy's operations, and the likely effects of the problems and possible alleviating policies. It concentrates on Royal Navy ratings (that is male, non-officer sailors); this area, numerically the largest part of the Service, is the part on which most detailed work has been carried out.

Although it is a simplification, we can say for the purposes of this paper that ratings are divided into a number of branches, each one specialising in a number of related skills. There is a simple hierarchy from the recruit levels of Junior and Ordinary Rate to Fleet Chief Petty Officer. Up to Able Rate promotion is automatic by seniority but thereafter it is by ability and experience to fill vacancies. Today's recruits cannot reach Fleet Chief Petty Officer until 1995 at the very earliest.

Manpower planning is, in very simple terms, an attempt to equate demand and supply, and to maintain this equality. This may refer to total numbers, or men with certain skills, or men with certain levels of experience, or a mixture of all three.

The supply of manpower is calculated by projecting forward the present strength and structure of the Navy. The actual techniques for doing this are well known and well established. Assumptions have to be made, and some of these can be very subjective. The detailed parameters which feed the forecasting model deal with three factors.

Over intake — recruitment — the Navy exercises a certain amount of control. Recruiting targets are fixed for each skill. However, insufficient suitable candidates may wish to join.

The Navy also has a fair amount of control over internal flows. The most important are promotions above Able Rate. These are under the control of the Service, who will only promote to fill vacancies. This can only occur when there are people with the right seniority, experience and recommendation; should these be missing, the promotion cannot occur.

Outflow is another matter. Involuntary outflow (deaths, disciplinary discharges, etc) occur all the time. Practically all other forms of outflow are under the control of the rating. After completing a certain length of service, he can give 18 months' notice to leave, which he can, within reason, withdraw at any time. At career breakpoints he can choose to go out, but need not reach a decision until the final day. The forecast outflow rate is set subjectively, based largely on past experience.

In order to project the present strength and structure forward, it is necessary to have a target to aim for. This manpower requirement is the demand side of the equation.

The Navy's requirement is a function of two factors. The first is the number of ships in operation and what they will be doing. To these are applied the 'Complements' of each ship, the number of men, by skill and rating level, needed to operate that craft in that task.

To this are added the numbers ashore necessary to allow this size and shape of fleet to operate and an allowance for non-effective time (training, leave, sickness, etc).

It is assumed that the present timetable of ships' programmes and the introduction of new equipment will be met for the next decade or more. Estimates have to be made on staffing levels for completely new equipment and classes of ships. Complements are built up by 'objective complementing'. Experienced staff study each job and determine the level of expertise necessary to carry it out.

The two sides of the equation are rarely equal, and a way has to be found of matching strength and requirement. This was once done by adjusting recruitment so that the strength in the medium term (say three years ahead) equalled the requirement. This philosophy can produce inconsistent policies and unlooked for reactions in the future.

'Objective complementing', although valuable in ensuring that the requirement includes only those actually needed to operate the Service, can, by being independent of possible strength, produce an impossible situation. The structure of a branch, the numerical relationship between rating levels, depends on the likely outflow rates and the rules governing promotion. Some structures are unviable, for instance by demanding more promotions out of a rating level than into it. Given the assumptions, there are certain bounds within which the relative sizes of rating levels in a branch must lie.

Another problem of particular concern to the Navy is the fact that the requirement depends largely on ships' programmes (since the shore support is numerically fairly stable). The size of the sea-going Navy and its operating cycle can fluctuate wildly, giving the requirement a saw-toothed edge (Fig 1). Although hypothetical, this illustrates the effect of changes to ships' roles; when a large ship is involved, the size of the leap can be relatively large.

From a position of balance it is decided to recruit to achieve the requirement in three years' time. In Fig 2 the dotted line shows our intention, and in the first year we go one third of the way. Assuming an unchanged requirement, the next year brings a changed policy (Fig 3).

These adjustments are added to or taken from the recruitment necessary to replace normal outflow. The recruitment target therefore takes on a saw-toothed effect (Fig 4). This produces problems for Recruiting Offices and training establishments, both of which operate more economically with a steady throughput. Career planning is also easier and fairer with steady recruitment.

In order to meet these practical problems, the concept has arisen of the Stable Planned Bearing (SPB), a long-term strength figure based on the requirement but taking note of other important factors:

i. the general level of requirement, rather than a particular year's figure;

ii. the achievable level of future manpower, rather than the ideal but unattainable level;

iii. the achievable and realistic structure

This policy does not follow every peak and trough of the requirement. Manpower problems in future years will not be caused by policies determined now to solve next year's difficulty.

The long-term intake necessary to sustain the SPB is calculated and used in the strength forecast, so that in the longer term the forecast strength and requirement should be close. Major discrepancies in the shorter term are alleviated by bringing the requirement towards the likely strength by adjusting ships' programmes, in extreme cases putting ships into reserve.

The SPB has other benefits for the Navy:

i. it removes the large fluctuations in recruiting which produce peaks and troughs; these cannot be removed practically and pass through the system. These fluctuations lead to career planning difficulties and problems in maintaining required strength;

ii. stable intake means a steady demand for higher training later thereby easing establishments' planning;

iii. the demand for posts at sea for newly-trained recruits is stable, and guarantees a satisfying first posting for the man;

iv. promotion prospects are (and are seen to be) fairer — a great morale booster!

With the best will in the world, a completely even flow will be impossible. Recruit intake is governed in part by factors over which the Navy has no control — political, economic, demographic, personal. These will always be present, but the objective must be to create no more variation than is absolutely necessary.

These policies may seem elementary, but this is only so with hindsight. To combine long-term ideals with short-term expediency is not easy. The Navy has a day-to-day role to play in the defence of this country, and this must not be swamped by any consideration for the day after tomorrow. This philosophy has developed over a number of years as improvements have been made to the approach to the problems. There is a need next to look at the bounds within which the structure needs to lie and to monitor the requirement to ensure that complementing, requirement, forecast strength and structure are all working in the same direction.

Figure 1

**A (hypothetical) forecast requirement**

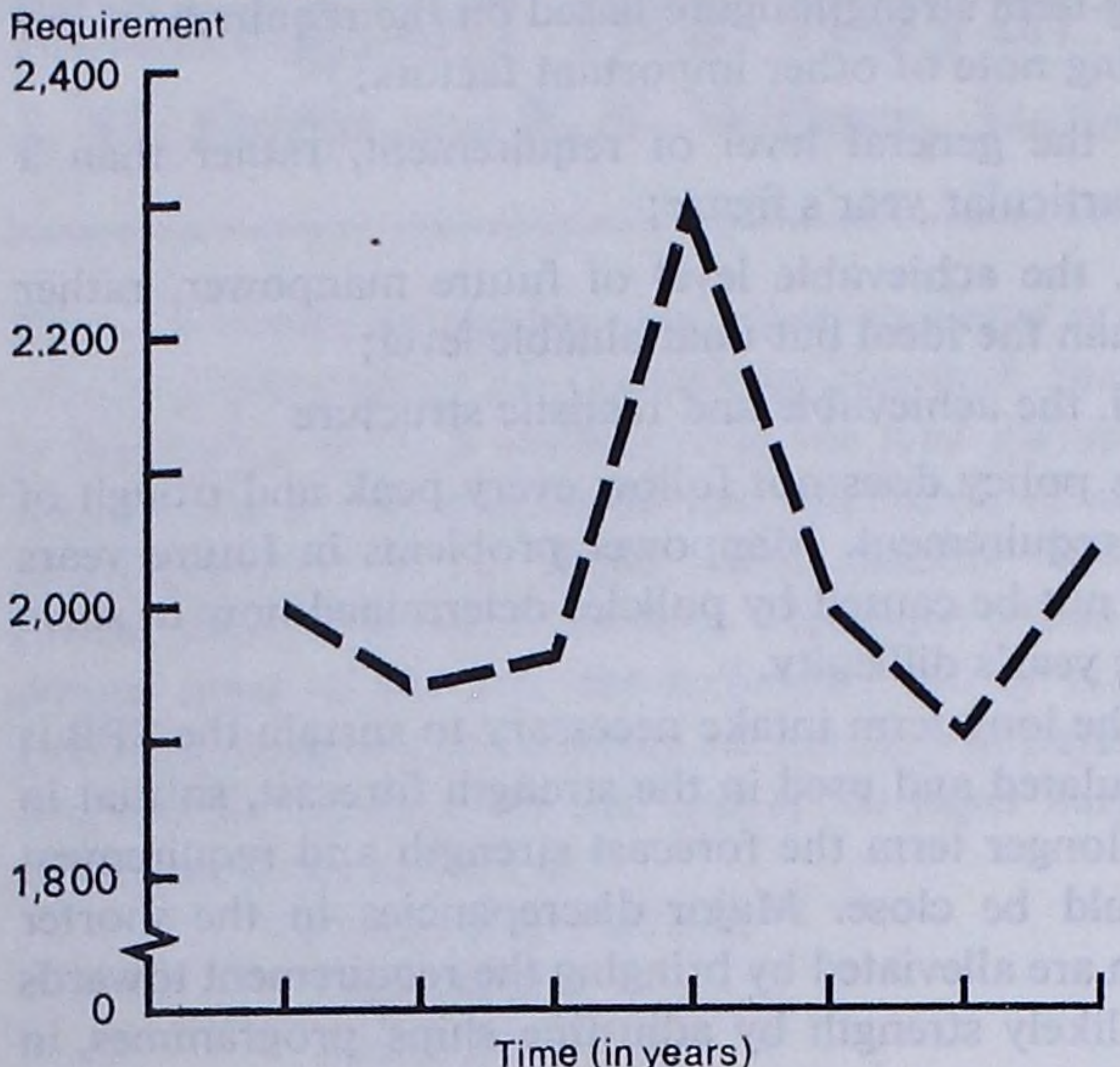



Figure 2

**Heading for the future – year 1**

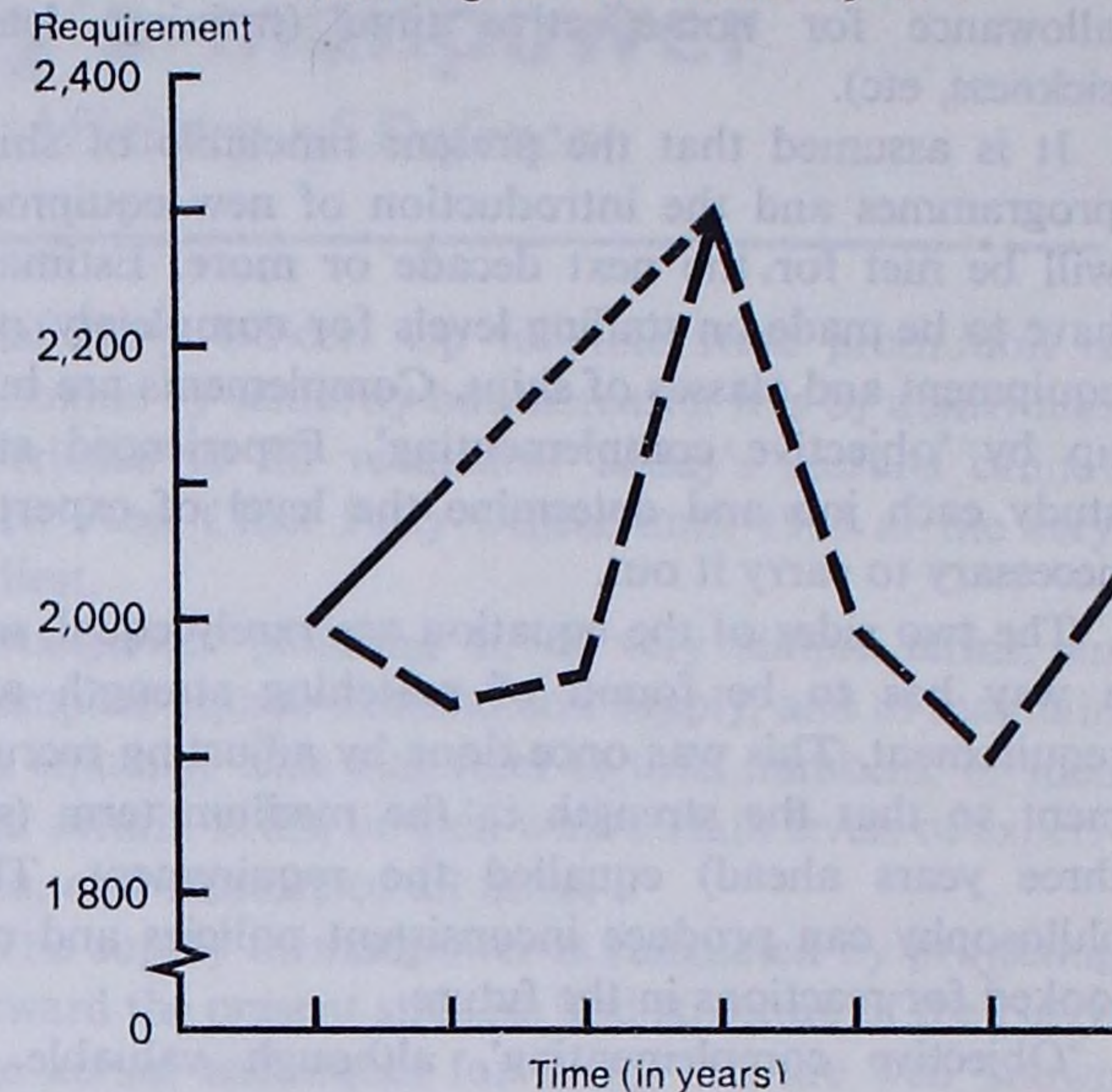



Figure 3

**Heading for the future – year 2**

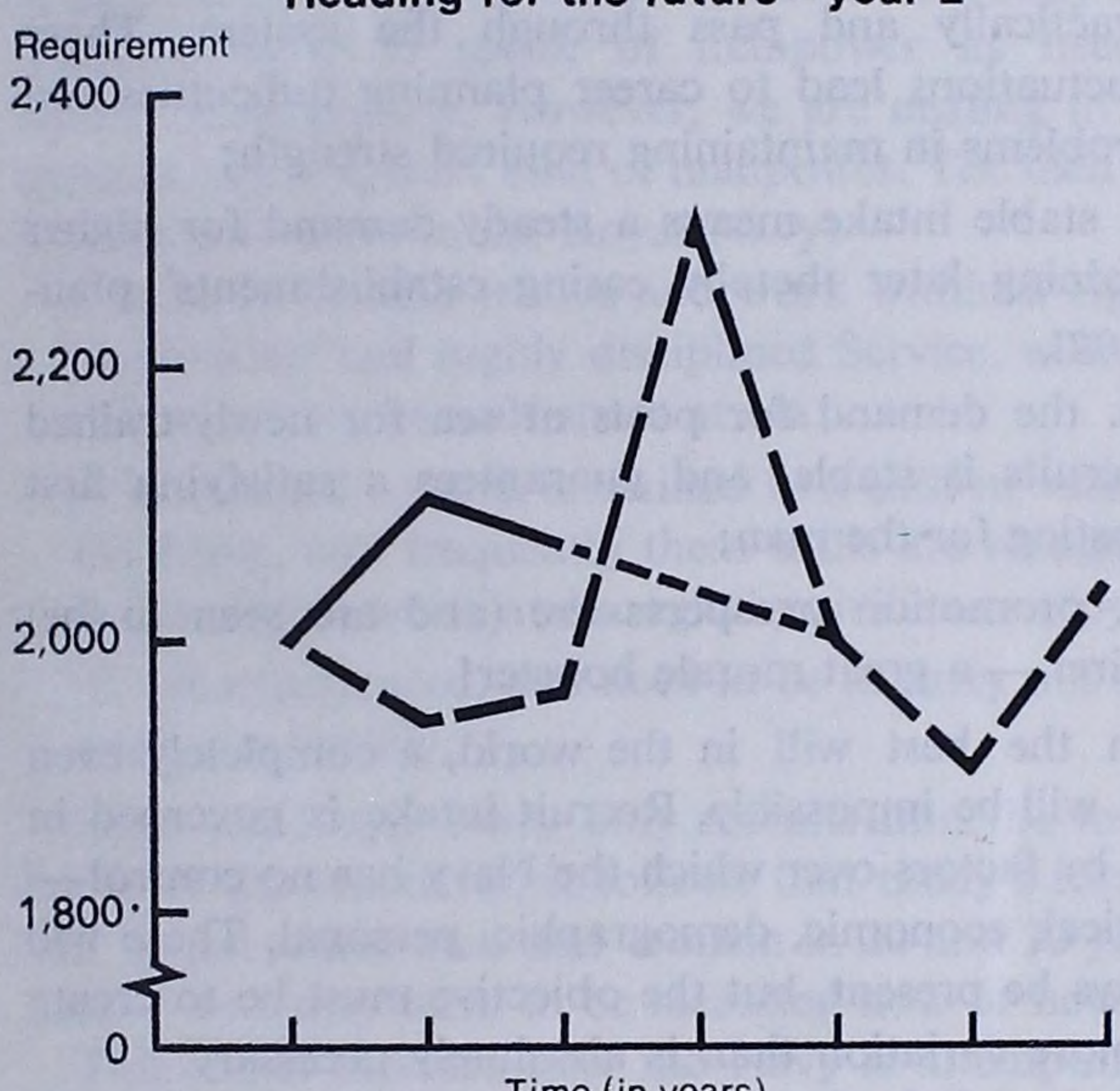
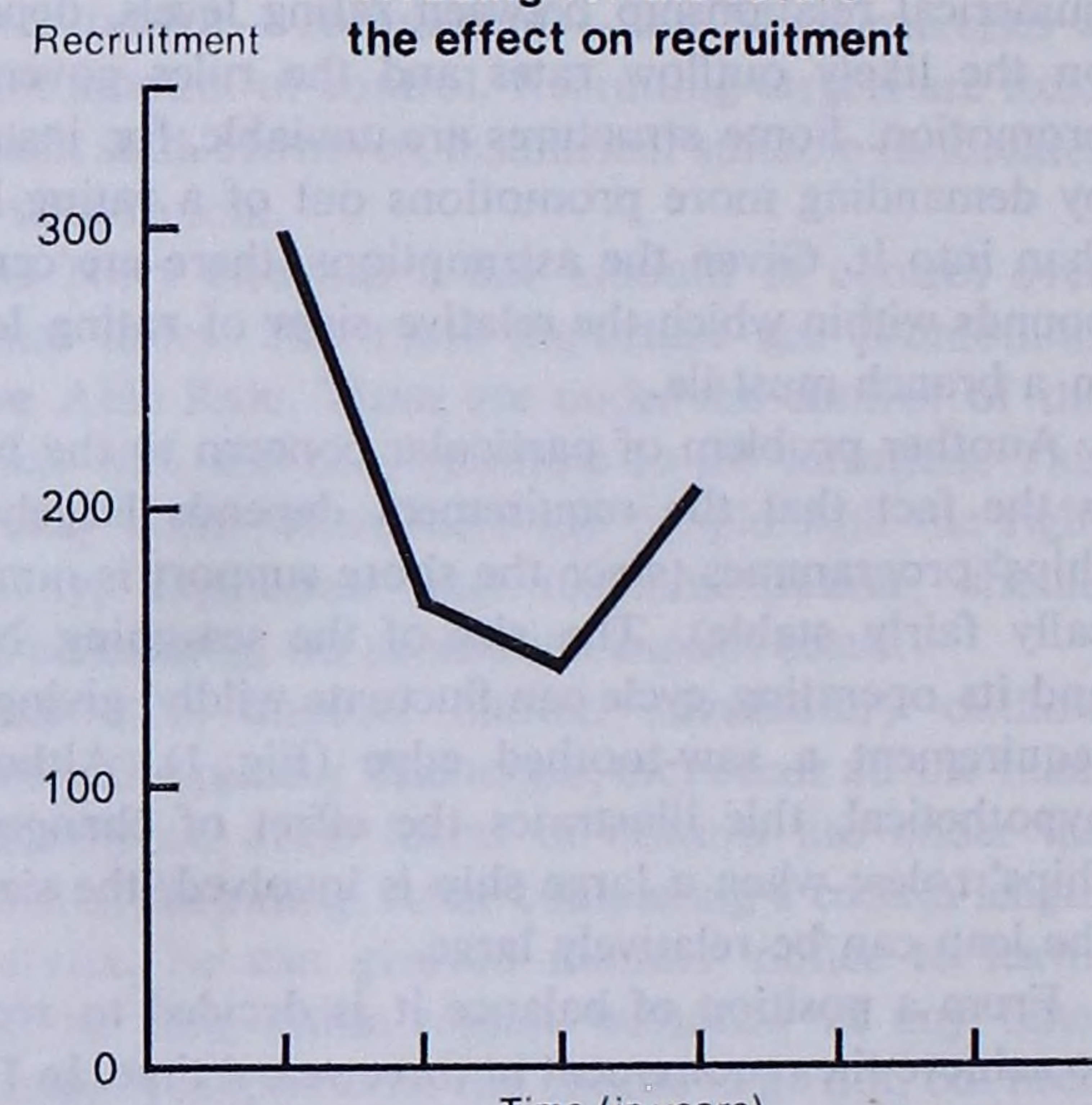



Figure 4

**Heading for the future – the effect on recruitment**



# Postcodes in the 1981 Census of Scotland

**R. A. De Mellow,** *Statistician, General Register Office, Scotland*

*The following article first appeared in News Letter No. 41 of the British Urban and Regional Information Services Association and is reproduced by kind permission of the Editor.*

General Register Office for Scotland (GRO(S)) has been involved in the development of the use of postcodes in statistical systems since about 1973. This note outlines the role planned for these units in the 1981 Census. Three distinct but related functions can be identified: the use of the unit postcode (e.g. EH10 6QD) as a building brick for the planning of census enumerator workloads; the use of the unit code, or parts of it, as areal units for statistical tabulation and as its use as an intermediate step towards producing statistics for larger areas of customer interest, (e.g. Local Government or Health districts).

In order to plan roughly equal workloads for enumerators GRO(S) has been developing a system for recording changes in the household and communal establishment content of small areal units to provide the building bricks that would allow flexible grouping into enumeration districts (EDs). Unit postcodes were selected for this purpose for a number of reasons: they were familiar to both public and to census users; they were maintained on a continuous basis by the Post Office who produce printed and computerised directories of the address content of unit codes at a reasonable cost. Their content is relatively stable over time; and because topographical features constrains access by enumerators as well as by postman, they group to suitable units of enumeration. The system of updating codes used by the Post Office provides valuable information about new building developments and demolition, although there are delays in recording the latter. In addition Local Authorities are playing a vital role in providing planning information about new developments together with information off the valuation roll where this is available in suitable form.

As a first step towards planning enumeration districts GRO(S) has drawn unit postcode boundaries onto maps covering the whole of Scotland. Most of the maps are drawn to the scales of 1:10,000 or 1:2,500 while 1:50,000 is used in rural areas with scattered settlement. Enumeration district boundaries will be superimposed on these maps to cover the whole surface area of Scotland without overlapping. Enumeration districts are being planned to an upper limit of 160 households with suitable reductions to allow for distance in rural areas and will generally consist of groups of or single whole unit postcodes. In some cases, such as large blocks of flats, the ED will exceed this limit, but the enumerator will be paid an additional fee. Unit codes will only be split to recognise Region, District, Health Board area Health District and New Town boundaries. In addition the enumeration district boundaries will recognise (to whole unit code approximation) Civil Parish boundaries, boundaries of localities with 500 or more population in 1971 and, so far as is practical, boundaries of zones specified by individual local authorities where these zones have been notified to GRO(S) during the planning stage. These local authority zones differ between authorities and reflect school catchment areas, travel to work areas and areas based on a variety of other criteria.

The 1981 Census of Scotland therefore has been planned on the basis of unit postcodes and the computer record for each household will contain its postcode reference. This allows statistics to be produced for each unit postcode or for aggregates of these units.

An important advance in census tabulation is the ability to apply the same detail of area coding to 'remote' addresses. These are the addresses of migrants a year before the census, of the usual residence of persons enumerated away from home and of the workplace of the employed. Such addresses are scattered across a wide area and cannot therefore be easily coded by reference to maps. A gazetteer is required to effect this coding. In the case of postcodes this is compiled for each Postcode Area by the Post Office as part of its normal output and is available free to the general public. The Post Office is also able to produce a variety of gazetteers sorted to the order most suitable to the particular coding application. Tests have also shown that members of the public are capable of providing a substantial proportion of remote postcodes as part of their address, thus reducing the coding effort required.

The basic unit of area coding in the 1981 Census for both enumeration and remote addresses is therefore the unit postcode. Some means has to be provided to group these units into higher levels for the output of aggregated area statistics. The method used involves a computerised directory. This directory, which is held as a computer file, lists a range of area codes for each postcode. The directory for use with the 1981 census returns for Scotland will contain for each postcode: Local government Region, District and Health Islands Area area codes, Health Board Area and Health District codes, a New Town code, a Civil Parish code, a code for the 1981 enumeration district, a local authority zone code, a locality code, a regional electoral division code, a district ward code and a classification of the unit code to one of five urban-rural types. In addition each unit code will carry a spot National Grid reference to 10m. resolution. These codes are attributable through this directory to both enumeration and 'remote' addresses on individual records or to statistical tables at unit postcode level. It is also possible to reference the directory from any postcoded file. Thus, GRO(S) uses this method to area code vital statistics for publication.

In addition to the areal units outlined above the structure of the postcode contains potential units of classification e.g. EH10 6– 'sector' or EH10 6Q– 'sector plus one alpha'. Most postcode sectors contain over 5,000 population (except for remote rural areas and city centres) and provide a convenient unit of tabulation. It has not been possible to build District wards into the enumeration district structure because not all ward boundaries were known at the time of planning. District ward figures will be produced later in the processing cycle and postcode sectors will be used as the main level of tabulation intermediate between enumeration and local government districts for Scotland in 1981.

Application of most of the codes listed above are self evident, but the urban-rural classification and the use of spot grid references need some explanation. Even before the 1975 local government re-organisation only a very rough distinction between urban and rural areas was possible using administrative areas. The re-organisation, based in part on the city — region principle, makes a separate definition of urban areas for statistical purposes even more necessary. As a first step the 1971 Census enumeration districts were classified according to the population size of the continuously built up areas in which they lay. The classification used is:

over 1 million population; 100 thousand to 1 million; 10 thousand to 100 thousand; 1 thousand to 10 thousand; rural and under 1 thousand.

Gaps in the continuity exceeding 1km. were recognised to delineate the limits of the built up areas. Now unit postcodes have also been classified in this manner.

The addition to the directory of a spot grid reference will allow the use of postcodes with many of the computerised map plotting routines that have been developed. Where area boundaries have been digitised it will be possible to automate the construction of rough postcode directories. The spot reference being used for 1981 is to 10m. resolution. Experiments have shown that in urban areas the error from attributing this reference to each household in a postcode is of the same order as the error arising in 1971 from an enumerator allocation to 100m. resolution. Reasonable approximations of statistics for 1km. squares in built up areas are possible using this allocation. For the purpose of comparison over time the figures for 1km squares should contain the same unit codes, GRO(S) is in a position to produce these through the 1971 postcode link described below.

Where a postcode is available for both ends of a migration move or a journey to work, the spot grid reference enables a rough estimate of the distance between the ends to be made. It is planned to include tables of this type in postcode based workplace and migration statistics for Scotland. Postcode based statistics will be produced for Migration, Workplace and standard Small Area Statistics.

Another development of interest to users of census material relates to the attribution of unit postcodes to the 1971 Census records. As a result of this exercise a directory exists which allows the coding of postcoded files to the local government areas in existence in 1971 i.e. Cities, Burghs, Districts of County, etc. Techniques are being developed to allocate automatically events in new postcode developments to these old areas. GRO(S) is also investigating the production of a subset of the 1981 Small Area Statistics tables from the 1971 Census file for postcode based areas in order to allow direct comparison over the decade. As an interim measure the 1971 SAS have been aggregated to postcode sectors and outward codes (e.g. EH10) using an allocation of whole 1971 enumeration districts.

Most of the developments outlined above have been taking place over a period of years, many will not come to fruition until after the 1981 Census. The full realisation of potential will depend on the availability of human and computing resources. The postcode does have limitations as a unit for statistical use but it does provide a flexibility for the re-aggregation of statistics to new boundaries and for the detailed study of smaller areas that has never been available in the past.

**Reference**

*Newsletter of the British Urban and Regional Information Services Association*, available from:
Miss S. M. Barnett,
School for Advanced Urban Studies,
University of Bristol,
Rodney Lodge,
Grange Road,
Bristol BS8 4EA.
Price £4.50 net subscription for 5 issues.

# New methods for surveying health risks at work

**Barry Werner**, *Statistician, Medical Statistics Survey Unit, Health and Safety Executive*

**Introduction**

A previous article in *Statistical News* [1] discussed some aspects of the use of statistics in studying occupational health. Since this appeared in 1973, the problems of occupational health and safety have become far more widely recognised and discussed and the report [2] of a Committee chaired by Lord Robens on the subject was instrumental in leading to the introduction in 1974 of the Health and Safety at Work, etc. Act. [3]. This Act not only forms an integrated framework for all relevant earlier health and safety at work legislation, it also formally sets out many duties of employers which had previously been covered only by the common law. The Act protects the entire working population except for domestic servants employed in private households. The main purposes of the Act are to maintain or improve the standards of health and safety and welfare of people at work, to protect other people against risks to health and safety arising from work, to control the storage and use of dangerous substances and to control certain emissions into the atmosphere. Two institutions to administer the Act are provided for, first, the Health and Safety Commission, consisting of a chairman and between 6 and 9 members, appointed by the Secretary of State for Employment following consultations with the Confederation of British Industry, the Trades Union Congress and the local authority organisations, second, the Health and Safety Executive (HSE), which in formal terms is a body made up of just three senior officials, but in practice is the term often used to refer to the entire permanent staff of about 4,000, the majority of whom are employed in various inspectorates, for example, HM Factory Inspectorate.

The Robens report had recommended that there should be 'a small but professional statistical unit within the proposed Authority for Safety and Health at Work', and accordingly the new HSE included a Statistical Services Branch under the direction of a Chief Statistician. The new Branch included a Statistician responsible for carrying out surveys on occupational health and providing statistical advice to the Employment Medical Advisory Service (EMAS) (an organisation specially provided for by the Act to advise, as part of the HSE, on the safeguarding and improvement of the health of people in employment and of people seeking or training for employment). Early in 1978 this Statistician, supporting professional staff in the Statistical Services Branch and certain EMAS executive and clerical staff, were integrated into a single Medical Statistics Survey Unit (MSSU). This article describes the development work of the unit in meeting the statistical needs of EMAS and the HSE for surveys in the occupational health field.

**Occupational health surveys**

For the reasons described in the Robens report, national statistics of industrial diseases are of little help as a means of investigating the toxic or carcinogenic effects of exposure to particular substances at work; only certain diseases are 'notifiable' under the Factories Act or 'prescribed' for the purposes of the industrial injuries scheme administered by the DHSS, and, in addition, there are often long time lags before cases become manifest and can appear in the statistics. Furthermore, although the HSE is backing a number of projects concerned with the development of rapid laboratory tests for carcinogenicity, it is only by the controlled study of work populations that the hazards of past exposure or the effectiveness of measures taken to remove hazards can be ascertained. An invaluable source of background information is provided by the occupational mortality statistics of the Office of Population Censuses and Surveys [4], but in order to study the effects of exposure to particular chemicals or dusts, specific surveys are essential. These are designed to measure as accurately as possible individual doses (i.e. exposure time and level) and responses (i.e. disease or death).

The range of chemicals in use in industry today is enormous and growing all the time, and there is no possibility nor wish for the HSE to mount studies in all cases where a problem might exist. The HSW Act firmly places such work, if necessary for ensuring the health of employees, as the duty of the employer. The role of the HSE in this field is to advise and only in certain situations to carry out the study itself. Such special situations have often arisen where coverage of a number of firms was essential to the success of a project, but even in these situations Trade Associations are taking an increasing part.

The result of studies undertaken by the HSE, whilst of interest in the wider medical and statistical fields, are primarily of importance in determining the policy to be adopted in the control and use of hazardous substances. They are considered together with relevant information from many other sources, and if necessary, new regulations or codes of practice are framed in consultation with representatives of the industries and trades unions concerned. In many cases firms act voluntarily to minimise or remove chemical or dust hazards when these become known.

**Developments in data collection**

Surveys of occupational health require as a first essential the identification of a population for study. Because of the long time taken for many diseases, particularly cancers, to become apparent following exposure to chemical hazards, it is necessary, if timely results are required, to assemble a population which was exposed up to twenty or thirty years ago. In many cases a firm's historical personnel records are inadequate for this to be done and a desirable investigation cannot be undertaken. In order to help ensure that the necessary information will be available for studies to be undertaken in the future, the MSSU has designed a set of record cards which indicate the details which are required. These cards are also useful for collecting data for current studies in cases where firms do have the necessary information. Identification details are set out on one part of the card in the particular format recommended for tracing individuals on the National Registers which are maintained, on the basis of National Health Service (NHS) numbers by the Office of Population Censuses and Surveys and the General Register Office for Scotland, and on the basis of National Insurance (NI) numbers by the Department of Health and Social Security. For tracing purposes the NHS or NI numbers alone are sufficient, but in the many cases where these are not known other identification details can be used. These are as follows:—

surname, forenames, a woman's maiden name, sex, date of birth, place of birth (i.e. town and county), country of birth and usual address and dates of residence there.

The confidentiality of such details is always safeguarded and, if the information is to be used in a study, individuals are whenever possible informed through their company and trades union representatives.

The cards also contain provision for the recording of detailed job histories within the firm concerned. These histories are recorded in terms of job codes, which are assigned to groups of workers defined in such a way that the individuals within a group are exposed to the same chemicals at similar levels. The dates of starting and finishing each job are also recorded; when linked with environmental hygiene data giving the measured or estimated levels of exposure of each job code group to each chemical, these details give enough information for estimates of total and peak dose to be made and for individuals to be grouped into exposure categories. There is an extensive literature from the United States [5] to [8] on this subject and some larger companies are developing more elaborate approaches for use in computerised systems; however, all follow the same basic pattern described above.

**Developments in analytical methods**

Surveys of occupational morbidity (illness) involve the collection of data by trained doctors or nurses in medical examinations or by the administration of medical questionnaires, following careful planning to ensure that observer and other non-sampling errors are kept to a minimum. The conduct of such surveys is extremely expensive and the HSE can only occasionally be involved in large scale exercises, although many small scale projects are carried out by EMAS field staff. Surveys of mortality are less demanding of resources and it is with these that the MSSU has been most involved.

The usual way of carrying out a mortality survey is to assemble a population exposed in varying degrees to a known or suspected hazard and to study details of their deaths. The best way to do this is to collect information on all or representative samples of people first exposed during various periods. Providing the necessary details are available the population is then divided into subgroups defined by the dates of individuals' first exposure to the hazard. Because the effects of exposure to carcinogenic substances are typically long term and do not cease when exposure ceases, an individual is held to be 'at risk' and deaths are investigated during the whole of the time between first exposure and the end of the follow-up period.

In some cases records of all the people exposed in the past are not available and an alternative approach can be adopted in which all the people working in a factory on a given day are selected for study. In this case the whole population is held to be 'at risk', for the purposes of the study, from the day on which the population is set up. The results of such studies must, however, be interpreted with care because of possible biases. For example, since by definition all the people who died or left the factory because of illness before the start date are excluded, there may be a tendency for study of the population still working to underestimate the effects of exposure to past hazards. Recent work on a study of rubber workers by the MSSU and an EMAS epidemiologist has illustrated some of these problems, and it is hoped that a report will be published shortly.

Investigations of the type just described are termed 'prospective' or 'cohort' mortality studies, the term cohort referring here to the groups first exposed to a hazard at given times. Such surveys are contrasted with 'retrospective' or 'case-control' studies in which a group of people who have died from the particular disease under investigation (cases), are matched with a group of people who have died from some other cause or are still healthy (controls). This latter approach is useful in detecting broad differences in life style or employment pattern between cases and controls, especially where the disease is rare, but it cannot be used to make quantitative estimates of the risk associated with a particular hazard.

Any abnormalities in the mortality pattern found in a study cohort can be detected by comparing with a control population. This may consist of similar group of workers to that under study, with the single difference that they are not exposed to the hazard under investigation, or it may be the entire regional or national population. In both cases mortality comparisons are made by applying cause-specific death rates, calculated from the control population for categories defined by age, sex and year of death, to the corresponding categories of the study population. In this way estimates are made of the number of deaths from each cause, in each age/sex group of the study population, which would be expected on the assumption that they face the same risk as the corresponding group of the control population. The numbers of expected deaths in each group and in total are then compared with the corresponding numbers observed. The differences found are tested for statistical significance and an excess of observed deaths indicates that the study population faced a greater risk than the control population. The number of observed deaths divided by the number of expected deaths (expressed as a percentage) is termed the Standardised Mortality Ratio (SMR), and is often used to provide an index of the degree of excess risk experienced by the study population.

In analysing survey data SMR's must be calculated for a large number of different sub-groups of the population, for example those made up of people who have experienced similar exposure levels at similar times in the past. This work has been considerably eased by the use of a new computer program which was jointly developed by the MSSU and staff of the OPCS and was written by an OPCS programmer. The program is termed the Mortality Analysis Package (MAP); it is designed to accept data from any mortality survey, to check and edit the data input, to split the study population into specified sub-groups, to calculate SMR's and to carry out significance tests on the differences between the numbers of observed and expected deaths. Modifications introduced by the MSSU allow SMR's to be calculated according to different latent periods (i.e. the time between the exposure and death). Numbers of observed and expected deaths are calculated, for example, for the periods 0–4, 5–9, 10–14, 15–19 and over 20 years after first exposure. This proved to be an extremely valuable feature when investigating substances for which the carcinogenic effects may not appear until a considerable number of years after exposure first occurred.

In using MAP to calculate the numbers of deaths expected in a given population, national or regional death rates produced by OPCS and GRO(S) are used. A time-saving development introduced by the MSSU is to have put some of these death rates on to readily accessible computer files so that transfer from printed books is eliminated. At present the rates for 42 different causes of death have been assembled at national level for five year age bands, for each of the years 1943–76. A separate file in which the actual numbers of deaths and base populations are given is also held, and this has been used to produce average death rates for the five year periods 1940–44, 1945–49, etc. It is intended that this data-base should be extended to include regional death rates, and so far those for each of the years 1967–76 have been added to the national rates. These, however, are only available for ten year age bands. Even so, the point is rapidly being reached where straightforward data management techniques are inadequate to deal satisfactorily with the volume of material stored, and a specially written data-base handling computer program is planned.

One of the great difficulties in analysing mortality data for people working in certain parts of the chemical industry is the large number of different substances to which the people in the study have been exposed at work. The use of an ordinary cohort design provides information of a general kind, but does not allow particularly hazardous substances to be identified. Some research [9] in the United States has been carried out on this problem and the MSSU has been studying it with a view to using the same approach in future studies. In brief, the technique which is referred to as the SAED (serially additive expected dose) model, provides a method of testing whether or not people dying from a specified cause of death within a study population (cases) have received, on average, greater exposures to a given chemical than people within the same study population who have not died from the cause specified (controls). The controls are selected by matching with the cases on items such as year of birth and year of joining the company under study. The exposures of cases and controls to all the chemicals involved are calculated and differences are tested for statistical significance. Any significant excess of the cases' exposure to a particular chemical indicates that exposure to that chemical is associated with the cause of death under investigation. This approach exploits some of the advantages of both the 'cohort' and 'case-control' designs, described above, in that although the initial study population is made up of all the people entering a firm during various periods, and can be used for quantifying the risk associated with overall exposure in a company, both cases and controls are selected from within it in order to identify the particular chemicals which may be causing the problem. Many features of the method are still controversial, not least the assumption that it is the overall exposure to a chemical rather than, for example, the peak exposure which is the most relevant criterion for comparison of cases and controls.

**Summary of current projects**

At the time of writing the MSSU is involved in separate surveys to investigate the mortality of people exposed at work to the following substances:—

- asbestos dust, lead, acrylonitrile, vinyl chloride monomer (VCM), styrene, carbon black and cotton dust.

In addition, occupational groups in the rubber fabricating and foundry industries are under study.

An extension of the study of workers exposed to VCM is under consideration to investigate exposure to polyvinyl chloride (PVC) dust as well. Some of these studies, for example that of acrylonitrile workers, are intended to provide answers to the previously unanswered questions of whether or not the substances are carcinogenic in humans. Other studies, for example that of workers exposed to asbestos dust, which is already known to be hazardous at high levels, have the objective of establishing whether or not any residual risk remains following action taken to reduce the hazard either voluntarily or in accordance with new regulations. In order to illustrate the differences between these two distinct study objectives, the two examples mentioned are described in a little more detail.

Acrylonitrile or vinyl cyanide (monomer) is an organic chemical which following polymerisation is used to make synthetic rubber, plastics and fibres. Exposure to the polymer is harmless and exposure to the monomer has always been restricted because of its acute toxic effects. However, quite recently evidence from animal studies and preliminary results on a human population from a United States manufacturer have suggested that exposure to permitted levels of the monomer may have a long term carcinogenic effect. Following discussions with the Chemical Industries Association (CIA), which represents the five major United Kingdom manufacturers, it was decided to set up a joint HSE/CIA mortality study. The population chosen consisted of approximately 1,100 men first exposed in 1968 or earlier in areas of plants where the highest exposures were found. Identification details and job histories were supplied by the firms on cards provided by the MSSU, and estimated environmental hygiene data were assembled by the CIA. The novel method of data collection described above was used for the first time and proved successful. Analytical work is being undertaken using the new computer programs described.

Exposure to high levels of asbestos dust is well documented as a cause of asbestosis, mesothelioma (cancer of the membranes lining the inside of the chest wall or abdominal cavity) and lung cancer. A series of annual statistics, prepared by the MSSU from death certificates mentioning asbestosis or mesothelioma as a cause of death, which is due to appear for the first time in *Health and Safety Statistics* 1977, [10] shows how the numbers of cases have increased in recent years. However, because of the long time between first exposure to asbestos and the onset of disease, these figures reflect exposure many years ago. Current exposures to asbestos in industry are far lower than formerly, following the introduction of the Asbestos Regulations 1969, and the present HSE study has the major objective of finding whether or not any hazard remains and, if it does, attempting to quantify it. The population for study was not set up all at once but is being assembled year by year as people are medically examined for the first time by their firm's doctor or by an Employment Medical Adviser. By the end of 1978, a total of approximately 10,000 people who had started work with asbestos after the introduction of the 1969 Regulations had been included in the survey. Job histories and environmental hygiene data are being assembled for this population and a great strength of the study is that, because individuals in it are personally interviewed, it has been possible to include information on cigarette smoking habit, a factor which is extremely important when assessing a possible lung cancer hazard.

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[5]Gamble J and Spirtas R, 'Job Classification and Utilisation of complete Work histories in Occupational Epidemiology', *Journal of Occupational Medicine* (1976) Vol 18, No. 6, pp 339–404.

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[9]Waxweiler R J, 'An Epidemiologic Investigation of Lung Cancer in a Multixenobiotic Occupational Environment', *Dissertation submitted to the Department of Epidemiology, University of North Carolina, Chapel Hill* (1978).

[10]*Health and Safety Statistics,* 1977. (HMSO, forthcoming).

# Recently available statistical series and publications

The following publications containing social statistics have recently, or will soon become available during the October-December quarter of 1979. Unless otherwise specified, copies may be purchased from Her Majesty's Stationery Office. A list of release dates of economic series is published monthly in *Economic Trends.*

**Central Statistical Office**
*Annual Abstract of Statistics No. 116, 1980*
*Social Trends 10, 1980*

**Department of Education and Science**
*Statistics of Education, Volume 1, 1978: Schools statistics, 1978*
*Statistics of Education, Volume 4, 1977: Teachers' statistics, 1977*
*Statistics of Education, Volume 5, 1977: Finance and Awards Statistics, 1977*

**Department of Employment**
*Employment Gazette*, published towards the end of each month, contains indicators on earnings, unemployment and prices. Issues due in the fourth quarter will contain the Family Expenditure Survey results for the first quarter of 1979 and full results for 1978 (United Kingdom).

**Department of the Environment**
*Housing and Construction Statistics*, Issue 30: figures for the second quarter 1979
*Local Housing Statistics*, Issue 51: figures for the second quarter of 1979

**Department of Health and Social Security**
*Social Security Statistics, 1978*

**Home Office**
*Betting Licensing Statistics, June 1978–May 1979*
*Statistics of Criminal Justice System, England and Wales, 1978*
*Probation and After-Care Statistics, England and Wales, 1978*
*Criminal Statistics, England and Wales, 1978*
*Offences of Drunkenness, England and Wales, 1978*
*Offences Relating to Motor Vehicles, England and Wales, 1978*

**Inland Revenue**
*Survey of Personal Incomes 1977–78*

**Office of Population Censuses and Surveys**
*Population Trends* No. 18
*OPCS Monitors* available free from the Office of Population Censuses and Surveys include:

| | | |
|---|---|---|
| *Births and Deaths* | VS | Weekly |
| *Deaths from Accidents* | DH4 | Monthly |
| *Legal Abortions* | AB | Monthly |
| *Adoptions* | FM3 | Quarterly |
| *Infectious Diseases* | MB2 | Quarterly |
| *International Migration* | MN | Quarterly |
| *Deaths by Cause* | DH2 | Quarterly |

**Scottish Office**
*Scottish Economic Bulletin No. 19*
*Scottish Housing Statistics No. 5*

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

**Unemployment benefit**
Quarterly analysis of decisions of Insurance Officers, quarter ending 30.9.79
Monthly analysis of claims by sex and region:
- 4 weeks ending 30.6.79
- 5 weeks ending 4.8.79
- 4 weeks ending 1.9.79

Quarterly analysis of registered unemployed by class, sex and region, quarter ended 9.8.79

**Adjudication**
Quarterly analysis of appeals and references to National Insurance and Industrial Injuries appeal tribunals — quarter ended June 1979

**Guardian's allowance/Child's special allowance**
Quarterly analysis of children for whom allowance is in payment, quarter ended 30 September 1979

**Child benefit**
Analysis by family and children,
2 months ended 31 July 1979
2 months ended 30 September 1979

Further information can be obtained from:
Mr. R. J. McWilliam,
Department of Health and Social Security,
Room 2216,
Newcastle Central Office,
Newcastle upon Tyne NE98 1YX.

# New surveys assessed by the Survey Control Unit

## June to September 1979

For further information on the surveys listed, the appropriate departmental contact may be obtained from Mr R. C. Ponman (01-233 8583), Survey Control Unit, Central Statistical Office, Great George Street, London SW1P 3AQ.

*An introductory note was given in Statistical News 36.41*

*New Surveys assessed June — September 1979*

| *Scuno* | *Title* | *Sponsor* | *Those approached* | *Approximate number approached* | *Location* | *Frequency* |
|---|---|---|---|---|---|---|
| | **Business surveys** | | | | | |
| 60147 | Awareness of and attitudes to Export Credits Guarantee Department | COI/ECGD | Exporters | 615 | GB | AH |
| 44005 | Structure of agricultural holdings | DAFS | Farmers | 7000 | S | AH |
| 21037 | Study of reductions in working time | DEM | Businesses | 300 | GB | AH |
| 21038 | EEC Retail Prices Survey 1979—furniture | DEM | Retailers | 30 | SE | AH |
| 21041 | Effect of labour markets on older workers | DEM | Employers | 3000 | GB | AH |
| 29004 | Survey of markets for geothermal energy | DEN | Businesses | 93 | SE | AH |
| 29005 | Assessment of the Energy Survey Scheme | DEN | Businesses | 439 | GB | AH |
| 14002 | Origins of manufacturing employees in South West region | DI | Manufacturers | 41 | SW | AH |
| 14007 | Tractor use analysis survey | DI/MAFF | Farmers | 3000 | EW | AH |
| 59037 | Dynamics of industrial change in the inner city | DOE | Manufacturers | 400 | NW | AH |
| 59038 | 'Bad neighbour' industries | DOE | Businesses | 45 | SE | AH |
| 59043 | The use of official population projections | DOE | Large private businesses | 60 | GB | AH |
| 52031 | Transport problems of inner city firms | DTP | Managers | 60 | E | AH |
| 90045 | Occupancy survey of Scarborough hotels and guest houses | ETB | Hoteliers | 381 | YH | AH |
| 40028 | Research into organic and low input farming systems | MAFF | Farmers | 50 | EW | AH |
| 40063 | Buckingham oilseed rape survey | MAFF | Farmers | 30 | SE | AH |
| 40066 | Survey of disinfectants used in pig housing | MAFF | Farmers | 490 | SW | AH |
| 40067 | Survey of permitted colouring matter in food | MAFF | Manufacturers | 200 | UK | AH |
| 40071 | Handling and storage of slurry from dairy cows | MAFF | Farmers | 50 | WM | AH |
| 40074 | Study of short craft courses | MAFF | Farmers | 2000 | GB | AH |
| 40077 | Survey of houseflies resistant to insecticides on farms | MAFF | Farmers | 50 | SE | AH |
| 18026 | Youth Opportunities Programme adult employees survey | MSC | YOP sponsors | 1100 | GB | AH |
| 19046 | Furniture and timber ITB vital skills survey | MSC | Manufacturers | 125 | GB | AH |
| 19049 | Absenteeism in the clothing & allied products industries | MSC | Manufacturers | 60 | GB | AH |
| 19050 | Knitting, lace and net ITB training for key skills—warp knitting | MSC | Manufacturers | 88 | GB | AH |
| 19051 | Knitting, lace and net ITB training for key skills—dyeing and finishing | MSC | Manufacturers | 128 | GB | AH |
| 19054 | In-depth research into firms' decision-making about training | MSC | Employers | 30 | GB | AH |
| 28507 | Research and Development and microelectronics | NEDO | Engineering companies | 250 | UK | AH |
| 20502 | Performance related pay for senior managers and board executives | OME | Employers | 275 | GB | AH |
| | **Local authority surveys** | | | | | |
| 76734 | Forward planning of LA personal social services | WO | Social Services Departments | 8 | W | A |
| | **Other surveys** | | | | | |
| 55016 | Accidents involving architectural glass and falls from windows | BRE | Patients | 55 | WM | AH |
| 55017 | House condition indicators | BRE | Households | 700 | SE | AH |
| 85701 | National parks study—Exmoor tourists survey | CC | Tourists | 850 | SW | AH |
| 85706 | Educational evaluation at farm open days | CCS | Visitors | 580 | S | AH |

| Scuno | Title | Sponsor | Those approached | Approximate number approached | Location | Frequency |
|---|---|---|---|---|---|---|
| | Other surveys—*continued* | | | | | |
| 60148 | Naval Ratings recruitment—animatic test | COI/MOD | Youths | 44 | GB | AH |
| 60149 | Prison Officer recruitment monitor | COI/HOME | Adults | 1000 | GB | AH |
| 60151 | 1979 Joint Services open day | COI/MOD | Visitors | 600 | E | AH |
| 60152 | Metrication omnibus—August 1979 | COI/METB | Adults | 2000 | GB | AH |
| 60153 | Ordnance Survey advertising—post campaign evaluation | COI/OS | Adults | 2000 | GB | AH |
| 60154 | 'Project: engineers and technologists for tomorrow'—Leeds exhibition | COI/DI | Students | 785 | YH | AH |
| 60155 | 'Shopping in metric 1979' leaflet awareness survey | COI/METB | Adults | 2000 | GB | AH |
| 60156 | Seat belt campaign 1979/80—pre-test | COI/DTP | Drivers | 200 | E | AH |
| 60157 | Armed Forces careers check 1979 | COI/MOD | Youths | 2300 | GB | AH |
| 21039 | Unemployment and migration into West Cornwall | DEM | Unemployed | 200 | SW | AH |
| 21040 | Effect of labour markets on older workers | DEM | Employees | 1800 | GB | AH |
| 65023 | The Elderly widowed and their supporters | DHSS | Bereaved | 85 | E | AH |
| 65062 | Differential take-up of Supplementary Pensions—feasibility study | DHSS | Elderly | 260 | S | AH |
| 65063 | Collaboration in services for the elderly mentally infirm | DHSS | Patients | 480 | E | AH |
| 65064 | Payment of child benefit by automated credit transfer | DHSS | Parents | 4000 | GB | AH |
| 65065 | Assisted lodging for the elderly | DHSS | Elderly | 180 | EW | AH |
| 65066 | Seating for the disabled | DHSS | Disabled | 2000 | YH | AH |
| 65067 | Assessment of wheelchair cushions | DHSS | Disabled | 192 | SE | AH |
| 65068 | Social problems experienced by adult lower-limb amputees | DHSS | Disabled | 300 | NW | AH |
| 65069 | DHSS local office liaison arrangements | DHSS | Advice organisations | NK | EW | AH |
| 65071 | Mortality from aortic valve disease | DHSS | Doctors | NK | EW | AH |
| 65072 | 'Health and Personal Social Services Statistics 1978'—readership survey | DHSS | Readers | NK | UK | AH |
| 59039 | 'Bad neighbour' industries | DOE | Households | 35 | SE | AH |
| 59040 | Home ownership in the inner city—stage 1 | DOE | Owner occupiers | 450 | WM | AH |
| 59041 | Survey of Granby and Hereford estate tenants | DOE | Tenants | 1000 | SE | AH |
| 59042 | Demand for new and improved dwellings in Inner Birmingham | DOE | Owner occupiers | 500 | WM | AH |
| 59044 | Priority estates project | DOE | Households | 500 | E | AH |
| 52032 | Transport problems of inner city firms | DTP | Employees, visitors and drivers | NK | E | AH |
| 52035 | Survey of Cross Channel car accompanied traffic | DTP | Passengers | 20000 | SE | AH |
| 52036 | Tertiary public transport—travel survey | DTP | Disabled | 720 | E | AH |
| 52037 | Lewes area study—social research | DTP | Adults | 100 | SE | AH |
| 90043 | Survey of tourist visitors to Liverpool | ETB | Tourists | 900 | NW | AH |
| 90044 | Measurement of daytripping—pilot study | ETB | Adults | 3000 | GB | AH |
| 90046 | Counts of walkers on Pennine Way | ETB | Visitors | 750 | N | AH |
| 90048 | Alternative 1980 main brochure front covers | ETB | Adults | 720 | GB | AH |
| 90049 | Tourist information centre staff magazine 'Network'—readership survey | ETB | Employees | 450 | E | AH |
| 75601 | Census test 1979 | GROS | Households | 17000 | S | AH |
| 91010 | Air passenger survey at Inverness airport | HIDB | Passengers | 2000 | S | AH |
| 68003 | Survey of racial minorities—technical development | HOME | Households | NK | GB | AH |
| 30203 | 'Inland Revenue Statistics 1979'—readership survey | IR | Readers | 800 | UK | AH |
| 40072 | Study of short craft courses | MAFF | Trainees and Instructors | 6000 | GB | AH |
| 18024 | Special programmes follow-up survey—July 1979 | MSC | Young Persons | 4000 | GB | AH |
| 18025 | Youth Opportunities Programme adult employees survey | MSC | Adult Employees | 5000 | GB | AH |
| 20011 | Jobseeker survey at Torquay job centre | MSC | Adults | 100 | SW | AH |
| 77203 | Survey of Sullom Voe (Shetland) local labour force | MSCS | Employees | 800 | S | AH |
| 30401 | New car buyers' experience of motor trade code of practice | OFT | Consumers | 10000 | GB | AH |
| 30402 | Travel survey in 'Woman' magazine | OFT | Readers | 7500 | UK | AH |
| 70038 | Privately rented accommodation—main stage | OPCS/DOE | Tenant | NK | EW | AH |
| 72045 | Blackmount household survey | SDD | Households | 70 | S | AH |
| 72046 | Hospital transport service survey | SDD | Households | 543 | S | AH |
| 72047 | Dalmellington—Cumnock—Ballochmyle service study | SDD | Households | 154 | S | AH |
| 72048 | Stair shared hire car service survey | SDD | Households | 30 | S | AH |
| 72049 | Validity of register of sasines as a migration data source | SDD | Owner occupiers | 260 | S | AH |
| 73005 | Survey of visitors to the National Museums and Galleries | SED | Visitors | 5000 | S | AH |
| 73006 | Music in the timetable | SED | Headteachers | NK | S | AH |
| 73007 | Education for the industrial society: education in sparsely populated areas | SED | Adults | 850 | S | AH |

| Scuno | Title | Sponsor | Those approached | Approximate number approached | Location | Frequency |
|---|---|---|---|---|---|---|
| | **Other surveys—*continued*** | | | | | |
| 72050 | Role of helping organisations in debt and diligence problems | SO | Voluntary organisations | 70 | S | AH |
| 50066 | Moulton Park on-bus survey | TRRL | Passengers | 300 | EM | AH |
| 50067 | Appraisal of traffic restraint in the Gordale Scar area | TRRL | Adults | 280 | NW | AH |
| 50068 | On-bus leaflet survey in Bingley | TRRL | Passengers | 200 | YH | AH |
| 50069 | East Coast corridor study—coach survey | TRRL | Passengers | 30000 | GB | AH |
| 50070 | East Coast corridor study—air survey | TRRL | Passengers | 10000 | GB | AH |
| 76717 | Impact of the Wales-Ireland ferries on the economy of Wales | WO | Passengers | NK | W | AH |
| 76718 | Transcambria bus service monitoring survey | WO | Passengers | 1280 | W | AH |
| 76719 | North-South Wales trip movements—roadside interviews | WO | Drivers | 6000 | W | AH |
| 76720 | North-South Wales trip movements—bus interviews | WO | Passengers | 500 | W | AH |
| 76721 | North-South Wales trip movements—rail interviews | WO | Passengers | 1500 | W | AH |

**Abbreviations used**

*General*

LEA – Local Education Authority
NK – Not known
RAF – Royal Air Force
RUTEX Rural Transport Experiment
SOEC – Statistical Office of the European Communities
TOPS – Training Opportunities Scheme
YOP – Youth Opportunities Programme

*Frequency*

A – Annual
AH – *Ad hoc* (or single time)
HY – Half-yearly
Q – Quarterly
Y2 – Every two years

*Sponsors*

BRE – Building Research Establishment
CC – Countryside Commission
CCS – Countryside Commission for Scotland
COI – Central Office of Information
DAFS – Department of Agriculture and Fisheries for Scotland
DEM – Department of Employment
DEN – Department of Energy
DHSS – Department of Health and Social Security
DOE – Department of the Environment
DI – Department of Industry
DTP – Department of Transport
ECGD – Export Credits Guarantee Department
ETB – English Tourist Board
GROS – General Register Office for Scotland
HIDB – Highlands and Islands Development Board
HOME – Home Office
IR – Inland Revenue
MAFF – Ministry of Agriculture, Fisheries and Food
METB – Metrication Board
MSC – Manpower Services Commission
MSCS – Manpower Services Commission for Scotland
NEDO – National Economic Development Office
OFT – Office of Fair Trading
OME – Office of Manpower Economics
OPCS – Office of Population Censuses and Surveys
SDD – Scottish Development Department
SED – Scottish Education Department
SO – Scottish Office
TRRL – Transport and Road Research Laboratory
WO – Welsh Office

*Locations*

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

# Notes on current developments

## REGIONAL STATISTICS

### Territorial analysis of public expenditure

The Treasury is currently updating its series of identifiable public expenditure in the four countries of the United Kingdom, for the years 1974–75 to 1978–79. Identifiable expenditure is expenditure which can be identified from official records as having been incurred in a particular country. The series covers expenditure by each spending authority on the various functional programmes of the public expenditure survey. Summaries of the results are to be published in *Regional Statistics* and *Social Trends*, and more detailed results for Scotland and Wales in the *Scottish Abstract* and *Welsh Economic Trends* respectively. More detailed figures for all four countries are however available particularly for the two most recent years. Any enquiries should be addressed to:

Mrs C H Jutsum,
H M Treasury,
Parliament Street,
London,
SW1P 3AG.
Telephone: 01–233 4605

### Social services statistics for Wales

*Health and Personal Social Services Statistics for Wales* number 6, 1979 is due to be published in December. For the first time a short commentary precedes each section of the publication, highlighting the more interesting figures and trends in the statistical tables as well as giving some additional information on data sources. More detailed notes on the tables are given in an Appendix.

The sections have the same titles as the last edition, but several new tables have been added, mainly in the section on manpower. For most of the tables, the latest statistics given are for 1978, and many give a trend from 1974, or in some cases, even earlier. While the majority of tables refer to Wales as a whole, several tables give information for each area health authority. Subjects covered in the publication include: population and vital statistics, finance, manpower, NHS hospital administrative statistics, family practitioner committee services, community health services, personal social services, maternity and child health, mental illness and mental handicap, preventive medicine, morbidity and abortions.

**Reference**
*Health and Personal Social Services Statistics for Wales*, No. 6, 1979 (HMSO, forthcoming).

### *Scottish Housing Statistics*

The fifth issue of *Scottish Housing Statistics*, which relates to Quarter 1 1979, and is published by HMSO, includes an article which describes briefly the progress in this century in the housing field in Scotland. It reviews the current state of housing and notes some of the implications of the current excess of dwellings over households and of present population and household trends. The sixth issue of the publication, relating to Quarter 2 1979, includes an article on owner occupied housing in Scotland. The article shows changes in the pattern of tenure, including comparisons with other countries, characteristics of owner occupied housing stock and the financial aspects of house purchase. As well as regular tables, included in this issue are tables on the insulation of both public and private sector housing stock, numbers, rates and rateable values of domestic subjects and homelessness statistics.

**Reference**
*Scottish Housing Statistics*, Quarter 1 1979 (HMSO) (Price £2.00 net).

## POPULATION AND VITAL STATISTICS

### Population projections

Published in September was an OPCS monitor which gave some key results of the mid-1978 based Population projections. The underlying assumptions were discussed and summary figures given for England and Wales, Great Britain and the United Kingdom. Fuller details will be available in a booklet to be published by HMSO: *Population Projections 1978–2018, Series PP2 No 10*

Further information is available from:
Government Actuary's Department,
22 Kingsway,
London WC2B 6LE.
Telephone: 01–242–6828

**Reference**
*OPCS Monitor, PP2 79/2*, Mid–1978 based population projections.
Copies may be obtained (free of charge) by writing to:
Information Branch (Dept M),
Office of Population Censuses and Surveys,
St Catherine's House,
10 Kingsway,
London WC2B 6JP

**Sub-national population projections**

The Office of Population Censuses and Surveys has now produced a mid-1977 based series of sub-national population projections which supersedes the mid-1975 based set published in *Population projections: area 1975–1991* Series PP3 no 2. These new projections take the mid-1977 home population estimates as their starting point and incorporate the views of future fertility, mortality and migration available at the time of preparation in autumn 1978.

Projection results are available for each region, county and metropolitan district in England, and, for the first time, individual London boroughs. They have been prepared for each year up to and including 1991, and for each single year of age and sex to allow the user greater flexibility. However, this should not be taken to imply that the future is predictable to such a fine degree. These detailed results have been produced merely to provide 'building blocks' which can be aggregated into particular age-groups according to each user's needs, and for any future year of interest. For example, the education planner is interested in projections for children of primary and secondary school age rather than the standard quinary age-groups. Similarly, some planners require projections at standard intervals from a moving base (for example, 10 years ahead) so it is useful to provide projections for any future year and not just the traditional years of 1981 and 1991.

For publication purposes, however, the projections will be presented in broad detail only. Abridged results for the regions and counties of England have been released in *OPCS Monitor* PP3 79/1 and those for metropolitan districts and London boroughs in *OPCS Monitor* PP3 79/2. Both monitors are available direct from:

Information Branch (Dept SN),
OPCS,
St Catherine's House,
10 Kingsway,
London WC2B 6JP.

They contain projections for the years 1981 and 1991 together with the corresponding percentage change from 1977 but no age/sex breakdown is given. The regional and county results are also discussed in an article entitled 'Population projections: English regions and counties' by Richard Campbell published in *Population Trends 16*.

More detailed information will be issued in the booklet *Population projections: area 1977-1991* Series PP3 no 3 to be published by HMSO in late 1979 or early 1980. The contents of this booklet will be broadly similar to the mid-1975 based volume; that is, a short commentary on the projections embracing the limitations of projections in general, the methodology employed in the mid-1977 based projections and a discussion of the results and how they compare with previous projections together with two appendix tables containing the projection results.

For regions, counties and metropolitan districts, the projections will be presented by five year age-groups up to 85 and over together with an all ages total and a few non-standard age-groups (5–10, 11–15, 16–19, 16–64 for males/59 for females, 65 and over for males/60 and over for females, 18 and over, and 75 and over) for males, females and persons at 1981, 1986 and 1991. Projections for the individual London boroughs were particularly difficult to make because the impact of migration was very heavy in these areas. It therefore follows that there is a far greater degree of uncertainty attached to the borough projections than, say, to the county projections. Hence projection results for London boroughs will be published in less detail than that for other areas and will be given in broad age/sex bands only. The booklet will also contain tables showing the assumed numbers of migrants and the projected numbers of births and deaths during the periods 1977–81, 1981–6 and 1986–91 for each projection area.

Unpublished data, either further projection results or more detailed information about the fertility, mortality and migration assumptions used can be supplied for internal use upon request subject to a charge to cover costs. Requests for data and any general enquiries about the above projections should be directed to:

Miss J Reeder,
Regional Demography Unit,
OPCS,
St Catherine's House,
10 Kingsway,
London WC2B 6JP.
Telephone: 01-242 0262 extension 2180

References
*Population projections: Area 1975–1991* Series PP3 no 2 (HMSO, 1978) (Price £2·00 net)
*OPCS Monitor* PP3 79/1 available direct from OPCS (13 March 1979)
*OPCS Monitor* PP3 79/2 available direct from OPCS (12 June 1979)
*Population Trends 16* (HMSO, 1979) (Price £2·50 net)
*Population projections: area 1977–1991* Series PP3 no 3 (HMSO, forthcoming)

**GRO(Scotland) — Population and vital statistics**

The Registrar General's first quarterly return for 1979 was published in October, price £2.00, containing local population estimates by age and sex for 1978, the 1978 based population projections for Scotland and an abridged 1978 life table price £1.00 in addition to the usual quarterly tables.

**Family formation**

The report of a study of women aged 16–49 conducted for Population Statistics Division 1 of OPCS was published in September 1979. The survey formed part of the research supporting the 1977 Demographic Review and was also Britain's contribution to the United Nations World Fertility Survey.

The report covers age at marriage, sexual relations and cohabitation before first marriage, the timing of first live births, and social class differences in these marriage and family building patterns. It analyses some of the complex relationships between social class, education, women's occupation, expectations, planning and family formation patterns. Information about divorce and re-marriage is extended with survey data on separation and cohabitation in second unions and the relationship between marriage breakdowns, age and pregnancy status at marriage and social class is examined. The use of contraception — by single women, before marriage and during different birth intervals and the impact of sterilisation is discussed. There are chapters covering estimated age at first intercourse, pregnancy and trends in the outcome and intention behind pregnancies. The report ends with a discussion of attitudes, ideals and intentions relating to marriage and child-bearing.

**Reference**

*Family formation*, 1976 (HMSO) (Price £7·50 net)

*Population Trends*

The latest edition of *Population Trends* the journal of the Office of Population Censuses and Surveys was published in September. This latest issue contains the following articles:

*Leisure patterns 1973 and 1977*

Improving leisure facilities is both a private and a public concern and planning the allocation of costly resources — land, buildings, equipment and manpower — can benefit from knowledge of current leisure patterns. This article looks at evidence from the 1977 General Household Survey on the popularity of a wide range of sports and pastimes in relation to the age, income and social background of the participants. It also shows the lower level of participation in sports and games among women in comparison with men in all age-groups; overall 35 per cent of men had engaged in outdoor sports and activities (including walking) compared with 21 per cent of women.

*Schizophrenia and season of birth*

This article describes how figures for month and year of birth based on a one per cent sample of the population of England and Wales in the 1971 Census can be used to study the season of birth of psychiatric patients first admitted to psychiatric hospitals and units in England and Wales between 1970 and 1976. The study confirms previous findings that schizophrenic patients tend to have been born during the first quarter of the year.

*Fatal adverse effects of medicines and surgery*

In most therapeutic procedures there is some risk of adverse, unwanted effect — sometimes as a result of accident, error or negligence, and sometimes by unusual reaction or side effect. In this article the authors examine the decline in those fatal adverse effects explicitly recorded by doctors or coroners between 1968 and 1972 in England and Wales.

*Population density: changes and patterns*

As inhabitants of Great Britain we live at an overall density of two persons per hectare. But such an average conceals immense variations within the country and most of the population could be said to live at much higher densities. This article discusses statistics which quantify these features. Of the three countries Wales showed fewest changes between 1961 and 1971 upward or downward. In Wales and Scotland, areas with the lowest densities in 1961 lost population whereas in England they gained. Changes over time and differences between the various parts of Britain are also analysed.

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

*Population Trends* 18 is due for publication in December 1979.

**References;**

*Population Trends 17* (HMSO) September 1979 (Price £2·50 net)
*Population Trends 18* (HMSO) due in December 1979 (Price £2·50 net)

## SOCIAL STATISTICS

*Social Trends* (1980 Edition)

Next month sees the publication of the tenth anniversary edition of *Social Trends*. Like its predecessors *Social Trends 10* aims to provide a background to public discussion of social changes and policies. It includes well over 300 tables and charts in 13 chapters covering such topics as population changes, households and families, education, employment and unemployment, public spending, earnings and taxes, prices, household spending, health, housing, environment and transport, crime, elections, and leisure. Reflecting the development of *Social Trends* over the past decade, each chapter of the 1980 Edition also includes extensive and helpful text explaining the significance of the figures shown.

The 1980 edition also includes a Social Commentary on changes in material living standards since the early 1950s. It is written by Sue Toland in the Central Statistical Office. The Commentary looks mainly at changes in the way people earn and spend their money, though it also covers the role of publicly provided services, the ways in which people use their time, and the changing quality of the environment.

In addition to the Social Commentary there are two further articles. The first is by Denis Allnutt and Ann Gelardi of the Department of the Environment on Inner Cities in England. This briefly reviews the development and present state of inner cities, although its main emphasis is on statistical aspects of the monitoring of these areas and the assessment of the effects of policy actions on them. The other article is by David Wishart of the Scottish Education Department. It looks at Scotland's Schools and describes some of their distinctive features.

Other features of *Social Trends 10* include the regular Calendar of Events. This covers the period January 1977 to December 1978, and indicates events which have had a direct social influence on the people of the United Kingdom, or are important as indicators of social attitudes or change.

Further details can be obtained from:
Martin Daly,
Central Statistical Office,
Great George Street,
London SW1P 3AQ.
Telephone: 01–233 8201.

**Reference**
*Social Trends* 10, 1980 (HMSO, forthcoming)

### Criminal statistics

*Criminal Statistics, England and Wales*, 1978

*Criminal Statistics, England and Wales*, 1978 has recently been published. The main addition to this year's volume is a new chapter estimating the number of those found guilty in 1977 who had previous convictions and the differences between the sentences given to them and to first offenders. The basis of the estimates is a two per cent sample of those convicted in 1977, for which criminal records of convictions back to 1963 were matched.

The contents of some of the other chapters have also been extended. Chapter 2 (Indictable Offences Recorded by the Police) includes details of the reported value of property recovered, and new section relating burglaries and thefts in dwellings to the number of dwellings by area. Chapter 4 (Court Proceedings) highlights the distribution of business between magistrates' courts and the Crown Court. Chapter 5 contains historical data on the number of persons found guilty or cautioned for individual indictable offences as well as for offence groups, and Chapter 6 contains historical data for offence groups on the sentences given for indictable offences. Chapter 9 (Homicide) includes details of sentences given to those convicted of homicide by the courts and of their previous convictions.

*Criminal Statistics, England and Wales*, 1978 (HMSO 1979 forthcoming)

## EDUCATION

### Destination of Teachers completing initial training courses in non-university institutions in 1978

Department of Education and Science (*DES*) *Statistical Bulletin* 7/79 reports the results of a survey of all non-university institutions of teacher training in England and Wales asking for information about the destination of those who successfully completed courses of initial training in 1978. Separate returns were obtained in respect of: courses leading to a post-graduate Certificate of Education (PGCE), a Bachelor of Education (BEd) honours degree, a BEd ordinary degree and a Certificate of Education (Cert Ed); one-year specialist courses; courses at art teacher training centres (ATTCs); and further education teacher training centres (FETTCs). Institutions were asked to report how many successful leavers had obtained teaching posts in the United Kingdom; had taken up non-teaching employment; were unemployed and still seeking a teaching post; had proceeded to a full-time course of further study or research; had taken up a teaching or other post abroad (including VSO); had deferred entry to teaching for personal reasons; and the number in respect of whom no destination information was available. The survey achieved a 97 per cent response from institutions. A similar survey was carried out in 1977 the results of which were summarised in the DES publication *Trends in Education* 1978 – Winter Issue pages 22–29.

The broad picture which emerged from the 1978 survey was of greater success than in 1977 in obtaining teaching posts (67 per cent of those for whom information was available compared with 57 per cent a year earlier) and a smaller proportion unemployed (15 per cent compared with 23 per cent). These improvements affected leavers from all types of course where comparable information was available for both years. There were however in 1978 still differences according to type of course pursued: 79 per cent of those from FETTC courses had obtained teaching posts in the United Kingdom compared with 61 per cent from Cert Ed courses; six per cent of those from one-year specialist courses were unemployed compared with 19 per cent from Cert Ed courses.

Information was also collected about the training specialisms of those reported as unemployed and still seeking teaching posts. Omitting leavers from ATTC and FETTC courses 49 per cent of the unemployed men and 17 per cent of the women were trained for secondary/further education (FE) teaching.

The individual subject specialisms of those trained in the secondary/FE sector who were unemployed show that overall the largest block were physical education specialists (144) followed by English plus drama or drama or English (100), history (65), home economics (53) and sciences as a group (51) of which biological sciences had 33. Other subjects with more than 30 each were geography (39), music (39) and social studies (37). There were differences in the bias of subject specialisms of the unemployed as between the different types of training course. Notably, physical education, art and home economics were relatively unimportant among the PGCEs whereas 13 of the 27 unemployed mathematics specialists and 11 of the 23 unemployed French specialists had PGCEs.

Similar surveys in respect of university departments of education (UDEs) were carried out in 1977 and 1978 by the Universities Council for the Education of Teachers (UCET).

**Reference**
*DES Statistical Bulletins* 7/79 can be obtained free of charge from:
Statistics Branch (Room 1/33),
Department of Education and Science,
Elizabeth House,
York Road,
London SE1 7PH.

*SED Statistical Bulletins*

In 1977 the Scottish Education Department instituted a new series of *Statistical Bulletins*, the aim of which is to publish information on Scottish education as soon as it becomes available, so providing more up-to-date reports than are possible in the formal volume *Scottish Educational Statistics*. Bulletins on the following subjects have been issued:

- Pupil projections
- Nursery education
- Pupils and teachers in education authority primary and secondary schools
- Pupils and teachers in schools
- Provision of remedial education by withdrawal or in separate classes
- Deficit and excess of teachers by subject
- Special schools
- Pupils staying on at school and qualified leavers
- School leavers
- Education for the 16–18 age group
- Students on courses of vocational further education
- Students on courses of non-vocational further education
- University students
- First destination of university graduates
- Student awards and bursaries

**Reference**
*SED Statistical Bulletins* are issued free of charge and can be received post free on application to:
Scottish Education Department,
Room 206,
43 Jeffrey Street,
Edinburgh,
EH1 1DN.

## HEALTH AND SOCIAL SERVICES

**Mental illness in-patient statistics**

In October 1979 the Department of Health and Social Security issued Number 22 in their Statistical and Research Report Series, 'In-patient statistics from the Mental Health Enquiry for England 1976'. The report contains in-patient statistics from mental illness and mental handicap hospitals and units, and from the Special Hospitals. There are detailed tables on admissions, discharges, deaths and resident patients by various categories such as age, diagnosis, type of hospital and length of stay. Some time series from 1970 are also included and a separate section of the report is concerned with legal status of in-patients.

**Reference**
'In-patient statistics from the Mental Health Enquiry for England 1976.' *DHSS Statistical and Research Series* No 22 (HMSO) (Price £5·00 net).

## MANPOWER AND EARNINGS

**Seasonal adjustment of the unemployment series**

An article in the August 1979 issue of the Department of *Employment Gazette* describes the methods used to seasonally adjust the unemployment series. In particular, it describes the new method introduced in May 1979 for the Great Britain series to cope with the rapidly changing seasonality in the summer months. Much of the change in seasonality in the last few years can be attributed to school and student leavers aged 18 and over who come on to the unemployment register in substantial numbers at the end of the academic year. The article gives a broad outline of the methods first, followed by greater detail of their main aspects.

**Reference**
*Employment Gazette*, August 1979 (HMSO) (Price £1·35 net).

**Ministers and Members of Parliament — Remuneration**

The latest Report (No 12) of the Review Body on Top Salaries, published in June 1979, includes details of a survey of 'the circumstances of Members of Parliament and of their views on their remuneration' carried out by the Office of Manpower Economics (the secretariat to the Review Body). A questionnaire on similar lines to that used in the previous survey, carried out in March 1975 and summarised in the Review Body's Report No 8 (Cmnd 6574, July 1965), was sent to all Members of Parliament to obtain factual information on hours of work and on expenditure incurred in connection with Parliamentary duties, and to obtain opinions on a range of matters related to their remuneration, allowances and facilities. The overall response rate was 53 per cent (compared with 70 per cent in 1975) but there were variations in the response rate to different questions and these are shown in the tables. The results, in which expenditure on subsistence, secretarial and research support and other items, and hours spent on Parliamentary work and other paid occupations are analysed in various ways are included in Appendix C.

In order to secure information about the salaries, allowances and facilities received by Members of Parliaments overseas, in consultation with the Office of Manpower Economics the Clerk of the House of Commons arranged for a detailed questionnaire to be sent to a number of such Parliaments. The information received has been summarised and included in the Report as Appendix D.

**Reference**

*Review Body on Top Salaries, Report No 12:* 'Ministers of the Crown and Members of Parliament and the Peers' expenses allowance': Part I (Cmnd 7598) (HMSO) (June 1979) (Price £2·50 net).

**Local Authority and university manual workers; NHS ancillary staffs; and ambulancemen — pay**

The first report of the Standing Commission on Pay Comparability under the chairmanship of Professor H. A. Clegg was published in August 1979. The groups covered were local authority and university manual workers, NHS ancillary staffs and ambulancemen. For the comparability studies a number of benchmark jobs broadly representative of the structure in each reference group were selected and a job-for-job comparison made, or factor analysis undertaken where job-for-job comparison was not practicable, the work being carried out by the Pay Research Unit or consultants as appropriate. Results of the comparability studies are included in Chapter 7 of the Report No 1. Pensions adjustment for local authority and university manual workers and NHS ancillaries was calculated by the Government Actuary's Department from information provided by the Office of Manpower Economics (the secretariat to the Commission) and the Pay Research Unit. The formula used and the results are included in Appendix 7 of the Report. Up-to-date information about the earnings of the groups covered was obtained, for local authority manual workers, by adapting as necessary the results of the annual survey carried out by the Local Authorities Conditions of Service Advisory Board and for NHS ancillaries and ambulancemen, by using the results of existing surveys by the Department of Health and Social Security. For university manual workers a survey was conducted by the Office of Manpower Economics in conjunction with the Universities Committee for Non-teaching Staffs. The results of the surveys are reported in the Statistical Appendix to the Report, published in September 1979. Among the analyses published are tables showing, for each pay group, average gross pay and its components and the distribution of total weekly pay. The Statistical Appendix also contains further details of the analysis of the results of the comparability studies.

**Reference**

*Standing Commission on Pay Comparability, Report No 1:* 'Local Authority and University Manual Workers; NHS Ancillary Staffs; and Ambulancemen' (Cmnd 7641 August 1979) (Price £2·25 net).

*Standing Commission on Pay Comparability, Report No 1 (Supplement) :* 'Local Authority and University Manual Workers; NHS Ancillary Staffs; and Ambulancemen' (Statistical Appendix) (Cmnd 7641 1 September 1979) (Price £3·25 net).

**University Technicians — Pay**

Report No 2 of the Standing Commission on Pay Comparability under the chairmanship of Professor H. A. Clegg, which covered technicians employed in Universities, was published in August 1979. It includes the results of two surveys. A survey to update the 1975 comparative information on university and other technicians' pay which had been collected by the Social Science Research Council's Industrial Relations Research Unit at Warwick University was commissioned but was on an enlarged basis. A stratified sample of outside organisations employing a suitably large number of technicians, and with a broad geographical and industrial spread was chosen but information was requested for four groups of technicians only. Firms were provided with detailed job descriptions of the work of university technicians and invited to match them with technicians' jobs in their own organisations. Of the 69 organisations approached 32 provided usable information on levels of pay. The results are in Appendix 2 of the Report.

A manpower survey of university technicians was conducted by the Office of Manpower Economics (the secretariat to the Commission) in conjunction with the Universities Committee for Non-teaching Staffs. The results of the study, which provide recent information on employment levels, turnover and recruitment difficulties among university technicians, are in Appendix 1 of the Report.

*Standing Commission on Pay Comparability, Report No 2:* 'University Technicians' (Cmnd 7640. August 1979) (Price £1·25 net).

*New Earnings Survey* 1979

A brief description of the information to be obtained in the New Earnings Survey 1979 was given in *Statistical News* 44.43. As in previous years, the detailed results will be published in a six-part report, *New Earnings Survey* 1979 Parts A to F, with the main general results and key results for particular collective agreements, industries, occupations, age-groups and regions also being published in the October 1979 issue of *Employment Gazette*.

The main contents of the six parts and their probable publication dates will be:

Part A General results; streamlined analysis of key results by collective agreement, industry, occupation, age and region; descriptions of the survey methods; classifications, terminology etc. (mid-November 1979).

Part B Earnings and hours of groups covered by particular major collective wage agreements (mid-October 1979).

Part C Earnings and hours in particular industries (mid-December 1979).

Part D Earnings and hours in particular occupations (mid-January 1980).

Part E Earnings and hours in regions, counties and age-groups (mid-February 1980).

Part F Hours; earnings by length of service; earnings and hours of part-time women workers.

Data from the additional questions included in the New Earnings Survey to meet obilgations to the EEC will be used in comparative analyses of the structure and distribution of earnings in industry and commerce in the Community countries. These analyses will be prepared and published by the Statistical Office of the European Communities. In addition some of the data for Great Britain will be used in analyses to be published in the survey report or in special articles in *Employment Gazette*.

References

*New Earnings Survey 1979*, a publication in six parts (HMSO) (forthcoming)

*Employment Gazette*, October 1979 (HMSO) (price £1·35 net)

*Family Expenditure Survey* 1978

The Family Expenditure Survey report for 1978 was published in November 1979. The report contains 52 tables and 5 charts detailing average weekly expenditure on 94 commodities and services by households, classified by income level and household composition, together with complementary information on their income and characteristics.

Innovations in the 1978 edition are a Commentary which interprets the comprehensive range of statistics produced by the Survey, tables giving information relating specifically to pensioner households (whose income is derived primarily from retirement pensions and other State benefits), and tables giving information for households with a manual worker as head of the household separately for skilled, semi-skilled and unskilled workers.

Some preliminary annual results for 1978 (with comparisons for 1976 and 1977) were published in the August 1979 issue of the Department of *Employment Gazette*. Quarterly results for 1978 have been published in the *Gazette* as they became available. An article in the November 1979 issue of the *Gazette* gives more detailed information on household spending in 1978 and presents a seasonally adjusted series of quarterly household expenditure from 1970–78. This series shows that seasonal effects on the second and third quarters' expenditure are very small, but that actual household expenditure in the first quarter of each year is some five per cent below the trend value with the fourth quarter's expenditure being five per cent higher than the trend.

Average expenditure on goods and services among the United Kingdom households which took part in the 1978 survey was £80.26 per week. Expenditure per person increased by 13½ per cent compared with 1977. In real terms, the increase was 5 per cent (after allowing for the 8.3 per cent rise between 1977 and 1978 in the general index of retail prices) in contrast with a fall of nearly 1 per cent between 1975 and 1977.

Average expenditure in itself is of limited interest. Spending varies markedly according to the size and composition of households. As the number of adults in a household increases, the numbers of workers in a household, their income and expenditure all tend to rise. At the lower end of the expenditure range are the retired households, whose average size in 1978 was 1.34 persons and average spending nearly £28 per week. One adult households with one or more children (average size 2.92 persons) spent £63 per week or over £21 per person; a couple with two children spent a weekly average of £93 or nearly £24 per person. Larger households comprising at least four adults and one child (average size 5.96 persons with 3.75 workers) spent £177 per week.

The detailed tabulations in the FES Annual Report takes account of the differences between households, the number of persons and number of workers in a household, their income, their geographical location and other factors which determine how households spend their money. By so doing, a clear picture of the spending patterns of households in the United Kingdom during 1978 is obtained.

References
*Family Expenditure Report for 1978* (HMSO) (Price £6·50 net)
*Employment Gazette*, August 1979 and November 1979 (HMSO) (Price £1·35)

**Company organisation and worker participation survey**
OPCS have published a report on the Company Organisation and Worker Participation Survey. This survey was commissioned by the Department of Employment to describe the current practice of industrial democracy in British manufacturing industry and interviews were conducted in 1976 with some 296 companies. Within each company answers were sought from up to 11 uniquely defined roles, from managing directors and personnel directors to establishment managers and most senior employee representatives. Directors were asked about board decision-making processes and the functions of formal board meetings, board sub-committees and management committees. Communication between the board and its employees was examined and there were questions on whether the company had a formal policy for disclosure of information.

To describe the framework of industrial democracy within the sampled companies respondents were asked to assess the extent of employee participation at company and establishment level in relation to a range of subject areas from investment policy to staff welfare matters. Participation machinery was covered by reference to joint consultative committees and collective bargaining, since these were known to be the two most common media in British industry. A substantial part of the survey interview was devoted to respondent views of the prospects for worker directors. Detailed questions were asked about possible ways in which worker directors might be appointed and could contribute to board decision-making, and replies have been considered in relation to the information about boardroom practice.

The report analyses the results in terms of differences between companies, but some attempt was also made to look for patterns of agreement or disagreement between role incumbents within the sampled companies.

Reference
*Company organisation and worker participation* (HMSO) ISBN 0 11 700835 4 (Price £8·25 net)

## AGRICULTURE AND FOOD

**Experiments on living animals**

*Statistics of experiments on living animals Great Britain* 1978 which was published on 1 August continued the new series of publications begun last year. A new and more detailed form of return was introduced for 1977, and, in addition to details of the principal species of animal used, the publication includes information on the main purpose of the experiments, the techniques used and the special legislative or other reason for carrying out the experiments.

As in 1977, over half of the experiments reported in 1978 (56 per cent) were performed to select, develop or study the use, hazards or safety of medical, dental or veterinary products or appliances; about one-fifth (22 per cent) were performed to study normal or abnormal body structure or function; and likewise about one-fifth (21 per cent) of the experiments had as their legislative reason the Medicines Act 1968, the Health and Safety At Work Act 1974, the Agricultural Poisonous Substances Act 1952, the Food and Drugs Act 1955, or equivalent overseas legislation.

Reference
*Statistics of experiments on living animals Great Britain 1978* (Cmnd. 7628) (HMSO) (Price £2·00 net)

**Agricultural Censuses and Surveys**

*The June 1978 Agricultural Census*

The Final Results of this Census in England and Wales were published in a Statistical Information Notice No 217 on 8 August 1979.

The Final Results of the Census for England only were published in a Statistical Information Notice No 219 on 9 August 1979.

The Final Results of the Census for the United Kingdom were published in a Statistical Information Notice No. 252 on 11 September 1979.

The County/Regional Results (PSM) of the Census for England and Wales were published in August 1979.

*The June 1979 Agricultural Census*

The Provisional Results for this Census for England only were published in Press Notice No. 294 on 28 August 1979.

The Provisional Results of the Census for Wales were published on 28 August 1979 by the Welsh Office and are available from:

Welsh Press Office,
31 Cathedral Road,
Cardiff CF1 9UJ.

The Provisional Results for the United Kingdom will be available shortly.

*March and September Enquiries*

Following the review of the burden of form-filling on farmers, the surveys of agricultural labour and livestock formerly carried out at March and at September have been discontinued with effect from September 1979. Data on livestock and labour will continue to be collected in the sample enquiry at December, as well as in the main June Agricultural Census.

The statistical material mentioned above may be obtained from:

Ministry of Agriculture,
Fisheries and Food,
Room A615,
Government Buildings,
Epsom Road,
Guildford, GU1 2LD.

**Self sufficiency and the cost of food processing**

Table 9.34 of the *Annual Abstract of Statistics* 1980 will contain estimates of self sufficiency in food, and the cost of processing and distributing food, for the years 1970–1978. Some substantial changes have been made to the concept of self sufficiency and these are explained in an article by Mordue and Parrett in *Economic Trends* (October issue). Other changes such as the move from crop to calendar years and the rebasing of constant price estimates on 1975 are also incorporated.

The estimates of the cost of food processing and distribution are also now on a calendar year basis. There are other minor changes to the previous series in that it now relates to processing and distributing food for UK consumption (that is, it excludes exports); taxes are now excluded from the cost of processing and distribution; and the new estimates include a constant price series.

**References**

*Economic Trends*, No. 312, October 1979 (HMSO) (Price £2·10 net)
*Annual Abstract of Statistics*, 1980 (HMSO, forthcoming)

**June 1979 Scottish Agriculture census**

The provisional results of the Scottish Agricultural Census held in June 1979 were published as a Scottish Office Press Notice on 7 August 1979 (Press Notice 640-79).

## INDUSTRIAL STATISTICS

**Stock of consumer durables in the UK end-1966 to end-1977**

An article in the March 1978 issue of *Economic Trends* (subsequently reprinted in *Studies in Official Statistics* No. 35) by J. R. Calder entitled 'The stock of consumer durables in the United Kingdom' provided a selection of figures over the run of years end-1966 to end-1976 for the total and major components of consumer durables. Six variants were considered, two methods of calculating depreciation (straight-line and reducing balance) for each of three life-length assumptions (short, medium and long). Estimates were provided at current (end-year) prices and at constant (1970) prices.

The results for the reducing balance, medium life-length variant were used in the compilation of the balance sheets for the personal sector which formed part of the CSO's evidence to the Royal Commission on the Distribution of Income and Wealth.

The exercise was extended at the beginning of 1979 by J. Dryden to include estimates at end-1977, and to update the base-year of the constant price figures from 1970 to 1975.

A further extension of the exercise, to end-1978, has now been completed. A short paper summarising the results is available, covering roughly the same ground as the *Economic Trends* article, and it may be possible to carry out some further analyses. Off-prints of the original *Economic Trends* article are also available.

Enquiries to:

Mr. J. Dryden,
Central Statistical Office,
Great George Street,
London,
SW1P 3AQ.
Telephone: 01–233 7431.

**References**

*Economic Trends* No. 293 (March 1978) (HMSO) (Price £1·95 net)
*Studies in Official Statistics* No. 35. 'Personal sector balance sheets and current developments in Inland Revenue estimates of personal wealth' (1978) (HMSO) (Price £2·25 net)
*Estimates of the net stock of consumer durables in the United Kingdom to end-1977*. John Dryden, CSO, March 1979. (available free of charge)

**Boards of Directors in British industry**

In 1976, as part of its programme of research into matters related to employee participation and industrial democracy, the Department of Employment commissioned a survey of Company Organisation and Worker Participation from OPCS. Interviews were conducted with Directors, Managers and employee representatives in 296 companies in manufacturing industry. A general report on the whole survey has been published by OPCS and is noted elsewhere in this issue. Part of the survey was designed to explore the present-day composition, functions and methods of operation of Boards of Directors as Directors and others in companies see them.

A detailed analysis of the survey material on this area has now been published as a *Department of Employment Research Paper*. It begins by identifying a series of themes in recent public debate and the existing British and North American Research literature, including the role of non-executive directors, notions of social responsibility in business, the relationship between size and organisational complexity of companies and the size and composition of their boards, the role of boards in corporate and policy decision-making, and the existence of alternative power centres in companies. The central part of the Paper discusses the survey data in the light of these themes. The over-riding impression left by the evidence is one of over-riding complexity; but nevertheless some consistent patterns still emerge. Thus for example measures of the size and composition of boards were found to be related to the degree of functional specialisation within it. In smaller companies boards may take a more active part in policy and decision-making than elsewhere. More generally the analysis suggests strongly that simple notions of Directors as an all powerful elite in companies, or — as an alternative view has it — of boards as performing little more than rubber stamping functions, cannot be sustained.

Copies are available from:
Social Science Branch (RPB 1),
Research and Planning Division,
Department of Employment,
Steel House,
Tothill Street,
London SW1.
Telephone: 01–2143310.

Reference
'Boards of Directors in British Industry' by Christopher Brookes. *Department of Employment Research Papers*, 1979.

**Business Monitors — Annual Census of Production 1976**

Readers of *Statistical News* are made aware of the results of the 1976 Census of Production as the Business Monitors become available. The following table lists the monitors published since that which appeared in the last number of *Statistical News*.

| *Business Monitor Number* | *Description* | *Standard Industrial Classification Minimum List Heading* |
|---|---|---|
| PA Series | | |
| 104 | Petroleum and natural gas | 104 |
| 212 | Bread and flour confectionery | 212 |
| 213 | Biscuits | 213 |
| 215 | Milk and milk products | 215 |
| 216 | Sugar | 216 |
| 218 | Fruit and vegetable products | 218 |
| 219 | Animal and poultry foods | 219 |
| 221 | Vegetable and animal oils and fats | 221 |
| 229.2 | Starch and miscellaneous foods | 229/2 |
| 231 | Brewing and malting | 231 |
| 232 | Soft drinks | 232 |
| 240 | Tobacco | 240 |
| 262 | Mineral oil refining | 262 |
| 271.1 | Inorganic chemicals | 271/1 |
| 271.2 | Organic chemicals | 271/2 |
| 271.3 | Miscellaneous chemicals | 271/3 |
| 273 | Toilet preparations | 273 |
| 276 | Synthetic resins and plastics materials and synthetic rubber | 276 |
| 277 | Dyestuffs and pigments | 277 |
| 278 | Fertilizers | 278 |
| 279.1 | Polishes | 279/1 |
| 279.3 | Explosives and fireworks | 279/3 |
| 279 5 | Printing ink | 279/5 |
| 279.6 | Surgical bandages, etc | 279/6 |
| 279.7 | Photographic chemical materials | 279/7 |
| 312 | Steel tubes | 312 |
| 321 | Aluminium and aluminium alloys | 321 |
| 322 | Copper, brass and other copper alloys | 322 |
| 323 | Miscellaneous base metals | 323 |
| 332 | Metal-working machine tools | 332 |
| 333.1 | Pumps | 333/1 |
| 333.2 | Valves | 333/2 |
| 333.3 | Compressors and fluid power equipment | 333/3 and 4 |
| 337 | Mechanical handling equipment | 337 |
| 339.2 | Printing, bookbinding and paper goods machinery | 339/2 |
| 339.7 | Food and drink processing machinery and packaging and bottling machinery | 339/7 and 8 |
| 342 | Ordnance and small arms | 342 |
| 353 | Surgical instruments and appliances | 353 |
| 361 | Electrical machinery | 361 |
| 363 | Telegraph and telephone apparatus and equipment | 363 |
| 366 | Electronic computers | 366 |
| 369.4 | Electric lamps, electric light fittings, wiring accessories, etc | 369/4 and 5 |
| 381.2 | Trailers, caravans and freight containers | 381/2 |
| 383 | Aerospace equipment manufacturing and repairing | 383 |
| 390 | Engineers' small tools and gauges | 390 |
| 393 | Bolts, nuts, screws, rivets, etc | 393 |
| 396 | Jewellery and precious metals | 396 |
| 399.1 | Metal furniture | 399/1 |
| 399.5 | Drop forgings, etc | 399/5 |
| 399.6 | Metal hollow-ware | 399/6 and 7 |
| 415 | Jute | 415 |
| 417.1 | Hosiery and other knitted goods | 417/1 |
| 422.2 | Canvas goods and sacks and other made-up textiles | 422/2 |
| 423 | Textile finishing | 423 |
| 433 | Fur | 433 |
| 442 | Men's and boys' tailored outerwear | 442 |
| 443 | Women's and girls' tailored outerwear | 443 |
| 444 | Overalls and men's shirts, underwear etc | 444 |
| 449.1 | Corsets and miscellaneous dress industries | 449/1 |
| 450 | Footwear | 450 |
| 461.1 | Refractory goods | 461/1 |
| 461.2 | Building bricks and non-refractory goods | 461/2 |
| 463 | Glass | 463 |
| 472 | Furniture and upholstery | 472 |
| 474 | Shop and office fitting | 474 |
| 475 | Wooden containers and baskets | 475 |
| 479.1 | Miscellaneous wood and cork manufacturers | 479 |
| 482.1 | Cardboard boxes, cartons and fibre-board packing cases | 482/1 |
| 482.2 | Packaging products of paper and associated materials | 482/2 |
| 485 | Printing, publishing of newspapers and periodicals | 485 |
| 489 | General printing and publishing | 489 |
| 494.3 | Sports equipment | 494/3 |
| 499.1 | Musical instruments | 499/1 |

Copies of these *Business Monitors* are available on standing order from Her Majesty's Stationery Office, PO Box 569, London SE1 9NH (telephone 01–928 6977), or through any Government Bookshop. They are not, however, included in the global subscription arrangements of the *Business Monitor* series.

Further information on the PA series of Business

Monitors and the Censuses generally can be obtained from:—

Mr. R. J. Egerton,
Business Statistics Office,
Cardiff Road,
Newport,
Gwent,
NPT 1XG
Telephone: Newport 56111 (STD Code 0633) Ext. 2455.

**Diversification and Competition**

This Occasional Paper written by M. A. Utton of The National Institute of Economic and Social Research considers the effects on competition of the trend, particularly among the largest companies, to enter areas of manufacturing remote from their original base.

Estimates of the extent and character of diversification in British manufacturing are given for 1972, account being taken both of the number of different industries in which firms operate and of the relative importance in their total output of 'secondary' activities. There is also an examination of the changes which have taken place in the pattern of diversification over the period 1935–68.

In relation to competition, the effects of diversification on both industrial structure and performance are considered. A number of Monopolies Commission reports are analysed for evidence of predatory pricing by large firms, but the conclusion is that, while such tactics have been used, they are unlikely to be a feature of diversification.

The level of diversification is shown to be much the same in this country as in the United States. This is in contrast to the level of concentration, which is much higher here. While it seems that at present diversification by large firms probably has a beneficial effect on competition in industries of high concentration, there is a danger that once the industrial structure stabilises this situation may be reversed. It is therefore essential for policy-makers to keep a close watch on developments in this area, and a number of suggestions are made for improving the information regularly available from both the Business Statistics Office and published company accounts.

Reference

*Diversification and competition* (M. A. Utton) (Cambridge University Press) (Price £6·95 net)

## PRICES

**Tax and Price Index**

On 17 August last, the Central Statistical Office released the Tax and Price Index (TPI) covering the period January 1978 to July 1979. The TPI will be released at the same time as the index of retail prices (RPI) and be published regularly along with other economic indicators in *Economic Trends*.

A description of the methodology of the TPI was published in the August issue of *Economic Trends* and, in less technical detail, in the September issue of the Treasury's *Economic Progress Report*. The index was designed to supplement existing statistics by providing a monthly indicator of the combined effects of changes in income tax (including employees' national insurance contributions) and changes in retail prices on the purchasing power of taxpayers' pre-tax income. Thus, while the RPI rose by 4·3 per cent in July over June as a result mainly of the Budget increase in VAT, the TPI showed no change because of the offsetting effects of income tax cuts. The TPI for August is 14·9, an increase of 1·0 per cent over the previous month compared with an increase of 0·8 per cent in the RPI.

Further information on the TPI is obtainable from: D. Ramprakash, Central Statistical Office; telephone: 01–2338523.

Reference

*Economic Trends*, August 1979, No. 310 (HMSO) (Price £2·10 net)
*Economic Progress Report*, available free of charge from HM Treasury, Press Office, Parliament Street, London SW1P 3AG

## DISTRIBUTION AND SERVICES

**Proposed 1981 Shops Inquiry**

Ministers have decided, in the light of the resources likely to be available within the Business Statistics Office in the near future, that it will not be possible to carry out a shops inquiry for 1981. There are no current plans for a shops inquiry to be conducted for a later year.

The Business Statistics Office had been examining ways in which statistics of retail shops for geographic areas such as regions, local authority areas and shopping centres might be compiled. Such information was last provided in the results of the 1971 Census of Distribution and is not available from the series of annual sample retail inquiries which was started in respect of 1976 after it had been decided to discontinue the periodic large-scale censuses of distribution (see *Statistical News* 31.11). Proposals for a comprehensive shops inquiry for 1981, which would have provided statistics of turnover, employment and selling space for areas, were discussed with a number of bodies including the statutory Distribution Statistics Advisory Committee.

The decision to abandon the proposed inquiry will relieve retailers of a significant burden of form-filling. The inquiry would have collected only simple information and every attempt would have been made to use information available within central government, but it is estimated that it would have been necessary to mail about 150,000 forms to retail businesses.

Reference
*Statistical News* No 31, November 1975 (HMSO) (Price 55p net)

**Retail Shops Inquiry for 1977**

A small retail shops inquiry for 1977 was carried out by the BSO last year (see *Statistical News* 41.42) to provide some results of use to planners and retailers and to assess the practical problems involved in the large-scale inquiry contemplated for 1981, which has since been abandoned.

The areas are:

Districts: Bath (Avon), Cannock Chase (Staffs), and Darlington (Co Durham).

Shopping Centres: Bath (Avon), Cannock (Staffs), Corby (Northants), Crawley (West Sussex), Cwmbran (Gwent), Darlington (Co Durham), Dunfermline (Fife), Grimsby – Freeman Street (Humberside), Grimsby – Victoria Street (Humberside), London Borough of Hackney – Mare Street, London Borough of Hillingdon – Uxbridge, London Borough of Islington – Holloway, Merthyr Tydfil (Mid Glamorgan), Rugeley (Staffs) and Stirling (Central).

Further information about the inquiry for 1977 can be obtained from:

Business Statistics Office,
Cardiff Road,
Newport, Gwent NPT 1XG.
Telephone: Newport (0633) 56111 Ext 2212.

Reference
*Business Monitor*, SDO27 (HMSO) (Price £1·50 net)
*Statistical News*, No 41, (May 1978) (Price 80p net)

**A Structural model of British retail trade**

The Distributive Trades Economic Development Committee has published volume 2 of a structural model of British retail trade along with a revised edition of volume 1. This model synthesises the detailed information about retail trade which is available in the official *Census of Distribution*, *National Income Blue Book* and *National Food Survey*.

Volume 2 states that the proportion of the consumer expenditure on the different commodity groups vary widely. In the food field for example, while a growing proportion of expenditure on alcoholic drinks is sold through the licensed retail outlets, it was still only 18 per cent in 1971 and a simple extrapolation suggests that by 1981 it could be as much as 21 per cent. The analysis includes implications on economies of operating larger scale shops by the plotted relationship between this and sales volume per man-hour.

The commodity mix going through shops in the different sub-trades and size groups shows a strong tendency for larger shops, particularly where, as in the grocery trade, economies of scale are accessible, to diversify by increasing the number of commodity groups which they stock.

A revised volume 1 provides a framework for examining historical trends and the inter-relationship of the main variables illustrated by data from the 1961, 1966 and 1971 Censuses. The retail sector of the economy contributes roughly ten per cent of the national income and this is the first attempt to depict as a whole the extremely heterogenius component parts of what has traditionally been considered to be one industry.

Reference
*A structural model of British trade:* Volume 1, *method and historical analysis;* Volume 2, *projection of Census trends to 1981: methods and results.* Available from:

NEDO Books,
1 Steel House,
11 Tothill Street,
London SW1H 9LH.
(Price £15·50 net each volume).

## TRANSPORT

**The transport of goods by road**

This report, containing estimates of the total traffic carried by GB registered goods vehicles on public roads in the United Kingdom in 1978, is now available.

An estimate of the traffic carried by GB registered vehicles on roads in Northern Ireland is included in the total estimates for the first time. Inclusion of this traffic does not significantly affect comparability with earlier years because the amount of such traffic is very small in relation to the total.

The information in the report is broken down by size of vehicle, length of haul and commodity. Estimates of empty running and reasons for vehicles not working are also included. The report also contains for the first time, time series for the work done by vehicles over 3½ tonnes gross vehicle weight, broken down by vehicle weight, length of haul and commodity.

This report is available from:

Department of Transport,
Room S19/17,
2 Marsham Street,
London SW1P 3EB.

Reference
*The Transport of Goods by Road in Great Britain* 1978 (HMSO) (Price £1·50 plus 17p postage)

**The seasonal behaviour of new vehicle registrations**

A report of a study carried out by the Statistics Directorate at the Department of Transport into the seasonal behaviour of new vehicle registrations was produced in

June 1979. The primary purpose of the study was to examine whether new vehicle registrations in nine separate taxation classes should be seasonally adjusted to obtain a better estimate of the underlying trend movement in each of the series. In each of the nine taxation classes the time series were found to possess significantly stable seasonal variation, although the seasonal pattern varied between taxation classes reflecting different market behaviour within the different classes. The measures of variability derived from the seasonal adjustment process were then used to provide a guide as to how the seasonally adjusted series should be used to assess underlying trend movements.

Before October 1974 new vehicle registrations were compiled at Local Taxation Offices (L.T.O.'s), but after this date they were compiled at the Driver and Vehicle Licensing Centre (DVLC) at Swansea. The method of compilation used at the LTO's was different from that now used at DVLC, thus complicating comparisons between figures over time periods spanning October 1974. Before October 1974 the number of new registrations in each month reflected the number of new applications for vehicle licence that were processed during that month. After this date, when registration details were finally fully computerised at DVLC, the number of new registrations in each month reflected the number 'becoming effective' during that month. The problem ensuing from this change was that for 'Private Cars and Vans' (and probably for the other taxation classes to a lesser extent) before October 1974, early applications were received in July for August (being the first month of the new vehicle registration letter) and in December for January (being the first month of the new calendar year). This means that before October 1974 the July and December figures tended to be over estimated, and conversely August and January underestimated, by the extent of the early applications. The disruption of the monthly seasonal behaviour caused by the different compiling methods used at the LTO's and DVLC is a complicating factor which needs to be considered when seasonally adjusting new vehicle registrations time series starting before October 1974.

The secondary purpose of this study was to assess the impact of these adjustments for changes in compiling method upon the seasonally adjusted series and trend cycle for the nine separate taxation classes.

Details of the study and copies of the report are available from:

Mr P. D. Wilding,
Statistics Transport A Division,
Department of Transport,
2 Marsham Street,
London SW1P 3EB.
Telephone: 01-2120137

## INCOME AND WEALTH

### Personal sector balance sheets

Personal sector balance sheets 1975–1977: provisional estimates Supplementary Table H in the September 1979 issue of *Financial Statistics* updates to 1977 the provisional estimates for personal sector balance sheets first published in an article in *Economic Trends*, January 1978. The estimates for 1977, and revised figures for 1975 and 1976, were prepared at the request of the *Royal Commission on the Distribution of Income and Wealth*, which was recently disbanded, for inclusion in its *Report* No. 7 (Fourth report on the Standing Reference), Cmnd 7595 (HMSO, July 1979). As the Royal Commission did not publish the 1977 estimates, and in view of increasing interest in these data, the Central Statistical Office decided to publish them in *Financial Statistics*. Some further revisions have been made to bring certain series into line with other tables in *Financial Statistics* and in *National Income and Expenditure 1979 Edition*. The content of the figures was described in 'Personal sector balance sheets and current developments in Inland Revenue estimates of personal wealth' – *Studies in Official Statistics* No. 35 (HMSO).

These estimates were prepared with considerable help from the Bank of England and other departments, which is gratefully acknowledged. There are no firm plans at present to compile data for 1978 as priority is being given to completing balance sheets for the other sectors of the economy for the benchmark year of 1975 and earlier years. It is hoped to publish the results of this further work in Autumn 1980 and, until the estimates for the other sectors have been reconciled with those for the personal sector, the latter must be regarded as provisional and subject to major revision.

**References**

*Financial Statistics*, September 1979, No 209 (HMSO) (Price £3·40 net)
*Economic Trends*, January 1978, No 291 (HMSO) (Price £1·95 net)
*National Income and Expenditure* 1979 (HMSO) (Price £9·00 net)
*Studies in official statistics* No 35 (HMSO)
*Royal Commission on the Distribution of Income and Wealth, Report* No 7, Cmnd 7595 (HMSO 1979) (Price £4·50 net)

## HOME FINANCE

### Consumer Credit

The September edition of *Economic Trends* contains an article by P.J. Stibbard on consumer credit statistics. It describes the nature of statistics available on this subject and demonstrates the best that can be made of them for the purpose of compiling a statistical aggregate of consumer credit, within the quarterly financial accounts framework. This is now published as part of an additional quarterly table in Section 10 of *Financial Statistics*. The article also describes the relationship between the new series and the Department of Trade's monthly series on 'hire purchase and other credit business'.

The problems of defining consumer credit and which practicalities influence the definition that can be adopted, are discussed. The three aspects of this definition being the type of credit, the meaning of 'consumer' and the lenders.

Tables containing the new quarterly series are included and Annex A gives a description of information collected from five groups of lenders. Annex B is devoted to the Department of Trade monthly enquiry and compares the old and new enquiries. Graphs plot the quarterly figures and illustrate the improvements introduced by the new series. Annex C explains how credit cards feature in the statistics.

The author's purpose is to contribute towards a better understanding of the available statistics and to improve their presentation.

Reference
*Economic Trends*, September 1979, No 311 (HMSO) (Price £2·10 net)
*Financial Statistics* (HMSO) (Price £3·40 net)

**Components of private sector liquidity**

The Bank of England's September 1979 Bulletin includes an article introducing a new experimental series on private sector liquidity which will appear in the statistical annex in future issues of the Bulletin. The article aims to assemble, as consistently as possible, statistics for various types of liquid assets held by the private sector (excluding banks). The selection of short-term financial assets is limited to sterling assets within one year of maturity, or realisable within a year without significant loss of capital or interest. While the total of these assets provides a measure of private sector liquidity, it is stressed that there is no single correct measure; other ways of adding-up and presenting the figures are possible. The selection of types of assets is limited by the availability of statistics, and further work on sources and methods is needed.

Four blocks of assets are distinguished – (i) types included in money stock, (ii) 'other money market instruments' (treasury bills, bank bills, and deposits with local authorities and finance houses), (iii) deposits with savings institutions (building societies, National Savings Bank and trustee savings banks) and national savings securities, and (iv) certificates of tax deposit.

**Financial Statistics**

The September issue of *Financial Statistics* contained provisional estimates for 1975, 1976 and 1977 of the personal sector balance sheets (see section on Income and Wealth for further details).

In the October issue a new regular table on consumer credit was added to Section 10 (see page 47.45 for further information). The annual supplementary table on transactions leading to net acquisition of financial assets in life assurance and superannuation schemes by the personal sector (delayed from the September issue) showed additional detail for local authority and other public sector schemes. A new supplementary table gives an analysis of assets and liabilities of local authority and other public sector superannuation schemes, by size of total assets.

Reference
*Financial Statistics* (HMSO) (Price £3·40 net)

**National Institute Economic Review**

An article by G. F. Ray on 'Structural changes in the economy, 1956–1978' gives the new official estimates, using 1975 constant prices and provides the basis for assessing the growth rates from 1956–7 to 1977–8 as well as the changing importance, i.e. weights, of the following parts of the British economy: the main economic sectors, the main industrial categories, the manufacturing industries, and the branches of mining and transport and communication.

A further article in the August 1979 issue by David Savage entitled 'Monetary targets and the control of the money supply' discusses the experience to date with monetary targets. The first section briefly surveys the historical background to the adoption of monetary targets and gives a resume of monetary policy during the last three years. Without delving deeply into the subtleties of the complicated art of central banking, the next section gives an interpretation of what the Bank of England actually does when it attempts to control the money supply, which does not correspond at all closely to the simple representation of the techniques of money supply control contained in some of the standard economics textbooks. Attention is also drawn to the problems of the present approach to monetary policy making. Finally an assessment of the performance of recent policy is offered.

## OVERSEAS FINANCE

**Balance of payments**

*United Kingdom Balance of Payments 1979 Edition* (the Pink Book)

Detailed figures for each of the last eleven years were published on 3 September in the latest Pink Book. There are no new tables in this edition and none has been dropped but some series are new or have been significantly changed.

There have been fairly extensive revisions to some of the figures previously published. To some extent this has been due to new series, such as the value of design and other work done in the United Kingdom by process engineering contractors for plants to be erected overseas, being included for the first time. But mainly the revisions have resulted from later and more complete information or from changes in methods of estimation.

Quarterly figures consistent with those in the Pink Book were published as usual in the September issue of *Economic Trends* and the longest available runs of quarterly figures will be published in the *Economic Trends Annual Supplement*.

**Reference**

*United Kingdom Balance of Payments 1979 Edition* (HMSO) (Price £5·75 net)
*Economic Trends* September 1979, No. 311 (HMSO) (Price £2·10 net)
*Economic Trends Annual Supplement*, 1980 (HMSO forthcoming)

### North Sea oil and gas

An article in the Bank of England's September 1979 Bulletin reviews the effects of the growing output of North Sea oil and gas on the structure of the UK balance of payments. It finds that the traditional composition of the balance of payments – a large deficit on visible trade offset to a greater or lesser extent by a surplus on invisibles, and variable capital flows – is being, and will continue to be, substantially affected by North Sea oil and gas.

Despite imports of equipment for exploration and drilling, the net benefit of North Sea oil and gas to the visible account has risen dramatically since 1975, and, within visible trade, the oil account is now approaching balance. The traditional surplus on invisibles, however, is being increasingly diminished by the costs of servicing external borrowings for North Sea development and by the remittance of profits by foreign-owned oil companies. On the capital account the large inflow over the last five years to finance the North Sea programme will gradually be reversed as these funds are repaid.

The article, which excludes from its scope the wider issues of the economic impact on the UK of North Sea oil and gas, describes the factors which need to be taken into account to interpret the UK's overall oil balance of payments in the light of North Sea development. All UK continental shelf gas and part of North Sea oil production is consumed at home and does not figure in the balance of payments. The oil balance takes into account imports and exports of crude and products, imports of goods and services for North Sea development *less* the export of some services, profits remitted by foreign-owned companies and capital inflows for development *less* repayments of previous borrowing. It is estimated that the oil balance is likely to remain in deficit well into the 1980s, even if the UK attains oil self-sufficiency in volume terms early in the decade.

### United Kingdom Overseas trade: Technical note

An article entitled United Kingdom overseas trade: Technical note on the Unit Value and Volume Index Numbers and Terms of Trade, 1975 series' appeared in the September edition of *Economic Trends*, describing the methodology of the construction of index numbers for UK external trade and compares the existing 1975 based series with the previous 1970 based figures.

**Reference**

*Economic Trends*, September 1979, No. 311 (HMSO) (Price £2·10 net)

### Industrial disputes and the visible trade figures

Followers of the statistics of Britain's imports and exports will have experienced considerable difficulty this year in evaluating accurately the underlying trends in the figures, which have been distorted, to an extent probably without precedent by industrial disputes. These effects have been of two kinds. Most important have been the disputes that have affected the flow of trade itself – primarily the road haulage dispute, but also the dispute relating to the Ford company that preceded it, and the stoppages more recently in the docks and in the engineering industry generally. Other disputes have affected not trade itself, but the recording of it. The strike by computer staff of the Customs and Excise prevented publication of the trade figures for three months; subsequent industrial action in the National Data Processing Service delayed the collation of some trade data (mainly imports through the London Airports).

## INTERNATIONAL

### EEC Labour Force Survey 1979

In May and June of this year the United Kingdom, in common with other member states of the EEC, carried out a survey to obtain up-to-date information about the labour force, e.g. on activity rates, on occupational and industrial breakdowns of employment, and on training. These surveys are held at two-yearly intervals, the United Kingdom having taken part previously in 1973, 1975 and 1977 (*Statistical News* 20.42, 21.32, 22.33, 29.25, 30.31).

As the information is gathered as far as possible on a uniform basis throughout the EEC it will be useful for such purposes as assessing applications to the European Social Fund. The surveys also provide valuable additional information on the labour force to supplement that obtained from other sources. The Statistical Office of the European Communities hopes to publish the results by 1981, with some information for the United Kingdom hopefully being available by the beginning of 1980. In the United Kingdom the survey, response to which is voluntary, was carried out for the Department of Employment (in Northern Ireland the Department of Manpower Services) and the EEC by the Office of Population Censuses and Surveys (in Scotland the General Register Office and in Northern Ireland the Social Research Division of the Central Economic Service). A sample of 90,000 households was taken in England and Wales, 10,000 in Scotland and 5,000 in Northern Ireland. The response rate in England and Wales was 84.2 per cent, in Scotland 83.6 per cent and in Northern Ireland 80.0 per cent.

**Reference**
*Statistical News* (HMSO)

**International comparisons of profits**

A study recently published by OECD, *'Profits and Rates of Return'* by Professor T P Hill of the University of East Anglia, includes comparative estimates of shares of profits in value added and rates of return on capital for a number of countries. It gives estimates from 1955 onwards, for manufacturing industry and a broader group of industries, derived as far as possible from national accounts figures in the standardised form in which they are submitted to OECD.

Some estimates from the report, with comments, and alternative Department of Industry estimates for certain countries were included in a Department of Industry paper for the meeting of the National Economic Development Council on August 1, which was reproduced in *Trade and Industry* 17 August 1979.

Latest Department of Industry estimates of rates of return for the UK, on different bases from the OECD study, are given in an article in *Trade and Industry* 28 September 1979.

**References**
*'Profits and Rates of Return'* (T P Hill) (OECD 1979: available from HMSO) (Price £7·30 net)
*Trade and Industry* (HMSO, weekly, price 50 pence)

## RESEARCH AND DEVELOPMENT

**Statistics of Expenditure and Employment**

An article in the July issue of *Economic Trends* gave details of total Research and Development (R & D) financed and carried out in the United Kingdom in 1975 and figures for the Government sector for years up to 1977/78. Trends in R & D expenditure during the period 1964 to 1975/77 were also examined. Full scale inquiries covering industrial R & D are at present held every third year, but there is an annual survey of central government expenditure and employment on R & D. Results of the 1975 industry survey are now available in a separate Business Monitor (see *Statistical News*, 46.38).

The article updated the information given in an earlier separate publication (*Studies in Official Statistics* No. 27), which contained definitions of sectors surveyed, categories of research and notes on the survey procedures employed in collecting statistics of R & D in the United Kingdom. The article contained a list of further publications giving statistics or general information on R & D. Reference was made to the annual report on trends in government financing of R & D in the countries of the European Community; a further report covering 1970–1978 has now been published. Since the article was produced, the OECD have published an analysis of trends in industrial R & D in certain member countries, including the United Kingdom, during the period 1967–1975.

General enquiries on R & D Statistics to:
Mr R Arrundale,
Central Statistical Office,
Great George Street,
London SW1P 3AQ
Telephone: 01-233 8357

**References**
*Statistical News*, No. 46 (HMSO) (Price 85p net)
*Economic Trends*, No. 309, July 1979 (HMSO) (Price £2·10 net)
Studies in Official Statistics No. 27 *Research and Development: Expenditure and Employment* (1976) (HMSO) (Price £2·00 net)
*Research and Development Statistics*, Business Monitor MO 14 (1979) (HMSO) (Price £2·00 net)
*Government financing of research and development 1970–1978* (1979) (SOEC, Luxembourg) (£8·40 net, available from HMSO)
*Trends in industrial R & D in selected OECD member countries*, 1967–1975 (1979) (OECD, Paris) (£5·40 net, available from HMSO)

## CONFERENCES AND MEETINGS

**Visiting Fellowship Scheme 1980/81**

Social Science Research Council Survey Archive now invites applications to its Visiting Fellowship scheme for 1980/81, from social scientists interested in undertaking either substantive or methodological research based on the Archive's holdings.

Two types of Fellowships are offered: one-year Visiting Fellowships and 'internships' of any duration from one to three months. Fellows are provided with: (i) office facilities and a personal service of technical advice and data management (but not data analysis) from the Archive's staff, (ii) access to all the Archive's holdings (subject to the normal conditions imposed by depositors), (iii) the storage and processing of the Fellow's own data sets, (iv) free access to the University's computing facilities and services.

The Archive is not in a position to provide the Fellow's salary or any secretarial or research assistance and applicants are encouraged to explore the possibilities of obtaining grants to meet such costs from their home institutions.

Applications, with a deadline of 31 March 1980, and a curriculum vitae should be addressed to:

The Director,
SSRC Survey Archive,
University of Essex,
Wivenhoe Park,
Colchester, Essex.

Appointments will be announced by 15 April 1980.

**Public Utilities Forecasting Conference**

This international meeting will be held at Nottingham University, England, from 25–29 March 1980. It will feature both invited and contributed papers and the proceedings are to be published.

Further information from the organiser:

O. D. Anderson,
PUFC,
9 Ingham Grove,
Lenton Gardens,
Nottingham NG7 2LQ.
Telephone: (0602) 708085

## GOVERNMENT STATISTICAL SERVICE

**Appointments and changes**

*Mr. B. J. Buckingham*, Chief Statistician, transferred on 13.8.79 to Department of Employment from the Departments of the Environment and Transport.

*Mr. H. M. Dale*, of the Departments of the Environment and Transport promoted Chief Statistician on 17.7.79.

*Mr. R. L. Butchart*, Department of Industry and Trade was promoted to Chief Statistician on 19.7.79.

*Miss B. J. Wood*, Department of Industry and Trade, was promoted Chief Statistician on 16.8.79 on transfer to the Departments of the Environment and Transport.

*Mr. J. Kidgell*, Central Statistical Office was promoted Chief Statistician on transfer to the Departments of the Environment and Transport on 24.9.79.

## OTHER PUBLICATIONS

**Runcorn New Town Household Survey**

A report of the 1978 Runcorn New Town Household Survey (67 pages 4 Appendixes), price £2 is available from A. M. Morgan, Principal Research Officer, at the address below. A wide range of demographic information is provided together with some analysis of employment.

Social Development Department,
Grosvenor House,
Runcorn Shopping City,
Runcorn,
Cheshire,
WA7 2DD.

**Some Basic Theory For Statistical Inference**

In this book the author presents with elegance and precision some of the basic mathematical theory required for statistical inference, at a level which will make it readable by most students of Statistics.

The topics treated – which include among others – distance between probability measures, sensitivity of a family of probability measures with respect to a parameter, the Cramér–Rao inequality, asymptotic relative efficiency of tests, maximum likelihood estimation, and the sample distribution function – are all necessary preliminaries to a proper study of the theory of statistical inference. Frequently, these topics receive only brief mention in textbooks; here they are explored in depth, and this fresh look at some old theory proves well worth while, for the simplications, new insights and some new results which are obtained.

**Reference**

*Some Basic Theory for Statistical Inference* (E J G Pitman) (Chapman & Hall Ltd.) (Price £6·00 net)

## LATE ITEMS

**13th European Meeting of Statisticians**

The thirteenth European Meeting of Statisticians will be held at the University of Sussex, Brighton, on 8th–12th September 1980. The conference is organised under the auspices of the European Regional Committee of the Bernoulli Society. Forum lectures will be given by A. N. Shiryaev, the opening lecture by J. Durbin, and the closing lecture by W. R. Van Zwet. As well as invited paper sessions on various topics, there will be contributed papers and workshops.

Preliminary invitations to the conference are being mailed in November 1979 to all who attended either the 11th Meeting (Oslo) or the 12th Meeting (Varna), and to all members of the Bernoulli Society resident in Europe. Others who would like details should request them immediately from the Local Organiser:

Professor J. A. Bather,
Mathematics Division,
University of Sussex,
Brighton BN1 9QH.

The conference is open to all statisticians and probabilists.

**National Dwelling and Housing Survey**

Recent issues of *Statistical News* have covered the first phrase of the National Dwelling and Housing Survey. In London over 200,000 households were sampled and tapes containing details of these are being passed by the Department of the Environment to the Greater London Council for further Statistical analysis.

The data on the tapes are anonymous and have been censored and broad-banded in order further to preserve the confidentiality of the replies of individual respondents to the survey. As an addltional safeguard the Greater London Council's use of the tapes will be governed by a code of practice drawn up by the Department of the Environment in conjunction with the Central Statistical Office and the Office of Population Censuses and Surveys.

# Alphabetical Index

The index to *Statistical News* covers the last nine issues. Page numbers are prefixed by the issue number, e.g. 39.30 signifies number 39, page 30.

Generally speaking articles relating to the 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.

Printed in England for Her Majesty's Stationery Office by J. Looker Printers Ltd., 82 High Street, Poole, Dorset. Dd595941 K23 10/79

CENTRAL STATISTICAL OFFICE

# Economic Trends

This monthly journal brings together all the main economic indicators. The data are mainly given in time series and graphs covering five years or so.

There are also articles commenting on and analysing economic statistics and —when appropriate — introducing new series and new methodology. *Economic Trends* is the primary publication for the quarterly national accounts and balance of payments articles.

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CENTRAL STATISTICAL OFFICE

# Blue Book 1979

**National Income and Expenditure 1979 Edition,** prepared by the Central Statistical Office, contains detailed estimates of national product, income and expenditure for the United Kingdom. The 1979 edition covers mainly the years 1968–1978. Information is included on personal income and expenditure, company income and its appropriation, public corporations, central government and local authorities, investment and capital stock and other subjects.

It also includes estimates of output and expenditure at constant prices, based on the year 1975.

Price £9.00 net    ISBN 0 11 630762 5

# Pink Book 1979

This publication, **United Kingdom Balance of Payments 1979 Edition,** prepared by the Central Statistical Office, is designed as a standard reference for balance of payments statistics over a long run of years up to 1978. In addition to summary tables showing the general balance of payments for the United Kingdom, it contains 14 sections of tables each with comprehensive notes and definitions. Some of these expand the detail for individual sectors of the accounts; others deal with associated areas such as the financing of private investment and its overall effects, the City's overseas earnings, etc.

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