Policies of the Office of Population Censuses and Surveys

Philosophy and constraints

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Adelstein, A. M. (1976). *British Journal of Preventive and Social Medicine*, **30**, 1-10. **Policies of the Office of Population Censuses and Surveys: philosophy and restraints.** The Medical Division of the Office of Population Censuses and Surveys (OPCS) organizes and indexes general systems of records for medical research and administration. The main sources of records are the census, registrations of births and of deaths, hospital discharge records, registered cases of cancer and of congenital malformations, surveys by the Social Surveys Division, and samples of records in general practice. Results take the form of regularly published series of statistics and commentaries and of studies in depth, often by scientists in the National Health Service (NHS), and research institutions which are encouraged to use the systems for prospective and retrospective surveys. The surveys are facilitated by the central registry where a note of every death in the country is attached to the relevant record (and the causes of death are available). Recent developments include studies of records of general practitioners; the causes of deaths among immigrants in England and Wales; the fertility, migration, and mortality of a cohort of about 1% of the population. The publication policy of OPCS is described.

In the preamble to his Quarterly Return No. 1 of 1849 Farr said 'The present arrangement will show, at short intervals, how many marry, how many are born, and how many die in England; and will thus appear in time to enable the public and the Legislature to take the indications which the returns may furnish into account in the conduct of affairs'. So, even though the milieu in which we now work is very different from that of 1849 the sentiment remains the same. This quarterly was among the earliest of the famous series of government health statistics.

GOVERNMENT DEPARTMENTS INVOLVED

The split in government health statistics mainly between OPCS and the Department of Health and Social Security (DHSS) is the result of the way in which government has developed during the last two centuries. The General Register Office (GRO) established its statistics on disease and health as a

by-product of its census and registration activities. The Ministry of Health was constituted in 1918 and under its jurisdiction the NHS began in 1948. For many years certain statistics derived from health services have been processed and analysed by the GRO, but in addition during the last 15 years the DHSS has been building up its own statistical systems, so that now it may be asked which department would best be suited to analyse which data. Broadly speaking, DHSS is responsible for two systems which are based on individual patient records (the mental health inquiry, and sickness absence) and many statistics which reach the department in aggregated returns—such as, workload, staff, cost, and facilities. These are derived from executive councils, hospitals, and local authorities (or health authorities). They have been listed and described by Alderson (1973). In this paper will be discussed only those statistics processed by OPCS (the new title given to the office in 1970 when the GRO was merged with the government social

survey, a merger that was one of many developments in the government statistical services designed to co-ordinate the statistician's work of various government departments. A main objective of the merger was to improve our knowledge of social events and circumstances). These changes have taken place against a background of a considerable increase in the demand for more information about the population: more facts, in more detail.

REORGANIZATION OF NHS

One of the themes running through the ideology of the new medical services is rationalization by planning, based on information; management of the reorganized health service will rely heavily on an effective information system. There can be no doubt that these developments will bring about a considerable change in the relative contributions to the pool of medical information by central government and by local organizations at various levels. Local information systems will be developed because they will be needed for local planning; and the role of central statistical offices will change.

Many questions arise—for example, how much of the data now gathered nationwide, analysed centrally and returned to a local organization, will in future be handled entirely locally? What will be left for the centre to do with these data?

Broadly speaking, one answer to this question is that the central government's function will be to provide:

- an administrative structure for planning and co-ordinating and to consider standards;
- a nationwide service, similar to that locally;
- a clearing house to note when people cross local boundaries.

But the scale, content, and stages of development of these local systems are not yet clear and their implications can only be inferred.

STRUCTURE, FUNCTION OF OPCS

In this paper are described the present systems and intentions of OPCS, apart from the changing relationship between local and central government. The medical division of OPCS has always been an integral part of the organization of the GRO and the new OPCS, and much of its work depends on the system of records which the organization manages as part of its obligations quite independently of the medical field. The medical division (of OPCS) is concerned with the organization and analysis of data useful for studying the health (and health problems) of the community,

for research and for administration; we need to analyse how effectively the problems are met. This takes two main forms, first, production and interpretation of statistics, and secondly, studies in depth relying on records suitably organized and indexed.

CURRENT STATISTICAL SYSTEMS

The earliest statistical sources were the census and registrations of births, deaths, and marriages. During the years there have been added records from medical services, the cancer registry and the Hospital In-Patient Enquiry, notification of infective diseases and, more recently, of congenital malformations. The merger of the GRO with the government social survey has added the information collected in the General Household Survey and many specific surveys. In 1970 we began to study consultations in general practice. Finally, a system of records which has special significance in the context of population and, in particular, of cohort studies is the National Health Service Central Register (NHSCR), basically a clearing house for registration of the patients of general practitioners in the National Health Service.

Many of these sources are derived from records which are filed and indexed for various services, or for administrative or legal purposes, not for statistics. Characteristically they cover the whole, or very large sections, of the population. Variables are not created for statistical analysis, and sometimes they do not stand up to tests of ideal standards of reliability.

I consider that these general data based on services (including registrations of births, marriages, and deaths) are the backbone of the health information system, that they are valuable in their own right, but that their potential can be achieved only by exploiting them fully—

as general descriptive statistics in themselves, as general longitudinal statistics by linking records of persons within and among record systems,

by using the records in retrospective and prospective studies for problem-orientated research,

and by *ad hoc* research co-ordinated with the basic routine statistics.

In this paper arbitrary distinctions are made between health and other demographic statistics, but of course the boundary is not clear. Health statistics depend on knowing a great deal about communities, their numbers, occupations, families, and much else of interest to demographers, social scientists,

and administrators. Indeed, sometimes the statistics wanted by medical and other investigators are identical—for example, those on fertility and mortality matters.

There are many features common to the systems of the various divisions in OPCS, and also to their philosophies and constraints. Among the constraints are two general factors; first, we do not fully exploit what we have got (mainly because of lack of resources); secondly we do not develop better systems quickly because these, dependent on a variety of uses of registers with names and various other personal data, are inhibited by fears of breaches of privacy.

NEW DEVELOPMENTS

One of our basic tasks is the routine production of standard tables and their surveillance and interpretation. But this work is more than a straightforward matter of coding and tabulating; it is a changing process. Our organization provides a large part of the national information systems, and we try to respond sensitively to the changing needs of administrators and research workers. There are four distinct types of change to our systems: to the contents of records, to methods of analysis, to our publications and techniques; the fourth change is not concerned with the production of statistics directly but with the use of selected individual records for surveys. The basic individual records from which the statistics are produced are increasingly being used for *ad hoc* analytical studies by retrospective and prospective methods; this requires a continuing improvement in methods of indexing, linking, and retrieving the data. An example of additions to the records occurred in 1969 when three items were added by an Act of Parliament to the record of death, place and date of birth, and maiden surname, and to the record of birth—place and date of birth of the mother (and of the father in most cases). These extra items have enabled us to begin to develop along two lines, first, a longitudinal study based on a 1% sample of the population starting with the records from the census, and secondly, a study of mortality based on birth place of the deceased, or of the parents in the case of infants.

Date and place of birth of deceased persons recorded at registrations of deaths, and of parents when births are registered are available for analysis as variables in their own right, but the date of birth (and to some extent the place) are also valuable items for personal identification which is essential for longitudinal studies. Taking the first point,

the place of birth adds one more to the various environmental and social factors, such as, age, sex, place of residence (urban/rural, longitude), and occupation, by which mortality can be analysed. Except for data covering one year the coding of the place of birth has been limited to *country* of birth, except in the relatively small samples in the longitudinal study, for which the local authority area in which the birth took place is coded.

We intend to treat information on birth place in various ways. First, to analyse causes of death by country of birth. Secondly, to examine interactions among the effects of birth place and other variables such as occupation and the environmental features of the place of residence (for example, water hardness). Thirdly, to examine the effects of migration by using other information available in OPCS—such as NHSCR and social survey.

PROSPECTIVE STUDIES

It is convenient to recognize that there are two ways of using record linkage, by linking records between routinely collected general purpose systems, and by prospective studies of samples of records chosen to test a particular hypothesis. In our own studies in either type the end-points are events noted in routinely collected data (but of course some longitudinal studies may depend entirely on data collected specially for the study—that is, both independent and dependent variables). I shall deal first with the longitudinal study based on the general purpose records, which is fully described in the booklet *Cohort Studies* (Office of Population Censuses and Surveys, 1973a) and I will summarize some points.

A system has now been developed in which, for a 1% sample of the population, data held by OPCS about separate events occurring to an individual may be linked by use of the NHSCR.

The information to be linked is being drawn from the following sources: birth registration; death registration; internal migration, as reflected in any change of Family Practitioner Committee occurring when an individual registers with a new doctor under the NHS; overseas migration (immigration and emigration), as recorded in the NHSCR; notification of cases of cancer; census of population. Marriage will be included in the records if information is available (for example, cases in which a woman describes herself under her new married name when re-registering with a doctor), but data from marriage registration records do not

contain sufficient information to enable marriage partners to be identified with certainty in the NHSCR.

The study started with a 1% sample of the population on census day, 25 April 1971, and is updated by adding to it a 1% sample of subsequent births and immigrants (as recorded in the NHSCR) and subtracting deaths and emigrants, so that the sample should continue to represent the whole population.

You may be thinking that we are building up dossiers on individuals. It is important for me to say that such fears are groundless. These are events about which information is already gathered by OPCS. The study itself will involve neither the collection of any additional information from the public, the transfer outside OPCS of any personal information held by it, nor the transfer to OPCS of any additional information from other agencies.

The study is solely a statistical exercise; there is no question of any of the linked individual data being made available for any administrative purposes. The use, for the purposes of this study, of data already held by OPCS will not in any way diminish the confidentiality with which OPCS and the General Register Office have for 135 years handled information supplied by the public.

As a preliminary to the extraction of statistics, additional steps to secure confidentiality of the records used in this study are being introduced converting names/addresses to numbers before the stage at which the records of separate events (for example, a death record and the birth record of the same individual) are linked together. Before any of this information is linked it will already have lost its name and address identification.

In addition to the safeguards resulting from using special serial numbers in place of names and addresses and from the organizational arrangements described, a safeguard on confidentiality of a quite different nature is inherent in the scheme. This is because the sample, in itself a small percentage of the population, is selected on a quasi-random basis.

From the medical point of view the study is designed to reveal relationships between characteristics noted in the census and in registrations of births as well as events such as the advent of cancer, death (causes), and also, for women, subsequent births. Among census characteristics are date of birth, gender, various aspects of household structure, housing conditions, occupation, education, migration into the UK and among the regions of the UK, and within the UK between areas such as county boroughs. In addition to

various studies of health and family building made possible by the methods outlined above, there will be the possibility of studying certain aspects of changes of occupation and of other demographic factors, and, one hopes, there will be a second injection of these characteristics from the next census.

By enabling us to compare the occupation described for the census with that given at any subsequent death, this study will augment the standard analyses of occupational (and social class) mortality.

We are also doing three other types of linkage studies, two using the NHSCR. First, the routine recording of registered cases of cancer will provide information on survival and it will make records of cases of cancer available as a dependent variable for any longitudinal study. Secondly, *ad hoc* studies of defined population to trace the subsequent history of its members' deaths, cancer, or other events recorded is the NHSCR (for example, a new address). Thirdly, records of infant deaths are linked with the corresponding births; we hope soon to begin to produce an annual series of resulting statistics of perinatal mortality.

GENERAL PRACTICE (1970/71)

This is a survey undertaken jointly by OPCS, the Royal College of General Practitioners, and DHSS. The main aim was to obtain data broadly comparable with that obtained in the study carried out during 1955-56. In addition, the records show the use made of referral facilities outside the practice and also where consultations took place. The first question to be faced before we started was the design of the recording system. It is notoriously difficult to organize on a large scale the routine collection of detailed general practice records; the solution adopted for this study was the episode-recording system known as the E Book modified for recording the consultations, augmented in each practice with a register of persons showing age and sex (Office of Population Censuses and Surveys, 1973b). One of the merits of the E Book was that it was already being used by many of the doctors who were likely to volunteer; it was anyway a useful tool in each practice for indexing and analysing the work and might therefore commend itself to others not yet using it. The main one year study was extended into a second year in 54 practices with about 275 000 patients.

A consideration which influenced us to take on this work was that after the main study the system might be continued as a routine, although

with fewer practices so as to limit the cost. At present some 20 practices maintain a continuing system. The aims are to carry out *ad hoc* research, both methodological and substantive against a background of routine recording. The results of the first year of the main study are now available (Office of Population Censuses and Surveys, 1974). Some possible research projects are being examined for the future and the continuing system could develop into a fine tool uniquely placed for examining routine and *ad hoc* problems. It is in such situations where, I believe, one is able to obtain a realistic perspective of the size and importance of the errors inevitable in biological systems, and of the system as a whole.

SURVEYS

Administrative records of government and those from medical services are among the bases of our information systems. But, of course, they directly measure only certain aspects of the state of the community. Much about people, their needs whether conscious or not and especially those needs unmet, are not always apparent from service records. Surveys are the recognized method for collecting this sort of information. The Social Survey Division has an impressive record, since 1941, of interview sample surveys on a wide range of subjects many directly relevant to health; some are *ad hoc* surveys for single government departments; others are continuous and serve numerous departments. The General Household Survey is one of the latter, and it differs from previous continuous surveys in its wide coverage, as will be explained later.

The only other surveys I wish to mention here are the *Adult Dental Health in England and Wales in 1968* of which a report was published by Gray *et al.* (1970) and *Children's Dental Health in England and Wales 1973* (Todd, 1975). The surveys of Dental Health differ from the other *ad hoc* surveys by including clinical examinations; these were done by teams of dentists especially briefed for the purpose. The published reports are good examples of how to analyse the interaction of a particular state of health with various factors such as health awareness, needs, and service received, together with social and demographic factors. The results show there are surprisingly large differences in dental health among regions, social classes, and sexes. For example, the proportion of women in Social Classes IV and V aged between 16 and 34 years who were edentulous was 18% in 'The North' and virtually zero in London. It is disconcerting to note that some of the

differences seem to be the result of differences in treatment.

The General Household Survey (1973) is one of the continuous surveys, serving numerous government departments. After pilot studies the survey began in October 1970. The sample consists of about 15 000 (private) households per annum, and the information is collected by interview. Most data are obtained for almost 83% of all households contacted. Questions range from housing, travel, education, and employment and also illness, disability, and the use of medical and welfare services. Some topics may change from time to time. The section on health contains questions on chronic illness or disability; incidental illness (or injury) and consultations with a doctor (outside hospital), in a two-week period before the interview; as well as on the use of hospital and other health or welfare services. Subjects are not pursued in depth, but there is a wide range of topics for cross analysis. There is a section on smoking and another on uptake of certain medicines. The introductory report was published in 1973 and the second report, for 1972, was published in 1975.

HOSPITAL RECORDS

As is well known DHSS are developing the Hospital Activity Analyses (HAA), which is a very important system both for indexing at hospitals and for statistics. It can be used in a variety of ways—for example, purely for statistics aggregated into various clusters (at regional or national level) for which there would be no need for names, but it would be difficult to distinguish repeated events and because of this it would have many of the defects of the Hospital In-Patients Enquiry (HIPE); the records of each individual could be linked together and also with the corresponding vital records by using personal identifiers. This, as is known, is the subject of a report requested by the Secretary of State; but there has not yet been any further development.

I believe that such a linked system (as first put forward by Acheson, 1967) would bring about a major advance in medical statistics, but as we all probably agree, our preliminary difficulties are not so much technical as in the confused and emotional area of confidentiality. With reorganization it seems that the ideal of national record linkage will be reviewed questioning whether various levels of local organization (area, region) should be implicated either independently or in tiers with a central national apex. These considerations in turn depend on other decisions on how the

service will be managed—with or without registers of people.

MONITORING

Surveillance or monitoring (or whatever one calls the procedure) is an objective of much of our work (Adelstein, 1972). There are continuous chains of 'scores' arriving. Some are organized weekly, some quarterly, and all finally annually. Some selected items such as notifications of infectious diseases, deaths from influenza, births, and infant mortality can be monitored graphically. However when there are many items such as deaths from individual causes, in each sex, in various age groups, in different parts of the country, etc. the computer is the ideal tool for signalling significant change. At present two sets of programs are used routinely; one surveys the deaths in five-year age groups from each four digit category of the *ICD*: the other system is used to survey the notifications of 60 groups of congenital malformations received from about 150 areas. By restricting the computer output only to those results which show 'significant' increases the tables to be scanned by human eye can be reduced to a readable quantity.

PUBLICATION

The statutory duty of OPCS is to report annually on the numbers and condition of the people. This means it has a duty to publish tables with commentary. However, there is no limit to the possible variety of both tables and commentary. The scenario, as they say, is—both for producers and users—changing rapidly; on the one hand computers become more (potentially) effective, and on the other more users have new ideas on the uses of information. As indicated earlier, there is bound to be a change in the balance between central and local government in processing and using medical data.

The office is reviewing the whole of its present complex routine publications. It is difficult to find out who the readers are, what they do with the data (and whether what they do is worth doing anyway), and who is not a user but should be. In the end, one must hope that through noting the uses made of the data in the professional literature and other media, through contacts in committees and in societies, through advisers and friends, and through the buffeting of critics and of pressure groups, matters tend to take on a settled and sensible pattern (but then perhaps to ossify).

We have for some time felt that the increasing interest in the information we are responsible for

collecting has not been matched by any change in the coverage, content, style, and timeliness of OPCS publications.

In the past OPCS has published:

1. *The Registrar General's Weekly Return*
2. *The Registrar General's Quarterly Return for England and Wales*
3. *The Registrar General's Statistical Review of England and Wales* (annual)
Part I Medical
Part II Population
(publication of the Part III Commentary has ceased; it was last published for 1967)
4. *The Registrar General's Annual Estimates of the Population of England and Wales and of Local Authority Areas*
5. Population projections England and Wales, Scotland, Northern Ireland, GB, and the UK (annual)
6. Various volumes on medical statistics, mainly annual (in particular the *Hospital In-Patient Enquiry*, cancer incidence and survival, and abortions)
7. Census reports
8. Reports on social surveys, both *ad hoc* and continuous
9. *Ad hoc* publications—for example, in the *Studies in Medical and Population Subjects* series the most recent is *The Current Tempo of Fertility in England and Wales* (Farid, 1974).

Hitherto the department has published for the expert and has made little attempt to cater for the growth in the number of intelligent lay readers; we are now trying to remedy this lack. We also believe that we should try to release information more quickly than in the past. One of the problems of our past publications was that we tried to meet the needs of all customers for information on all subjects at the same time—for example, the *Quarterly Return* and the *Annual Statistical Review*. Because there are now many different kinds of readers and because our work grows more specialized we believe that we shall have to produce a wider variety of publications in future.

We are therefore adopting the following pattern of publications:

1. General publications aimed primarily at a wide 'lay' readership. Under this heading is the quarterly *Population Trends* (the first issue appeared during September 1975).

2. Publications to release new data as quickly as possible both for general (including press) consumption and for specialists. These will take the form of a series of *OPCS Monitors*—that is, short pamphlets each referring to a coherent field of subject—or user—interest. Publications will be weekly, monthly, quarterly, annual, or *ad hoc* according to topic.
3. Annual works of reference. These also will be organized by subject or by user interest. Within a given subject/user category all publications should be seen to belong to the same family.

POPULATION TRENDS AND POPULATION ACCOUNTS

Population Trends will carry key series of population, medical, and social statistics. Descriptive, analytical, and methodological articles relating to any area of OPCS' interest, including censuses and social surveys, will be a feature in each issue and a main vehicle for communication with the lay readership. Most of the tables in *Population Trends* will give quarterly time series, table content and format will not vary substantially from quarter to quarter. A fixed publication date will be aimed at for each quarter, the particular issue being identified by the date of publication and not by the quarter to which the latest information in it relates. It will not normally be used as a vehicle for releasing new information, or for 'stop-press' comment on the latest figures; these functions would be fulfilled by the *OPCS Monitors*.

Population Trends will give summary figures for the UK, GB, and each of the constituent regions—subject of course to the agreement of our colleagues in Edinburgh and Belfast—and more detailed figures for England and Wales. Because of the increasing demand for information on regional developments some tables are to be devoted to the regions. We hope to include summary figures for EEC member countries and some other western countries, and might from time to time draw on the information issued by the UN and its agencies concerning world trends.

The regular tabulated material and associated commentary will be divided initially under the following broad headings:

1. Population by sex and age and a population change analysis
2. External migration
3. Live births
4. Marriages and divorces
5. Deaths
6. Abortions and other medical tables

The change-over in publications began in January 1975 and will continue during this year.

There is a need to consider how the results of the census can be presented to a lay audience. More description and interpretation, and comparison of results with previous censuses, are required. The articles in *Population Trends* would be one way of meeting these needs; *ad hoc* monographs might be another. The contents and presentation of the specialist volumes must also be reviewed.

Social survey reports are written primarily for departments. They conform to professional standards for survey reports, and so include a full account of methods and sampling procedures, and a copy of the schedule of questions. The reports are not popular in any sense but the division intends to explore ways of making them more attractive to a wider audience. Summaries of, or references to, *ad hoc* reports will appear in *Population Trends*.

The increasing demand for information and the increasing sophistication of the hard- and software to manipulate the data leads to a demand for access to the basic data usually found in the form of magnetic tape. Problems then encountered are of confidentiality, the reliability and intentions of the requesting body, and cost. We have not as yet formulated a definite policy and so treat each request on its merits.

The computer has another great advantage in its capacity for storing data so that instead of publishing tables which may not be read, any customer can be given a printout on request.

Of course, we operate somewhere between this extreme and the original manual system which preceded counter sorters. We shall continue to publish tables shown to be needed and also to keep unpublished tables on paper and on tape, and in addition the original data tapes. We are conscious that there is also a need for a comprehensive index showing where to find information, contemporary and past, and this is under consideration.

CONCLUSION

I have looked at some aspects of the work done by OPCS mainly on medical statistics. The emphasis of our work is on systems, integration, and flexibility; systems of health information, rather than separation of statistics, research, and management. Surveys, planned studies of aetiology, intervention trials or controlled therapeutic trials, are useful if they fit into a dynamic pattern of information, and we do not believe that the planned statistics approach is better than the routine method. They

are complementary. Neither will flourish alone. Flexibility is important so that the systems can respond to changing demands, integrating the interests of government departments, other administration tiers, managers, and research workers.

Among recent developments described are the 1% longitudinal study, linked studies using the NHSCR, and its new data (date and place of birth and maiden surname) and general practice statistics. Among the most important constraints are shortage of resources and the need to protect, and to be seen to be protecting, privacy.

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ANNEX 1

POPULATION STATISTICS GEOGRAPHICAL ANALYSIS

1. WHAT IS AVAILABLE?

For census years, population counts classified by any characteristic (age, sex, marital status etc.) are available down to enumeration district level—the so-called ward-library data.

For non-census years, the following are produced annually:

Area	Analysis
(i) England and Wales (as a whole)	Sex × single year of age × marital status (total population) Sex × single year of age (home and civilian populations)
(ii) Regions (new standard and new hospital)	Sex × quinary age—no marital status
(iii) Non-metropolitan and Welsh counties, Metropolitan districts, London boroughs	Sex × 7 broad age groups (under 1, 1-4, 5-14, 15-44, 45-64, 65-74, 75 and over)
(iv) Non-metropolitan and Welsh districts	Sex only
(v) Health districts	As (iii)

Estimates for non-administrative areas are not routinely produced

2. IS (1) ABOVE ADEQUATE?

What is produced depends on (a) consumers' requirements and (b) the basic spatial unit for which data on births, deaths, marriages, and migration are collected and coded. (iii) and (iv) in the above table are produced primarily to assist the D o E in the distribution of the rate support grant to local authorities. (i), (ii), and (iv) are also used for many planning purposes, as well as for the derivation of other secondary statistics (for example, death rate).

Detailed age classifications for districts and London boroughs are not produced because the basic migration data, which are derived from electoral registers are not analysed by age (or sex or marital status). The same limitation applies to regions (group (ii) above) but, because of the big

demand, we make certain *assumptions* and produce a quinary age-analysis for these areas.

Marital status analyses are restricted to the national estimates. This is so because the marriage record contains no statement of the usual address: the addresses recorded are those at which the parties are living at the time of the marriage, and do not necessarily represent usual residence either before or *after* the ceremony.

So, for districts and local boroughs, figures by marriage are neither practicable nor meaningful. For larger areas such as regions, however, a marriage analysis based on the husband's address might be accurate enough for many purposes. We have been pressed to produce regional marriage analyses for the purpose of household projections (D o E) and labour supply forecasts (Department of Employment). Consequently, a pilot study was done on Wales and the results are being studied.

3. WHAT ABOUT NON-ADMINISTRATIVE AREAS?

From time to time we produce population figures for *ad hoc* areas—that is, parts of administrative areas. The demand for statistics for non-standard areas of different sizes and shapes has been increased because of the need for more pinpointed social planning (by the new local Social Services Departments on, for example, location of old people's homes), for more pinpointed resource allocation (for example, under the Urban Aid Programme), and for catchment areas (for example, shopping). The demand will become more urgent with the new local government areas which are too large and heterogeneous for many social and physical planning purposes.

Because of this need, we have been designing our statistical system in such a way as to enable spatially flexible aggregation and retrieval; this is the concept of 'building brick'. The census uses grid squares. For non-census years, we can choose the ward or postcode areas as the finest geographical unit for coding births and deaths, and possibly migration estimates derived from electoral registers. This question of 'building brick' is still in the melting pot. Our computer division has completed a study on postcodes. Scottish GRO already uses postcodes; CSO and the National and Local Governments Statistical Liaison Committee are actively considering the widespread use of postcodes for statistical work. Births and deaths are now coded by wards and parishes.

Postcodes are not the only form of location referencing. Local authorities are experimenting with the concept of detailed and regularly updated address gazetteers, and a pilot study of this was

launched by the Co-ordinating Committee for Locational Referencing in the Tyne/Wear conurbation. However, as far as OPCS is concerned, the ward is the most practicable option in the immediate future and postcodes are the best method for the future.

It is important to remember that there is one conflict of interests; small area statistics are needed for better planning but the smaller the area, the greater the risk of disclosure by inference.

ANNEX B

FERTILITY

INFORMATION AVAILABLE

- (i) The basic statistical information on fertility comes from birth registration, including the information on the registration form itself (for example, child's sex, the father's place of birth and occupation, the mother's place of birth and usual address) and the confidential particulars recorded by the Registrar (for example, dates of birth of parent(s), date of parents' marriage for legitimate children, whether mother has been married more than once, and the number of previous children borne by the mother).
- (ii) Statistics derived from the above particulars are produced for a variety of substantial areas according to the mother's usual residence. These appeared in such publications as the *Quarterly Returns* and *Statistical Reviews, Part III*. Vital Statistics (numbers and crude rates) are published for local authority areas and for groupings of these, such as standard regions, conurbations, aggregates of towns according to the size of their populations and hospital regions. A coding system has been adopted which will generate statistics for the old local authority areas and the new local authority areas and health districts which came into effect in April 1974. The more detailed fertility analyses are however restricted to England and Wales as a whole for reasons given below.

LIMITATIONS

- (i) As already mentioned most of the subnational analyses relate to number of events. This is because the population estimates necessary as denominators for the more detailed rates are not available (the paper on population has explained the problem with regard to marital status). That is to say most of the detailed

fertility analyses—those relating to women married once only—can be undertaken at the national level.

- (ii) Certain more refined analyses are not possible because the relevant data necessary are not given by the information collected at registration, for example, for work on the fertility experience between different marriages for women married more than once.

ADEQUACY OF PRESENT SYSTEM

- (i) The mass of information produced meets the major needs—for example, the monitoring of trends and patterns in fertility which are useful to assess current changes and as an input into the formulation of fertility purposes; as an element in deriving the midyear estimates of population; for the many people engaged on research requiring fertility information.

- (ii) What the present system does not give is the refined type of national analyses for smaller units which might be useful, for example in deriving the fertility assumptions for population projections for subnational areas.

POSSIBLE FUTURE IMPROVEMENTS IN THE SYSTEM

- (i) One way of developing subnational analyses and even refining the work carried out at a national level will be through the longitudinal study. Surveys can yield a limited amount of regional data.
- (ii) The other main source is of course the census which complements the data obtained from registration. Apart from providing small area population denominators the census also furnishes information which can be used in analyses not possible from registration statistics—for example, analyses of differential fertility by such variables as social class of husband or wife, and detailed birth spacing patterns.