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# **Longitudinal Study 1971-1991**

**History, organisation and  
quality of data**

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# 1 Introduction

## 1.1 BACKGROUND

The Longitudinal Study (LS) is a study containing linked census and vital events data on a 1 per cent sample of the population of England and Wales. It was started in 1974 with a sample drawn from the resident population of England and Wales, enumerated at the 1971 Census (25 April 1971). There were many reasons for beginning the LS. Important among them was the opportunity to improve the analysis of occupational mortality, and to provide better information on fertility and birth spacing. Further uses of a longitudinal study in the analysis of migration and other socio-demographic areas were also foreseen.<sup>1</sup>

By the time of the 1971 Census the computer technology was available to handle what would be an exceptionally large study. Linkage of data became possible with the recording of date of birth rather than age in the Census, and at birth and death registration. The National Health Service Central Register (NHSCR) is used to perform the link.

Selection into the Longitudinal Study is by birth date. Initially, four equidistant dates in the year were used to select an approximate 1 per cent sample of the population that could be followed over time. The study was designed as a continuous, multi-cohort study, with subsequent samples being drawn at each census, using the same selection criteria, and linked into the study. Intercensally, new members are entered by virtue of birth on LS dates or by immigration (if born on LS dates) and exited by death or emigration.

The idea of using cohorts to study mortality, fertility and other social, medical and demographic topics originated in the nineteenth century with William Farr,<sup>1</sup> and cohort studies have since become a popular method of analysing data. However, most prospective studies (such as the National Child Development Study) depend on personal or postal follow-up.<sup>2</sup> The LS has a number of advantages over most cohort studies. First, the original sample size was over 500,000 and has remained consistently high over time due to the continuous, multi-cohort design of the study. Second, its data sources are census and vital statistics records, and the methods of linkage used avoid many of the problems of non-response found in other prospective cohort studies. However, the quality of the data can be affected in other ways, such as inability to link data to a person in the study and bias in sampling.

## 1.2 PURPOSE OF THE REPORT

The idea for a report providing a detailed account of the

design, methodology and sampling procedures used in the Longitudinal Study was first conceived in the late 1970s.<sup>3</sup> It was begun in 1991 and has finally been completed at a time when the LS incorporates linked data from three censuses as well as 20 years' vital events data. Since the study began, there have been changes in both the type and content of data collected at census and at vital event registration, and changes in the technology used by the Office of Population Censuses and Surveys (OPCS) and NHSCR. These have not only affected the way in which data is stored and analysed, but also what data is incorporated into the study.

This volume serves as an overview of the Longitudinal Study and as a comprehensive technical reference document. It details the history and scope of the LS, together with the study's data sources and its design and methodology. It also analyses the quality of sampling and linkage.

## 1.3 SUMMARY

### 1.3.1 History and scope (Chapter 2)

The reasons for setting up the Longitudinal Study, outlined in section 1.1, are discussed in more detail in Chapter 2.

A large number of studies have been undertaken since the mid-1970s using the LS, and the scope for further analysis increases as more data are linked to the study. Both prospective and cross-sectional methods of analysis have been used.

Prospective analysis falls into three broad categories:

- (i) Analysis of linked census and event data, e.g. studies of occupational mortality, socio-economic differences in mortality, cancer incidence, fertility and migration;
- (ii) Analysis of data from successive censuses, e.g. changes in housing tenure, migration and occupational mobility;
- (iii) Analysis of data from successive events, e.g. studies of fertility patterns and cancer survival.

Cross-sectional studies include work on women's employment status, family distributions and residence patterns.

### 1.3.2 Methodology and organisation (Chapter 3)

The LS was designed as a continuous, multi-cohort study using one of four possible annual birthdates as the selection criterion. This provides a random, 1 per cent sample of the population of England and Wales clustered by date of birth.

Data about LS members are acquired from the answers to census questions and from data routinely collected by OPCS. These data are linked to LS members by NHSCR, who maintain records on every person in England and Wales registered with the NHS. Flagging of LS members was originally carried out using manual indexes, but is now done using the NHSCR computerised database.

At the beginning of the study the LS data were held on a series of computer files on an ICL system at OPCS. These included 1971 and 1981 Census files for LS members and their households, and separate files for events (such as births, deaths, cancer registrations, etc.) occurring to LS members.

In 1994 a new computer system was adopted and the LS data was transferred to a Model 204 database running on an Amdahl machine. The 1991 Census data were linked to the LS members and the 1991 files were added to the database. Currently the database consists of 31 linked files carrying census data on LS members and their households from three censuses (1971, 1981 and 1991), together with events data for 1971 to 1991.

Because of the nature of the data held in the LS, confidentiality is of paramount importance. The LS is covered by both the Census Act and the Population Statistics Act, which place constraints on the way data are held as well as the way in which they can be extracted.

### 1.3.3 Census data sources and use (Chapter 4)

Data from the 1971, 1981 and 1991 Censuses are available for both LS members and other persons enumerated in their households.

Although there is a great deal of consistency between censuses, new questions may be included while some of those asked in previous censuses may be dropped. Even where the same questions are asked, the coding of the replies may change from census to census. There are also differences in population coverage between censuses, as well as changes in the methods of data imputation and in census definitions. The coverage and quality of census data differ between censuses, affecting the quality of data in the LS.

### 1.3.4 The Census–LS link (Chapter 5)

Census data are linked to LS members and their households shortly after a census has taken place. Two Census–LS link exercises have been completed since the original census sample was selected in 1971. The 1981 Census–LS link was completed in 1985 and the 1991 Census–LS link by

1994. Both exercises were extremely complex, involving computer extracts from the GB Census Households files to locate all persons with LS dates of birth and their households. The census schedules for LS members were identified and the ‘hard-to-code’ items such as occupation, industry, relationship to head of household, etc (normally only coded for a 10 per cent sample of the population of England and Wales) 100 per cent coded.

After the extraction of the data, the work of matching and linking it to LS members took place. This involved a major clerical exercise with NHSCR providing the matching and linking component.

The quality of linkage for LS members between censuses is very good. Ninety-one per cent of the 1971 Census–LS sample were successfully forward linked to the 1981 Census–LS sample. At the 1991 Census, 90 per cent of the 1981 Census–LS sample were successfully forward linked.

### 1.3.5 Linkage of event data (Chapter 6)

Events occurring to LS members are identified using two methods. Through routine notifications to NHSCR and by searching annual OPCS vital statistics files.

The events that are currently linked to LS members are enlistments into the Armed Forces, embarkations (emigrations out of England and Wales), re-entries to the NHS from enlistment or embarkation, immigration (immigrant new entries to the LS), new births (new entries by birth on an LS date), live and still births to sample mothers, infant mortality of births to sample mothers, widow(er)hoods, deaths and cancer registrations. A number of events are no longer recorded for the study, but data from the period in which they were recorded are retained and available for analysis in the LS database. These events are entry into long-stay psychiatric hospitals (recorded up to and including 1983), internal migration (recorded from 1971 to 1974) and births to sample fathers (recorded from 1971 to 1978 and for part of 1981).

Computerisation of NHSCR has speeded up the identification of LS members, and as a result, linkage methods have changed. Once the link is made, the data contained in the event notifications (either tapes sent from NHSCR or the OPCS vital statistics source files depending on the event type) are added to the appropriate member’s record on the LS database.

Since the LS started there have been a number of changes in the data collected at the notification of an event. These include changes both to the type and contents of the data.

### 1.3.6 The quality of event sampling and linkage (Chapter 7)

There are two components to the quality of event sampling and linkage: the quality of the original event data collected for the England and Wales population and the quality of

the subsequent sampling and linkage of that data into the LS. Quality varies according to event type. Among entry events the sampling and linkage of new births into the LS has been of consistently high quality. Almost 100 per cent of expected births on LS dates were sampled and entered the study between 1971 and 1991. Immigrant entries on the other hand show oversampling between 1971 and 1981, though there was some improvement between 1981 and 1991.

The sampling and linkage of deaths of LS members up to 1991 are, like those for new births, of very high quality. This reflects the fact that both births and deaths must be statutorily registered. By comparison, there is no statutory obligation and little incentive (unless the individual is in receipt of state benefits such as a pension) to give prior notice of an embarkation. This is reflected in the poor quality of embarkation data.

The quality of sampling and linkage for other events depends on the type of event. Births to sample mothers, cancer registrations and infant mortality all had linkage rates of 90 per cent and over by the second decade, 1981–1991. Births to sample fathers (not currently collected) and widow(er)hoods showed lower linkage rates, but because of the methods of identification that have to be used, these events are more difficult to collect and link.

### 1.3.7 Tracing rates (Chapter 8)

The term ‘traced’ is used to denote whether an LS member has an NHS number recorded at NHSCR. Only if an LS member possesses an NHS number, and is known to NHSCR, can event data be linked. As a result only traced LS members in the sample are valid to use in the analysis of events occurring to LS members over time.

The utility of the sample for analysis was examined at each separate census. The quality of each Census–LS sample is defined by the ‘not traced’ rate, which measures the percentage of the sample to whom no event can be linked. The 1971 sample had an overall ‘not traced’ rate of 3.2 per cent. This dropped to 1.1 per cent for the 1981 sample and rose slightly to 1.7 per cent for the 1991 sample.

Subgroups of the LS population within each sample show a wide variation in ‘not traced’ rates. In the 1971 Census–LS sample, females, especially those aged 20–24, showed higher ‘not traced’ rates than males. In 1981 and 1991 the situation was reversed, with higher ‘not traced’ rates for males. Among those LS members whose country of birth was outside England and Wales (7 per cent of the 1971 sample rising to 9 per cent of the 1991 sample), those originating from the New Commonwealth have shown some of the highest ‘not traced’ rates in any subgroup. Higher ‘not traced’ rates have also been consistently found for those enumerated in non-private households and communal establishments. The economically inactive

in each sample and those whose social class (as defined by occupation) was given as ‘armed forces’ or ‘inadequately described’ also had high ‘not traced’ rates.

### 1.3.8 Sampling fractions (Chapter 9)

Sampling fractions are used to check whether the LS is a representative 1 per cent sample of the relevant census population. Only the traced LS sample is used in analyses, so net observed sampling fractions, which exclude the ‘not traced’ LS population, are used. Comparisons are made between the expected net sampling fractions (that proportion of the LS sample that would have been expected to be found in the census population) and the observed net sampling fractions. Where the expected and observed sampling fractions differ they highlight biases in sampling and tracing.

There was no difference between the observed and expected sampling fractions for each of the total Census–LS samples drawn at the 1971, 1981 and 1991 Censuses. The 1971 Census–LS sample population had both observed and expected sampling fractions of 1.05. In 1981 the observed and expected sampling fractions for the Census–LS sample rose to 1.09, falling back in 1991 to 1.07.

Most of the subgroups within the three Census–LS samples show little or no difference between the observed and expected sampling fractions and, as a result, can be said to be representative 1 per cent samples of the 1971, 1981 and 1991 Census populations. The only two groupings of LS members that consistently show variation between observed and expected sampling fractions are those members whose country of birth was outside the UK and those who were enumerated in communal establishments. In 1971, 1981 and 1991 LS members who stated their country of birth as in the New Commonwealth (particularly the Indian subcontinent) have been consistently oversampled. Conversely LS members enumerated in communal establishments showed consistent undersampling.

### 1.3.9 Other areas covered

Included in the appendices to this volume are copies of all the relevant census schedules, census definitions and event notifications which provide data for the LS.

### References

1. Office of Population Censuses and Surveys. *Cohort studies: new developments*. OPCS Studies on Medical and Population Subjects no. 25, HMSO (London 1973).
2. Creeser R. *The relationship of the LS to other British longitudinal and cohort studies. Update – News from the LS User Group*, issue no. 9, November 1994, pp 2–8, LS Support Programme, SSRU, City University.
3. Fox A J and Goldblatt P O. *Longitudinal Study: socio-demographic mortality differentials*. OPCS Series LS no.1, HMSO (London 1982).

## 2 History and scope of the OPCS Longitudinal Study

The first part of this chapter describes the main factors which led to the inception of the OPCS Longitudinal Study (LS), while the second part provides a broad overview of some of the ways in which the study may be used for analysis. This draws on the early OPCS publication *Cohort Studies: New Developments*<sup>1</sup> and, where appropriate, illustrative examples from previous research. Although these examples cover some of the most significant LS work it is important to stress that they represent only a selection of the research that has used the Longitudinal Study. A comprehensive list of LS publications, reproduced in Appendix XV, provides an indication of the full range of LS work.

### 2.1 THE HISTORY OF THE LS

Two factors were particularly important in the decision to set up the LS in 1974.<sup>1</sup> These were concern over the limitations of the occupational data collected at death registration which were used to calculate occupational mortality rates, and a need for more information on fertility patterns, particularly changes in birth spacing.

In the late 1960s and early 1970s a great amount of interest was generated around the issue of occupational health. The Employment Medical Advisory Service (EMSA) and the Health and Safety Executive (HSE) were established in 1973 and 1974 respectively, and there was considerable interest in the health of occupational groups such as coal miners.

During this period the inability of existing mortality data to provide adequate information for studies of occupational mortality had been targeted as a particular problem. In order to provide evidence for a causal relationship between occupation and mortality, information on occupation is needed for a period well before the onset of illness and death. At the time, it was accepted that there were problems both with the range of questions asked and the quality of data recorded at death registration. In order to avoid the duplication of information provided on other occasions, such as the census, and because such information may not be known to the informant, it is not feasible to include questions on educational qualifications, housing tenure and circumstances at death (or birth) registration. Also, there was great concern about the accuracy with which information on occupation was recorded at death registration. Inaccuracies may be the result of a deliberate misinterpretation or simple ignorance of the deceased's occupation. For example, the tendency of informants to 'promote' the deceased person at death registration, by giving a more highly skilled or responsible job, has been widely documented.<sup>2</sup>

At the same time it was acknowledged that there were a number of shortcomings associated with the method used to calculate the mortality rates published by OPCS in the regular decennial supplements.<sup>3</sup> Using this method the number of deaths (the numerator) occurring in a given calendar year is divided by an estimate of the total population on 30 June (the denominator). Deaths are therefore characterised by the information on the death certificate, while estimates of the mid-year population are derived from the most recent census, updated to reflect subsequent births, deaths and migrations. Although this is satisfactory for annual mortality statistics, problems arise when the method is used to calculate occupational mortality rates. As there are differences in the collection of occupation at death and at census (e.g. the census records occupation with respect to the previous week), rates calculated using this method are prone to numerator/denominator bias.

Another limitation of the method used to calculate mortality rates concerns chronic diseases which may develop over a period of many years.<sup>1</sup> In the late 1960s, published mortality statistics were mostly based on the individual's characteristics at death rather than those at an earlier date. Job mobility, even when it is not health-related, means that occupational mortality statistics calculated in this way fail to take into account those individuals who have been exposed to an occupational hazard in one job and who then move to an alternative occupation before the effects become apparent. It was evident from this that traditional mortality data did not stand up to detailed examination and that the quality of mortality statistics, including those covering chronic diseases would be greatly improved if the data were to be analysed in terms of the individual's characteristics (occupation, employment status, area of residence, etc.) some years before death.

It was also accepted that there was a need for more detailed information on fertility patterns, in particular changes in the spacing of births, and the part that social and economic characteristics play in family formation.<sup>1</sup> Although the General Household Survey (GHS) has included questions on the number and spacing of children since it began in 1971, the total sample sizes were too small to allow the required level of analysis. Moreover, the cross-sectional nature of the surveys meant that complete fertility histories could only be constructed using the information derived from retrospective questions.

At the time it was decided that it was not feasible to extend the range of questions asked at birth registration - either to provide information on the interval between successive births or on those factors such as education which may influence fertility trends. Changes such as these would have required legislation and though field tests to assess the

impact of an additional question on the exact date of birth of the preceding child had been received favourably, there were marked differences in the accuracy of response. These showed that when a father registered the birth the replies were considerably less accurate than those registered by the mother.

As a way of addressing these problems, OPCS decided to make better use of existing data sources by establishing a longitudinal study based on linked census and vital registration data (births, deaths, cancer registrations) for a 1 per cent sample of the population of England and Wales, selected on the basis of four dates of birth equally spaced throughout the year. Significantly for the LS, the 1971 Census was the first British decennial census to include a question on date of birth (rather than age) and in 1969 the particulars collected at birth and death registration had also been modified to include date of birth instead of age. This facilitated their use in research studies, particularly those based on the linkage of different vital events. Finally, the advances in computing techniques which occurred in the sixties made a data linkage study like the LS possible.

Initially, it was envisaged that the LS would be used for a wide range of mortality and fertility analyses based on the demographic, social, economic and environmental factors recorded at census. This would allow an assessment of the relative contribution of factors such as social class and employment status on adult mortality rates, and overcrowding and birth spacing on infant mortality. The primary aim of linking cancer registration data with data from the 1971 Census was to improve the analysis of occupational cancer. However, it was also suggested that the data would provide information on the relationship between the incidence of cancer of the cervix uteri and previous reproductive history, and on the coverage and effectiveness of the cytological examination scheme.

There was also the potential for interrelating data from different types of events, for example in studies of infant mortality or cancer survival, so that with time the LS could be used to explore inter-generational differences in fertility and mortality. Finally, the longitudinal nature of the study and the fact that it was based on individual-level micro-data greatly enhanced the opportunity for using multivariate statistical techniques.

## 2.2 THE SCOPE OF THE LS

The LS has been used for a wide range of analyses, not all of which were envisaged when it began. The remainder of this chapter provides an overview of the ways in which LS data may be used. This covers each of the three distinct types of longitudinal analysis which may be carried out using the LS, plus a brief discussion of how the study may be used for cross-sectional and international comparative analyses.

### 2.2.1 The scope of the LS for longitudinal analysis

The ability of the LS to link census data with that from

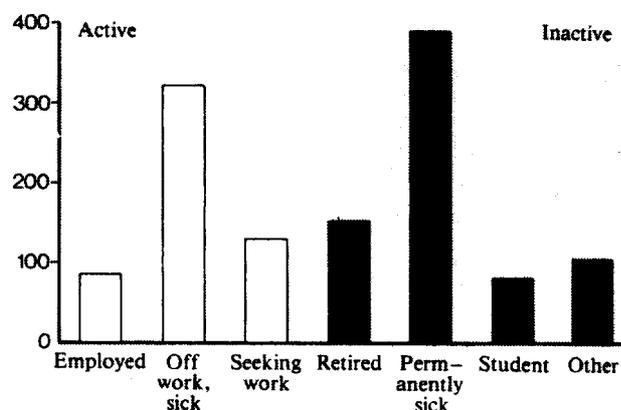
vital event registration opens up a number of opportunities for analyses using more than one time point. Each of the three ways in which the longitudinal strengths of the study may be exploited are outlined below, using examples from published research.

#### 2.2.1.1 Prospective analysis of census and event data

In addition to its original use for the study of occupational mortality, the linkage of census and vital event registration data offers a wide range of opportunities for analyses of socio-demographic differences in mortality, the incidence of cancer, fertility and migration behaviour.

One of the most significant findings of the early work by Fox and Goldblatt<sup>4</sup> concerned the relationship between employment status and mortality. Fox and Goldblatt showed that whereas men and women who were in work the week before census had low mortality, those who were unemployed, particularly those who gave sickness as their reason for being out of work, had significantly higher mortality (see Figure 2.1, which compares male mortality by 1971 economic position). This highlighted the importance of analysing mortality data by economic position as well as occupation.

**Figure 2.1 Mortality of males aged 15-64 by economic position**



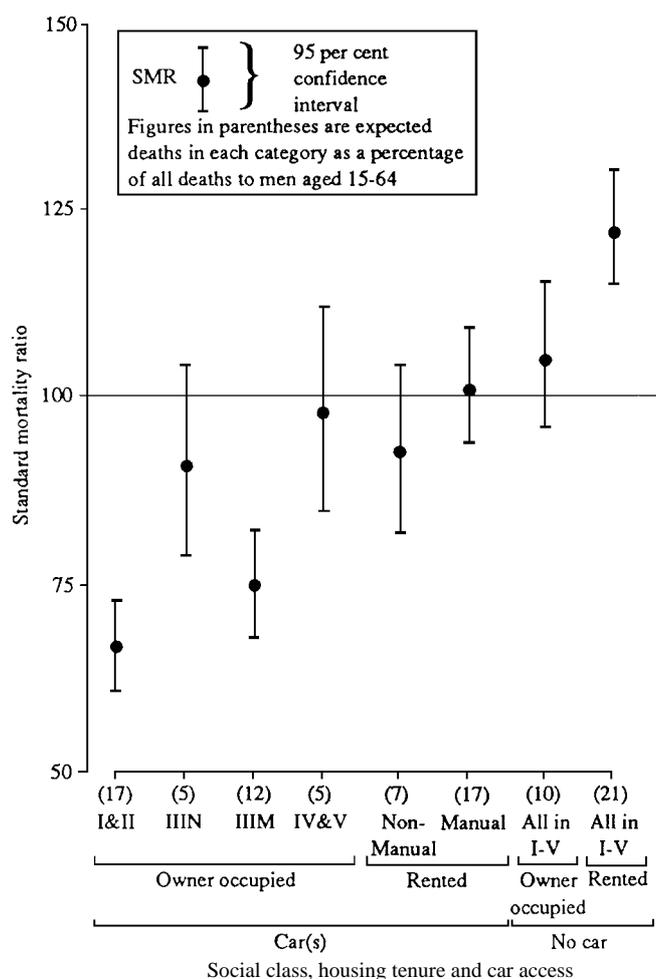
Source: Fox A.J. and Goldblatt P.O. 1971-1975 *Longitudinal Study: Socio-demographic mortality differentials, LS series no. 1.* London: HMSO, 1982

Although earlier prospective studies such as Fox and Collier<sup>5</sup> had indicated the general well-being of those in employment, the LS was the first population-based sample to provide evidence on the magnitude of the 'healthy worker effect', the size of the groups affected and the rate at which this effect wears off with time. It is also significant that the study identified the economic positions that were associated with ill-health selection (the temporarily sick and the permanently sick). While this provided some valuable information on social class mortality differentials, the follow-up period (1971-75) was not long enough to provide conclusive evidence on the rate at which the effect wears

off. (Further details of work into the 'healthy worker effect' are reported below.)

Linked census and mortality data have also been used as alternative measures of social classification - the main findings of which are published in Goldblatt.<sup>6</sup> Goldblatt *et al.* showed that though the Registrar General's social class is a reliable method of classification for investigating male mortality differentials, the use of housing tenure and car access offers some improvement (see Figure 2.2).

**Figure 2.2 Mortality, 1976-81, of men aged 16-64 by social class, housing tenure and access to cars**



Source: Goldblatt P.O. 1971-1981 *Longitudinal Study: Mortality and social organisation LS Series no.6*, HMSO (London 1990).

Over the last decade there has been considerable discussion of the inadequacy of the Registrar General's measure of social class for investigating differences in women's mortality. Some of the criticisms raised concern about the way in which the classification fails both to adequately distinguish between jobs done by women and to fully reflect women's skills and responsibilities. Increasingly, it has also been shown that social class underestimates the number of men at the lower extremes of the social and economic spectrum. As a result, the use of additional measures reflecting tenure and car ownership, has been explored. When combined with social class these 'asset measures' produce larger groups which are differentiated according to social and economic well-being.

At the 1971 Census approximately 3 per cent and 6 per cent of the LS sample were classified to Social Classes I and II. Figure 2.2 shows that of the men aged 15-64 years at the 1971 Census, those with the most advantageous characteristics (owner-occupiers with car access, Social Classes I and II) accounted for 17 per cent of expected deaths in the period 1976-81 with a standardised mortality ratio (SMR) of 67. Those without access to a car and living in rented accommodation accounted for 21 per cent of expected deaths (SMR = 123). This compares with results based solely on social class which showed that 5 and 7 per cent of expected deaths in the period were attributed to those in Social Class I and V. (The SMRs were similar, at 67 and 125.) The fact that the larger groups produced using a combination of 'asset measures' have the same SMRs as the much smaller ones based exclusively on social class (as defined by occupation) shows that health inequalities are a phenomenon which continues to affect a sizeable proportion of the population.

Continuing reservations about the poor quality of occupational information for women prompted Moser, Pugh and Goldblatt<sup>7</sup> to use LS census and mortality data to investigate several alternative measures of socio-economic status for analysing differences in women's mortality. As well as key household indicators such as housing tenure and car access, they examined the effects of life cycle stage, in this case by focusing on married women and using the age of the youngest child. In recognition of the fact that the lives, employment patterns and domestic responsibilities of married and single women are different, a crude distinction was made between single women, married women classified to an occupation and 'unoccupied' married women. (The last of these categories includes both housewives and those who were 'permanently sick'.)

Results suggest that for single women, car access and own social class were both important discriminators, while for 'unoccupied' married women car access and husband's social class were most significant. Although there were differences for married women with an occupation, these were less marked. Furthermore, for married women the effects of life cycle stage and economic activity are associated with further differentiation in mortality. Mortality levels were found to be lower for those with dependent children than for housewives without children or with older children.

Another of the study's contributions to the understanding of occupational mortality concerns deaths at older ages, which had been neglected by previous decennial supplements. Goldblatt<sup>6</sup> used both individual and household-based measures to summarise socio-economic differences in male deaths during the period 1976-81. While all the measures identified differences in mortality in each of the age groups, housing tenure appeared to be most suitable for highlighting the variation in deaths at older ages (over 75). Both the proportion assigned to a social class and those with access to a car decreased with age. Goldblatt also demonstrated that the use of housing tenure is particularly valuable for summarising mortality differences among elderly women. For not only was

occupation seldom recorded for these women, but the majority were widowed and therefore could not be allocated to a social class on the basis of their husband's occupation.

Linked census and mortality data covering this period (1976-81) also confirmed a number of features of the 'healthy worker effect'. As Table 2.1 demonstrates, though the mortality rates for those employed at the 1971 Census were generally below those of other men and women in the LS, this relative advantage decreased with length of follow-up. Although they followed a similar pattern to that of employed men, mortality ratios were lowest among women and at older ages. As a result, differences between the mortality of those in employment in 1971 with those

for all men and women in the LS were lowest in middle age, during the later follow-up period.

The inclusion of LS mortality data relating to the LS member's spouse offers scope for additional mortality analyses. For example, Jones and Goldblatt<sup>8</sup> used this for a study of post-bereavement mortality in the period 1971-81. Figures 2.3 and 2.4, based on LS mortality data for three major causes of death, demonstrate the pattern of deaths which occurred following bereavement. These show that for widows the majority of deaths occurred in the first six months after bereavement, while for widowers deaths occurred over a longer period of at least a year. In both groups, the raised mortality observed in the early months

**Table 2.1 Death rates in 1971-81 for men and women employed in 1971 by calendar period and age at death**

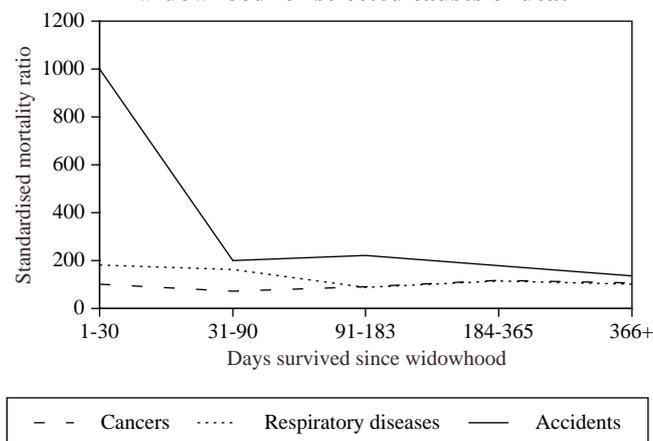
Age at death	Men				Women			
	Death rates*		Age-specific ratios†		Death rates*		Age-specific ratios†	
	1971-75	1976-81	1971-75	1976-81	1971-75	1976-81	1971-75	1976-81
20-24	622	643	87	60	502	245	104	58
25-29	704	692	86	86	512	330	85	87
30-34	767	902	87	89	568	733	65	106
35-39	1,127	1,394	82	89	773	766	73	98
40-44	2,259	2,368	89	91	1,986	1,339	101	105
45-49	4,500	4,336	88	97	2,326	2,711	74	91
50-54	7,359	7,995	87	93	4,374	4,326	79	87
55-59	13,040	13,188	85	95	6,349	6,366	79	84
60-64	19,618	22,493	83	94	9,535	10,824	71	88
65-69	32,169	35,093	77	90	10,592	15,000	52	81
70-74	43,100	53,235	67	85	21,677	24,468	62	78
75-79	63,494	84,062	68	85	24,395	42,022	42	75
80 and over	114,435	115,930	79	83	35,854	80,880	38	87

\* Rate per million person-years at risk.

† Ratio of the age-specific rate for the employed to that for all men or women in the LS.

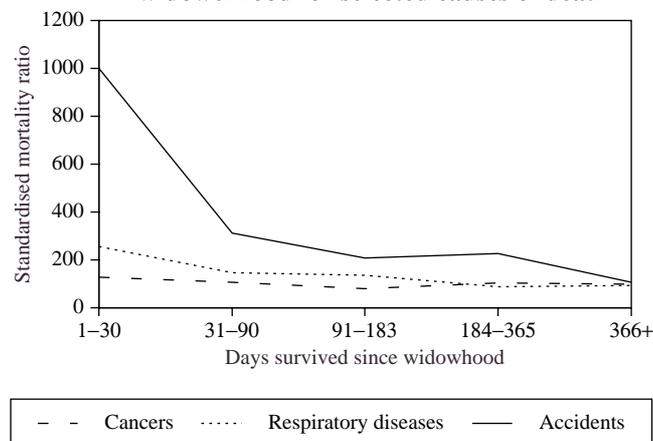
Source: Goldblatt P.O. 1971-1981 Longitudinal Study: mortality and Social Organisation, OPCS Series LS no. 6, HMSO (London 1990).<sup>6</sup>

**Figure 2.3 1971-1981 Mortality by interval since widowhood for selected causes of death**



Source: Jones D.R. and Goldblatt P.O. Was Ciocco right? Cause of death in the widow(er)ed and their spouses in the OPCS Longitudinal Study, *Journal of Biosocial Science*, **19**: **1**, 1987, pp 107-121.

**Figure 2.4 1971-1981 Mortality by interval since widowerhood for selected causes of death**



Source: Jones D.R. and Goldblatt P.O. Was Ciocco right? Cause of death in the widow(er)ed and their spouses in the OPCS Longitudinal Study, *Journal of Biosocial Science*, **19**: **1**, 1987, pp 107-121.

declined steadily with the time since bereavement to the expected level. The figures demonstrate the high relative risk of death due to accidents and poisoning in the period after bereavement. However, it appears that even at younger ages, few of these were 'simultaneous accidental deaths', e.g. the death of both spouses in a car accident.

Linked census and cancer registration data have been used by Leon<sup>9</sup> to study social differences in the incidence of cancer. The ability to link post-census cancer registration data to individual census records has a number of advantages for the study of cancer incidence and clearly distinguishes the LS from the majority of investigations in this area. Studies based on cancer registrations provide a much larger number of events than those based on deaths, as inclusion is independent of survival. This is particularly relevant for those cancers with good to moderate prognosis, where substantial gains are made in terms of statistical power when registrations are used in preference to mortality data.

In this work, Leon investigated the differences in cancer incidence attributed to area of residence, marital status, fertility history and five different measures of socio-economic position in the five-year period following the 1971 Census (1971-75). The socio-economic differences shown by the study are generally in accord with findings reported elsewhere. For example, the incidence rates for cancers of the cervix, stomach and lung were greatest

among the 'disadvantaged' sections of the study population, while those for cancers of the breast and ovary tended to be greatest among the 'advantaged' sections.

Leon also looked at the relationship between fertility history and cancer incidence, using information derived from the 1971 Census fertility questions asked of ever-married women aged between 16 and 59. Despite the restriction this placed on analysis, the study provided further confirmation that women who are childless have a higher risk of cancers of the breast, 'other uterus' and ovary compared with those who have had children (within marriage). In addition, it showed that the older a woman is at the birth of her first child, the lower her risk of cervical cancer (see Table 2.2).

Another potential use for linked census and event data in the LS is for the analysis of socio-economic differences in fertility and birth outcome. Werner<sup>10</sup> used details of births registered between 1971 and 1980 to a group of female LS members, to provide information on aspects of the women's early childbearing histories including age at first birth. Figure 2.5 shows the variation in the proportion of women who became mothers before their twenty-fifth birthday according to their family background. Whereas less than one third of women from owner-occupied homes had become mothers by the age of 25, over half of those in local authority housing had had children. As the figure demonstrates, this difference was even greater when the

**Table 2.2 Cervical cancer registrations among ever-married women aged 16-59 at the 1971 Census by age at registration, type of lesion and age at first birth, 1971-75**

Note: the statistics in each cell are: standardised registration ratios (top row); observed and expected number of registrations (middle row); and 95% confidence intervals (bottom row).

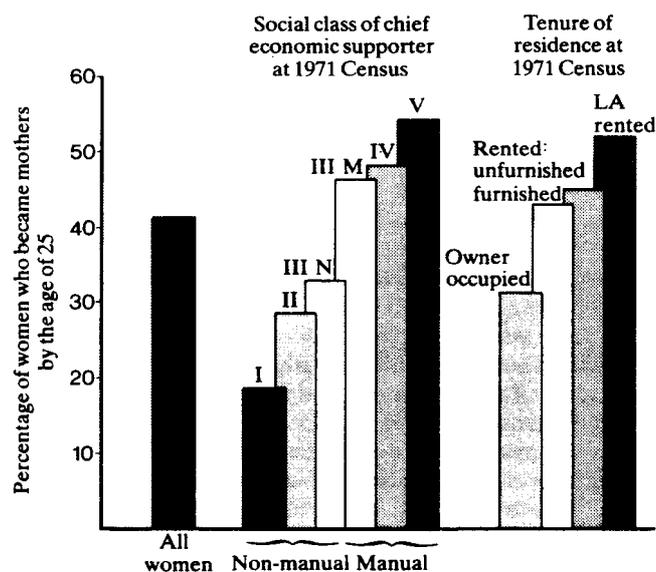
Age at birth of first child (years)	Type of lesion							
	In-situ		Invasive*		All carcinoma of cervix			
	16-39	40-64	16-39	40-64	16-39	40-64	16-64	
	<b>175</b>	<b>181</b>	<b>318</b>	<b>154</b>	<b>202</b>	<b>162</b>	<b>187</b>	
16-19	17 9.7 102-281	4 2.2 50-466	7 2.2 128-656	8 5.2 66-303	24 11.9 129-300	12 7.4 84-283	36 19.3 131-258	
	<b>114</b>	<b>106</b>	<b>68</b>	<b>115</b>	<b>105</b>	<b>112</b>	<b>109</b>	
20-24	35 30.6 80-159	14 13.2 58-178	5 7.4 22-158	35 30.5 80-160	40 38.0 75-143	49 43.7 83-148	89 81.7 87-134	
	<b>45</b>	<b>101</b>	<b>54</b>	<b>83</b>	<b>47</b>	<b>88</b>	<b>76</b>	
25-29	6 13.2 17-99	11 10.9 50-181	2 3.7 7-195	23 27.8 52-124	8 16.9 20-93	34 38.7 61-123	42 55.6 54-102	
	<b>50</b>	<b>53</b>	<b>167</b>	<b>61</b>	<b>77</b>	<b>59</b>	<b>61</b>	
30 and over	1 2.0 1-279	3 5.7 11-154	1 0.6 4-929	10 16.4 29-112	2 2.6 9-278	13 22.1 31-100	15 24.7 34-100	
	<b>106</b>	<b>100</b>	<b>108</b>	<b>95</b>	<b>107</b>	<b>97</b>	<b>100</b>	
All parous women†	59 55.5 81-137	32 32.0 68-141	15 13.9 60-178	76 79.9 75-119	74 69.4 84-134	108 111.9 79-117	182 181.3 86-116	

\* Carcinoma of cervix excluding in-situ.

† Excluding women with age at birth of first child not stated.

Source: Leon D.A. 1971-1975 *Longitudinal Study: social distribution of cancer*, OPCS Series LS no. 3, HMSO (London 1988).<sup>9</sup>

**Figure 2.5 Percentages of women born in 1955-59 who were mothers before their 25 birthday**



Source: Werner B. Fertility and family background: some illustrations from the Longitudinal Study. *Population Trends*, 35, 1984.

women were classified according to the social class of the chief economic supporter (CES) at the 1971 Census. The proportion of women who became mothers by age 25 ranged from 19 per cent of those with CESs in Social Class I to 55 per cent of those with CESs in Social Class V.

Linked census and birth registration data have also been used by Fox<sup>11</sup> to study social class and occupational mobility. This work, which compared the occupational information recorded at the 1971 Census and at birth registration for a subgroup of LS men who became fathers between 1971 and 1977, provides an indication of the main directions of movement and variations between subgroups at this important stage of men's family life cycle.

The main findings indicate that, after allowing for recording and coding differences between census and birth registration, social mobility occurred from all social classes to Class II (the group which includes managers and senior administrators). The groups of men who experienced high rates of upward mobility include those living in the South East, those who had moved between local authorities in the year before census and those in owner-occupied accommodation. A combination of these characteristics was associated with particularly high rates. By comparison, upward social mobility was low for those men living in the North and for those in local authority accommodation.

Linked census and event data may also be used to examine the relationship between life cycle events such as marriage, childbirth, divorce, retirement and subsequent migration. For example, Grundy<sup>12</sup> used the LS to look at the effects of marriage on women's migration. In this instance the LS was chosen in preference to other datasets based on survey data which are generally too small to investigate some of the complex relationships between life cycle events and

geographic mobility. Results from Grundy's work show that most women experienced a change of address at, or soon after, marriage. Migration rates varied according to the women's circumstances and those who were relatively disadvantaged experienced more difficulty in establishing an independent home at the time of their marriage.

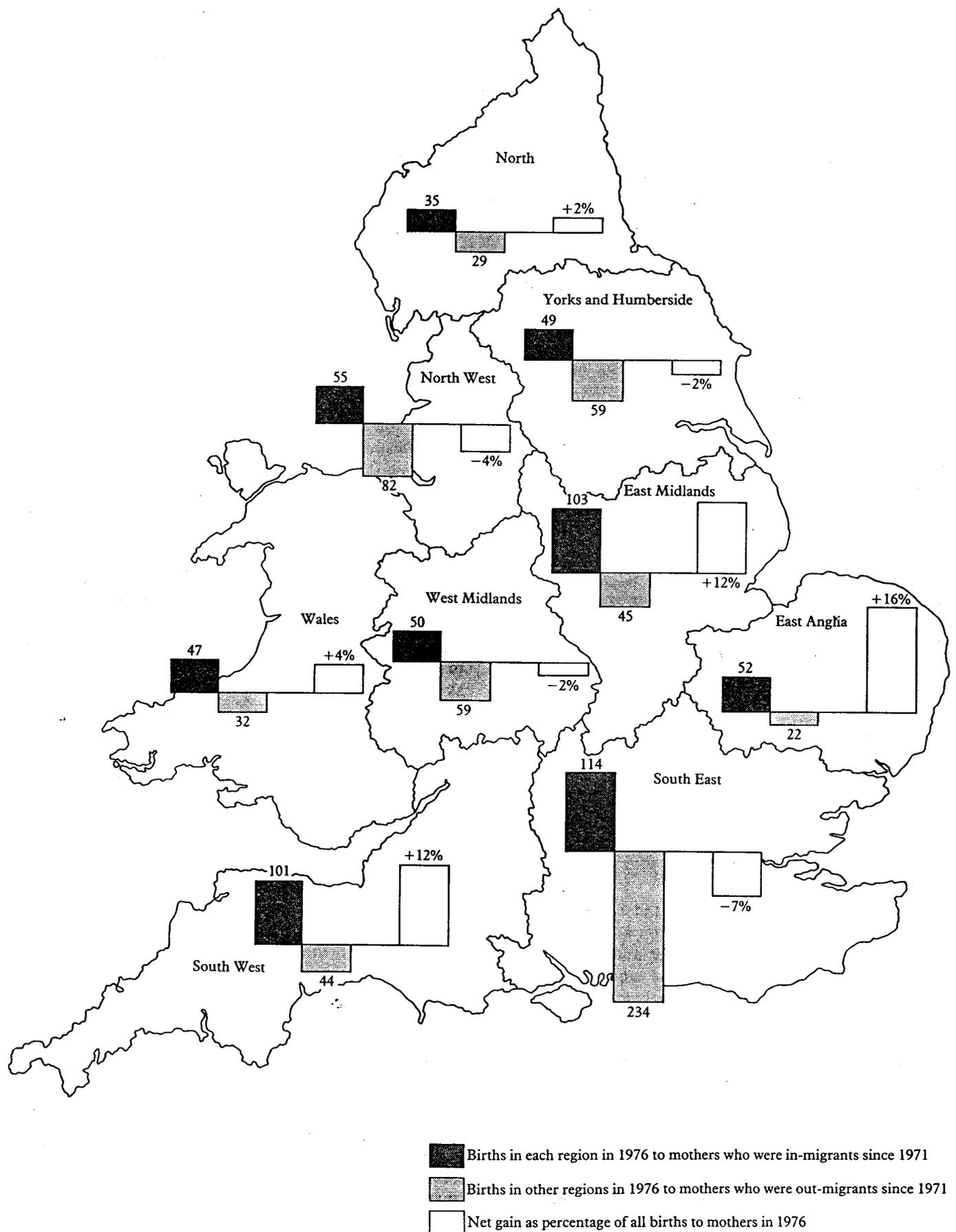
Grundy also observed regional variations in the proportion of women moving in the early years of marriage. Although the net population changes were not large, except in East Anglia and the East Midlands which were both net gainers of the newly married, Figure 2.6 illustrates that the migration of young women of childbearing age had an indirect effect on regional population growth. This figure shows the number of births in each region to women who were living in another region in 1971 ('in-migrants'), the number of births which occurred elsewhere to women who had left the region ('out-migrants') and the net gain in births expressed as a percentage of the region's total births in 1976. While East Anglia, the East Midlands and the South West made the greatest gains in the proportion of births due to inter-regional migration, the South East sustained the greatest losses.

LS census and mortality data have been used by Britton *et al.*<sup>13</sup> to analyse geographic differences in mortality. Part of this work involved classifying individuals according to a 36-category classification based on the socio-economic characteristics of the area in which they were living in 1971. Results show that mortality was raised for both males and females in areas such as urban council estates and 'areas of older settlement', both of which were defined as 'low status'. In comparison, below average mortality was observed in virtually all of the areas classified as 'high status'. These mortality differences persisted when the data were grouped by broad region - the North and West, Central and the South and East. For example, within each grouped region the 'low status' areas had the highest levels of mortality and those classified as 'high status' had the lowest.

The fact that the LS also records information on other household members resident at the time of the census means that the study may be used to investigate inter-generational effects. There is scope to examine the influence of family of origin on fertility and birth outcome, the incidence of cancer and subsequent mortality. Information on fertility history recorded by the 1971 Census may be used, for example, in association with birth registration data to describe and model inter-generational patterns of teenage fertility. It is important to note that, with time, this aspect of the study's potential will be enhanced, as events are linked into the study and complete fertility histories are achieved for successive cohorts of female LS members.

Leon<sup>14</sup> has used socio-economic information from the 1971 Census together with information on infant deaths recorded to female LS members to explore inter-generational differences in neonatal and post-neonatal mortality (i.e. infant deaths recorded in the first 28 days and between 1 month and a year). Preliminary results are summarised in Table 2.3. This gives the post-neonatal risk ratios by the

Figure 2.6 Regional gain or loss of births in 1976 due to net inter-regional migration between 1971 and 1976



Source: Grundy E.M.D. *Women's migration: marriage, fertility and divorce*, LS Series no. 4, HMSO (London 1989).

**Table 2.3 Postneonatal risk ratios by social class of grandfather at 1971 Census adjusted for selected factors sample members aged <16 at 1971 Census, 1971-88**

Grandfather's social class at 1971 Census	Interval	Interval + maternal age	Interval + parity	Interval + maternal age + parity	Interval + maternal age + parity + father's social class
Non-manual	1.00	1.00	1.00	1.00	1.00
Manual	1.81 (1.06-3.09)	1.76 (1.03-3.02)	1.77 (1.03-3.04)	1.58 (0.92-2.70)	1.61 (0.93-2.78)
Other	2.08 (0.81-5.32)	2.01 (0.78-5.16)	2.00 (0.78-5.17)	1.71 (0.66-4.40)	1.73 (0.67-4.49)
Family household: no grandfather	2.64 (1.33-5.25)	2.50 (1.25-4.99)	2.52 (1.26-5.05)	2.14 (1.07-4.28)	2.14 (1.07-4.31)
Non-family private household	1.45 (0.33-6.32)	1.34 (0.31-5.89)	1.36 (0.31-5.98)	1.10 (0.25-4.83)	1.09 (0.25-4.83)
Non-private household	4.21 (1.40-12.69)	4.06 (1.34-12.25)	4.12 (1.36-12.44)	3.45 (1.14-10.46)	3.42 (1.13-10.38)

Source: Leon D (1993) personal communication.

Note: The relevant 95% confidence intervals are shown in brackets. The term 'interval' refers to the period in which the birth occurred.

LS member's father's social class in 1971 (referred to in the table as 'grandfather's social class'), adjusted for selected factors including the period or 'interval' in which the birth occurred. (The relevant 95 per cent confidence intervals are shown in brackets.)

The results show that for post-neonatal deaths there is an effect attributable to the LS member's father's social class. Women whose fathers recorded a manual occupation at the 1971 Census were more likely to experience post-neonatal death of an infant than those with non-manual fathers. However, this relationship was reduced slightly and became non-significant after controlling for maternal age and father's social class at birth registration.

### 2.2.1.2 Prospective analysis of data from successive censuses

The second way of capitalising on the longitudinal nature of the LS is to use it to analyse changes which have taken place between the 1971, 1981 and 1991 Censuses. Researchers representing a wide range of interests have used the LS in this way to examine the changes in housing tenure, car ownership, migration behaviour and occupational mobility which occurred between the 1971 and 1981 Censuses.

Hamnett and Randolph<sup>15</sup> used the LS to investigate the process of tenure-specific polarisation in Greater London between 1971 and 1981. The results of this work suggest that there was a distinct tendency towards polarisation in the two dominant tenures over this period. The composition of the local authority sector shifted significantly towards the economically inactive and unemployed. It became increasingly associated with the elderly and the economically marginalised (those who had been displaced from the workforce either into unemployment or unpaid

domestic labour). By comparison, the owner-occupied sector became increasingly characterised by economically active households with children. Hamnett and Randolph showed that this tendency (towards polarisation) was further reinforced by those moving into and out of the two major tenures.

The change in housing conditions between 1971 and 1981 has also been the focus of research carried out by Williams and Dale.<sup>16</sup> Although the period 1971-81 was characterised by a reduction in the proportion of the population living in overcrowded housing or in properties lacking essential amenities, nonetheless Williams and Dale showed that the problem of inadequate housing conditions persisted for significant subgroups of the population. Those of Asian ethnic origin were very much more likely to experience overcrowding than any other ethnic group and elderly people were identified as the group most likely to lack an inside WC or bath. Large households containing more than one family, or with several children, were most likely to be overcrowded. While part of this work used linked census data, the results presented above are based on cross-sectional comparisons. Further results of this work, based on a multivariate analysis incorporating these factors are reported in Williams and Dale.<sup>17</sup>

Linked census data were used by Holmans, Nandy and Brown<sup>18</sup> to look at the effects of household dissolution and formation. Here the choice of the LS was significant as previous work had been based on cross-sectional analyses. Given the continuing increase in the incidence of divorce, their findings are particularly interesting. Data were used to provide estimates of the number of successor households and of some of the changes of tenure generated by divorce. While divorce among owner-occupiers led to a net increase in the number of owner-occupier households, about 30,000 former owner-occupiers became tenants, over half of them

renting from a local authority. The change from owner-occupation to local authority tenure was particularly pronounced for women, as illustrated by Table 2.4. Similar results for private tenants, showing that divorce produced a net increase of about 25,000 in the number of households classified in this way, provide further evidence of the demand for rented accommodation that is generated by marital breakdown.

**Table 2.4 Sample members married in 1971 and divorced in 1981: household status and tenure, 1971 and 1981**

*England & Wales*

	Men		Women	
	1971	1981	1971	1981
<b>Head of household</b>				
Owner-occupier	46	35	47	33
Local authority/new town tenant	32	22	30	37
Other tenant	20	15	19	10
<b>In private household, not head of household</b>	3	26	3	19
<b>Not in a private household</b>	0	2	0	-
Sample size (= 100%) (numbers)	2,685	2,685	3,286	3,286

Source: Holmans AE, Nandy S and Brown A. Household formation and dissolution and housing tenure: a longitudinal perspective, *Social Trends*, 17, 1987, pp 20-28.

Holmans *et al.*<sup>18</sup> also explored how far the effects of divorce were reversed by remarriage. It was estimated that even when the effects of remarriage were taken into account, the number of new households created through divorce was approximately 55,000 per annum, at the divorce rates current at the time of the research.

LS occupation and migration data for the period 1971-81 have also been used by Fielding<sup>19</sup> to investigate the relationship between occupational and spatial mobility for the South East region and the rest of England and Wales. Results suggest that during this period London acted as a kind of 'escalator' for individuals wanting to get on in life. The choice of metaphor describes the fact that London was attracting many of Britain's best qualified young people, training and promoting them as professionals or managers and then despatching them into other parts of England and Wales to establish their own families.

Finally, as a result of its sample size, the LS may be used to examine the changing characteristics of particular subgroups of the population - for example teenagers of school leaving age or those resident in a particular region.

The LS has been used by Condon and Warnes<sup>20</sup> to show the patterns of retirement migration exhibited by those leaving London. Figure 2.7 illustrates the 1981 destinations of those migrants who were aged 55 to 59 and lived in the London Metropolitan Region in 1971. Londoners are most likely to move to the county districts immediately around the capital and up to 75 km (46.6 miles) from the city, or to a wide range of rural and coastal destinations in southern England. Few cross the Severn-Wash divide, and of those who do, most are found in the conurbations that have had severe economic problems, e.g. South Wales, Tyneside and South Lancashire.

### 2.2.1.3 The scope for using data for three time points

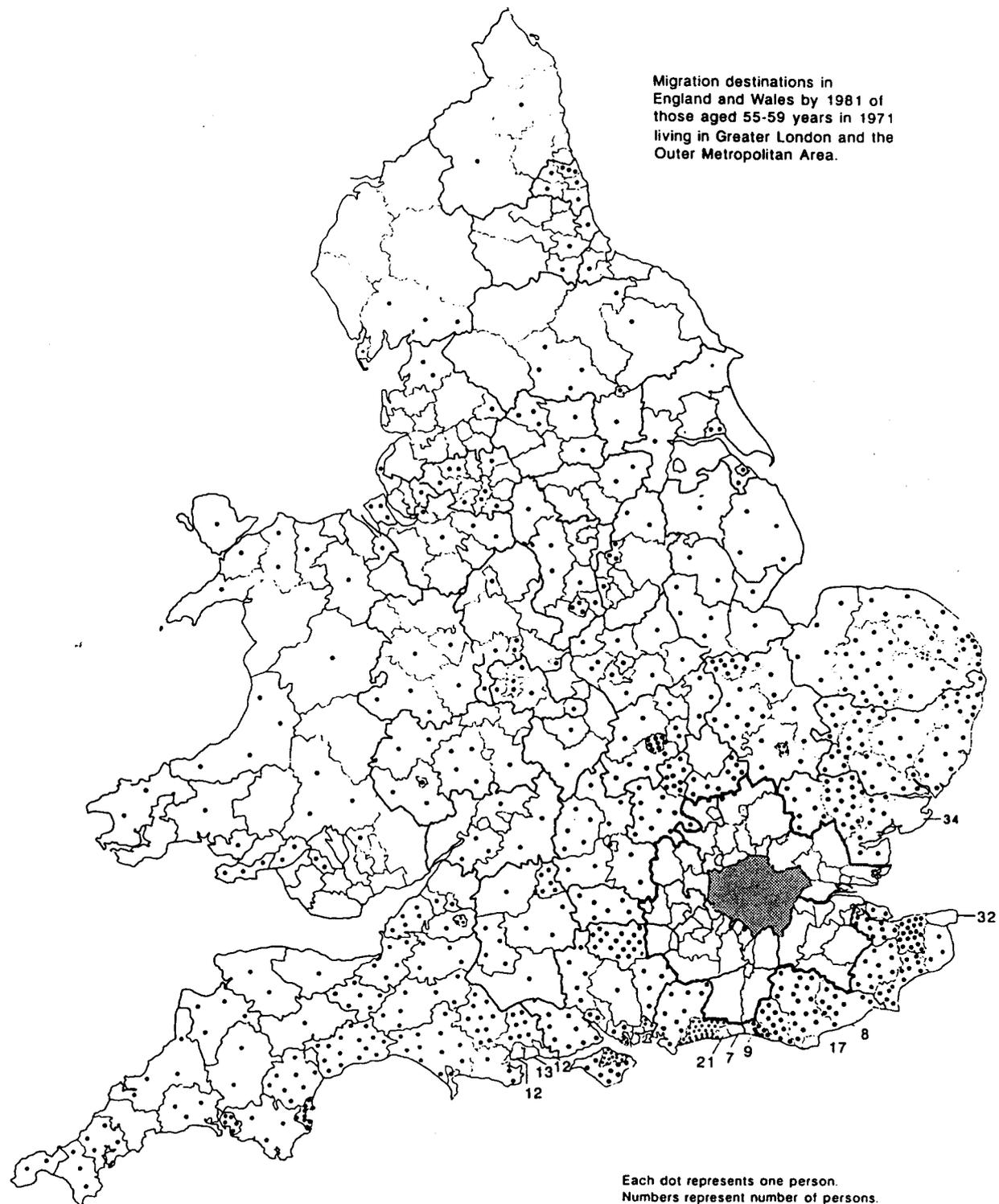
Now that the linkage of the 1991 Census data is complete, the LS provides an extremely valuable data source for charting those changes which took place between 1971 and 1991. It will be particularly interesting to compare the changes which occurred between 1981-91, a period of significant social change, with those observed during the previous decade (1971-81). For example, it will now be possible to extend analyses for the 1971-81 period, focusing on the proportion of local authority tenants who purchased their own home, and to establish the proportion who did so following the 1980 Housing Act, which offered local authority tenants the 'right to buy' (see Creeser<sup>21</sup>). Socio-demographic data may be used to compare the characteristics of those who bought in the 1970s with those who deferred buying until the 1980s.

The addition of data from the 1991 Census on ethnicity and limiting long-term illness<sup>22</sup> will significantly enhance the research potential of the study. The 1991 Census information on self-ascribed ethnicity may be used to chart some of the social changes which have taken place over the last 20 years. For those with linked data for the three time points it will be possible to ask: how do the housing conditions of Britain's ethnic minority population in the early nineties differ from conditions at the beginning of the seventies, and how do these changes compare with the experiences of those who described themselves as 'white'? There is also scope to investigate changes in education, employment and migration. As an extension to earlier LS-based research, it will be interesting to see whether the distinct ethnic patterns in social mobility Robinson<sup>23</sup> observed in the seventies persisted into the eighties.

Capitalising on the longitudinal nature of the LS, the data on limiting long-term illness may be used to explore the extent to which the incidence of long-term illness is associated with earlier census characteristics. For example, the area of usual residence recorded at the 1971 Census may be used to relate former area of residence and subsequent migration history to current health status.

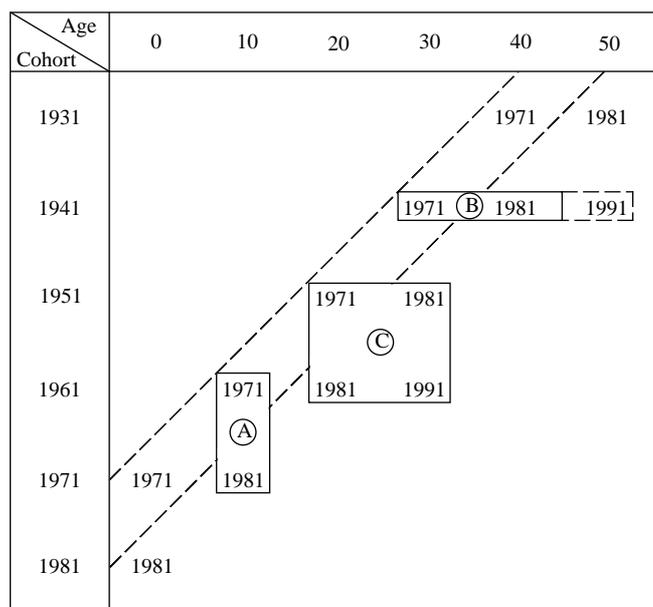
The availability of data for three time points means that the LS may now be used to model age, period and cohort effects, as illustrated in Figure 2.8. In this figure the rows define the cohort of interest, the columns their ages, while the years in the body of the diagram represent a given

**Figure 2.7 Destinations of migrants aged 55-59 living in London in 1971**  
 (see figure 2 of OPCS/SSRU *LS Newsletter no. 3*)



Source: Condon S. and Warnes A.M. Les stratégies résidentielles des Londoniens retraités. In: Lelièvre E and Lévy-Vroelard C (eds). *La ville en mouvement: Habitent et habitants*, Harmattan (Paris 1992), pp 101-16.

**Figure 2.8 Age, period and cohort dimensions of change**



Source: Plewis, I. *The analysis potential of the LS*, LS User Guide No. 3, London: LS Support Programme, SSRU, City University, 1990.

period. The diagonal represents the cross-sectional data taken at one census with the age and cohort dimensions confounded. The vertical box (A) represents a series of cross-sections or censuses and gives aggregate change over a cohort (or period) for a fixed age. For example, it is possible to compare those who were 10 years old in 1971 (the 1961 birth cohort) with those who were 10 in 1981 (the 1971 birth cohort). The horizontal box (B) represents change over age (or period) for a fixed cohort, in this instance those born in 1941. Finally, the square box (C) represents the potential of the LS for identifying different cohorts and studying individual-level change over the same biological age, often referred to as 'cohort analysis'. Thus it is possible to investigate whether longitudinal associations established for one cohort, for example those born in 1951, also exist for those born 10 or more years later. Without doubt, this is the great strength of the LS and a feature that will be further enhanced with the addition of data from the 2001 Census. More information on the potential of the study for analysing change may be found in Plewis.<sup>24</sup>

Though the linked census dimension of the LS promises to be a valuable tool for describing some of the social changes which have taken place in the latter part of the century, researchers should not lose sight of the limitations inherent in census-based data. Essentially, a census represents a snapshot in time, for a particular day in a 10-year period. This has obvious implications for the analysis of occupational and migration data. For example, over a period of time individuals move in and out of employment - a fact that will not be picked up by the census, and any subsequent investigation based on it, which restricts the focus of analysis to activities carried out in the previous week. Similarly, though the census records the usual address

at enumeration and at one year prior to census day, the limitations of using these data as an estimate of the total number of moves made in the intercensal period are well documented (see Nicholson).<sup>25</sup> To list the most obvious limitation, the data omit all moves made by those who were born or died during the intercensal period, who moved to or from another country, as well as within the country, plus multiple moves, which are possibly the largest category of all. (However, for those registering an intercensal event such as a birth, it is possible to identify whether there has been a change of address between the census and event. This may be done by comparing county district recorded for both data points.)

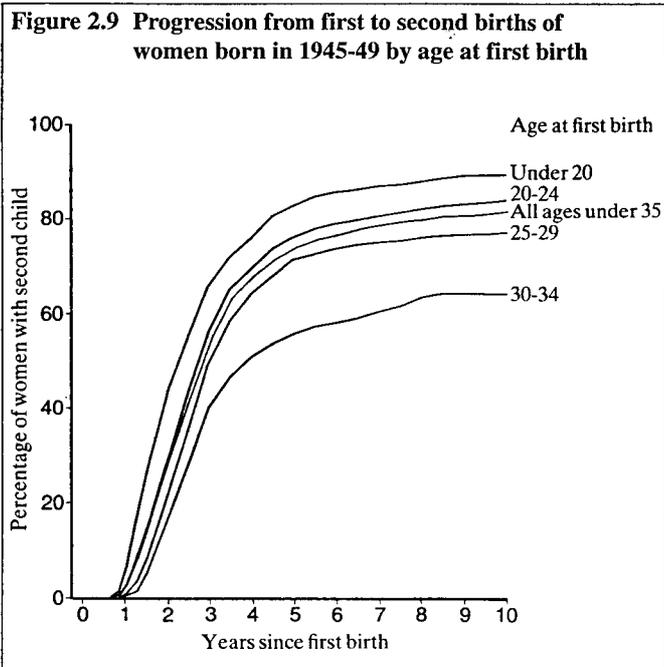
Also, by necessity the range of topics and the degree of detail which the census can cover is restricted. The absence or limitations of census data relating to specific topics such as income and health may further restrict the types of analysis which are feasible. For example, in the 1991 Census the subject of health is confined to one simple question on limiting, long-term illness.

#### 2.2.1.4 Prospective analysis of data from successive events

One further way to exploit the longitudinal component of the LS is to use the linkage of information from successive events (birth, stillbirth, infant death, cancer registration and death), possibly in conjunction with data from the census. An obvious candidate for this type of analysis is the fertility information derived from births registered to female LS members, which may be used to explore fertility patterns and changes in the characteristics of the sample over time.

Linked event data have been used by Werner<sup>26</sup> to provide information on fertility (changes in birth spacing), one of the topics for which the LS was originally established. This work, which looked at the spacing of births to those women born between 1935 and 1959, highlighted the importance of the mother's age at first birth in determining the timing of second and subsequent births. This is illustrated for women born in 1945-9 in Figure 2.9. Two and half years after the birth of their first child, over half of those women who had become mothers in their teens had had another child. Over the same period slightly less than a third who had become mothers between the ages of 30 and 34 had gone on to have another child.

The potential also exists for using linked fertility data to calculate the median interval between births for second and subsequent births in any given year. This is particularly valuable because, though OPCS report annually on the median interval between marriage and first birth, it is not possible to establish the median intervals for second and subsequent births from registration data. This arises as the questions asked at birth registration do not include date of previous birth(s). Furthermore, though it is possible to obtain birth interval data relating to the second and subsequent births from the GHS, the sample size when compared with the LS, is small. This means that it is necessary to aggregate results for successive years, whereas the LS can be used to examine annual trends.



Source: Werner B. Spacing of births to women born in 1935-59: evidence from the OPCS Longitudinal Study, *Population Trends*, 52, 1988, pp20-25.

Linked LS fertility data may also be used for validation purposes. Work by Babb and Hattersley<sup>27</sup> on the quality of the LS fertility data has highlighted the limitations of using national birth registration data to provide information on fertility trends. An important difference between the two sources is that the LS facilitates a more complete picture of parity, as it includes births both inside and outside marriage. However, it is important to note that the study does not at present include complete fertility histories. This is because the LS does not have access to birth registration records for those women who gave birth prior to the 1971 Census and the younger age cohorts of women, who started childbearing after 1971, may not yet have completed their families.

Linked event data from cancer and death registration have been used with census data by Kogevinas<sup>28</sup> to describe and model patterns of survival after cancer registration between different social and demographic groups, as identified by the 1971 Census. Here the LS was chosen for its unique linkage facility which provided an opportunity for the first detailed study of survival patterns at a national level.

Results suggest that those in local authority housing at census nearly always had a lower rate of survival from cancer than those in owner-occupation. This is illustrated in Figure 2.10, which shows the standardised case-fatality ratios (SFRs\*) for a number of major cancers registered to

\* Standardised case-fatality ratios (SFRs) were calculated by using the case-fatality rates of the whole LS population for the cancer in question. For example, for cancer of the lung in men, the standard case-fatality rates would be the age-specific rates of all men with this cancer in the LS. It is important to note that *high* SFRs correspond to *low* survival. In addition to this the SFRs were standardised for year of registration and period of follow-up, enabling comparisons to be made between SFRs for specific age-groups, years of registration or periods of follow-up.

**Table 2.5 Standardised case-fatality ratios (SFR) for breast cancer by parity, age at first full-term pregnancy (FFTP) and age at death†**

Parity and age at FFTP	Age at death			
	16-44		45-71	
	No	SFR	No	SFR
Parity				
Nulliparous	9	96	65	139
Parous	46	124	328	93
Age at FFTP				
Under 20	6	133	25	135
20-29	33	90	228	89
30 and over	7	226	78	100

† Married women aged less than 60 at 1971 Census. The upper age limit for the older age-group is 71 years as it includes women aged 59 at 1971 Census, getting a cancer in 1971 and surviving until 1983.

Source: Kogevinas M. 1971-1983 Longitudinal Study: socio-demographic differences in cancer survival, LS Series no. 5, London: HMSO, 1990.

men in the LS between 1971 and 1983. Differences were most pronounced for cancer of the colon, skin, testis and bladder.

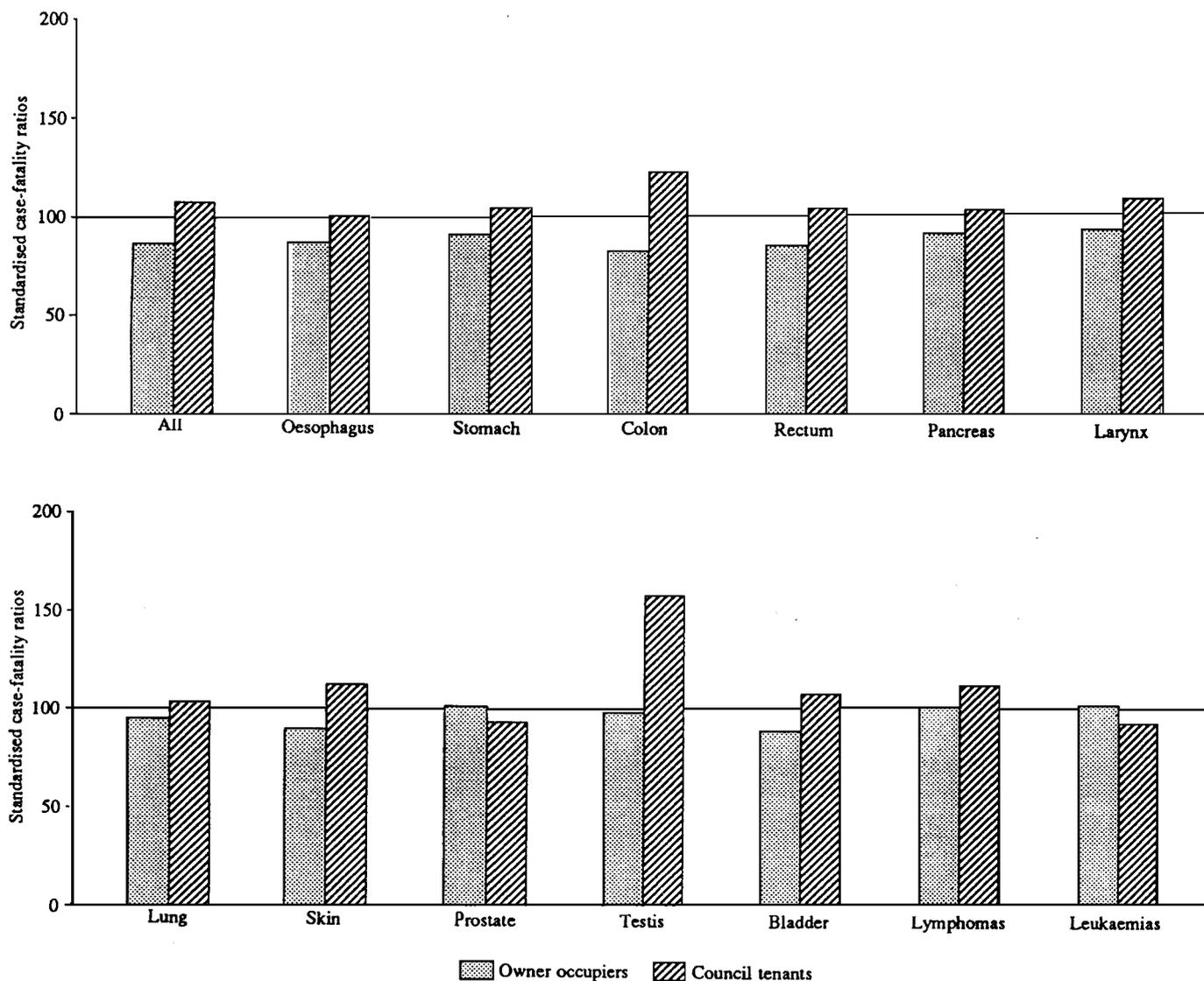
Kogevinas also used information from the 1971 Census fertility question to analyse the relationship between fertility history and cancer survival for breast cancer (see Table 2.5). This suggests that female survival rates are related to reproductive history. Women who had children exhibited significantly improved survival rates from breast cancer when compared with those who had not had children. However, the survival rates of those who had their first child in their teens were poorer than those who had delayed childbearing until later.

Kogevinas postulates that several biological pathways could explain the effect of reproductive history on breast cancer survival. For example, the presence of oestrogen receptors in the breast tissue have been related to age at first full-term pregnancy (FFTP) and parity. Early FFTP produces a long-term decrease in serum prolactin levels. High levels of serum prolactin have been shown to be associated with poor breast cancer prognosis (see Newman *et al.*).<sup>29</sup>

## 2.2.2 The scope of the LS for cross-sectional analysis

Though it was not originally designed to be used in this way, several features of the LS make it suitable for a range of cross-sectional analyses. These include the information which is added to the LS over and above that from the census and vital event registration which feeds into the study. In addition, cross-sectional data from the LS may be used for validation purposes and for constructing new classifications.

Figure 2.10 Cancer survival in men by housing tenure, 1971-83



Source: Kogevinas E. 1971-1983 Longitudinal Study: Socio-demographic differences in cancer survival, LS Series no. 5, London: HMSO, 1990

However, individual-level census data is also available for the 1991 Census in the form of the samples of anonymised records (SARs). These cover a 1 per cent sample of households and a 2 per cent sample of individuals drawn from the 10 per cent census sample. In most cases, the SARs will be the appropriate data source for cross-sectional analyses of the 1991 Census.

The census data in the LS include individual-level data classifying the area of residence (and enumeration). The study also incorporates aggregate geographical data, such as the small area statistics (SAS), which are added to individual records by means of a geographical identifier, usually the ward (see Creeser).<sup>21</sup> This feature of the LS distinguishes it from other census data sources (e.g. the SARs) which are unable to provide this level of detail.

For 1971 an approximation of the LS member's ethnic group is also available, based on responses to the census questions inquiring about the LS member's and parents' country of birth. (A question on self-ascribed ethnicity was

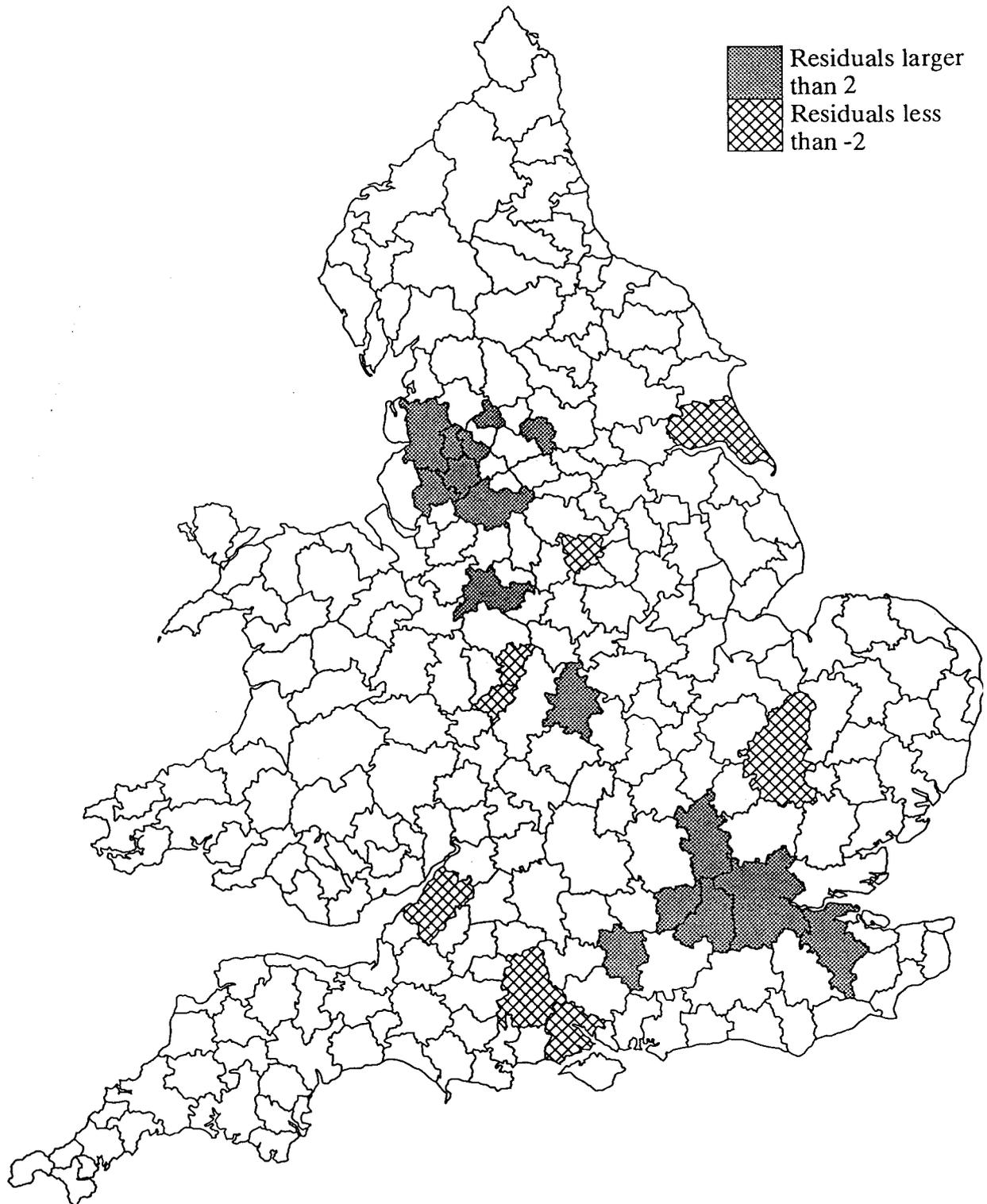
first included in the 1991 Census. Further details on this variable may be found in section 4.3.1.)

The LS has been used by Ward and Dale<sup>30</sup> to investigate geographical variation in women's employment status, after controlling for life cycle stage and ethnicity. This work capitalised on the information on ethnicity and travel-to-work area (TTWA\*) included in the LS.

Levels of both full-time and part-time working varied according to TTWA and this variation may be explained, to a large extent, by the labour market and demographic

\* Currently the TTWA is one of the most widely known and commonly used set of local-labour-market-areas (LLMAs) in Britain. TTWAs are defined so as to approximate self-contained labour market areas within which commuting to and from work occurs. The basic criterion used to define TTWAs in 1981 was that in areas with a working population of between 3,500 and 20,000 people, the number of people living and working in an area should be 75 per cent of both the total number of workers living in the area and the total number of people working in the area.

**Figure 2.11** The proportions of women in each travel-to-work area (TTWA) working full-time: residuals from final model



Source: Adapted from Ward C. and Dale A. A geographical variation in female labour force participation: an application of multi-level modelling, *Regional Studies*, 26: 3, 1991, pp 243-255

characteristics of the TTWA in which the woman was resident. This is illustrated by Figure 2.11 in which the residuals of a multi-level modelling exercise show that full-time work was overrepresented in two groups of TTWAs (identified in the figure by the dark areas of shading): a group in the South East described as high-tech

growth centres and established service centres and a second group in the North West characterised as manufacturing (towns) and declining towns, both of which have a long tradition of female employment. A further grouping of TTWAs, characterised in a similar way, is also found in the West Midlands.

The research also showed that, after controlling for the presence of children and marital status, women from non-white ethnic groups were less likely to work part-time than their 'white' counterparts. Furthermore, as Table 2.6 highlights, there was a marked difference in the incidence of part-time work among women of Indian and Pakistani/Bangladeshi ethnic origin, with women in the latter group much less likely to be in any type of paid work.

**Table 2.6 Employment status by ethnic group for women aged 16-59 in 1981**

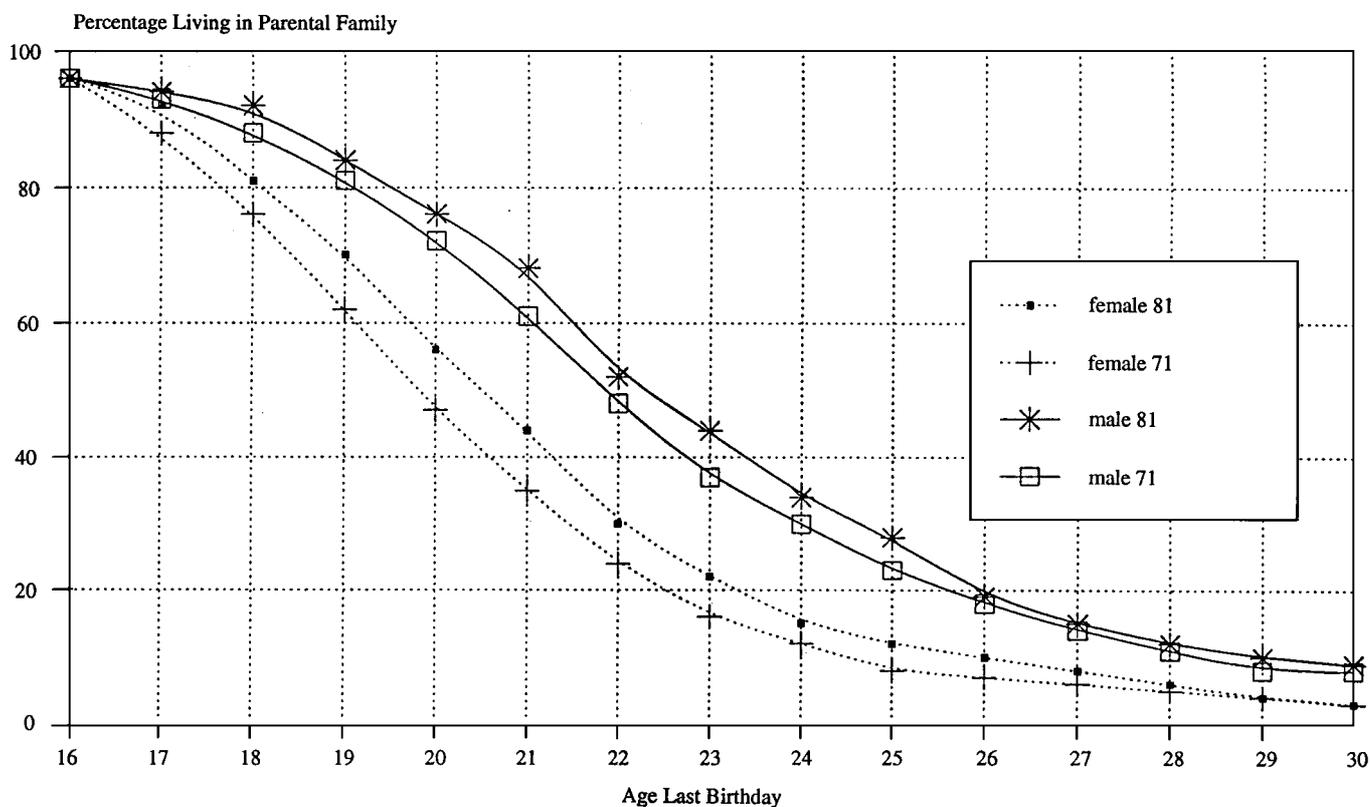
Ethnic group	Full time (%)	Part time (%)	Not working (%)	Number
'White'	35	22	43	132,568
West Indian	51	11	38	1,418
Indian	40	9	51	907
Pakistani/Bangladeshi	16	3	81	237
Other	44	12	44	754
(Number)	47,418	29,184	59,282	135,884
(% of total)	35	21	44	100

Source: Ward C and Dale A. Geographical variation in labour force participation: an application of multi-level modelling. *Regional Studies*, 26:3, 1991, pp. 243-255.

LS cross-sectional data can also be used for the purpose of validation. For example, the study may be used to provide baseline information on the distribution of families at the 1971 and 1981 Censuses and on the age, sex and ethnic group composition of an area. LS census data on family and household type, the age of youngest child and the number of dependent children have been used in this way by Harrop and Plewis<sup>31</sup> to produce baseline figures indicating the distributions of families at the 1981 Census. These data were used in place of published census results as they provided a greater level of detail and definitions more comparable with those based on the GHS and used by the researchers.

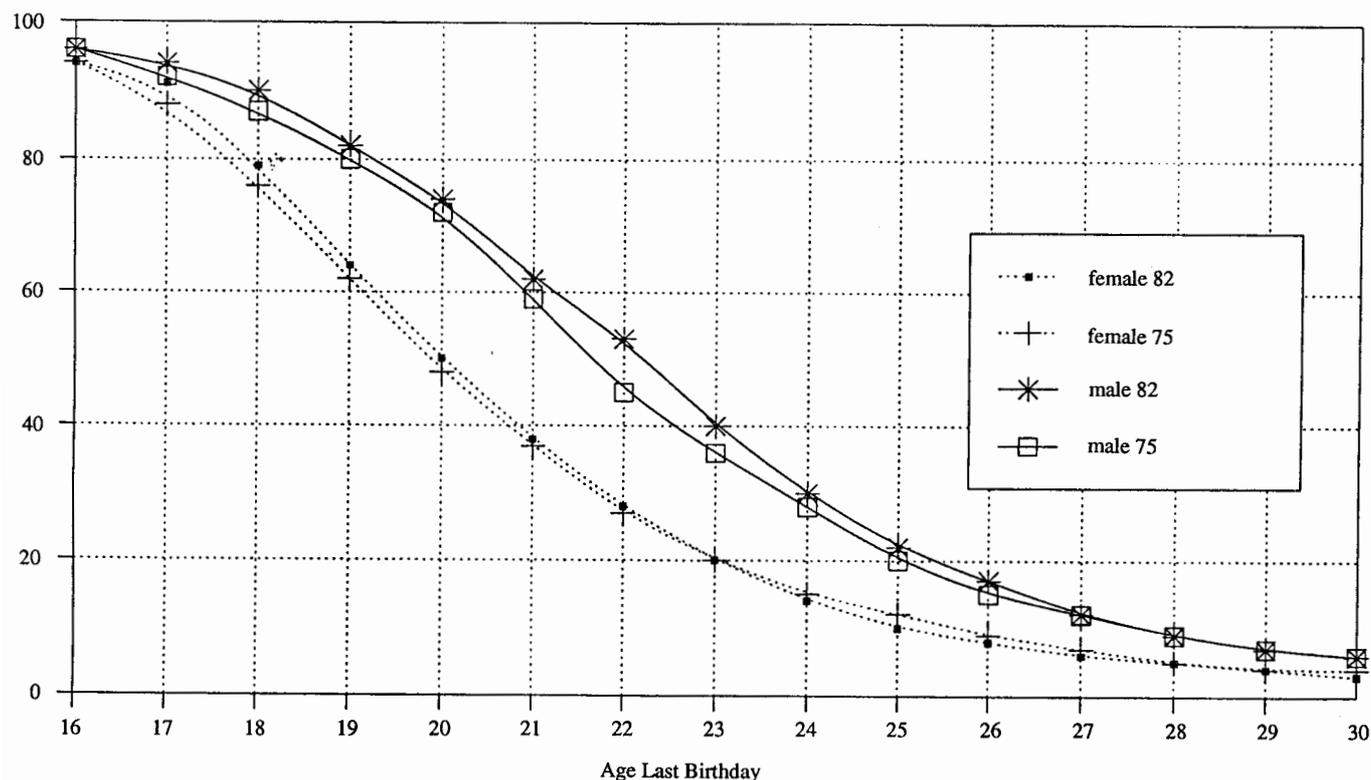
One further use of LS cross-sectional data concerns the ability to develop complex or alternative classifications not normally facilitated by published census data. The LS has been used in this way for a project comparing the residence patterns of children, young adults and the elderly in England and Wales at the start of the 1980s, with equivalent patterns for those resident in France (see Penhale;<sup>32</sup> Wall<sup>33</sup>). Figures 2.12 and 2.13 show the proportion of young adults living as unmarried children with their parents at each of the censuses. In both countries, and for both sexes, the proportion of those below age 25 resident in the parental home was greater at the later census. However, with the exception of English males in their late teens and early twenties, the differences are small.

**Figure 2.12 Percentage of young adults in England and Wales living in the parental family**



Source: Penhale B. *Living arrangements of young adults in France and England*. LS Working Paper no. 68, London: LS Support Programme, SSRU (City University 1990).<sup>32</sup>

**Figure 2.13 Percentage of young adults in France living in the parental family**



Source: Penhale B. *Living arrangements of young adults in France and England*. LS Working Paper no. 68, London: LS Support Programme, SSRU (City University 1990).<sup>32</sup>

### 2.2.3 The scope of the LS for international comparative work

As a result of the continuing concern over socio-economic differences in mortality, many other countries have established data linkage studies similar to the LS. For example, the French statistical office, INSEE, maintains a longitudinal study or *Echantillon Démographique Permanente* (EDP), which has much in common with the OPCS Longitudinal Study. The EDP, which was established in 1982, contains information from the French censuses of 1968, 1975, 1982 and 1990 for an approximate 1 per cent sample of the French population (about 700,000 individuals) plus information from vital event registration (birth, stillbirth, marriage, divorce and death).

Several other countries, particularly those in Scandinavia, have maintained studies since the early 1970s, based on the linkage of census and mortality data (Denmark, Finland, USA)<sup>34</sup> or between data for successive censuses (Norway). In Italy, linked census (1971, 1981 and 1991) and mortality data are available for the entire population of Turin.<sup>35</sup> Since the late 1970s, the Committee for International Cooperation in National Research in Demography (CICRED) has been responsible for promoting research into socio-economic differences in mortality in the industrialised countries, through the CICRED Network on Socio-economic Differential Mortality,<sup>36</sup> while the United Nations (UN) and the World

Health Organization (WHO) have been responsible for equivalent work in the developing world. Other countries have carried out one-off census-link exercises producing data which may be used for comparative research. For example, in Israel the records of 20 per cent of households enumerated at the 1983 population census have been linked to birth registration data to facilitate more detailed analyses of fertility patterns.<sup>37</sup>

By comparison with the LS, the linkage of the Nordic studies is greatly simplified by the existence of a system of population registers and a unique identification number which is used to facilitate linkage. As a consequence, it is possible for studies of occupational mortality to cover the whole population. Many of the findings of these studies are available as English reports or summaries. For example, see Lyng<sup>38</sup> and Andersen<sup>39</sup> (Denmark); Valkonen *et al.*<sup>40</sup> and Valkonen *et al.*<sup>41</sup> (Finland); Costa<sup>42</sup> (Italy); Tønnesen,<sup>43</sup> Haldorsen and Glattre<sup>44</sup> and Kristofersen<sup>45</sup> (Norway) and Statistiska Centralbyrån<sup>46</sup> (Sweden).

Most recently in 1991, the Netherlands established a longitudinal study of socio-economic health differences (LS-SEHD) based on a sample of 27,000 persons drawn from the population registers in the South East of the country (see Mackenbach *et al.*).<sup>47</sup> The study will incorporate data on self-reported health and socio-economic position and follow-up data on hospital admissions, cancer incidence and mortality.

The many similarities between these studies and the LS mean that there is considerable scope for international comparative work. For example, the LS has been used for an international study comparing the size of socio-economic mortality differences among men in the 1970s (see Kunst and Mackenbach).<sup>48</sup> This work is presently being extended using more recent data to ascertain to what extent international variation in health inequalities changed in the 1980s. Women's mortality patterns and comparisons by selected cause of death will also be investigated.

In addition, LS mortality data on ischaemic heart disease is being used to study occupational differences in mortality and hospitalisation in three EC countries. This study draws upon the following data sources: LS mortality data (1971-89), the Danish occupational mortality register (1970-85) and occupational hospitalisation register (1981-84) and occupational mortality data for Turin, Italy for the period 1981-89. Furthermore, Malcolm Williams and Lyn Bryant from the Department of Applied Social Science, University of Plymouth are exploring the possibility of using data from the LS and the EDP for a comparative study of migration and its effects on housing opportunity in Cornwall and Finisterre (Brittany).

Although there are many opportunities for work using the EDP and LS, it is important to note that the former excludes medical-based data, such as birth weight, duration of pregnancy and cause of death, which would be valuable for making comparisons with the LS. The reason for this omission is that in France such data are deemed 'medical secrets' and are therefore unavailable for linkage into the study. Further information on the full range of EDP variables available for analysis may be found in INSEE<sup>49</sup> and Desplanques.<sup>50</sup>

## 2.2.4 Concluding remarks

In recent years, as part of OPCS' continuing support for the LS, there have been a number of significant improvements in the scope and quality of the data and the arrangements for access. As the dataset ages and as additional information is incorporated, the research potential of the LS will be substantially enhanced.

The features highlighted above enable the LS to be used to provide individual-level census data for the 1971, 1981 or 1991 Censuses and linked longitudinal data for studying intercensal change and socio-economic differences in fertility and birth outcome, mortality, cancer incidence and survival. Two particular features of the LS, the availability of census data on other household members and the ability to attach contextual information to individual records using a geographic identifier, further enhance its scope.

With time the opportunities for analysis will depend upon the permutations of feasible linkages and the imagination of individual researchers to use the LS to investigate specific research problems.

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# 3 Methodology and organisation of the Longitudinal Study

## 3.1 STUDY DESIGN

The Longitudinal Study (LS) was designed as a continuous, multi-cohort study. The initial study population was selected as a random 1 per cent sample of the total population of England and Wales clustered by date of birth.<sup>1</sup> The original sampling frame included every person resident and enumerated (including visitors) in the 1971 Census of Population. The sample population was selected if their birthdates coincided with one of four dates of birth (month and day). The same four dates of birth were used to extract sample members from the 1981 and 1991 Censuses. Between censuses new members (with LS dates of birth) enter the sample via birth or immigration and exit from it through death or emigration. By recording entrances and exits to the study, the sample population should accurately reflect the demography of the parent population over time. However, the recording of both emigration and immigration is known to be incomplete (see Chapter 7, sections 7.1.2 and 7.2.2) and to this extent the LS departs from a true population sample.

The study was designed so that data about LS members would be acquired from the answers to census questions and from linking administrative data routinely collected by OPCS to the sample. It was therefore essential that the linkage of events occurring to members (e.g. births, deaths, cancer registrations, etc.), the addition of new members into the sample and the linkage of individual records from census to census should be achieved with a very high degree of accuracy. To achieve this level of accuracy all linkage in the LS depends crucially on the National Health Service Central Register (NHSCR) which acts as the avenue through which the linkage of events and census data to LS members takes place (see section 3.3).

## 3.2 ORIGINAL SAMPLE SELECTION

The original sample was selected from those persons enumerated in England and Wales on 25 April 1971 (Census day). The record of each person for whom one of the LS dates had been recorded as their birthdate was extracted from the 1971 Census computer files. A unique, eight digit serial number was then assigned to each LS member. A set of punched index cards was created containing essential census data for the identification of each sample member. This included information such as ward and enumeration district number (to allow the census schedule to be identified), sex, marital status, usual residence, date of birth and the allocated LS serial number. From this information each relevant census schedule was identified and name,

usual address and enumeration address details were written onto the index card. The first three characters of the sample member's surname were punched onto each card and after sorting into partial alphabetical order they were sent to the NHSCR at Southport. There they were used to identify and flag the record of each sample member in the Central Register.

At the same time as the Longitudinal Study in England and Wales was set up, a parallel study was established in Scotland. All cards for members of the Scottish sample were sent to the General Register Office Scotland (GRO(S)). The Scottish LS was discontinued soon after the 1981 Census, following the Rayner Review of the Government Statistical Service. The final work done on this data set was to complete the linkage with the 1981 Census. The arguments in support of suspension of the study were a perceived lack of demand for and usage of the data compared with the high cost of collection and processing. There were a number of reasons for this. Little analysis of the data was carried out in GRO(S), with the result that the existence and potential of the study was not so widely known as the England and Wales LS. Also, as with a number of other data sources, the sample size of approximately 50,000 members created problems with analysis at some levels of aggregation. In 1991 this policy was reviewed and potential academic customers were approached to gauge possible demand. The response was not encouraging. No linkage with the 1991 Census was carried out and the Scottish LS was effectively abandoned.<sup>2</sup>

## 3.3 THE ROLE OF THE NHSCR

NHSCR is central to the successful running of any linkage study involving vital events occurring to the population of England and Wales. Population registers and personal identification numbers are not legal requirements in the UK. As a result, tracing members of the population and linking events to them has to be done using the only commonly held means of identification, the NHS number. The NHS number, unlike other means of identification, such as the National Insurance number, is issued at birth registration and thus allows linkage of events to children as well as adults.

The Central Register (originally known as the National Register) was set up in September 1939 when a full enumeration of the population of England and Wales was carried out at the outbreak of the Second World War. The Register was structured geographically with persons being recorded within their families and households, within registration districts. Each individual was given an identification number which was also used on food rationing

cards. This number became the individual's NHS number in 1948 when the National Health Service was created. The register had a dual purpose until 1952 when both national registration and food rationing were abolished.

Each person enumerated on 29 September 1939 was issued with a four-letter code assigned to them by the enumerator in their enumeration district. The National Registration number was made up of the person's enumeration district code followed by the number of their enumeration schedule and the number of the person on the schedule.

The entries on the schedules were subsequently transcribed into registers, each containing approximately 7,000 entries in code number order. Each entry contains the surname, forenames, address, sex, date of birth, marital status and occupation of each person as given on the schedule.

In 1948, after the creation of the NHS, identification numbers allocated in 1939, or ration card numbers given to those born after 1939, were used to form NHS numbers. A block of NHS numbers was specially allocated for those members of the armed services who were demobbed in 1948 after the end of the Second World War. Subsequently, NHS numbers have been allocated in sequence within registration districts, at birth registration. Immigrants to the country are given an NHS number by NHSCR only after registering with a general practitioner (GP).

It is planned to allocate new NHS numbers to the population in 1995 when individuals present themselves for medical treatment. Although a new number will be issued, the old number will be retained as well. Only new births and immigrants will have a single NHS number after the introduction date.

### 3.3.1 NHSCR — pre-computerisation

Until 1991 all routine events were clerically recorded in the registers. These events included births, deaths, cancer registrations, enlistments into the armed forces, embarkations, entry into long-stay psychiatric hospitals, re-entries to the NHS, and internal migration. Each register contained one line per person in NHS number order and a record was thus held for all the population with the exception of immigrants not registering with a GP.

In the space allotted for each individual in the register each Family Health Service Authority (FHSA) (previously NHS Executive Committee, then Family Practitioner Committee) posting was entered together with a cipher denoting any notifiable events, such as enlistment or cancer registration. If a person was included as a member of a medical research study a cipher or flag denoting entry to the particular study was also entered in the register. Approximately 60 per cent of event notifications include the NHS number but the remainder either do not quote the number or have it entered incorrectly. Various alphabetical indexes are available to assist in tracing the NHS number where it is missing or incorrect.

The alphabetical indexes contain name, date of birth and

NHS number. Annual indexes of births registered since 1939 in England and Wales, containing details of date of birth and NHS number, are also kept.

### 3.3.2 The creation of the initial LS indexes

When the 1971 based LS index cards for England and Wales arrived at NHSCR each sample member had to be identified (traced) within the Central Register. The alphabetical indexes were used to identify the member, and the LS member's entry in the Central Register was flagged. The NHS number of the member was then transcribed onto the LS index card which was filed alphabetically under the member's full name in the LS alphabetical index.

Not all 1971 Census LS index cards could be traced (i.e. the NHS number found). By the end of 1976, when the files were 'frozen' and the LS alphabetical index created, 3.2 per cent of LS members (16,883 cards) could not be traced to an entry in the Central Register. These untraced cards were then used to create a 'no trace' LS index. It should be noted that some of these cases were subsequently traced after 1976 and are discussed further in Chapter 8.

The reasons behind this inability to trace the NHS number included:

- (a) The date of birth given on the census form as an LS date of birth was inconsistent with that held in NHSCR records. There were two reasons for the discrepancies between the birthdates given at census and those on record at NHSCR:
  - (i) The head of household completing the census schedule may have given an incorrect birth date for the LS member.
  - or (ii) The birthdate given on the records at NHSCR may have been incorrect or different from that given on the census schedule.
- (b) Women who had married but had not notified their doctors of a change of name, or who had moved on marriage and not yet registered with a new doctor, would still be held on the registers at NHSCR under their maiden names. When enumerated in the census they would, in the majority of cases, have given their married name. Any person who was inconsistent in quoting their name, so that one name was held at NHSCR and another quoted at census, may also have been untraced.
- (c) An immigrant to England and Wales in the period prior to the census who had not registered with a doctor by the census date would not hold an NHS number.
- (d) If the address given on the census form was not known to NHSCR because that person had moved area, but not yet registered with a new doctor, then they may not have been traced.

Staff at NHSCR were (and are) expert at resolving difficult tracing problems and used a number of methods to attempt to find the correct NHS number or changed name or address for untraced cases. For LS members who could not be found in the registers the usual residence as given at enumeration was used to identify the relevant local NHS Executive Council (EC). The ECs (later Family Practitioner Committees, now Family Health Service Authorities) were contacted by letter and asked if they could supply the NHS numbers for the untraced LS members. In 70 per cent of cases this proved successful. If the NHS number was identified as Scottish, the LS index cards were sent to NHSCR Edinburgh where the LS members were flagged in the Scottish registers and the cards returned to Southport.

Where the cards were still untraced the original census schedules were checked for further details, including year of entry to the country (if born overseas) and the names of other family members. Registration records and electoral registers were also used for this checking and date of marriage was also included in the search criteria. These extra checks frequently produced enough information to allow NHSCR to trace the person successfully.

### 3.3.2.1 1981 Census–LS link

An overview of the 1981 Census–LS link is given below. Full details (including details of the follow-up of LS members resident in Scotland are given in Chapter 5, section 5.1.3).

After the 1981 Census the role of NHSCR expanded to include the forward linkage of LS members from census to census as well as tracing. OPCS again produced index cards containing census data to identify LS members and each card was allocated a 1981 series LS number. As with the 1971 cards, name and address were added to them manually. On receipt of the cards at NHSCR a matching and linking exercise was undertaken.

If a card already existed in the LS alphabetical index, the 1971 LS number was added to the 1981 card. The card in the LS index may have been created as the result of the original sampling from the 1971 Census or may have been added during the decade if it was for a new birth or an immigrant. Where the LS member had been present at the 1971 Census, or an intercensal LS number had been allocated, the cards were said to be matched and the linkage was provided by the addition of the 1971 LS number. New entrants at the 1981 Census (not new births or immigrants who had entered the LS intercensally) were allocated a 1981 series number and had no previous LS number.

Matching of cards was done using both the trace and no trace indexes and new entrants were checked on the Central Register for an existing NHS number. Ninety-seven per cent of LS members enumerated in the 1981 Census were traced at NHSCR and 91 per cent of those LS members traced and flagged at the 1971 Census who had not died or emigrated intercensally, were successfully forward linked to the 1981 Census<sup>3</sup>. After the linkage exercise was completed the cards, carrying the 1971 LS number where available, were processed further (see Chapter 5).

## 3.3.3 NHSCR — post-computerisation

Computerisation of the records at NHSCR occurred in March 1991 when a new computerised Central Index was created. This was known as the Central Health Register Inquiry System or CHRIS database. The database was manufactured from the merging of 98 Family Health Service Authorities' computerised files and it is automatically updated with data from the FHSAs. Data are downloaded daily from the FHSAs to the CHRIS system via a direct communications link and turnaround of information occurs over a period of two to five days. It should be noted that automatic updating can only take place where a match is found, in approximately 70 per cent of cases. The remaining 30 per cent of cases where there is no match still require clerical updating. All LS members are now flagged on the new Central Index and the initial load of the LS index onto the CHRIS system provided a massive revalidation of the LS index at NHSCR.

### 3.3.3.1 1991 Census–LS link

An overview of the 1991 Census–LS link is given below. Full details are given in Chapter 5, section 5.3.

After the 1991 Census, index cards were again produced from the census data at OPCS for NHSCR to use to trace the LS members and link the 1991 LS sample over the censuses. The tracing and linkage were done using the Central Index database where possible and the original index of LS members where not. In 1991, 98 per cent of LS members' cards were successfully traced at NHSCR and of these, 79 per cent had also been enumerated at the 1981 Census. Fourteen per cent were new births or immigrants between 1981 and 1991, 4 per cent were new entrants at census who were neither new births or immigrants, and 3 per cent were LS members who had been sampled in 1971, missed the 1981 Census and were resampled in 1991. Forward linkage of eligible LS members from the 1981 Census sample (that is those who had neither died nor emigrated intercensally) stood at 90 per cent. As in 1981 the cards were processed further in order to merge the census data into the LS dataset.

## 3.4 UPDATING THE LS SAMPLE

An overview of the updating of the LS sample with events data is given below. A detailed account of the events linked to the LS sample and the methods used for that linkage is given in Chapter 6.

The LS was designed to be a sample with continuous updating of the population. To achieve this the components of population change, births, immigrations into England and Wales, deaths and emigrations out of England and Wales are added or subtracted from the sample as necessary. These are all events that are routinely notified to, and recorded at, NHSCR. Although the recording of births and deaths is almost 100 per cent complete, the notification of immigrations and emigrations is substantially lower. It should be noted that an 'exit' via death or emigration does

not mean that the record of the LS member is removed from the files, rather that the exit event is recorded for that member. The LS database is updated with an indicator to note that a death or emigration has occurred and in the case of a death no further events can normally be notified. The one exception to this is when a cancer registration is notified to NHSCR after the date of the person's death. A time lag in the system of cancer registration means that the cancer date may be received several years after an individual has died. An emigrant may re-enter the country (and the NHS) at a later date and be reactivated within the study.

The LS is also updated with other events occurring to the sample members. These events include births to LS sample members, infant mortality to children of sample mothers, deaths of the spouses of LS members, cancer registrations, enlistments into the armed forces, entries into long-stay psychiatric hospitals (until 1984), and re-entries into the NHS from either the forces or from psychiatric hospitals (only for original admissions prior to 1984).

Prior to the computerisation of the records held at NHSCR, the LS indexes were updated manually with deaths and any new entrants were given an LS index card. Information on immigrations, emigrations, enlistments, entries and exits from long-stay psychiatric hospitals, re-entries, deaths and cancer registrations was entered in the NHSCR registers and in the OPCS computer files. After 1991 all LS members were flagged on the new CHRIS database and the methods of linking events were changed.

### 3.4.1 New entrants

New entrants to the LS comprise births occurring in England and Wales on LS dates and immigrants whose birthdate is an LS date. The addition of new births to the sample is relatively straightforward, as all births in England and Wales must be registered by law. A draft entry form which carries full details of each birth is sent to OPCS by the Registrar of Births and Deaths for statistical processing. NHSCR Southport receives a short form from the Registrar carrying details of the baby's name, date of birth and NHS number which is used for updating the registers.

The addition of immigrants is more difficult as they are only issued with an NHS number and entered into the registers at NHSCR when they register with an NHS doctor. The category of immigrant includes not only those individuals who describe themselves to their general practitioners as such, but also those who, having quoted a previous address abroad, cannot be matched to an existing NHS number. This category includes people moving from Scotland, Northern Ireland, the Isle of Man or the Channel Islands into England and Wales as well as those entering from outside the UK.

### 3.4.2 Events data

The event data recorded in the LS include not only exits from, and entries to the study but also events that occur to

existing LS members. Some of the event data are acquired from routine notifications to NHSCR. Most event data however, are generated from routine statistical processing by OPCS and are then linked to the LS members at NHSCR. Deaths and cancer registrations are linked using a dual system which helps to improve completeness. (For further details of linking event data see Chapter 6.)

Some events are detected from the date of birth of the LS member as stated on the event notification document. A listing is generated from the annual computer file giving details of the events of interest occurring to persons with an LS date of birth. Because no names are included on the file the event notification document is then extracted and used to identify the person. Drafts and, in some cases, listings are then sent to NHSCR for linkage to be performed. Events identified in this way are (with approximate annual numbers):

- (a) New births of LS members (7,100);
- (b) Immigrants and re-entrants from abroad (2,500);
- (c) Births to sample members (6,000 each to LS mothers and LS fathers. Births to LS fathers were only collected between 1971 and 1978, and from Census day 1981 to the end of 1981);
- (d) Widow(er)hood of sample members (2,300);
- (e) Infant mortality (200).

A dual system is used for deaths and cancer registrations. The event notifications are crosschecked at NHSCR using both routine notifications and the OPCS annual computer files. The approximate annual numbers of these events are as follows:

- (a) Deaths of LS members (6,100);
- (b) Cancer registrations (2,100).

Some events are linked to the LS member when the registers at NHSCR are updated from routine notifications and the LS flag in the register identifies the person to whom the event has occurred as a member of the study. Events included in the LS using this method are as follows (with approximate annual numbers):

- (a) Internal migration, movement between FPCs (16,000) (included for the years 1971-74);
- (b) Enlistments into the armed forces (300);
- (c) Embarkations (1,200);
- (d) Entries into long stay psychiatric hospitals (50) (included for the years 1971-83);
- (e) Re-entries into the NHS from (b), (c) and (d) (500).

### 3.5 CREATION OF THE ICL COMPUTER FILES

When the selection and tracing of the original 1971 LS sample was complete, a set of ICL computer files was produced. These files were created to hold data acquired from the 1971 Census schedules on the LS members and their households. A similar set of files was created after the 1981 Census to hold data from the 1981 Census schedules. A set of events files was created for each decade, with one file per event per decade. These files were held separately from the LS files holding census data.

The requirements of the LS were such that all data for LS members and their households had to be fully coded for inclusion in the appropriate LS personal and household files. The Census Office do not fully code all items on census schedules during the census processing stages. 'Hard-to-code' items such as economic activity, migration, travel to work, etc., are fully coded for only 10 per cent of the main census records. In 1971 these items were fully coded specifically for all LS members and others in their households. In 1981 and 1991 the 'hard-to-code' items were again fully coded (with a few minor exceptions noted later) for the LS. Full details of the census data coded at each census for the LS members are given in Chapter 4.

Because two different forms are used to elicit information from households and institutions (hotels, hospitals, prisons, etc.), the main census records differ in detail according to where persons were enumerated. For people enumerated in households, the record for the entire household of the LS member was extracted. For those LS members residing and enumerated in institutions, only personal information is available.

Access to the LS data files was not direct. Certain data (date of birth of LS member, LS serial number, etc.) were not available for any analysis due to confidentiality issues. The other files used by the LS, containing events data, were only linked to the census personal and household files when information on events occurring to LS members was required. Data were extracted from these files (known as source files) in the form of flat files (known as datastreams). The datastreams also contained derived variables which were created, using algorithms, from variables in the source files. Datastreams were used until early 1994 as the only datasets for analysis, and are still used for some types of analysis not requiring 1991 Census data.

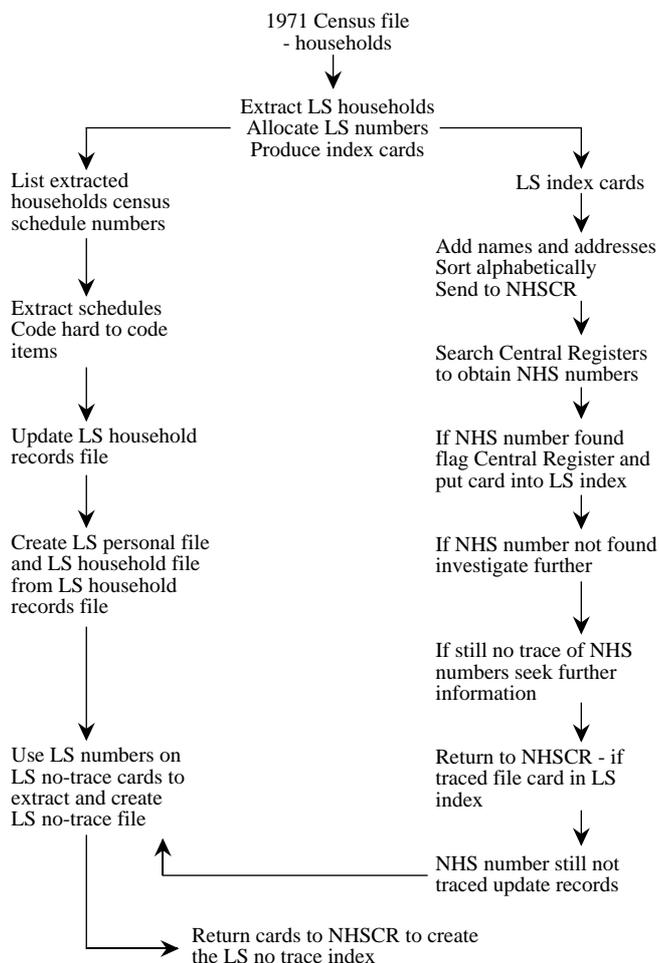
#### 3.5.1 1971 computer files

Information from the LS index cards was used to create two sets of computer files. The first file, the LS personal file, consisted of the anonymised census records for all LS members (both traced and untraced). It contained all the information recorded in the 1971 Census for each LS member, together with some details of the household in which the LS member was enumerated. The second file,

the LS no trace file, was of exactly the same format as the first, but carried information relating to the untraced cases only. A further file was created containing data on all the members of households where at least one person was included in the LS. This file was called the LS household file.

Figure 3.1 shows the processes involved in the creation of original 1971 LS files from the 1971 Census files.

**Figure 3.1 Creation of the 1971 LS computer files**



#### 3.5.2 1981 computer files

After the 1981 Census a single LS personal and household file was created containing data from the 1981 Census. The information in the 1971 and 1981 files could only be linked together via the LS serial numbers used to identify LS members. Details of the process of matching and linking LS member records from census to census is covered in Chapter 5, section 5.1.

### 3.6 TRANSFER TO THE MODEL 204 DATABASE

In 1987 a decision was made to move OPCS's work from VME files to a database management system. The database

management system chosen was Model 204 which runs under the MVS operating system. The Model 204 database could not run on the ICL machine and a new Amdahl machine was chosen to replace it. This particular database management system was considered to be the most suitable for dealing with the large amount of processing involved in both the day-to-day statistical functions of OPCS and in specialist applications such as the Census and the Longitudinal Study. Transferring the LS to Model 204 therefore required a complete redevelopment of the computer system from one based on flat files to database.

Accessing data from the ICL LS files, for extraction of a datastream, involved using a unique key (the LS number) to read data from individual records. This method was slow and involved sequentially reading through a set of records to extract the required data. With the increasing amount of data to be held in the LS files, access was likely to become slower. Model 204 was one of the few database management systems which could handle the size and complexity of the redeveloped LS system (37 logical entities stored on 31 separate physical files, occupying approximately three gigabytes of storage).

Model 204 is an inverted list database which means that information contained in one or more of a file's records can be accessed using a single field name (or variable name) such as 'age' where that field name equals a value such as '25'. All records where age equals 25 would be selected. By ensuring that the most commonly used field name-value pairs are stored together in an index giving the location of all occurrences of the pair, search times are shortened. Only the most commonly used search criteria are indexed in this way because of the need for large amounts of storage space. However, this method of indexing data does allow for both the use of complex search criteria and easier linkage of data. Other indexing and search methods (hashing algorithms, B trees and bit mapping) are also used to access data. The multiple indexing systems and the use of primary and secondary indexes add to the speed of retrieval.

As well as providing fast methods of handling and retrieving data, Model 204 has other data management advantages, particularly in the area of security. Data within the database can be protected with different levels of security down to the level of a single field. In addition to this, the operating system, MVS, provides entry level security utilising IBM's Access Control Facility software (ACF2).

### 3.6.1 Structure of the LS database

Unlike the ICL files, where 1971 and 1981 data were held in physically separate source files which could only be linked together using a Cobol program to extract a rectangular datastream file, the new database links these files (and the 1991 files) together using field name-value pairs. Field names used in this way are defined as keys; thus in the LS, specifying a key field of 'sex' with the value of 'male' would select all LS member records where sex is male. To link all other data relating to those males

selected using the field name-value pair, the LS number would then be used. Data are accessed using a utility designed to extract subsets of data either in the form of SAS datasets or SPSS system files for further analysis. An outline of the structure of the M204 LS database is shown in Figure 3.2.

### 3.6.2 Transfer and loading of data

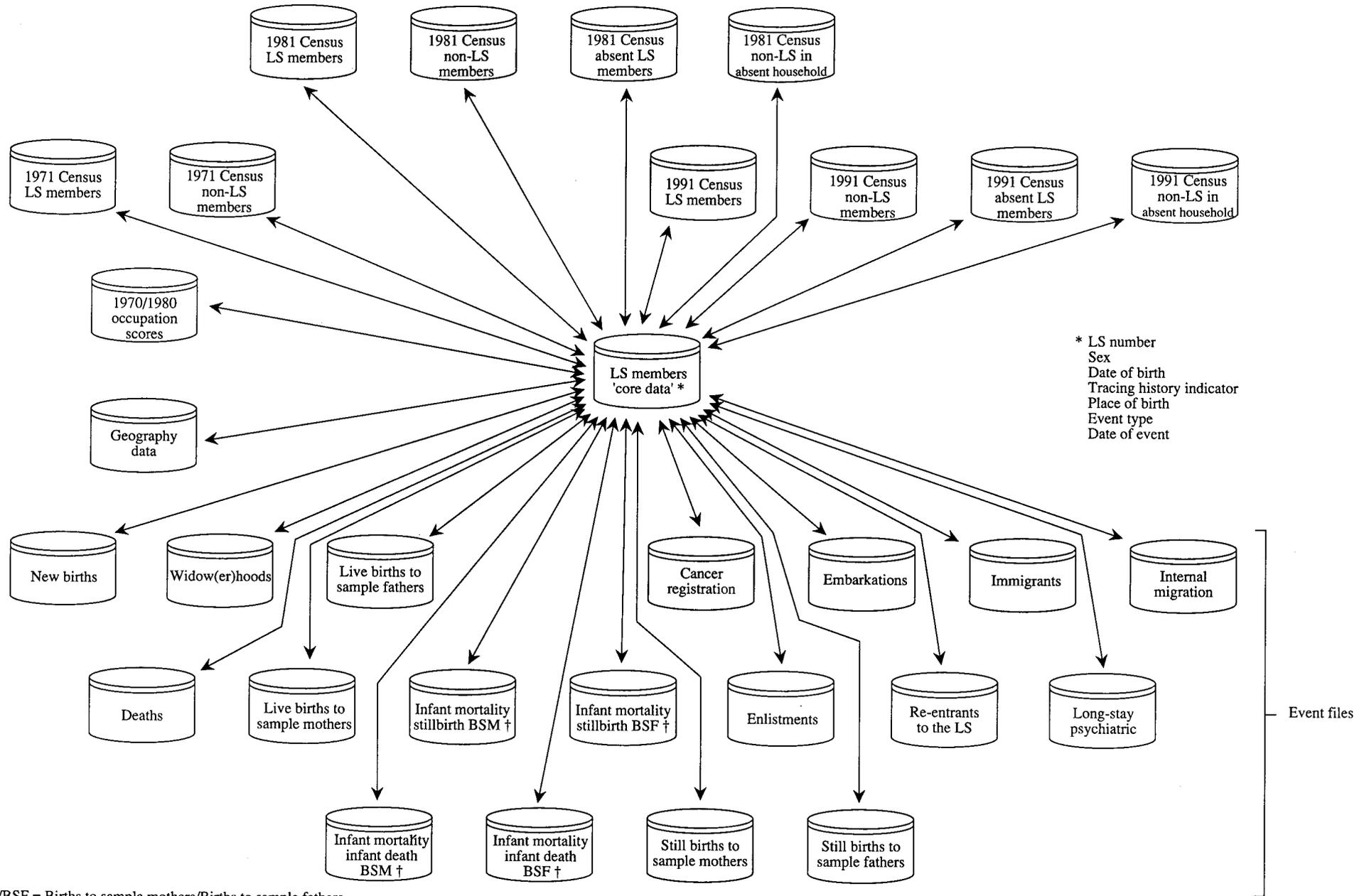
Once the new database had been created it was initially loaded with historical (pre-1991 Census) data previously held in VME files on the ICL machine. The files that had to be transferred included the 1971 and 1981 Census-LS files and the event files for events occurring to LS members from 1971 up to the 1991 Census. After the historical data were loaded, the 1991 LS Census data were linked into the database. It should be noted that the 1971 Census-LS data held in the database are structured around LS households, allowing duplication of data if two LS members are present in a single household. This single household is therefore represented as two households in the database. 1981 and 1991 Census-LS data have been structured using the concept of the Census household rather than the LS household. As a result if there are two or more LS members present in the same Census household this will be represented as two LS households but one Census household in the database. There will therefore be data duplication if two or more LS members reside in the same Census household.

#### 3.6.2.1 Transfer of historical data

Before the historical data files could be transferred it was essential to perform a number of procedures on them. First, the data had to be cleaned to ensure that any files taken across to the new environment were as up to date and error-free as possible. Second, reformatting of some files in VME was needed to ensure that they would not only transfer to MVS but would also load efficiently from there into the M204 database. Once these procedures had been completed the files were transferred onto the Amdahl as MVS files. The MVS files were then loaded into Model 204 to begin the creation of the M204 LS database.

The first load into MVS was of data held in the three 1971 Census-LS files. These files were reformatted into three MVS files: the 1971 Census-LS core data file, the 1971 LS members file and the 1971 non LS members file. The 1971 LS members core data included the LS number, sex and date of birth of each LS member and the MVS file was used to load the M204 LS members core database file directly. The 1971 MVS LS members file and the 1971 LS non-members file were both loaded from MVS into a single M204 1971 Census file. The separate first decade events source files (covering the years 1971 post-Census to 1981 pre-Census) were then loaded into the 18 LS events database files. First decade new births (on LS dates) and immigrant entry event files were loaded before other first decade events files. The new birth and immigrant entry files were used to update the LS members core file to ensure that other events

**Figure 3.2 Structure of the M204 LS Database**



(e.g. deaths, embarkations, etc.) would link correctly when they were loaded. The order of loading also ensured that the database would contain the correct rolled-forward population base when the 1981 LS-Census data files were loaded.

After the 1971 data load, the 1981 LS-Census file was loaded into the 1981 LS-Census database file. The LS members core data file was updated on the load from the reformatted MVS 1981 LS-Census files with new records containing the 1981 LS number of any new member added to the sample at the 1981 Census. Any date of birth discrepancies found for existing LS members were flagged on the core records. The second decade (covering the years 1981 post-Census to 1991 pre-Census) events files were then loaded into the existing LS database file with the data from entry event files being input first.

### 3.6.2.2 The creation of the 1991 LS-Census database file

The loading of data on 1991 Census households containing LS members was done using the 1991 LS-Census household extract file directly in the Model 204 environment. The LS-Census file was then used to update the LS members core data file with new records for the 1991 LS numbers. The process of linking 1991 LS data with data from 1981 and 1971 is discussed in Chapter 5.

### 3.6.3 Confidentiality and access

The LS is an ongoing study of over half a million members of the population of England and Wales. The sources of data used in this study are protected by two acts of Parliament, the Census Act and the Population Statistics Act. The Census Act covers the confidentiality of data collected at census and does not allow access to individual returns for 100 years. However, access to anonymised data is allowed through certain data sets such as the Samples of Anonymised Records and the LS. The Population Statistics Act covers access to the confidential particulars supplied at birth and death registration. These data can only be used

for statistical purposes and can never be released on an individual basis.

Because of these statutory constraints the maintenance of confidentiality and limitations on direct access to data held in the LS are of paramount importance. The data are held in an anonymised form, no names or addresses are held on the database and a number of variables are not accessible for analysis. These variables are essential to the selection of the study population and the linkage of both census and event data to the LS members in that population.

In order to comply with the terms of the Census Act, automatic linkage of data at the time of Census is not allowed. Although names and addresses are used to perform the link they are never entered onto the LS database and are held separately at NHSCR. No census data are held at NHSCR, only the name and address, NHS number, the LS number if a person is a member of the LS, and a variable number of flags denoting FHSA, LS member, etc. The only link between data on an LS member received at NHSCR and that received at OPCS is through the LS number which is never made available for analysis.

Access to data held within the LS database is closely supervised and though individual data are held they can only be released in a grouped form. Primary analysis of data can only be done within the confines of OPCS by persons who have signed the Official Secrets Act. Data may only be released to users for further analysis in the form of statistics or tabulations which do not allow the identification of individuals.

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## 4 Census data sources and use of census data

This chapter provides an overview of the census data which, with the event data described in Chapter 3, section 3.4.2, make up the OPCS Longitudinal Study (LS). Data from the 1971, 1981 and 1991 Censuses are available in the LS for those individuals with one of the four LS birthdates quoted at census. Information is also available for each person enumerated in the LS member's household.

Separate sections are devoted to the 1971, 1981 and 1991 Censuses. These describe distinctive features of the census data which are incorporated in the LS, such as the availability of additional variables or original codes, which set it apart from other census output, and also data quality. The final part of the chapter considers differences between the censuses, in terms of the population coverage, the way in which data were imputed and in the definitions and concepts that were used. The purpose of this last section is to highlight potential pitfalls for those wishing to use the LS to analyse inter-censal change. Throughout the chapter the numbers of the appropriate census questions are included in brackets. The full definitions for each census are reproduced as appendices.

### 4.1 THE 1971 CENSUS

The 1971 Census form included substantially more questions than either of those held subsequently. Form-fillers were asked to give, for each member of the household, their usual address five years ago, occupation one year ago and the number of hours worked per week. Information was also asked on the fertility histories of ever-married women between the ages of 15 and 59.

The 1971 Census formed the basis of the initial selection of LS members, as described in Chapter 3, section 3.2. It is therefore important to be aware of the population base, definitions and concepts used in 1971. The relevant section from the *Census 1971 England and Wales General Report Part 1 Definitions*<sup>1</sup> is reproduced in Appendix IV. This gives extensive information on the 1971 Census and has been included in its entirety. A complete set of the relevant census forms is also included at the end of this volume (see Appendices I, Ia, II, IIa, III and IIIa). Because the LS includes the institutional population, the relevant census forms for those enumerated in an institution are also appended. From these it is evident that the amount of information requested for members of institutions is considerably less than for those resident in private households.

#### 4.1.1 Distinctive features of the 1971 Census data in the LS

Some items, such as occupation and industry, were only

coded for a 10 per cent sample of census forms for the main 1971 Census processing. These items, which are particularly time consuming and expensive to code, are often referred to as 'hard to code'. It is important to note that all of these items were coded specifically for the LS — not only for LS members but for others enumerated in the same household.

#### **Ethnic origin indicator based on own and parents' country of birth (B9/B10)**

In order to obtain some indication of ethnicity, the 1971 Census included questions on own and parents' country of birth. One distinctive feature of the 1971 Census-LS data is that it includes a derived ethnic origin variable (ETHOR7) which measures ethnicity — primarily in terms of the individual's own and parents' country of birth. This was specifically designed to identify 'persons born in the New Commonwealth who are not of UK descent, plus children born in Great Britain to parents of New Commonwealth ethnic origin.'<sup>2</sup>

This variable was derived in the following way. An individual born in the West Indies, or elsewhere, to parents both of whom were born in the West Indies, is classified as 'pure West Indian'. Those born outside the West Indies with only one West Indian born parent are classified as 'West Indian (mixed)'. In the case of persons born in other New Commonwealth countries, primarily the Asian subcontinent, or individuals who have one or more parents who were born there, an analysis of surnames was used in an attempt to filter out British expatriates and to identify various Asian religious groups. African Asians were similarly identified by examining their surnames and a combination of own and parents' birthplaces. (An analysis of surnames would not have been appropriate in the case of people from the West Indies as European names are in common use.)

It is important to stress that the variable ETHOR7 is only available for those LS members who were enumerated at the 1971 Census and who were traced at the National Health Service Central Register (NHSCR). (Chapter 3, section 3.3 describes the role of NHSCR in the organisation of the LS.) Further detailed information on the relationship between this variable and the 1971 own and parents' place of birth variables may be found in Stuart.<sup>3</sup>

#### **Occupation and employment status (B16/B17)**

##### **Employment status**

For historical reasons, OPCS use two different versions of employment status and occupation, one which is used in census processing and another for the collection of event

information (births, cancers, deaths) statistics. The ‘census’ and ‘statistics’ versions of employment status differ in the way in which students and apprentices are treated. In the 1971 ‘census’ version, apprentices and articled trainees are distinguished from employees, while in the ‘statistics’ version they are included as employees. In the ‘statistics’ version there are separate categories for people with no current occupation who are students, permanently sick, disabled or housewives. In the ‘census’ version these are all coded as ‘0’ (not stated). (The relationship between the 1981 ‘census’ and ‘statistics’ employment status codes is shown in Table 4.5.)

### Occupation

As Table 4.1 illustrates, the statistics version of the 1971 Occupational Unit Group has additional categories to distinguish between full-time students, those with independent means, the permanently sick and housewives.

**Table 4.1 Relationship between 1971 ‘census’ and ‘statistics’ Occupational Unit Group**

OCCC (census)	OCCS (statistics)
001-223	001-223
	230 Full-time students
	231 Independent means
	232 Permanently sick
	-VV Housewife
	Blank = Under 15

One unique feature of the LS is that it includes variables coded to both the ‘census’ and ‘statistics’ codings of employment status and occupation (including Occupational Unit Group) that OPCS produced for the 1971 and 1981 Censuses.

## 4.1.2 Quality of the 1971 Census data

The quality check carried out on the 1971 Census was stimulated by the increased use of census data for policy decisions within national and local government.<sup>4</sup> Although limited demographic checks, using birth and death registration records, had taken place after the 1951 Census, the quality check which followed the 1966 (sample) Census was the first comprehensive attempt to check the quality of census results in Britain (see Gray and Gee).<sup>5</sup> For a number of reasons it represents a significant milestone in the recent history of post-enumeration surveys, and serves as an example for similar studies such as the one following the 1971 Census, which re-enumerated and surveyed households selected from a sample of census enumeration districts. (For information on the quality check carried out following the 1981 Census see section 4.2.2.)

The following paragraphs include a discussion of the most significant results from the coverage and quality checks which were carried out after the 1971 Census.

### 4.1.2.1 Coverage and quality checks following the 1971 Census

Checks carried out after the 1971 Census were mainly concerned with measuring the completeness of the census coverage and with evaluating the accuracy of the responses made to a subset of the census questions. This involved the following procedures:

- (i) Coverage check: sample areas were selected within which checks were made to measure how accurately households and persons had been counted.
- (ii) Matching check: existing information, in the form of administrative records maintained by the local authorities and by OPCS, was matched with the relevant information on a sample of census returns. For example, birth registration records were used to check whether very young babies had been enumerated.
- (iii) Quality check: some of the information contained in a sample of returned census forms was checked with the form-filler to assess how accurately the census form has been completed.

The results presented here focus exclusively on the coverage and quality checks. Further information including the results of the matching check may be found in the OPCS *Census 1971 General Report Part 3*.<sup>4</sup>

#### Coverage check

For this part of the post-census work, interviewers re-enumerated a sample of small areas in England and Wales. The main objective was to interview occupants of private households and to establish the name and sex of all persons who had been present on census night. Communal establishments were excluded from this re-enumeration because of the difficulty of verifying information on those present on census night.

The enumeration of persons living in multi-occupied buildings presents special problems. Houses in multiple occupation are often concentrated in a particular area. In these areas the correct identification of every household (and every person) within a building in multiple occupation is a difficult task. Furthermore, enumerators may miss complete households if they occur where the majority of buildings are occupied by a single household. In order to obtain some idea of how well multi-occupied buildings had been enumerated, additional checks were carried out using a sample of local authority areas which previous census statistics suggested had more than 2,000 households in shared dwellings.

#### Results of the 1971 Census coverage check

First estimates from the coverage check revealed that 0.23 per cent of persons in private households had been omitted from the 1971 Census — 0.10 per cent had been omitted

from the census form completed by an enumerated household and 0.13 per cent had not been counted because the whole household had been missed. However, there was some concern that the quality of the coverage check was poorer than the census. This was due to the fact that census enumerators were used to carry out the coverage check work, some of whom still had competing workloads from the census.

Final estimates suggested that the true level of under-enumeration, before allowance was made for some double counting (0.25 per cent), was between 0.40 and 1 per cent.

Results from the survey of multi-occupied dwellings indicated that census enumerators had missed about 1.73 per cent of households with one or more persons present on census night and just under 0.5 per cent of individuals. A comparison between the proportion of persons missed in this type of dwelling and the proportion identified by the coverage check confirmed that the enumeration of people in multi-occupied property was poorer than elsewhere.

### **Quality check**

The quality of responses given to a subset of questions included in the 1971 Census was assessed by detailed interviews with more than 4,000 households (or over 11,000 individuals) covering England, Scotland and Wales. For each address selected in the sample the interviewer had three main tasks:

- (i) To identify and interview each person who was responsible for filling in the census form for each household at that address.
- (ii) To identify and interview one in three of all persons aged 15 years or more in the selected sample to check on replies to census questions about the person's paid employment. These persons were selected for interview as part of the sampling process.
- (iii) To identify and interview one in three of all women in selected households who were aged 16-59 years and who were married, widowed or divorced. Again the women to be interviewed were selected as part of the sampling process. The purpose of these interviews was to check on the replies to the 1971 Census fertility questions completed by the form-filler for married or ever-married women in this age range.

Successful interviews were obtained with 89 per cent of the households in the sample while the response rates for the employment and fertility subsamples were 85 per cent and 87 per cent respectively.

### **Results of the 1971 Census quality check**

Results of the quality check are presented below with the appropriate 1971 Census question numbers in brackets. (A copy of the 1971 Census form for private households is

reproduced as Appendix I.)

#### *Date of birth (B2)*

Results from the quality check showed a high level of agreement for the date of birth question which is central to the correct identification of the 1971 Census-LS sample (see Chapter 3, section 3.2). For 1.83 per cent of persons there was a difference of more than one month between the birth date recorded on the census form and the date of birth established at the quality check. Almost half of these errors were of precisely one month or one year.

#### *Country of birth and year of entry to UK (B9)*

Less than 1 per cent of the responses to the first part of this question at the quality check differed from those recorded on the census form. Many of these errors were due to a lack of communication between the relevant person and the form filler or a misreading of the question. The largest number of errors occurred where the place of birth had not been entered on the census form. The quality check revealed further discrepancies, for example where 'Ireland' had been entered on the census form but where the quality check interviewers had identified the correct response as 'England'.

The second part of this question (year of entry to the UK) should have been answered by 5.1 per cent of persons in the quality check sample (576 from 11,350), who had indicated that they were not born in the UK. In 13.4 per cent of cases the quality check revealed that this part of the question was answered incorrectly or omitted completely. Table 4.2 compares the distribution of responses to the part of the question concerned with year of entry. The table shows a strong relationship between errors and year of entry to the UK. The largest proportion of errors occurred for those persons whom it was established at the quality check interview had entered the UK prior to 1940. Further questioning identified that many errors had arisen because the form-filler had recorded the year the person first entered the UK to establish permanent residence and not the year they had first visited the UK.

#### *Country of birth of the person's parents (B10)*

While a high success rate was not anticipated for this question, the responses compared reasonably well with those for the census question on own country of birth. The quality check identified that the error rate for responses to mother's country of birth was slightly larger at 5.1 per cent than that for the question on father's country of birth (4.5 per cent).

### **1971 Census employment questions**

A subsample of those included in the quality check sample aged 15 or over were asked to provide information on several of the employment questions in the 1971 Census. The main findings of this exercise are reported below.

#### *Did the person have a job last week? (B7)*

Results identified that incorrect information was recorded for 7.2 per cent of the people that were followed up.

**Table 4.2 A comparison of the distributions for the 1971 Census question on year of entry to the UK (B9)**

Year of entry	Census		Quality check		Change of % at QC
	Persons	%	Persons	%	
Before 1940	105	18.23	111	19.27	+ 1.04
1940 – 1944	21	3.65	22	3.82	+ 0.17
1945 – 1949	56	9.72	57	9.90	+ 0.17
1950 – 1954	42	7.29	42	7.29	0
1955	15	2.60	16	2.78	+ 0.17
1956	18	3.13	21	3.65	+ 0.52
1957	12	2.08	10	1.74	- 0.35
1958	17	2.95	19	3.30	+ 0.35
1959	14	2.43	15	2.60	+ 0.17
1960	32	5.56	31	5.38	- 0.17
1961	20	3.47	24	4.17	+ 0.69
1962	31	5.38	30	5.21	- 0.17
1963	9	1.56	10	1.74	+ 0.17
1964	20	3.47	22	3.82	+ 0.35
1965	20	3.47	23	3.99	+ 0.52
1966	21	3.65	20	3.47	- 0.17
1967	20	3.47	19	3.30	- 0.17
1968	22	3.82	25	4.34	+ 0.52
1969	10	1.74	10	1.74	0
1970 – 1971	43	7.47	45	7.81	+ 0.35
No answer	28	4.86	4	0.69	- 4.17
All NOT born in UK	576	100.00	576	100.00	
All born in UK	10,774		10,774		
Total	11,350		11,350		

Source: OPCS. *Census 1971 General Report Part 3 Statistical Assessment, Coverage Checks England and Wales, Quality Check Great Britain*, HMSO (London 1983).<sup>4</sup>

Although no systematic attempts were made to identify why these errors occurred the more common reasons were attributed to:

- (i) the failure of the printed list of answers to let the form-filler record what they considered to be important;
- (ii) the dual role of students and housewives;
- (iii) confusion over the meaning of the term 'sick';
- (iv) of the meaning of the term 'wholly retired'.

#### *Present occupation and occupation one year ago (B16/B22)*

The first of these questions requested a full description of the occupation and the work which was involved. Unfortunately, attempts to derive a reliable measure of the accuracy of the response to this question proved so difficult and arbitrary that they had to be abandoned.

The quality check revealed that in 4.2 per cent of cases the question on occupation one year ago was left blank when it should have been completed. Some errors arose because of confusion over the word 'occupation', which some people had associated with a change of job or employer. It

is also well established that, even when occupation has been fully recorded by the respondent, considerable variation is introduced at the coding stage. At the level of socio-economic group (SEG), a 10 per cent level of disagreement was found among expert coders.<sup>6</sup>

#### *Employment status (B17)*

Two error rates were calculated from the responses made to the question on employment status. An error rate of 11 per cent included as an error any replies given for housewives who did not have a job in the week before the census, while a lower rate of 9.7 per cent was calculated on the basis that these replies were not errors.

#### *1971 Census fertility questions*

One in three of the women interviewed for the quality check who were aged 16-59 and married, widowed or divorced, were asked to answer a number of additional questions to establish that:

- (i) the correct dates had been entered on the census form for the beginning and, if applicable, the ending of the woman's first marriage; and that
- (ii) all children born alive to the woman in (all) her marriage(s) had been listed with their correct dates of birth.

An indication of the accuracy of the responses made in the census to these questions is given below.

*Date of birth of each child born alive in marriage (B23)*

This information is used to calculate the number of children born alive in marriage. The responses made to this question are shown in Table 4.3.

**Table 4.3 A comparison of the response given to the 1971 Census question on date of birth of children born alive in marriage (B23)**

	No. of cases	% in each group	% all women
<b>Women had NO child born alive in marriage</b>			
'None' entered correctly	100	73.0	12.1
Form left blank	32	23.4	3.9
Date entered in error	5	3.6	0.6
All cases 'NO child'	137	100.0	16.6
<b>Woman had child born alive in marriage</b>			
Date(s) recorded and correct	646	93.5	78.0
Date(s) recorded but wrong	40	5.8	4.8
'None' entered in error	4	0.6	0.5
Form left blank	1	0.1	0.1
All cases 'had child'	691	100.0	83.4
Total	828		100.0

Source: OPCS. *Census 1971 General Report Part 3 Statistical Assessment, Coverage Checks England and Wales, Quality Check Great Britain*. HMSO (London 1983).<sup>4</sup>

Almost a quarter of the women without children who were interviewed for the quality check had failed to complete this question and about 5 per cent of women with children had recorded the wrong dates of birth on the census form. Differences between the responses given at the quality check interview and those given on the census form may be attributed to a combination of errors arising from confusion over the expression 'child born alive in marriage'.

Over 93 per cent of women who had given birth to a live-born child in marriage and who were interviewed for the quality check recorded the correct date of birth. However, there is some evidence that the responses to this question were affected by counting errors. This is suggested by the fact that nearly half of the errors identified by the quality check were exactly one month or one year.

*Date of first marriage (B24a)*

In 5.6 per cent of cases there was a disparity between the date of first marriage given at the census and that given at the quality check interview. Half of the errors identified at the quality check were differences of one month or one year.

*Date of end of first marriage (B24b)*

Table 4.4 shows the responses given to this question. Most errors arose through a failure to record the date of the end of the first marriage.

**Table 4.4 A comparison of the responses to the 1971 Census question on date of end of first marriage (B24b)**

	No. of cases	% in each group	% all women
<b>First marriage NOT ended</b>			
'Not ended' recorded correctly	579	78.1	69.9
Left blank: 'Not ended' should have been recorded	161	21.7	19.4
Date entered in error	1	0.1	0.1
All cases first marriage NOT ended	741	100.0	89.5
<b>First marriage ended</b>			
Date recorded and correct	64	81.0	7.7
Date recorded but wrong	1	1.3	0.1
'Not ended' recorded in error	4	5.1	0.5
Left blank; date should have been recorded	10	12.7	1.2
All cases first marriage ended	79	100.0	9.5
No information	8		1.0
Total	828		100.0

Source: OPCS. *Census 1971 General Report Part 3 Statistical Assessment, Coverage Checks England and Wales, Quality Check Great Britain*. HMSO (London 1983).<sup>4</sup>

## 4.2 THE 1981 CENSUS

By comparison with 1971, the 1981 Census was a very short census. Many of the questions asked in 1971, including usual address five years ago, occupation one year ago, hours worked and those covering fertility history, were omitted from the 1981 Census form. As for 1971, the definitions and concepts used for the 1981 Census and a set of the relevant census forms are reproduced at the end of this volume (see Appendices II, IIa and V).

*Processing of census data*

In 1981 there was an important change to the way in which census data were processed (see Redfern).<sup>7</sup> An automatic editing system was used to replace those cases where an answer was missing, out-of-range or inconsistent with the replies made to other questions (for example, a person recorded as aged 5, married and working full-time) with an 'acceptable' value. This was taken from the most recently processed records for people who were successfully enumerated, with similar demographic characteristics on those variables known to be related to the variable to be imputed.

Use of the automatic system of editing was restricted to those census topics which were 100 per cent coded. While missing values and inconsistencies for the remaining 'hard-to-code' topics were identified during processing, remedial work was limited to coding as 'not stated' those items which could not be resolved clerically. The adoption of an automatic edit system followed initial work carried out by Fellegi and Holt<sup>8</sup> to develop procedures for use in the Canadian census.

Following the 1981 Census, Brant and Chalk<sup>9</sup> reported on the accuracy of the automatic editing system. They found that, with the exception of employment status, the system had produced accurate results. For example, 98 per cent of the imputed values for marital status were the same as those assigned by a manual scrutiny of the census forms.

#### 4.2.1 Distinctive features of the 1981 Census data in the LS

##### *Non-availability of workplace and means of transport to work*

Some of the items which are particularly time-consuming and expensive to code, such as occupation and industry, are only coded for 10 per cent of the schedules processed for the census. It is important to note that all of these items were 100 per cent coded for the LS in 1981 — with the exception of workplace and means of transport to work. These are therefore not available for analysis in the LS.

##### *Questions asked of each person: employment questions*

The LS also contains variables giving employment status, occupation and social class coded to the 1970 Classification of Occupations for men aged 45-64 at the 1981 Census. These variables, which were derived as part of a recoding exercise, facilitate comparisons between the 1971 and 1981 Censuses (which used different classifications) for this subgroup of the LS. (The lack of comparability between the two classifications is a particular problem in longitudinal analyses, where it is essential to be able to distinguish 'real' changes from those caused by the introduction of a different classification scheme.)

##### *Occupation and employment status (Q12/Q13)*

Section 4.1.1 mentioned one of the distinctive features of the LS — that it includes variables based on the 'census' and 'statistics' codings of employment status and occupation, for the 1971 and 1981 Censuses. Table 4.5 illustrates the relationship between both types of variables for 1981 employment status and occupation (Operational Occupation Code).

##### *Degrees, professional and vocational qualifications (Q16)*

Although the census schedule allowed form-fillers to record up to three qualifications, the LS only contains information on the highest qualification.

#### 4.2.2 Quality of the 1981 Census data

The 1981 Post-Enumeration Survey (PES) which followed the 1981 Census was a much more extensive and ambitious study of the accuracy of census data than that which was carried out after the 1971 Census (see Britton and Birch<sup>10</sup>). The aims of the survey were:

- (i) to check whether all persons present on census night in a private household had been correctly enumerated by the census;
- (ii) to verify the classification by census enumerators of unoccupied residential accommodation; and

**Table 4.5 Relationship between the 1981 'census' and 'statistics' codes for employment status and occupation**

Expanded employment status (census)	Employment status (stats)
1 Apprentice or article trainee	1 Employee
2 Other employee	1
3 Foreman	3 Foreman
4 Self-employed not employing others	5 Self-employed not employing others
5 Self-employed employing others	4 Self-employed employing others
6 Manager	2 Manager
0 Not stated	9 Students, no occupation because permanently sick or disabled, housewife, not stated
Space = Not applicable	Space = Not applicable
1981 Operational occupation code	
Census	Statistics
001-042	001-042
043	043 Also includes midwives
044-350	044-350
351 midwives	360 Student
	362 No occupation because permanently sick or disabled

- (iii) to assess the quality of replies given to census questions, and hence the accuracy of the published 1981 Census results.

As part of the study, interviewers visited a sample of over 1,000 enumeration districts in England and Wales, listing all addresses for comparison with the census enumerators' records. Checks were also made to determine whether anyone had been missed by the census. This was done by making calls at a sample of addresses at which no persons had been recorded as present on census night. The third and final aspect of the 1981 PES involved detailed interviews with a sample of approximately 5,000 households (selected from the 1,000 enumeration districts described above) to evaluate the quality of the answers given to the 1981 Census. During these interviews the numbers of households and persons at each sampled address were verified. To minimise errors due to changes in household circumstances, fieldwork was concentrated in private households in the three-month period following census day, 5 April 1981. Institutions were excluded from the survey because of the transitory nature of many of their residents.

Key findings from the 1981 PES are presented below.

##### 4.2.2.1 Results of the 1981 Post-Enumeration Survey: under-enumeration

Preliminary results from the survey indicated that 215,000 or 0.4 per cent of the population present in private

households in England and Wales on census night had not been included in the 1981 Census. However, subsequent information suggests that the overall level of under-enumeration was, in fact, greater and that 240,000 or 0.62 per cent of the population had been omitted. Findings from the report suggested that the level of under-enumeration was higher for the youngest age group and that about 36,000 or 1 per cent of the population aged 0-4 years had been missed.

The extent of under-enumeration was not uniform and varied according to area and the characteristics of the persons missed. Table 4.6 shows under-enumeration by area. Under-enumeration was much more extensive in London, particularly in Inner London and the Metropolitan areas, than in the rest of England and Wales.

Table 4.7 gives an estimate of the proportion of individuals and households who had been omitted from the 1981

Census with the reasons for their omission. Most commonly, under-enumeration resulted where individuals had been missed in enumerated households. However, this was significantly offset by the number of individuals who were identified by the PES as having been enumerated as present in two places on census night. The study suggests that the enumeration of students was particularly problematic, especially with respect to double-counting. For example, many had been counted as present on census night at both their term-time address as well as their parental home.

Table 4.8 shows the proportion of individuals who were not enumerated, by age, sex and economic position. Those who were missed at the 1981 Census were more likely to be aged 25-44, in employment if female, unemployed or a student if male. Missed persons tended to be more mobile, by comparison with those who were enumerated, as reflected by their responses to the question on usual address in the year prior to census.

**Table 4.6 1981 Census: net under-enumeration by area (as measured by PES)**

Area	Persons			Households		
	Best estimate of net underenumeration		19 chances in 20 that net underenumeration will be inside the range	Best estimate of net underenumeration		19 chances in 20 that net underenumeration will be inside the range
	Per cent	(000s)	(000s)	Per cent	(000s)	(000s)
England and Wales	0.45	215	152-278	0.50	88	69-107
Inner London	2.46	58	39- 77	2.75	27	18- 36
Outer London	1.01	42	20- 64	0.42	6	2- 10
Other metropolitan areas	0.24	27	2- 52	0.37	15	8- 22
Non-metropolitan areas	0.29	87	39-135	0.36	40	29- 51

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

**Table 4.7 1981 Census: under-enumeration (as measured by the PES) by cause**

	Persons			Households		
	Best estimate of net underenumeration		19 chances in 20 that net underenumeration will be inside the range	Best estimate of net underenumeration		19 chances in 20 that net underenumeration will be inside the range
	Per cent	(000s)	(000s)	Per cent	(000s)	(000s)
Households misclassified as absent by enumerator	0.17	82	66-102	0.25	45	33- 57
Household spaces misclassified as vacant by enumerator	0.09	41	27- 55	0.13	23	14- 32
Property missed	0.05	25	14- 36	0.06	11	5- 17
Persons missed in enumerated household	0.27	128	85-171	-	-	-
Gross under-enumeration*	0.62	297	244-350	0.50	88	69-107
Persons double-counted	0.17	82	47-117	-	-	-
<b>Net under-enumeration</b>	<b>0.45</b>	<b>215</b>	<b>152-278</b>	<b>0.50</b>	<b>88</b>	<b>69-107</b>

\* Includes causes not shown separately in the table.

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

**Table 4.8 A comparison of the sex, age distribution and economic position of persons resident in private households on the 1981 Census night and persons who were missed**

	Census (resident in private households)	PES (missed persons)
<b>Age</b>	%	%
0–4	6	5
5–15	16	6
16–24	14	17
25–44	27	36
45–64	23	20
65 and over	15	15
<b>Sex</b>		
Male	49	59
Female	51	41
<b>Economic position</b>		
<i>Males</i>		
<i>Economically active</i>		
In employment	69	52
Out of employment	9	28
<i>Economically inactive</i>		
Student	5	2
Other*	17	18
<i>Females</i>		
<i>Economically active</i>		
In employment	42	60
Out of employment	3	6
<i>Economically inactive</i>		
Student	4	- 6
Other*	50	40

\* Retired, housewives, permanently sick or disabled.  
Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

Table 4.9 compares the attributes of missed households with those of enumerated households. Missed households tended to be both smaller in size and to have fewer rooms than those which were included in the 1981 Census. They also tended to be concentrated in private rented accommodation with poorer amenities — as reflected by the numbers of households sharing the use of a bath or inside WC.

### Quality check

This part of the survey involved carrying out detailed interviews with a sample of households who had returned a census form, in order to assess the accuracy of the answers given to the 1981 Census. A number of factors may have affected the quality of responses.

At census, individuals may be presented with a number of unfamiliar concepts. For example, the concept of a ‘car-pool’, included in the question on ‘daily journey to work’, may lead to confusion unless adequately defined. Form-fillers may also find it difficult to assess what information

**Table 4.9 A comparison of the attributes of households enumerated in the 1981 Census with those which were missed**

	Census (enumerated households)	PES (missed households)
<b>Number of usually resident persons</b>	%	%
1	22	46
2	32	28
3	17	14
4	18	8
5 or more	11	4
Average household size	2.7	1.9
<b>Tenure</b>		
Owner-occupied	58	43
Rented	42	57
Council or New Town	29	22
Privately furnished or unfurnished	9	29
Other (housing association; with business or by virtue of employment)	4	6
<b>Type</b>		
Exclusive use of bath	97	88
Exclusive use of inside WC	96	86
Three rooms or less	14	35
One adult under pensionable age only	8	34
Married couple only	24	18
Married couple with child(ren) under 16	21	14

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

is relevant to a particular census question. This applies to the question on ‘occupation’ which requests detailed information on occupation and a description of the work done by each employed adult in the household.

Skilled interviewers obtained interviews with over 90 per cent (4,705) of the sampled households. The results are reported below.

### Results of the 1981 Census quality check

Because the LS is concerned with individual-level data, gross rather than net error rate is of primary importance. Therefore this is the main measure reported here to assess the accuracy of responses to the census questions. It represents the proportion of times the census answers were assessed as incorrect. While gross error rates mainly indicate how well the census questions were answered, they also take account of errors made in processing the results, for example in coding the responses, which had not been corrected at the editing stage.

Gross error rates for the majority of questions, including the question on date of birth used to select the 1981 Census–LS sample, and questions on marital status and tenure, were less than 5 per cent. The results reported here focus on those questions which were subject to larger gross errors. The question numbers which appeared on the 1981 Census form are included in brackets. Information on the accuracy of responses to other census questions are reported in the appropriate sections of the report on the 1981 Census PES.<sup>10</sup>

#### Rooms (H1)

Number of rooms is consistently the census question which gives rise to the highest gross error rate. In 1981 the gross error rate for this question was almost 29 per cent. However, most of the disagreements between the census question and the quality check involved discrepancies of only one room. Table 4.10 shows the gross and net errors for this question. The table illustrates the tendency for form-fillers to undercount by one the number of rooms in households with a small number of rooms (4 or less), and to overcount by one the number of rooms in households with a greater number of rooms (5 or more).

The quality check found that nearly half of the disagreements related to the inclusion of kitchens. In some cases full-sized kitchens had been left out altogether. These details were used to improve the wording of the 1991 Census question, which explicitly stated which rooms were to be included.

The lower part of Table 4.10 shows that the net distributions of households by number of rooms derived from the census and the quality check are in fact closer than might have been expected from the gross error rate. (LS users should

be aware that the error rate in the derived variable ‘number of persons per room’ may not necessarily follow the same pattern.)

#### Amenities (H3)

Though this question was answered correctly by almost 99 per cent of households, there is some evidence that errors occurred where there were misunderstandings over ‘shared use’ and ‘none’. This is of particular concern as the function of this question in the census is to identify those households lacking or sharing amenities. This pattern is illustrated in Table 4.11 with reference to the census question on inside WCs.

A similar pattern was observed for the responses to the amenities question on use of a ‘fixed bath or shower’. It is

**Table 4.11 A comparison of the responses to the census question on inside flush toilet recorded by the quality check and the 1981 Census**

	Sole use	Shared use	None
Quality check %	95.5	1.6	2.9
Census (PES) %	96.2	1.1	2.7
Gross error: agree 98.7%; disagree 1.3%			
Sample size: 4,207 responding private households with usual residents			

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

**Table 4.10 A comparison of the number of rooms recorded by the 1981 Census and the PES**

Number of rooms recorded by the PES	Number of rooms recorded by the census								Sample numbers
	1	2	3	4	5	6	7/8	9 or more	
	%	%	%	%	%	%	%	%	
1	<b>72.0</b>	1.8	0.3	0.1	-	-	0.3	-	60
2	22.7	<b>55.0</b>	4.3	0.2	-	0.1	-	0.5	132
3	5.3	40.4	<b>62.3</b>	4.5	0.7	0.1	-	-	367
4	-	2.6	28.3	<b>74.1</b>	7.6	1.0	0.3	0.5	872
5	-	0.3	3.9	19.0	<b>78.4</b>	18.5	5.3	1.0	1,388
6	-	-	0.6	1.9	12.6	<b>72.8</b>	21.4	3.0	939
7/8	-	-	0.3	0.2	0.6	7.3	<b>68.9</b>	14.4	352
9 or more	-	-	-	-	0.1	0.2	3.9	<b>80.6</b>	98
Base (= 100%)	75	171	392	874	1,294	925	376	100	4,208
Non-response	10	26	38	83	109	88	30	10	394
<b>Net distributions</b>									
Quality check %	1.4	3.1	8.7	20.7	33.0	22.3	8.4	2.3	
Census (PES) %	1.8	4.1	9.3	20.8	30.7	22.0	8.9	2.4	

Gross error: agree 71.4%; disagree 28.6%

Sample size: 4,208 responding private households with usual residents

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

estimated from this that the 1981 Census probably understated the proportion of households with no inside WC by about 6 per cent and the proportion with 'shared use' by nearly a third.

#### *Economic activity (Q10)*

The gross error rate for this question was 7.8 per cent, but was higher for women (11.2 per cent) than for men (4.1 per cent). Table 4.12 gives the quality check and census distributions for the eight major categories of economic activity for men and women. The major errors occurred in relation to the distinction between full-time and part-time work for the economically active categories and for all four categories available for the economically inactive. Attempts were made on the 1991 Census form to minimise the first of these errors by providing explicit definitions of what constitutes full and part-time work.

Those individuals who were recorded at the census as 'temporarily off work sick' were equally likely to have fallen into either of the following three categories:

- (i) to have satisfied the stated criterion for this category;
- (ii) to have merely been off work on account of sickness (and thus regarded as being in employment); or
- (iii) to have been out of work for more than six months as a result of illness (and thus regarded as permanently sick) (see Goldblatt,<sup>11</sup> p. 15).

There were a number of discrepancies in the responses given by women to this question. Despite the inclusion of a specific category 'housewife' on the 1981 Census schedule, there was a considerable degree of confusion over who should be recorded as such. For example, 7 per

cent of women recorded as housewives in the census were found by the quality check to be working part-time. Conversely, the PES categorised the following proportions of women as housewives: 39 per cent of the retired, 8 per cent of the permanently sick and 6 per cent of those who had indicated they were seeking work or were temporarily off work sick.

It also appears that many women had reported at the census that they were retired simply because they were of pensionable age. This may be seen as indicative of the general problem which is faced when asking women questions on economic activity.

#### *Occupation (Q12)*

Occupation statements were coded into the categories of the 350 1980 OPCS Occupation Operational Codes. Results from the quality check gave a different code in one out of four cases. It is likely that this occurred because of differences in coding procedures or because more information was provided in the quality check interview than was recorded at the census. This discrepancy is much smaller for comparisons using less detailed measures, such as the occupational orders.

#### *Social class*

The gross error for this question was approximately 13 per cent. The net distributions for this variable are presented separately for men and women in Table 4.13. For 'non-manual' groups the 1981 Census tended to overstate the proportion of men and understate the proportion of women.

#### *Employment status (Q13)*

The gross error rate for this question was about 10 per cent. Table 4.14 provides a picture of the agreement between the responses made to the question on employment status included in the 1981 Census and the quality check. It is apparent that 'foremen' and 'supervisors' were

**Table 4.12 A comparison of the responses to the question on economic activity, as recorded by the quality check and the 1981 Census**

	Economically active				Economically inactive			
	Working full-time	Working part-time	Seeking work	Temporarily sick	Permanently sick	Wholly retired	Student	Other inactive
<b>Men</b>								
Quality check %	67.6	3.0	6.8	0.3	3.1	14.4	4.2	0.6
Census (PES) %	68.3	2.0	6.9	0.6	2.5	15.3	4.0	0.4
<b>Women</b>								
Quality check %	25.5	20.8	3.1	0.3	2.0	4.6	3.4	40.4
Census (PES) %	26.5	17.2	2.8	0.4	1.4	7.0	3.4	41.3
Gross errors:	Men: agree 95.9%; disagree 4.1%							
	Women: agree 88.8%; disagree 11.2%							
Sample size:	Men: 3,944 usual residents aged 16 or over in private households							
	Women: 4,384 usual residents aged 16 or over in private households							

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

**Table 4.13 A comparison of the net distributions of social class as recorded by the quality check and the 1981 Census**

	Social class					
	I	II	IIINM	IIIM	IV	V
<b>Men</b>						
Quality check %	5.8	21.7	11.4	40.2	16.0	4.9
Census (PES) %	5.8	21.9	11.7	39.7	15.7	5.3
<b>Women</b>						
Quality check %	0.9	20.5	39.2	8.5	22.6	8.3
Census (PES) %	0.9	20.3	39.3	9.0	22.7	7.8
Gross errors:	Men: agree 85.6%; disagree 14.4%					
	Women: agree 90.0%; disagree 10.0%					
Sample size:	Men: 2,933 economically active usual residents in private households aged 16-69					
	Women: 1,945 economically active usual residents in private households aged 16-69					

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

understated by the census. Since ‘foremen’ and ‘employees’ with the same stated occupations are allocated to different social classes this will have contributed to the errors in social class allocation referred to above.

For the LS, a key consideration is not just the accuracy with which a particular question has been answered, but whether any misreporting or misunderstanding is systematically associated with other characteristics, such as age or occupation. This becomes even more important when one is concerned with change between censuses. For example, the difficulty in estimating the change in some categories of economic activity, which is covered in section 4.4, means that care needs to be taken in making inferences about changes in status over time.

**Table 4.14 A comparison of the responses given to the question on employment status as recorded by the quality check and the 1981 Census**

	Employment status*					
	Apprentices and trainees	Managers	Foreman and supervisors	Other employees	Self-employed	
					Without employees	With employees
Quality check %	1.6	9.8	7.9	72.3	5.0	3.4
Census (PES) %	2.0	9.5	4.9	75.6	4.9	3.0

Gross errors: agree 90.2%; disagree 9.8%

Sample size: 5,227 usual residents aged 16-69 who were economically active, wholly retired or permanently sick; but excluding members of the armed forces.

\* The procedures for allocating people to an employment status were those used in the 10 per cent sample.

Source: Britton and Birch. *1981 Census Post-Enumeration Survey, An enquiry into the coverage and quality of the 1981 Census in England and Wales*. HMSO (London 1985).<sup>10</sup>

## 4.3 THE 1991 CENSUS

The 1991 Census saw the introduction of four questions not asked previously — covering self-ascribed ethnicity, limiting long-term illness, central heating and the term-time address of students — and a system of voluntary enumeration for those households who were absent on census night. Some data were imputed for those households absent on census night who had failed to return a census form. The implications of this for the LS are discussed in section 4.4. A set of the definitions and concepts from the OPCS *1991 Census Definitions* volume<sup>12</sup> and the 1991 Census forms are reproduced in Appendices III, IIIa and VI.

### 4.3.1 Distinctive features of the 1991 Census data in the LS

#### *Country of birth (Q10)*

The LS contains the full classification of own country of birth which may be used in analysis, subject to the usual confidentiality considerations (see Chapter 3, section 3.6.3). The full classification (100 codes) is given in Table 1 of the 1991 Census *Ethnic Group and Country of Birth*<sup>13</sup> volumes.

#### *Ethnic group (Q11)*

The LS retains the full 35-category coding of this question, based on the seven pre-coded categories and a further 28 derived from the written descriptions given in the ‘Black-Other’ and ‘any other ethnic group’ categories and from any multiple responses. A copy of the algorithm used to produce this variable is available from OPCS on request.

#### *Economic activity (Q13)*

In 1991, a maximum of three codes were entered into the computer for this question, with ‘on a government employment or training scheme’ and ‘at school or in other full-time education’ taking precedence, where a main economic activity was required. After this, the three lowest numbered boxes (those most likely to refer to employment)

took priority. This resulted in a 12-fold economic position/employment status classification. It is worth noting that the LS retains all three of the original codes.

#### *Questions asked of each person: employment questions*

To facilitate comparisons between the 1981 and 1991 Censuses the LS also contains the 1991 occupation, social class and socio-economic group (SEG) coded to the 1980 Classification of Occupations.

### **4.3.2 Quality of the 1991 Census data**

Following the 1991 Census, OPCS carried out a census validation survey (CVS), to check on the accuracy of the data collected (see OPCS).<sup>14</sup> The main aims of this survey were:

- (i) to check how successful the 1991 Census had been in recording everyone in the country;
- (ii) to assess the quality of the replies given at census.

The CVS was based on a nationally representative, stratified sample of over 1,200 enumeration districts covering England, Wales and Scotland. The fieldwork, which was carried out by experienced, professional interviewers, ensured that within each enumeration district the following groups were represented:

- (a) households who had completed and returned a census form;
- (b) households which had not returned a census form either because of absence or because they could not be contacted; and
- (c) dwellings believed by the census enumerator to be vacant.

This resulted in a national sample of 20,000 addresses of which 6,000 were from group (a) and the remainder from groups (b) and (c). (As in previous years the study focused exclusively on private addresses.) In order to make maximum use of the information recorded on the enumerators' record books, interviews were carried out in June and July, between six weeks and three months after census day.

Around 6,000 households were selected to assess the quality of the replies given at the census (see OPCS).<sup>15</sup> This component of the CVS focused on private households that were present at the time of the census and had completed a census form. (In total, about 6 per cent of the population were excluded.) The questionnaires used were more detailed than the original census form as they were designed to uncover the most accurate answers, according to census definitions. Where possible the census information for each adult was checked with the person to whom it referred. Those details relating to children were checked with a 'responsible adult', usually a parent.

While face-to-face interviews would have helped to resolve any problems which may have led to incorrect data being entered on the census form, some sources of census error would not have been identified. For example, if people had been deliberately concealed from the census they would probably not have been reported to the CVS either.

CVS estimates are based on a comparison between what was recorded at interview and what was recorded at census for the same household at the same address. However, this calculation was more complex for those addresses which the enumerator had believed to be occupied but from which no census form was returned. In this case information about the residents was imputed as part of the census processing and included in the census data for the appropriate area. The CVS results for these (absent) households are based on a comparison between the information provided at interview and that entered in the final census database. It is important to note that while the LS includes information on those who were not present on census night 1991, but completed a census form voluntarily at a later date, it does not include imputed information for members of *wholly absent households* who failed to return a form. For further details see section 4.4.3.

The main findings of the CVS are summarised below.

#### **4.3.2.1 Results of the 1991 Census Validation Survey: coverage**

CVS results for England and Wales indicate that 191,000 of the resident population in private households had not been included by the 1991 Census. This total is composed of an undercount of 164,000 residents and 27,000 people whose residential status was not known (see Heady *et al.*,<sup>16</sup> Appendix 2).

The net effect of under-enumeration is the result of three main kinds of error:

- (i) errors at addresses from which the enumerator managed to collect forms (enumerated addresses);
- (ii) errors at addresses missed by the enumerator including those wrongly identified by the enumerator as vacant (missed addresses); and
- (iii) errors at addresses which the enumerator classified as occupied but from which no census forms were collected (absent households).

It is important to mention here that independent demographic checks indicate that a significantly higher number of people - about 1.2 million or 2 per cent of the population of Great Britain - were omitted from the census. The level of under-enumeration suggested by these checks is believed to be closer to the truth and has been adopted in producing the Registrar General's final mid-year population estimates for 1991 (see OPCS).<sup>18</sup> However, the results presented here concern that part of the undercount which could be identified by survey procedures. A more

detailed discussion of the demographic checks used to evaluate the 1991 Census may be found in section 4.3.2.3.

Table 4.15 provides a breakdown of the net enumeration error for England and Wales for each of these sources. This shows that the number of residents who had been omitted due to addresses being missed or wrongly identified as vacant was, at 0.41 per cent of the enumerated population, slightly larger than the number missed from households which had been enumerated (0.36). Taken together these produced an estimated undercount of 377,000 — equivalent to 0.77 per cent of the enumerated population. But the overall estimate of the undercount is less than this, as the CVS indicated that the data imputed for non-enumerated households produced an estimated *overcount* of 94,000 residents. This occurred because the census did not simply omit such households. In some cases a census form was returned late by post while in others the enumerator had managed to determine the number of residents, and their characteristics were imputed on the basis of information about similar households in the area. In the remaining cases the number of residents was itself imputed.

**Table 4.15 Net enumeration error by source as measured by the CVS**

Main source of error	Estimated error expressed as		
	Effect on total residents (000's)	Per cent of enumerated population (per cent)	95 per cent confidence interval
Enumerated addresses	- 177	- 0.36	- 0.58–0.14
Missed addresses	- 200	- 0.41	- 0.53–0.29
Absent addresses	+ 85	+ 0.17	+ 0.04–0.31
All sources	- 292	- 0.60	- 0.88–0.32

Source: OPCS. Under-enumeration in the 1991 Census: results from the Census Validation Survey. *Census Newsletter*, no. 24, 1992, p.8, table 2.<sup>14</sup>

In this situation errors could have arisen because of mistakes made while completing the forms which were returned and because of biases in the imputation procedure. However, the single most important source of error was the misclassification of the address by the enumerator. The CVS revealed that some of these addresses had been entirely vacant at the time of the census and therefore should not have been classified as 'absent households'. The residents who were wrongly imputed to the addresses account for the overcount in the third row of Table 4.15.

Final results show that there was no statistically significant relationship between the undercount identified by the 1991 CVS and area-type (see Table 4.16). By comparison with the results from the 1981 PES, which estimated much higher levels of net under-enumeration in London than outside, the CVS results show that if anything the 1991 Census overestimated the population of London. However, it is likely that this disparity is due to the different methods adopted by the two post-censal surveys. The 1981 PES was concerned with the accuracy of the census figures for the population present on census night. By comparison, the figures given in Table 4.16 relate to residents, and therefore take account of the effects of the new census policy of imputing residents at absent and non-cooperating households. As these households are particularly common in London, this led the CVS to overestimate this section of the population by over 20,000 (residents).

#### 4.3.2.2 Results of the 1991 Census Validation Survey: quality

The quality check component of the CVS yielded a response rate of 89 per cent. As in sections 4.1.2.1 and 4.2.2, a selection of the results, focusing on the *gross error rate* (the proportion of times the response given at census differed from that given at the CVS interview) is presented below. It is important to note that the results relate to those individuals or households who provided a response to both the census and the CVS. Excluding the question on

**Table 4.16 Net under-coverage of individual residents by geographic category**

Area	Difference between Census and CVS		95% confidence interval around the difference	Gross CVS base
	(percentage of CVS base)			
Inner London	+ 17	(0.7)	- 47 – + 81	2,357
Outer London	+ 6	(0.2)	- 20 – + 32	4,103
Major Metropolitan	- 30	(0.8)	- 89 – + 29	3,851
Other Metropolitan	- 25	(0.3)	- 98 – + 48	7,105
Major non-Metropolitan	- 43	(1.2)	- 86 – 0	3,734
Other non-Metropolitan	- 89	(0.3)	- 170 – - 8	28,500
England and Wales	- 164	(0.3)	- 311 – - 17	49,650
Scotland	+ 2	(0.0)	- 32 – + 36	4,889
Great Britain	- 162	(0.3)	- 311 – - 11	54,539

Source: Heady et al. *1991 Census Validation Survey: Coverage Report*, HMSO (London 1994) p.36, table 4.15.<sup>16</sup>

'whereabouts on census night' (which includes *visitors*), the analyses were restricted to those who were recorded in the census as *usually resident*. At the time of writing the initial results from the quality check had been reported in OPCS Monitor SS 94/2.<sup>15</sup> A comprehensive report, incorporating the CVS findings on educational qualifications, occupation, the number of hours worked per week and occupational social class, excluded from the initial report, will be published by HMSO in 1995 (see Smith<sup>17</sup>).

### Results for questions relating to the household

#### Number of rooms (H1)

As in previous censuses, the question on the number of rooms a household has for 'its own use' appears to have been the source of the greatest problems, both for census form-fillers and for the professional interviewers working on the CVS. Using separate categories for households with up to 12 or more rooms, the gross error rate was 28.3 per cent (see Table 4.17). Even aggregating those households with 7 or more rooms the gross error rate was still in excess of 25 per cent. However, the net distributions in Table 4.17 show that many of the gross errors cancel out. It appears that the largest net difference was for those households who recorded five rooms (-1.3 per cent).

#### Type of accommodation (Panel A and H2)

The 1991 Census included two questions on the type of accommodation a household occupied. Panel A, which was initially completed by the census enumerator, identified those households living in part of a converted house, bungalow or flat. These were asked a subsidiary question

(H2) which was designed to show whether the accommodation was self-contained or not.

At 12.9 per cent, the gross error rate for the second question was three times the error rate for the main question (3.3 per cent). (The results for the second question relate to 265 households who were identified by both the census and the CVS as living in converted accommodation.) Table 4.18 shows that the largest difference in the net distributions (-1.9 percentage points) was for self-contained households with two or more rooms. It appears that most of this error was attributed to problems in counting the number of rooms in the household, rather than in identifying whether the accommodation was self-contained or not.

#### Tenure (H3)

The gross error rate for the question on tenure was 4.5 per cent (see Table 4.19). The CVS showed that the largest net differences were between owner-occupiers who owned their home outright (+0.8 percentage points) and those who were buying with a mortgage or loan (-0.5).

#### Amenities (H4)

The greatest source of disparity between the responses to the amenities questions included in the census and CVS, was the question on central heating (see Table 4.20). While the gross error rates for the other questions (on the availability of a bath or shower and the use of flush toilet) were both under 1 per cent, the error rate for this question was 5.9 per cent. It appears that most of the errors were caused by the census overstating those households that had *all* living rooms and bedrooms centrally heated, when, according to the CVS, only some of them were.

**Table 4.17 Difference between the number of rooms recorded by the 1991 Census and CVS quality check**

Quality check	Census (post-processing)							Sample numbers
	1	2	3	4	5	6	7 or more	
	%	%	%	%	%	%	%	
1	<b>52</b>	5.0	0.5	-	-	-	-	61
2	35	<b>58.7</b>	6.7	0.5	0.2	0.1	-	202
3	9	32.7	<b>68.1</b>	7.9	1.2	0.2	0.3	545
4	2	2.4	19.8	<b>75.6</b>	9.3	1.8	0.2	1,097
5	2	0.6	4.0	13.5	<b>78.3</b>	17.8	4.2	1,536
6	-	-	0.7	2.0	10.1	<b>70.6</b>	12.4	1,057
7 or more	-	0.6	0.2	0.6	1.0	9.4	<b>82.8</b>	740
Unweighted base (= 100%)	90	212	522	1,090	1,474	1,111	739	5,238
<b>Net distributions</b>								
(1) Quality check	%	1.0	3.5	9.6	20.8	30.5	20.4	14.2
(2) Census (post-processing)	%	1.4	3.7	9.1	20.9	29.2	21.6	14.1
Net difference (2) - (1)	%	+ 0.4	+ 0.2	- 0.5	+ 0.1	- 1.3	+ 1.2	- 0.1

Gross error: agree 71.7%; disagree 28.3%

Sample size: 5,238 responding households

Source: OPCS. *First results from the quality check element of the 1991 Census validation survey*. OPCS Monitor SS 94/2 22 March 1994, p.3, table 2.<sup>16</sup>

**Table 4.18 Difference between the type of converted accommodation recorded by the 1991 Census and the CVS quality check**

Quality check	Census (post-processing)				Sample numbers
	One room flatlet	One room not self-contained	Two or more rooms self-contained	Two or more rooms not self-contained	
	%	%	%	%	
One room flatlet	<b>66</b>	-	1	6	14
One room not self-contained	4	<b>81</b>	1	12	30
Two or more rooms self-contained	30	6	<b>95</b>	26	197
Two or more rooms not self-contained	-	13	4	<b>57</b>	24
Unweighted base (= 100%)	19	32	188	26	265
<b>Net distributions</b>					
(1) Quality check	%	6.2	11.1	72.9	9.8
(2) Census (post-processing)	%	7.7	11.2	71.0	10.1
Net difference (2) - (1)	%	+ 1.5	+ 0.1	- 1.9	+ 0.3

Gross error: agree 87.1%; disagree 12.9%

Sample size: 265 responding households

Source: OPCS. *First results from the quality check element of the 1991 Census validation survey*. OPCS Monitor SS 94/2 22 March 1994, p.5, table 5.<sup>16</sup>

**Table 4.19 Difference between the type of tenure recorded by the 1991 Census and the CVS quality check**

Quality check	Census (post-processing)							Sample numbers
	Owner occupied		Rented			Privately rented		
	With mortgage	Owned outright	With job or business	From local authority or New Town*	From housing association	Furnished	Unfurnished	
	%	%	%	%	%	%	%	
Owner-occupied, with mortgage	<b>97.3</b>	1.4	1.0	0.2	0.7	-	0.6	2,184
Owner-occupied, owned outright	2.1	<b>97.5</b>	0.3	0.2	0.9	0.7	2.3	1,235
Rented with job or business	-	0.3	<b>72.9</b>	0.7	0.6	3.5	5.1	117
Rented from local authority or New Town*	0.2	-	17.6	<b>97.7</b>	12.0	0.7	-	1,107
Rented from housing association	-	-	1.9	1.0	<b>82.9</b>	0.7	3.6	178
Rented privately, furnished	0.1	0.1	1.0	-	-	<b>86.0</b>	2.8	181
Rented privately, unfurnished	0.3	0.7	5.4	0.2	2.8	8.5	<b>85.6</b>	232
Unweighted base (= 100%)	2,222	1,214	121	1,082	185	197	213	5,234
<b>Net distributions</b>								
(1) Quality check	%	42.1	24.0	2.2	21.4	3.0	3.0	4.2
(2) Census (post-processing)	%	42.9	23.5	2.3	21.0	3.1	3.3	3.9
Net difference (2) - (1)	%	+ 0.8	- 0.5	+ 0.1	- 0.4	+ 0.1	+ 0.3	- 0.3

Gross error: agree 95.5%; disagree 4.5%

Sample size: 5,234 responding households

\* Also includes Scottish homes.

Source: OPCS. *First results from the quality check element of the 1991 Census validation survey*. OPCS Monitor SS 94/2 22 March 1994, p.5, table 7.<sup>16</sup>

**Table 4.20 Difference between the response to the amenities question recorded by the 1991 Census and the CVS quality check**

		Bath or shower			Inside flush toilet			Central heating		
		Exclusive use	Shared use	No use	Exclusive use	Shared use	No use*	All rooms	Some, but not all	None
(1) Quality check	%	98.5	1.1	0.4	98.6	0.9	0.6	64.6	15.6	19.8
(2) Census(post-processing)	%	99.1	0.5	0.3	99.1	0.4	0.5	67.9	12.7	19.4
Net difference (2) - (1)	%	+ 0.6	- 0.6	- 0.1	+ 0.5	- 0.5	- 0.1	+ 3.3	- 2.9	- 0.4
Gross error:		Agree 99.2%; disagree 0.8%			Agree 99.3%; disagree 0.7%			Agree 94.1%; disagree 5.9%		
Sample size:		5,236 responding households			5,236 responding households			5,237 responding households		

\* Includes those with 'flush toilet with outside entrance only'.

Source: OPCS. *First results from the quality check element of the 1991 Census validation survey*. OPCS Monitor SS 94/2 22 March 1994, p.6, table 8.<sup>16</sup>

#### Number of cars and vans (H5)

The gross error rate for the census question on the number of cars or vans was 5.4 per cent. Evidence from the CVS suggests that the census tended to overstate the proportion of households that did not have the use of a car or van (see Table 4.21).

#### Results for questions relating to individuals

The majority of the census questions relating to individuals had gross error rates of less than 5 per cent. (These include sex, age, marital status, the individual's relationship in the household and usual address one year ago.) The following results highlight those questions where the gross error rate exceeded 5 per cent and those with error rates of less than 5 per cent, but which the CVS suggests should be treated with some caution.

#### Country of birth (Q10)

While the gross error rate for the full country of birth classification (102 codes) was 1.2 per cent, the error rate for those born outside the UK was, at 8.6 per cent, considerably higher.

#### Ethnic group (Q11)

As the number of ethnic minority households in the CVS sample was not sufficient to facilitate analysis of the nine original ethnic categories, they were aggregated to form the following ethnic groups:

'White'	
'Black'	(including 'Black-Caribbean', 'Black-African' and 'Black Other')
'Indian sub-continent'	(including 'Indian', 'Pakistani' and 'Bangladeshi')
'Other groups'	(including 'Chinese' and 'any other ethnic group')

**Table 4.21 Difference between the number of cars and vans recorded by the 1991 Census and the CVS quality check**

Quality check		Census (post-processing)				Sample numbers
		None	1	2	3 or more	
		%	%	%	%	
None		<b>95.6</b>	1.4	0.3	0.9	1,728
1		4.1	<b>95.0</b>	3.8	1.7	2,305
2		0.3	3.5	<b>92.9</b>	7.2	1,000
3 or more		-	0.2	3.1	<b>90.2</b>	206
Unweighted base (= 100%)		1,769	2,310	970	190	5,239
<b>Net distributions</b>						
(1) Quality check	%	31.9	44.4	19.7	3.9	
(2) Census (post-processing)	%	32.6	44.5	19.2	3.6	
Net difference (2) - (1)	%	+ 0.7	+ 0.1	- 0.5	- 0.3	
Gross error:		agree 94.6%; disagree 5.4%				
Sample size:		5,239 responding households				

Source: OPCS. *First results from the quality check element of the 1991 Census validation survey*. OPCS Monitor SS 94/2 22 March 1994, p.6, table 9.<sup>15</sup>



**Table 4.23 Responses to the limiting long-term illness question recorded by the 1991 Census compared with the quality check assessment of those having difficulty with everyday tasks, for those aged 16 and over**

Quality check	Census (post-processing)		Sample numbers
	Has a limiting long-term illness	Does not have a limiting long-term illness	
	%	%	
Has problem with one or more everyday task	<b>76.3</b>	6.8	1,728
No problems with everyday tasks	23.7	<b>93.2</b>	8,261
Unweighted base (= 100%)	1,523	8,466	9,989
<b>Net distributions</b>			
(1) Quality check	%	17.5	82.5
(2) Census (post-processing)	%	15.4	84.6
Net difference (2) - (1)	%	- 2.1	+ 2.1
Gross error: agree 90.6%; disagree 9.4%			
Sample size: 9,989 people aged 16 or over resident in households			

Source: OPCS. First results from the quality check element of the 1991 Census validation survey. OPCS Monitor SS 94/2 22 March 1994, p.11, table 19.<sup>15</sup>

#### *Economic position (Q13)*

The gross error rate for the question on economic position was 10.9 per cent: 13.6 per cent for women and 7.8 per cent for men (see Table 4.24). For men, the largest differences in the net distributions were for those working full-time (+0.7 percentage points) and for those students who were economically active (-0.7 percentage points), while for women the largest differences were found in the economically inactive 'other' category (+1.4 percentage points).

#### *Daily journey to work (Q18)*

Table 4.25 shows that the question on daily journey to work also had a relatively high gross error rate (8.1 per cent). It appears that the largest net difference between the answers given in the census and the CVS interview was for those individuals who indicated they spent the longest part of their journey to work as a car passenger (+1.1 percentage points).

#### **4.3.2.3 Demographic checks on the 1991 Census**

This section considers the demographic checks carried out after the 1991 Census, which led OPCS to conclude that the census count plus the numbers identified by the CVS still result in an undercount of the resident population.

Population estimates are rebased every 10 years using the new census results. The starting point for this is the census count of those who are usually resident. Table 4.26, reproduced from OPCS,<sup>18</sup> outlines the steps in moving from the 1991 Census count of usual residents to the final 'all ages' mid-1991 population estimate for England and Wales.

The basic count of usual residents in the table was derived from those who were recorded on the completed census form as being normally resident in a private household, whether they happened to be there on census night or not, plus the usual residents of communal establishments and those members of a *wholly absent household* who completed a census form on their return. Finally, census enumerators provided estimates of the numbers of those in *wholly absent households* who had failed to complete a voluntary return and the characteristics of their members were imputed. In England and Wales, the basic census count of usual residents came to 49,890,000 of whom 806,000 (1.6 per cent) were imputed members of wholly absent households who did not voluntarily complete a census form on returning home after census night.

The first adjustment in the table concerns the treatment of students. (This was made using the new 1991 Census question on the term-time address of students, described in section 4.4.2.1.) In 1991, some 54,000 more students came to study in England and Wales than went overseas.

The second adjustment allows for the difference in timing, since population estimates typically refer to the population on 30 June. Allowances were therefore made for the number of births, deaths and migrants during the intervening period and everyone's age was increased by 10 weeks. Thirdly, the table shows the attempts that were made to allow for deficiencies in the census.

Finally, several additional administrative sources were used to adjust the estimate for particular subgroups. These include records of the number of births registered in the previous year (historically the enumeration of infants has been problematic) and those held by the Ministry of Defence and Department of Social Security indicating the number of members of the armed forces and of elderly residents in receipt of a pension. These adjustments added a further 126,000 people.

A further way of checking on the accuracy of the 1991 Census is to compare it with its predecessor. The number of a particular age and sex in one census ought to be consistent with the number who were 10 years younger in the preceding census, once the appropriate adjustments for deaths and migration have been made. Component 9 of Table 4.26 was derived from such a comparison. This shows that there was an apparent shortfall of 402,000 people aged 1-44 (particularly males aged 20-29) in the 1991 Census who had eluded the CVS interviewers, whereas for ages 45 to 79 there was no shortfall that could be explained. The shortfall in young adults was so large that it could not have been caused by errors in the calculation. (Further

**Table 4.24 Differences between the economic position recorded at the 1991 Census and that recorded by the CVS quality check**

	Economically active						Economically inactive				
	Working full-time	Working part-time	Self-employed with employees	Self-employed without employees	Government scheme	Unemployed*	Students (active)	Students (inactive)	Permanently sick	Retired	Other
<b>Men</b>											
(1) Quality check	% 49.9	1.7	3.1	9.0	1.0	8.5	1.1	3.2	4.3	17.4	0.9
(2) Census (post-processing)	% 50.6	1.6	3.6	7.8	0.9	8.6	0.4	3.8	4.6	17.5	0.6
Net difference (2) - (1)	% +0.7	-0.1	+0.5	-1.2	-0.1	+0.1	-0.7	+0.6	+0.3	+0.1	-0.3
<b>Women</b>											
(1) Quality check	% 26.0	18.4	0.8	2.3	0.6	3.3	1.2	2.8	2.2	21.0	21.5
(2) Census (post-processing)	% 26.0	17.8	1.0	1.8	0.6	3.1	0.5	3.3	2.9	20.1	22.9
Net difference (2) - (1)	% 0.0	-0.6	+0.2	-0.5	0.0	-0.2	-0.7	+0.5	+0.7	-0.9	+1.4
Gross errors:	Men: agree 92.2%; disagree 7.8%										
	Women: agree 86.4%; disagree 13.6%										
Sample size:	Men: 4,863 usual residents aged 16 or over resident in households										
	Women: 5,358 usual residents aged 16 or over resident in households										

\* Those coded as 'waiting to start a job' were included with the unemployed.

Source: OPCS. First results from the quality check element of the 1991 Census validation survey. OPCS Monitor SS 94/2 22 March 1994, p.12, table 22.<sup>15</sup>

**Table 4.25 Differences between the responses recorded to the question on daily journey to work at the 1991 Census and the CVS quality check**

	Means of transport									
	BR train	Underground	Bus	Motor cycle	Car	Car passenger	Pedal cycle	On foot	Other	Works at home
Quality check	% 3.0	2.1	8.6	1.7	55.5	9.2	2.9	12.6	0.6	3.9
Census (post-processing)	% 3.4	2.0	9.3	1.4	55.9	8.1	3.0	11.8	0.5	4.7
Net difference (2) - (1)	% +0.4	-0.1	+0.7	-0.3	+0.4	-1.1	+0.1	-0.8	-0.1	+0.8
Gross error:	91.9% agree; 8.1% disagree									
Sample size:	5,395 residents aged 16 or over and in employment									

Source: OPCS. First results from the quality check element of the 1991 Census validation survey. OPCS Monitor SS 94/2 22 March 1994, p.13, table 23.<sup>15</sup>

confirmatory evidence may be found in Figure 4.1 which shows the implausibly low ratio of males:females at the ages most affected.)

This element of the undercount has been apportioned to local districts, *pro rata* according to the age-sex distribution of the area, after making all of the other adjustments shown in Table 4.26.

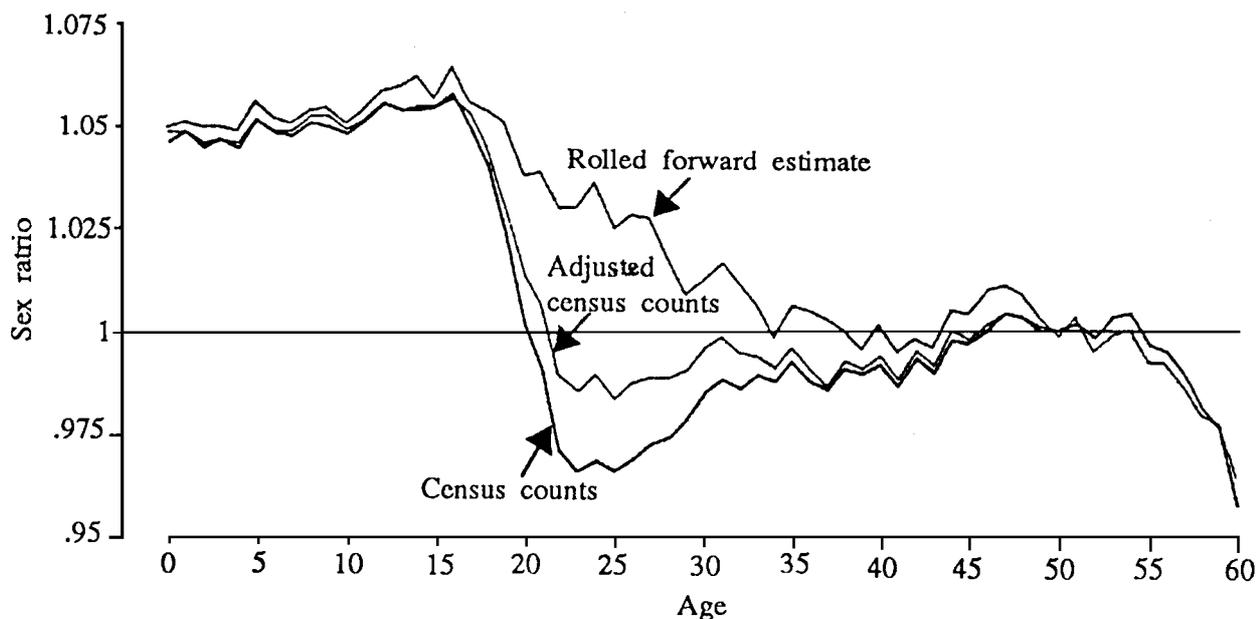
All of the above adjustments have been taken into account in rebasing the population estimates at a national level, resulting in a rebased final mid-1991 population estimate for England and Wales of 50.95 million. While this is very close to the total derived by updating previous censuses for natural change and migration, there are significant differences from the 1991 Census in the age and sex distributions.

**Table 4.26 The steps in deriving the final ‘all ages’ mid-1991 population estimate for England and Wales from the 1991 Census count**

	Thousands of persons
<b>1991 Census count of usual residents for England and Wales</b> (sum of totals shown in the last line of Tables 1 of the 1991 Census County Reports)	<b>49,890</b>
<b>(a) Adjustment for definitional difference</b>	
(1) Net student balance (the excess of students with term-time addresses in England and Wales over those with home addresses here)	+ 54
<b>(b) Allowance for changes between Census day (21 April) and mid-1991</b>	
(2) Natural change	+ 34
(3) Net migration	+ 9
	+ <b>43</b>
<b>(c) Allowance for Census visitors omitted from usual resident count</b>	
(4) Visitors with no, or no identifiable, usual address	+ 200
<b>(d) Allowance for underenumeration in Census</b>	
(5) Census Validation Survey adjustments (other than that included in (4) above)	
(i) Over-imputation in processing	- 115
(ii) Net underenumeration arising from missed/misclassified dwellings	+ 178
(iii) Net underenumeration of people in responding households	+ 177
	+ <b>240</b>
(6) Enhancement of Census count of infants using data from birth and death registrations and migration indicators	+ 21
(7) Enhancement of Census count of armed forces (and dependents of foreign forces) using MOD data	+ 42
(8) Modification of Census count of elderly residents using DSS pensioner data	+ 63
(9) Enhancement of Census count of people aged 1-44 to allow for underenumeration additional to (5)-(8)	+ 402
	+ <b>768</b>
<b>Final rebased mid-1991 population estimate for England and Wales</b>	<b>50,955</b>

Source: OPCS Final mid-1991 population estimates for England and Wales and constituent local and health authorities based on 1991 Census results. OPCS Monitor PP1 93/1 24 June 1993, p.7, table C.<sup>18</sup>

Figure 4.1 Sex ratios (male:female) of various 1991 population counts for England and Wales



Source: Dale A and Marsh C (eds): *The 1991 Census Users Guide*. HMSO (London 1993)<sup>25</sup>

#### 4.3.2.4 1991 Census under-enumeration: guidance for users in England and Wales

In response to the level of under-enumeration uncovered by the demographic checks mentioned above, OPCS has produced some guidelines for users of England and Wales census data (see OPCS).<sup>18</sup> While the effects of under-enumeration are likely to be unimportant for the majority of users (a coverage rate of 98 per cent is very high by most standards), OPCS advise that there are circumstances in which it might be beneficial to take special action.

As indicated above, a comparison of the age and sex distributions in the census with those in the rolled-forward population estimates suggests that a substantial number of people were missed by both the census and the CVS. Those missed are mainly aged below 35 years, particularly young adult males. A further comparison of the census distributions for ethnic group and results from the Labour Force Survey suggests that under-enumeration is not biased towards particular ethnic groups.

However, OPCS recommends that users requiring precise population figures, particularly those broken down by age and sex, think carefully about using raw census data. Those who require figures for local government or health authority areas, disaggregated by age and sex, should use the mid-year population estimates in preference to the census data (see OPCS).<sup>18</sup> (Here it is important to remember that the definition of a *usual resident* is slightly different in the two sources. The treatment of students, as outlined in section 4.4.2.1, is particularly relevant.)

Generally, users should be cautious if they are investigating census characteristics which are strongly related to sex and age and where comparisons might be slightly distorted by the known sex/age bias in the missing 2 per cent. A simple

Table 4.27 Factors of census counts/population estimates for estimated under-enumeration

Age	Persons	Males	Females
<b>All ages</b>	<b>1.02</b>	<b>1.03</b>	<b>1.01</b>
0- 4	1.03	1.04	1.03
0- 9	1.03	1.03	1.02
10-14	1.02	1.02	1.01
15-19	1.02	1.03	1.01
20-24	1.06	1.09	1.02
25-29	1.06	1.08	1.03
30-34	1.02	1.03	1.01
35-39	1.01	1.02	1.00
40-44	1.01	1.01	1.01
All other age groups 45-84	1.00	1.00	1.00
85 and over	1.05	1.10	1.04

Source: OPCS. *Underenumeration in the 1991 Census: results from the Census Validation Survey*. Census Newsletter, no. 24, 1992, p.10.<sup>14</sup>

check can be carried out to explore whether the relationships under investigation could potentially be distorted. This is done by weighting the census results with the set of adjustment factors included in Table 4.27. If there is any difference, the weighted estimates are to be preferred. The factors are sufficiently uniform across the country to apply to local areas, such as a local government or health authority area. When using these adjustment factors it is assumed that the distribution of census characteristics of those missed in particular age/sex groups is the same as those counted.

Finally, it is interesting to note that the undercounts identified in 1991 for particular age and sex groups are roughly similar to those discovered by large-scale

continuous government surveys such as the General Household Survey (GHS). While it is not possible to know whether the non-response in the 1991 Census is due to the same causes of non-response on government surveys, the authors of the *1991 Census Users Guide*<sup>19</sup> suggest that census users should be aware of the consistent patterns of low-response found in these social surveys. (Recent evidence suggests that the main groups associated with low response are households with no cars; young, socially active people; the widowed elderly; couples without children; households where no-one is employed; people with no educational qualifications; and single person households (see Barnes).)<sup>20</sup> Users who need to be particularly careful in their estimates would be advised to control for the above characteristics in their analysis.

#### 4.4 DIFFERENCES BETWEEN THE CENSUSES

When using the LS to study intercensal change it is important to be aware of any differences between the censuses which may affect the accuracy with which change can be measured. This section highlights the changes which occurred between the 1971, 1981 and 1991 Censuses, in terms of the subjects and population covered, data imputation and census geography, and definitions and concepts used. Where appropriate the 1991 Census question numbers are presented with the relevant 1971/1981 numbers in brackets.

##### 4.4.1 Changes in subjects covered

Though the level of consistency in the information collected at the 1971, 1981 and 1991 Censuses is high, some changes have taken place reflecting specific interests or changes in social norms. There have also been attempts to improve the definition or wording of specific questions, such as that concerning the number of rooms, which has previously proved problematic. The 1971 Census schedule incorporated substantially more questions (29 in England and 30 in Wales) than either the 1981 or 1991 Census (21/22 and 25/26 respectively). For example, it consisted of a number of questions which were excluded in 1981, including usual address five years ago, occupation one year ago, and separate questions on the number of hours worked and whether or not the respondent identified themselves as a student, apprentice or trainee. The 1971 Census also included a set of questions for ever-married women between the ages of 16 and 59 on their fertility history which have been omitted from subsequent censuses.

One general difference between the 1971 and 1981 Censuses relates to the use of 'tick boxes'. These were used much more frequently for the 1981 Census in order to minimise the heavy costs of coding answers. The possible implications of this for investigating changes in the availability of cars and vans is mentioned in section 4.4.5.

There were also a number of changes between the 1981 and 1991 Censuses. These include the introduction in 1991

of four questions not included in the previous census (self-ascribed ethnicity, limiting long-term illness, central heating and the term-time address of students), the adoption of a system of voluntary enumeration for *wholly absent households* (to facilitate the imputation of certain data) and a number of minor changes to improve the wording of the census. (Some of the ways in which the 1991 Census questions on self-ascribed ethnicity and limiting long-term illness may be used with data from the 1971 and 1981 Censuses are outlined in section 2.2.1.2. A more detailed discussion of the research potential of these questions in the LS may be found in Creeser.<sup>21</sup>)

##### 4.4.2 Changes in population coverage

Each of the censuses in the period 1971 to 1991 counted all persons *present* on census night and also all persons *usually resident*, irrespective of whether they were present or not. In communal establishments only those who were *present* were counted. This information was used to define the different population bases used for census output. This section highlights any changes in the census instructions which may have influenced the coverage of the population. Changes relating to the treatment of students by the census and to non-private establishments are dealt with separately in sections 4.4.2.1 and 4.4.2.2.

The instructions given to form-fillers in 1981 contained two changes from those used in 1971 that affect the population bases. Firstly, all questions relating to the individual on the private household form (see Appendix II) were addressed to *absent residents*. However, as in 1971, the enumeration of communal establishments was restricted to those *present* on census night. Secondly, the *whereabouts* question included on the private household form identified those absent residents who were elsewhere in Great Britain on census night and those who were outside the country.

With the exception of the treatment of students, which is covered separately below, the concept of *usual resident* which is used in the calculation of population bases has remained the same over the period 1971-91.

One further change in the population bases concerns *absent households*. In 1981, those households wholly absent from their place of usual residence were omitted from the enumeration if no one else was present in the accommodation on census night. By comparison, in 1971 the absent residents in such households were included in the Household Composition Tables to the extent that it was possible to enumerate them. One significant change to the 1991 Census was the imputation of data for wholly absent households (see section 4.4.3). While this has implications for the total population coverage of England and Wales, it is important to stress that the LS does not include imputed information for members of a *wholly absent household*.

Between the 1971 and 1991 Censuses there were a number of minor changes to the enumeration of shipping. The first

of these concerns the enumeration of persons on board vessels that were engaged on coastwise or fishing voyages, from or between ports in Great Britain on census night. While in 1971 these were counted as part of the enumerated population of their first port of call after census night, in 1981 they were counted as present in the area of issue. In 1991 a further minor change took place. Vessels on coastal trips, fishing voyages and voyages between Great Britain and Northern Ireland, Isle of Man and the Channel Islands were not enumerated. However, this census included foreign-registered ships in British ports, which had previously been excluded.

#### 4.4.2.1 The term-time address of students

In recent censuses, as the number of students has grown, it has become increasingly important to consider them in the final decision on when to hold a census. This is because students now make up the largest group of people who are away from home for a substantial part of the year. The final timing of the census has changed over the period spanned by the LS. In 1971 the census took place in the student vacations, while in 1981 it fell during term-time. The date chosen for the 1991 Census coincided with the vacation for most students.

At each of the censuses, form-fillers were advised that, for students and children away from home during term-time, the home address should be taken as the usual address. In 1981, form-fillers were not required to provide information on the term-time address of students on vacation or at home at the time of the census. This presented some problems as the usually resident population base was incompatible with the Registrar General's annual estimates for local and health authority areas. (The latter takes the student's term-time address as the usual one.)

In 1991, in order to provide comparability with the Registrar General's estimates, a separate question on the term-time address of students was included. Form-fillers were asked to indicate whether a student or schoolchild's address of enumeration was the term-time address and if not they were asked to indicate the term-time address. This information has been used to prepare a national matrix of *ward of usual residence by ward of term-time address*, used to redistribute students for the Registrar General's annual estimates.

The inclusion of a new question on the term-time address of students will, if continued in the future, help to remove a major source of ambiguity about intercensal change. However, for the present, comparisons of the number of students in 1981 and 1991 are somewhat complicated.

#### 4.4.2.2 Changes relating to communal establishments

One of the advantages of the census data in the LS, when compared with data from other continuous government surveys such as the GHS, is that the LS also covers those individuals enumerated in communal establishments such as prisons, hospitals and residential homes. With allowance

for changes in the census classification of communal establishments, the LS provides an insight into the changing lives of this particular group of the population and the number and types of institutions in which they live.

Between 1971 and 1981 there were two major changes to the census classification of communal establishments. In 1981, hostels and common lodging houses, which had previously been subsumed under the heading 'miscellaneous communal establishments', were classified as a separate category. Furthermore, an important distinction was introduced for places of detention. In 1981, these were identified by the category 'prison department establishments' which included prisons, remand and detention centres, and borstals. Community homes, remand homes and police stations containing a lock-up, which had also been included in 1971, were classified as 'miscellaneous communal establishments'.

While the classification of communal establishments used in the 1991 Census is generally consistent with that used in 1981, there was an increase in the number of categories. One important distinction concerns the addition of a separate category for people sleeping rough, who were previously grouped together with those staying in caravans while on holiday under the heading 'vagrants and campers'.

In 1991, concern over the rise in homelessness prompted a special exercise to enumerate people sleeping rough. Although attempts had been made prior to the census to identify particular sites used by the homeless, the resultant enumeration of those sleeping rough is known to be incomplete. For example, this enumeration included those sleeping rough at just over a third of the pre-defined sites (455 out of a total of 1,312) but excluded those sleeping rough elsewhere and also those in shelters, hostels and squats. Unfortunately, there is no way of checking the coverage of this enumeration as the CVS only covered private households.

A breakdown by local authority area of the 2,845 people identified as part of this exercise may be found in Table 3 of the *1991 Census County Reports, Part 1*<sup>22</sup> and in the *National Report, Part 1* (Chapter 7).<sup>23</sup>

The 1991 categorisation of communal establishments also includes the following minor changes to the version used in 1981:

- (i) Additional distinctions are made between NHS or local authority hospitals/homes and those under private management.
- (ii) Nursing and residential homes covered by the 1984 Registration of Homes Act, and homes and hostels managed by housing associations are identified as three separate groups. In 1981 these were collectively included in the category 'hospitals and homes - other'.
- (iii) Homes for the old and disabled, which were previously identified by separate categories, are now included in categories 5,6,7 or 8 as appropriate.

The 18 major categories in use in 1991 are shown in Table 4.28.

**Table 4.28 Major categories of communal establishments identified by the 1991 Census**

1	NHS hospitals/homes - psychiatric
2	NHS hospitals/homes - other
3	Non-NHS hospitals - psychiatric
4	Non-NHS hospitals - other
5	Local authority homes
6	Housing association homes and hostels
7	Nursing homes (non-NHS/LA/HA)
8	Residential homes (non-NHS/LA/HA)
9	Children's homes
10	Prison service establishments
11	Defence establishments
12	Education establishments
13	Hotels, boarding houses, etc.
14	Hostels and common lodging houses (non-LA)
15	Other miscellaneous establishments
16	Persons sleeping rough
17	Campers
18	Civilian ships, boats and barges

### 4.4.3 Changes in data imputation

Although the 1981 Census saw the introduction of an automatic editing system to replace those cases where an answer was missing, out-of-range or inconsistent (see section 4.2), neither this nor the 1971 Census imputed data for *wholly absent households*.

In 1991 a number of modifications were made to the editing system used in 1981 (see Mills and Teague).<sup>24</sup> The rationale behind this was to improve the coverage of the census by introducing a voluntary enumeration of *wholly absent households* (i.e. where no person was present in the household on census night). All absent households were given the opportunity of completing a census form on their return, though not all of them returned a form that could be incorporated into the processing. The following paragraphs from *1991 Census Definitions*<sup>12</sup> describe how some data were imputed for households who were absent on census night and who had failed to return a census form on their return home.

1.50 For those absent households for whom a completed form was not received, certain data are imputed using some basic information (such as the number of people living at the address and details of the accommodation) collected by the enumerator and also drawing on information from similar absent households which did complete and return census forms.

1.51 Four key variables (the area, number of usual residents, number of rooms and whether the accommodation is self-contained) were recorded for all absent households on a form completed by the enumerator from information supplied either by someone in the household before they went away or by a neighbour or, as a last resort, by estimating the values.

1.52 As the processing system encounters *completed* forms from absent households, the information on housing and household members is stored and referenced by the four key variables. When a non-responding absent household is encountered, details of the 100 per cent items are imputed by copying the most recently stored absent household record which matches the four key variables. This ensures that any geographically clustered variables are imputed as accurately as possible.

1.53 Investigation by OPCS has shown that absent households, as a group, have markedly different characteristics compared with other households; for example, they are smaller on average (most having only one resident) and have residents more likely to be aged between 16-24 or 65 and over than in the population as a whole. The method of imputation adopted takes account of this general difference in household composition. By only imputing details from one absent household to another, distortions in aggregate distributions should be minimised - although the probability of imputing every detail correctly for every single household is, of course, very small (see OPCS).<sup>12</sup>

While the LS includes information on those individuals who were not present at census night, but returned a form at a later date, it does not include imputed information for members of a *wholly absent household* who failed to return a form. The reason for this is that the imputation process imputes age but not date of birth. (Section 5.5 on the quality of the 1981-1991 Census linkage highlights those groups who were enumerated in 1981 and had not died or emigrated in the intervening period but for whom no corresponding 1991 record was available.)

### 4.4.4 Changes in census geography

Intercensal comparison may be influenced by changes in census geography. This section highlights those changes in the geographic base used for census output and draws upon material included in the *1991 Census User's Guide*, in this case the chapters by Denham<sup>25</sup> and Barr<sup>26</sup>. In common with other census products, the LS records data coded to a range of statutory and other areas defined for administrative purposes (see Table 4.29). For reasons of confidentiality the lowest level of geography available for analysis in the LS is the county district. Although data coded to small areas, such as wards, are not available for analysis they may be used in other ways. Aggregate data describing characteristics common to an area may be attached to postcode and ward-based variables. For example, a ward-based deprivation score, known as the 'Carstairs' or 'Scotdep' score was added retrospectively to the ward of usual residence for each LS member enumerated at the 1981 Census (see Creeser<sup>27</sup>). Similarly, wards and postcodes may be grouped to form different (functional) areas such as the travel-to-work areas (TTWAs) which are available in the LS. (TTWAs may be seen as approximations to self-contained labour markets. The TTWAs in the LS have been constructed from the ward travel-to-work patterns observed in the 1981 Census.)

**Table 4.29 Area based information recorded at census**

<b>1 1971 Census</b>					
Address of enumeration	Usual address	Place of work	Usual address one year ago	Usual address five years ago	Country of birth
<b>Pre-74 areas</b>					
	Standard region County Local authority area New Town/ conurbation centre Conurbation Urban/rural size indicator Hospital region	Local authority area of workplace Ward of workplace*	Standard region County LA area Ward* New Town/ conurbation centre Conurbation Urban/rural size indicator Hospital region	Standard region County LA area Ward* New Town/ conurbation centre Conurbation Urban/rural size indicator Hospital region	Recorded for: LS member and LS member's parents† and other household members
Local authority of enumeration					
<b>Post-74 areas</b>					
Standard region County County district New Town Ward* Regional health authority Area health authority Health district					
Craig-Webber code Travel-to-work area (see Chapter 2, section 2.2.2)					
<b>2 1981 Census</b>					
Address of enumeration	Usual address		Usual address one year ago		Country of birth
County district Ward of enumeration*	Standard region County County district New Town Conurbation/New Town Inner city partnership area code (PAC) Ward* Regional health authority Area health authority Health district  Travel-to-work area A ward-based classification of residential neighbourhoods		County district City centre Inner city partnership area code (PAC) Ward*		Recorded for: LS member and LS member's parents† and other household members
<b>3 1991 Census</b>					
Address of enumeration	Usual address		Usual address one year ago		Ethnic group
County district Ward of enumeration*	Standard region County County district New Town Conurbation/New Town Inner city partnership area code (PAC) Ward* Regional health authority District health authority		County district City centre Inner city partnership area code (PAC) Ward*		To be recorded for: LS member and other household members

\* Ward level data is not available for analysis.

† Information on the LS member's parents' country of birth is only available if the LS member was living with their parents at the time of the census.

Source: Creeser. An introduction to the based variables in the LS, LS User Guide No. 7. LS Support Programme, SSRU, City University (London 1991).<sup>27</sup>

For each of the censuses included in the LS, enumeration districts (EDs) have been the basic unit of data collection and output. When aggregated they form local districts, which have remained relatively constant over time. They may be also be grouped to form higher areas — though this is not necessarily straightforward. Intercensal analyses are complicated by the fact that ED boundaries change over time to reflect shifts in the population of an area. (This is covered in more detail below.)

One of the advantages of local authority and health authority boundaries for analysing intercensal change is their relative stability over time.

While historically local authority boundaries have remained very stable over time, users should be aware of those changes which may have implications for longitudinal analyses. One of the most significant issues for those wishing to use the linked census data in the LS is the effect of the 1974 local government reorganisation, which radically altered the administrative areas of England and Wales (see Creeser).<sup>27</sup> Prior to 1 April 1974, when the 1972 Local Government Act became effective, England and Wales were divided into nine standard regions, 59 counties and 1484 local authority areas. On 1 April 1974 the former county, county borough and county district councils were abolished. These were replaced with two new levels of local authorities, county and district councils, covering metropolitan and non-metropolitan counties and districts. The metropolitan counties were composed of large urban areas and had slightly different functions from the non-metropolitan counties.

Individuals wishing to make intercensal comparisons (between the 1971 and 1981 Censuses) should note that the 1971 Census data in the LS are coded to both the pre- and post-1974 administrative areas. However, as Table 4.29 shows, comparison is complicated as the 1971 data coded to the post-74 areas refer to the *address of enumeration* and not the *usual address*.

The effect of the 1974 reorganisation on the nine standard regions is shown in Figure 4.2, which compares the boundaries of the standard regions on 31 March and 1 April 1974 and also shows the counties which were created on 1 April 1974. This demonstrates that reorganisation had different effects. Some regions such as the West Midlands retained almost the same boundaries while others such as the East Midlands, Yorkshire and Humberside, and the North experienced quite substantial changes.

### ***Changes in enumeration districts 1971-81, 1981-91***

As already mentioned, to protect against breaches of confidentiality, data coded to small geographic areas, including enumeration districts (EDs), are not available for analysis in the LS. Between the 1971 and 1981 Censuses approximately 50 per cent of EDs remained unchanged. Where changes in the ED boundaries did occur, every effort was made to give 1971-81 comparability by ensuring that the boundary of a group of 1981 EDs coincided with the

corresponding group of 1971 EDs, even though ED boundaries within the group had changed. Information on comparability was made available to users, who either had the choice of regrouping areas according to their own needs or of using a national set of comparable small areas, known as 'Census Tracts', commissioned and made available via the Department of Environment.<sup>28</sup> Although census users contacted prior to the 1991 Census gave much less emphasis to the need for continuity, similar information on 1981-91 ED comparability is also available.

### ***The introduction of new small area geographies***

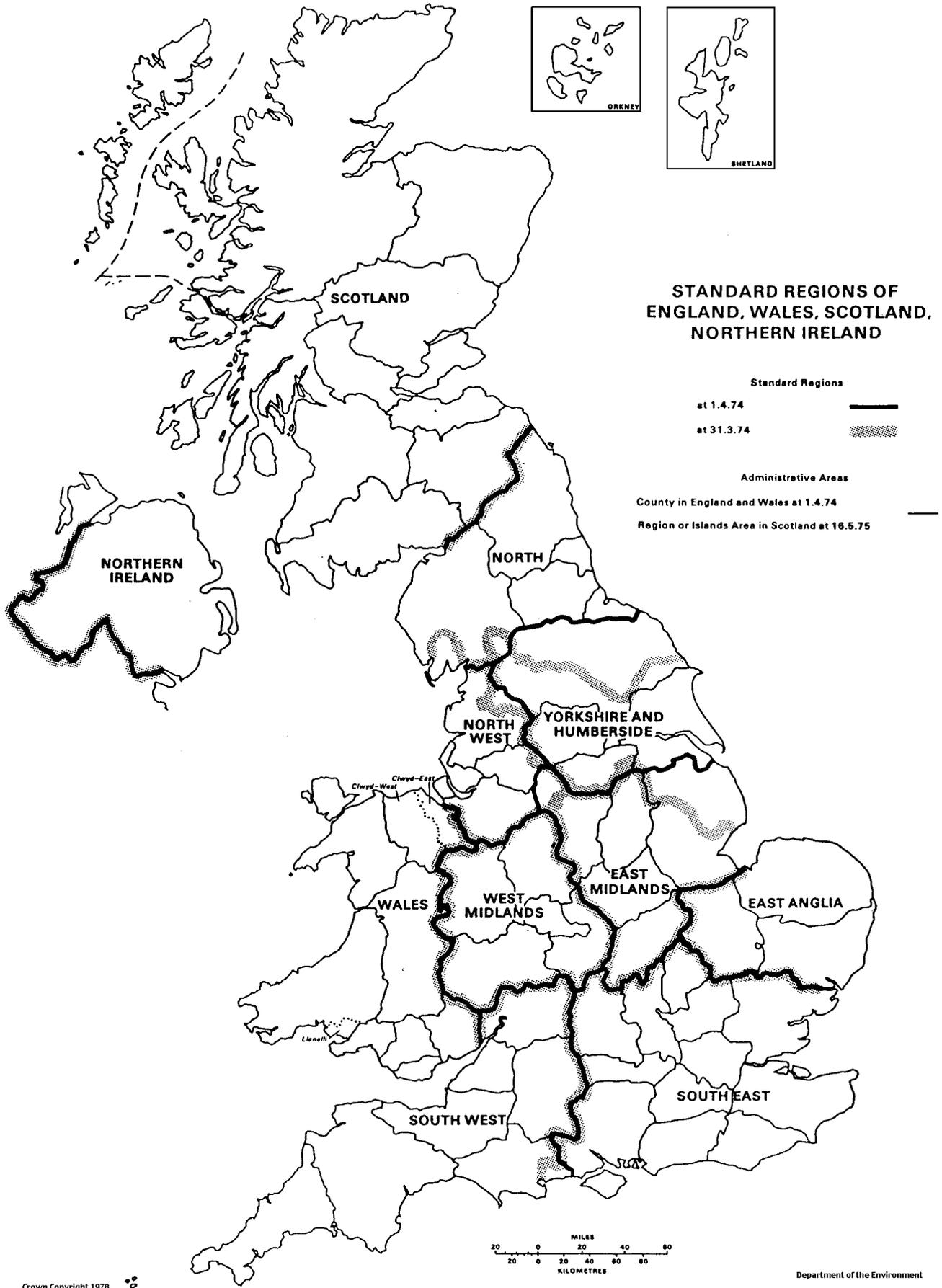
While statutory and other areas defined for administrative purposes remain the main geographic base used by the census, and therefore by the LS, since the 1960s there has been an increasing demand for a system of new bases, independent of the census organisation and processing. (The fact that statutory and administrative areas generally have a hierarchical structure with many divisions, often unrelated to each other, has meant that several sets of area output with overlapping boundaries have been produced at each successive census.)

Discussions identified the need for a 'small area geography' which facilitates comparisons with other data sources and would ideally have geographical references suitable for direct geographical manipulation. (Enumeration districts are generally unrelated to other areas recognised by users. It has been noted that in many ways the use of EDs in Britain evolved both out of necessity and as a compromise between the requirements of the census field and processing operation and those of census users (see Barr).<sup>26</sup> While Britain is one of the best mapped parts of the world, there is still nothing equivalent to the comprehensive geographically referenced address base, known affectionately as TIGER (Topologically Integrated Geographical Encoding and Referencing), developed in the US for the 1990 Census.) In preparation for the 1991 Census two possible options were considered - the Ordnance Survey National Grid system and the use of postcodes (see OPCS).<sup>28</sup>

Each address in Britain may be referenced to a position on the National Grid, a network of unique map references covering the whole country, administered by Ordnance Survey. This system divides Britain into 100-kilometre squares. Each address may be referenced, using two six-figure references (Easting and Northing) or an alphanumeric equivalent to the nearest square. One of these references the bottom left-hand corner of the square containing the address.

A system of postcodes has been used by the Post Office since the late 1960s to facilitate the mechanised sorting of mail. The system covers every address in the country to which mail is delivered. On average, each 'unit' postcode covers about 15 postal delivery points, unless it is assigned to a single large user such as a business address. A postcode represents a group of addresses on the postal delivery person's walk, rather than an area with defined boundaries. Postcodes are generally very stable over time though they

Figure 4.2 Standard regions of England, Wales, Scotland and Northern Ireland



Source: *Regional Statistics*, Appendix B, HMSO (London 1977).

can be redefined at any time to reflect changes in local postal delivery.

Following an extensive discussion and consultation process, all of the 1971 Census addresses and the relevant census data were referenced to 100-metre squares identified on the National Grid. (In less populous areas 1 kilometre squares were used.) As a result of this exercise the LS database contains two variables indicating the position on the grid (Easting and Northing) of the LS member's address at the 1971 Census.

One of the advantages of using grid squares is that they enable exact comparisons to be made between the results of successive censuses, providing of course that there is consistency in the methods of referencing and in the data collected. However, a number of disadvantages associated with the scheme, including the problems of analysing data due to the skewness of the population referenced to the squares (from 0 to 24,300 persons per 1-kilometre square) and of maintaining census confidentiality, must account for the fact that this method of referencing was not repeated in subsequent censuses. (In the 1981 Census, grid square referencing was carried out in a limited number of areas — but only where it was requested and paid for.)

At the 1991 Census, postcodes were collected and entered onto the computer for the address of enumeration of every household enumerated in England and Wales. Although postcodes had been recorded on the census schedule used in 1981, the 1991 Census was the first time that they had been entered on to the OPCS computer for the purpose of providing an alternative geographic base. (In 1981 respondents were asked to give the postcodes (if known) for their usual address one year ago (where this was different from their 1981 address) and of their workplace. The postcoded information was then translated into wards (district polling wards) and other areas used in the published census tables (district, county) by means of the computerised Central Postcode Directory.) (It is important to note that there is no direct correspondence between postcode of previous residence and ward; the latter are only approximate aggregates of postcodes.) The information was used to compile statistics on the destination areas from which migrants had come and on workplaces, on the basis of a set of areas defined as aggregates of postcodes. In 1991 postcodes were also collected for *remote addresses* (address of usual residence, term-time address of students, address one year prior to census, workplace address) and will be used, as they were in 1981, for the coding of addresses to small areas.

The LS database contains the postcode for the address at which the LS member was enumerated in 1991. While it also includes several variables, such as the 1981 'wholly moving household' indicator, based on a comparison of the postcode of all resident household members, and the postcode for one year ago, no postcodes are recorded in the LS for 1981.

The decision to use postcodes as an alternative geographic

base for the census has been influenced by the fact that postcodes are now widely known by the public and so can be easily entered on the census schedule. In addition, like enumeration districts (EDs), with the exception of single, large users, each postcode unit covers very broadly the same number of people. Finally, the use of postcodes for other statistical data within government departments and the National Health Service has become increasingly common.

The main advantage of using postcodes as an alternative geographic base is that they facilitate comparisons with other non-census statistics for the same area and with future (postcoded) census data. The ability to construct a matrix of postcodes and EDs also means that postcoded, non-census data can be allocated to an ED (or to areas based on aggregates of EDs) and associated with other census characteristics. Furthermore, the availability of postcode identifiers (or ED identifiers) should allow the LS to benefit from recent advances in Geographical Information Systems (GIS). These advances will allow information to be added about the (geographic) area in which an individual is living, such as the underlying rock formation or the distance to the nearest primary school or hospital, to individual-level data, while still maintaining the confidentiality of the data.

#### 4.4.5 Changes in definitions and concepts

##### *Change in the definition of a household*

Between the 1971 and 1981 Censuses there was a change in the definition of a 'household'. This is not immediately obvious from the census schedules as an identical definition was printed on each. However, the instructions issued to enumerators for identifying households changed between the two censuses. In 1981 enumerators were told to treat a group of people as a household if there was a regular arrangement to share at least one meal a day (breakfast counting as a meal), or if the occupants shared a common living or sitting room. In 1971, the instructions to enumerators working in the field had concentrated on identifying those groups with a regular arrangement to share at least one meal a day. This change was introduced as a result of pre-census tests which had shown that some households had identified themselves solely on the basis that the persons within the household shared a common living or sitting room.

The effect of this change is estimated to be small. The results of a study to evaluate this (see Todd and Griffiths)<sup>29</sup> suggest that the 1981 definition brought about a slight reduction in the number of households — in the order of 108,000 or 0.6 per cent. However, it is important to highlight that a large proportion of these losses were concentrated in the privately rented, furnished sector, resulting in a reduction of 79,000 or 17 per cent of households classified in this way.

##### *Postcode of address*

Although the postcode of each address was recorded in 1981, the 1991 Census was the first decennial census to collect and enter this information into the computer (see

section 4.4.4). Postcodes provide a common geographic base for statistics from a number of sources and the various constituents of unit postcodes provide potential flexibility for analysis. The inclusion of postcodes coincides with the growth in the use of Geographical Information Systems (GIS), including those concerned with socio-economic data (see Martin).<sup>30</sup> One implication of this is that the value of the LS data will be greatly enhanced by the ability to link contextual or background information, for example, on the proximity to a range of geographical features (rivers, major roads) or the geology of an area. With the use of a look-up table it will also be possible to regroup postcodes into user-defined geographic areas.

### *Dwellings*

The 1991 Census included a count of dwellings. This forms a key statistic in assessing the size of the housing stock. A dwelling is defined as 'a building or part of a building that forms separate and self-contained accommodation designed to be occupied by a single family or household' (see Whitehead, p. 19).<sup>31</sup> For most households living in houses or purpose-built flats, their dwelling is easy to identify, but it poses special problems in multi-occupied houses. Identifying the extent to which dwellings are shared is particularly important in estimating the future demand for housing.

Procedures for identifying dwellings in multi-occupied houses have varied over the years. In the 1971 Census, the concept of privacy was used to decide whether or not households shared 'household space'. A *household space* described 'the totality of all the rooms used by the household for living purposes, together with areas such as halls, landings, passages and stairs which are necessary for movement between such rooms and for, but not only for, access to that household's living accommodation' (see OPCS, section 2.3).<sup>1</sup> Where households shared a household space — either by sharing rooms or sharing the space needed to gain access to rooms — they were deemed to share a single dwelling. (Bath/shower and WC were omitted from this definition.) However, where households shared access solely to get to their own accommodation - for example, sharing a common entrance from the street - this was deemed not to impinge upon their privacy and dwellings were not counted as shared. This definition of shared household space led to confusion in multi-occupied houses where a household might occupy the top floor of a multi-occupied property but, though having no separate front door, did not share circulation space by virtue of the fact that other residents had no need to use it. In 1971 such a household space was counted as a separate dwelling and was considered to be self-contained; this produced a situation where three households could be sharing the same building, two classified as sharing a dwelling and one classified as not sharing.

In the 1981 Census, steps were taken to avoid the complex procedure for identifying a dwelling during enumeration. A question (H4) asked whether a household's rooms (not counting a bathroom or WC) were enclosed behind their own front door inside the building. This was designed

specifically to overcome the problem identified in 1971 and to give a measure of self-containment. The 1981 Census did not include a count of dwellings as such, but allowed an estimate to be made from data on household spaces (see OPCS).<sup>32</sup>

The 1991 Census reverted to a direct count of dwellings which were defined as 'structurally separate accommodation' (see OPCS: section 5.6).<sup>12</sup> A dwelling was shared where a household had shared entrance from the street and was not self-contained. Accommodation was not self-contained if, 'to move from your room(s) to bathroom, WC or kitchen facilities you have to use a hall, landing or stairway open to other household(s)'. (See Panel A and question H2 of the 1991 Census schedule, included as Appendix III.) Where there was only one such household in a shared house, bungalow or flat, the accommodation was classified as an 'unattached household space'.

### *Dwelling type and household space type*

The 1991 Census recorded much fuller information on type of accommodation (Panel A and H2 on the Household Schedule) than in 1981. The enumerator was asked to distinguish whether the household's accommodation, if it was a whole house or bungalow, was detached, semi-detached or terraced. This information had been collected in Scotland in 1981 but not in England and Wales. Households occupying the whole of a purpose-built flat or maisonette were classified by whether the building they were occupying was a commercial building or not, while accommodation in converted or shared housing was distinguished first by whether there was a shared or separate entrance into the building and then (H2) by the type of accommodation. However, the key to identifying multiple occupancy in the 1991 Census was the 'building bracket' — a marking which enumerators made in their record books to indicate household spaces which were in the same building.

Information on dwellings has been used to produce a full classification of household space types, as shown in Table 4.30. This also provides a count of the number of household spaces within a shared dwelling.

### *Self-containment of household spaces*

The concept of self-containment is defined differently in the 1991 Census by comparison with 1981 and this, in turn, differed from 1971.

As discussed above in the context of sharing, the 1971 Census defined self-containment as an absence of shared circulation space, or space which the household had to share with others in order to move between its own rooms. (See question A2.) Changes in definition with successive censuses make it impossible to compare the 1971, 1981 and 1991 statistics on self-contained accommodation accurately.

In 1981, in England and Wales, a household space with two or more rooms was defined as self-contained if its rooms (not including a bathroom or WC) were enclosed

**Table 4.30 Dwelling type classification and full classification of household space types**

**Dwelling type classification**

- Unshared dwellings
  - Purpose built
  - Converted
  - Not self-contained
- Shared dwellings
  - 2 household spaces
  - 3 household spaces
  - 4 household spaces
  - 5 or more household spaces

**Full classification of household space types**

*Household spaces in permanent accommodation*

**Unshared dwelling - purpose built**

- 1 Detached
- 2 Semi-detached
- 3 Terraced
- 4 Purpose built flat in residential building
- 5 Purpose built flat in commercial building

**Unshared dwelling - converted**

- 6 Converted flat - separate entrance into building
- 7 Converted flat - shared entrance into building
- 8 Converted flatlet - separate entrance into building
- 9 Converted flatlet - shared entrance into building

**Unshared dwelling - not self-contained**

- 10 Not self-contained flat
- 11 Not self-contained 'rooms'
- 12 Bedsit
- 13 Not self-contained unoccupied

**Shared dwelling - not self-contained**

- 14 Not self-contained flat
- 15 Not self-contained 'rooms'
- 16 Bedsit
- 17 Not self-contained unoccupied

**Unattached household space - not self-contained**

- 18 Not self-contained flat
- 19 Not self-contained 'rooms'
- 20 Bedsit
- 21 Not self-contained unoccupied
- 22 Non-permanent accommodation

Source: OPCS, 1991 Census Definitions. HMSO (London) 1992, p.17, sections 5.12 and 5.14.<sup>12</sup>

behind its own front door (see question H4). A household space where an entrance from outside the building was shared with one or more other household(s) was self-contained if it had its own front door inside the building. Household spaces of only one room were defined as self-contained if they had exclusive use of a bath and inside WC. For 1991, the definition was changed to require the rooms and kitchen facilities, bath, shower and inside WC, to be contained behind the 'private' door.

*H1 Number of rooms (A3/H1)*

Each of the three censuses included a question which asked

the form-filler to count the number of rooms the household had for its own use. When this is used in conjunction with the number of persons in the household, the number of persons per room can be calculated, providing a measure of overcrowding or underoccupancy.

While the definition of this question remained essentially the same, Table 4.31 summarises the changes which took place in the instructions issued to form-fillers at each census, and shows that the 1991 Census form was far more explicit in stating the types of rooms which were to be counted, but less explicit in noting which were not to be counted. The decision about whether to include or exclude kitchens appears to be particularly problematic. For example, the 1981 Post Enumeration Survey identified that almost half of the disagreements for this question related to the incorrect inclusion or exclusion of a kitchen (see Britton and Birch).<sup>10</sup>

*H3 Tenure (A1/H2)*

Between the 1971 and 1991 Censuses a number of small wording changes were introduced. In 1981 the tenure question was expanded to give separate categories for owner-occupiers of 'freehold' and 'leasehold' properties and also to distinguish between two categories of private renting, renting 'with a job, shop, farm or other business' and renting 'from a housing association or charitable trust'.

**Table 4.31 Changes in the instructions for recording the number of rooms**

**1971 Do not count:**

- \* kitchens less than 6ft wide
- \* bathrooms and toilets
- \* sculleries not used for cooking
- \* closets, pantries and storerooms
- \* landings, halls, lobbies or recesses
- \* office or shops used solely for business

Note: a room divided by a sliding or fixed partition counted as two rooms but one divided by a curtain counted as one.

**1981 Do not count:**

- \* small kitchens under 2 metres (6 ft 6 in) wide
- \* bathrooms and WCs
- \* office or shops used solely for business

Note: a room divided by a sliding or fixed partition counted as two rooms but one divided by a curtain counted as one.

**1991 Do not count:**

- \* small kitchens under 2 metres (6 ft 6 in) wide
- \* bathrooms
- \* toilets

**Do count**

- \* living rooms
- \* bedrooms
- \* kitchens at least 2 metres (6 ft 6 in) wide
- \* all other rooms in your accommodation

The 1991 Census introduced a distinction between buying and owning outright and dropped the 1981 Census distinction between freehold and leasehold owner-occupation. In addition a separate category was provided for households who rent 'from a New Town Development Corporation (or Commission) or from a Housing Action Trust'.

It is important to highlight that not all of the changes in tenure which occurred between 1971 and 1991 involved a change of address. For example, some of the changes from local authority tenure to owner-occupation concerned local authority tenants who had purchased their own home. The LS includes a number of migration indicators which may be used in conjunction with tenure, for example to estimate the proportion of local authority tenants who purchased their own home following the 1980 Housing Act (see Creeser).<sup>27</sup> Such a purchase can be inferred for those individuals who recorded a change of tenure between 1981 and 1991, which was not accompanied by a change of address.

#### *H4 Amenities (A5/H3)*

Since 1971 there have been a number of changes to this question, to reflect both the amenities which have been the subject of government policies for housing improvement and changes in housing conditions. (It would be inappropriate to enquire about those amenities which are common to almost every household as they are of less value for discriminating between groups.)

In 1971 the question covered a cooker, a kitchen sink, hot water supply, bath or shower, inside flush WC and outside flush WC. In 1981, cooker, kitchen sink and hot water supply were dropped because they were almost universally present. In 1991 the question enquiring about an outside flush WC was dropped and a question on central heating was added. This covered night storage heaters, warm air or underfloor heating and whether central heating was available in some or all rooms. Questions on the use of a bath or shower and inside WC have distinguished between exclusive use and shared use with another household. The absence of exclusive use of basic amenities remains an important indicator in the allocation of resources.

#### *H5 Cars and vans (A4/H5)*

In both 1981 and 1991 respondents were asked to indicate 'the number of cars and vans normally available for you or members of your household' by ticking one of four boxes. By comparison, those completing the 1971 Census schedule were asked to write the number directly onto the census form. Axhausen<sup>33</sup> noted that this change creates some problems for longitudinal analysis, as it coincided with an increase in the 'total fleet size'. This results in a slight loss of accuracy for larger households.

#### *Household composition*

Between 1971 and 1981 there were a number of changes in the definitions used in the main classification of household composition. Both the definition of *head of household* and *dependent child* were affected by the raising

of the school leaving age. This had the effect of increasing the age limit used to describe a *dependent child* from 'under 15 years of age' in 1971 to 'under 16 years in 1981'. Also in 1981, in recognition of changes in the household division of labour, individuals were given the opportunity of indicating whether they were joint head of household. (For the purpose of the census processing, head of household is almost always taken as the first person on the household schedule, although the instructions ask for the head or joint head of household. This differs from other continuous government surveys such as the GHS and LFS where the head of household is explicitly selected using age and sex. Analysis of LS data for the 1981 Census showed that 97.3 per cent of married head of households were male.)

In common with the previous census, the 1991 Census adopted two approaches to the analysis of household composition, based on information from the full and 10 per cent census processing. The first used only answers to the questions on age, sex and marital status of each person in the household, while the second also used information on relationship in household. (Changes relating to this question are covered below under the heading 'relationship to first person on the form'.)

Both of these variables and their components are available in the LS. It is important to note that there is a distinction between the definitions of a dependent child used by each approach.

For 1981 the definition of a dependent child (full processing) is defined as a person: under 16 years of age, or under 25 years of age, never married and classified from the question on economic activity last week as a student. By comparison, the definition of a dependent child (10 per cent processing) includes those children in families who are: under 16 years of age, or under 19 years of age, never married and classified from the question on economic activity last week as a student.

In 1991, the first approach defined a dependent child as: a person aged 0-15 in a household, or a person aged 16-18, never married, in full-time education and economically inactive. Using the second method, a dependent child is defined as: a person in the second generation of a family with the same characteristics. The extra qualification of 'and economically inactive' distinguishes these definitions from those asked in 1981. An adult is any person who is not a dependent child.

The 1991 Census also saw the introduction of an additional household dependent type classification, which uses the newly available information on limiting long-term illness. (This new classification, described in paragraphs 6.50 to 6.53 of the *1991 Census Definitions* (see OPCS),<sup>12</sup> and reproduced in section 4.3.1, is defined in terms of the combination of dependants and non-dependants in the household.)

Work based on the 1981 Census data has demonstrated that researchers need to be cautious when using the LS to

compare family structures (see Harrop and Plewis).<sup>34</sup> A comparison of the distribution of family unit type for the LS and the 1981 GHS produced some marked differences. The LS showed both a higher proportion of couple families and distinct differences in the number of dependent children by comparison with the GHS. These disparities may be explained by the way in which the LS sample is selected.

Though the LS is based on a sample of individuals, the larger the household to which a sample member belongs, the more likely it is that information about the household will be included in the study. (This is explained in SSRU.)<sup>35</sup> Therefore families with more dependent children have a greater probability of inclusion than families with fewer children. Couple families have one more adult than lone parent families and, on average, also have more children than lone parent families. Harrop and Plewis<sup>34</sup> identified two ways of overcoming this sampling problem: the use of a reference person (in this case the head of household) or the use of weights, based on the probability of a given family size being included in the LS sample. Their results suggest that weighting the LS data produces a more accurate distribution of family unit type.

#### *Questions asked of each person: employment questions*

One of the most significant differences between the 1971 and 1981 Censuses concerns the raising of the lower age limit for questions on employment from 15 in 1971 to 16 in 1981 (questions B15-B17 in the 1971 Census and questions 10-14 on the 1981 Census schedule). This resulted from the raising of the school leaving age between the two censuses.

#### *Q13 Economic activity (B7/Q10)*

By comparison with the 1971 Census, the 1981 question on economic activity enabled distinctions to be made between persons in 'full-time' and 'part-time' work, those 'waiting to take up a job already accepted', 'seeking work' and 'prevented by temporary sickness from seeking work'. It also made it possible to identify persons who described themselves as a 'housewife', 'at school or a full-time student at an educational establishment not provided by an employer' or in an 'other' type of activity.

This differs from the question that appeared on the 1971 Census schedule (B7) which made no distinction between persons in 'part-time' and 'full-time' work (though 1971, unlike 1981, asked a question (B9) on hours worked). Similarly, at the 1971 Census, an 'other inactive' category was used for a range of persons including housewives and those aged 15 years and over who were still at school.

The 1971 and 1981 Censuses also used different methods to distinguish between employees who supervised other employees and those who did not. An explicit question (Q13) was included in the 1981 Census schedule whereas in 1971 the information was obtained from the responses to the question on occupation (B16).

The 1991 Census question (Q13) asked all people aged 16 and over to provide information on their economic position

in the week before census. The question made the important distinction between an employee and the self-employed, differentiating for the latter between those who employed others and those who did not. While this question differs significantly from that asked in 1981, it should be possible to derive similar basic information. Changes may be summarised as follows:

- (1) The definition of part-time work used in 1991 differs from that used in 1981, in that it includes a lower limit of 'one hour or more a week'.
- (2) The 1991 question only distinguishes between full- and part-time work carried out by employees, whereas the combination of questions in the 1981 Census also covered the self-employed. However, it is still possible to differentiate between full-time and part-time work by using the 1991 Census question (Q14) on hours worked.
- (3) A new category for government sponsored training schemes was included on the 1991 Census schedule.
- (4) There was no separate category on the 1991 Census schedule for 'prevented by temporary sickness from seeking work'. Some individuals temporarily unemployed because of sickness may now be categorised as 'unemployed and looking for a job'.
- (5) A number of minor wording changes have been adopted. For example, the category 'housewife' was replaced by 'was looking after the home or family' on the 1991 Census form.

As described in section 4.3.1, in 1991 a maximum of three codes were entered into the computer, resulting in a 12-fold economic/employment status classification. The inclusion of a separate category for economically active students represents a change from 1981. This means that comparisons between 1981 and 1991 between the proportion who were economically active/inactive need to be made with caution, as all students in 1981 were categorised as economically inactive.

People on a government training scheme are classified as economically active and in employment, though the 1991 Census collected no information on the particular scheme. Information is available on occupation, industry, hours worked, social class and socio-economic group (SEG) for this group, but not address of place of work or daily journey to work. However, these details may be incomplete due to the way in which multiple responses to this question were dealt with by the census editing system. For comparability with other tabular census output concerning occupation, industry, hours worked, social class and SEG (see OPCS, p. 42, paragraph 7.68),<sup>12</sup> it is advisable to omit those individuals working on a government training scheme from such analyses.

### Q14 Hours worked per week (B19)

A question on the number of hours worked, which was omitted from the 1981 Census, was reintroduced in 1991 in order to provide data on the number of persons working very short hours. It is envisaged that this information will help to give an understanding of the changes that are taking place in working patterns, particularly in women's work and part-time work, and how these apply to particular occupations and industries.

### Q15 Occupation (B16/Q12)

Careful attention should be paid both to the rules and classification schemes used for coding occupational data. In 1971 only those individuals whose reply to question B7 indicated that they were employed, off work sick, retired or intending to work, were classified to an occupation and hence a social class. Those who gave alternative answers to question B7 were assigned to neither an occupation nor a social class. At the 1981 Census the permanently sick or disabled were asked to record their last job and were therefore coded to an occupation and social class. Information on occupation was not required from those who had only ticked the boxes for housewife, full-time education or other. In 1991, those who had had a paid job within the last 10 years, but who were not working in the week before census, were also asked to provide information (occupation, hours worked, details of employer) on their most recent job.

In addition, the 1971 Census included a question on occupation one year ago (B22). Although this was intended to provide information on occupational mobility, it has not been included in subsequent censuses.

One of the most important changes in the coding of occupational data concerns the use of different classification

schemes. For the 1971 Census occupation was coded to the 1970 OPCS Classification of Occupations<sup>36</sup> while in 1981 the 1980 edition was used (see OPCS).<sup>37</sup> Comparisons of the two classifications have been made by OPCS (see Boston)<sup>38</sup> and by the Institute of Employment Research at the University of Warwick (Elias).<sup>39</sup> Results from the first exercise, which recoded a 1 per cent sample of 1971 Census returns using the 1980 classification, suggest that it is possible to reconstruct with 90 per cent certainty 23 of the 27 occupation orders in the 1970 classification from categories in the 1980 classification. To facilitate comparisons between the old and new classifications, OPCS produced a set of cross-tabulations (see OPCS p. vi).<sup>37</sup> Two of the tables showing the effect of the change on coding of social class and socio-economic group are reproduced below (see Tables 4.32 and 4.33).

As mentioned in section 4.2.1, the LS also contains variables giving employment status, occupation and social class coded to the 1970 classification for men aged 45-64 at the 1981 Census.

The 1991 Census coded occupation to the Standard Occupational Classification (SOC) (OPCS and Employment Group).<sup>40,41,42</sup> This aims to classify jobs, as opposed to persons, on the basis of information on the job title and a description of the work done. It differs from the 1980 Classification of Occupations in that it takes no account of employment status (e.g. whether the person was an employee or self-employed). While it remains exactly comparable with over half of the 1980 occupational coding groups, it introduces new distinctions within fast-growing industries, such as information technology, and between those types of work which account for a high proportion of women's employment and which have previously been poorly distinguished.

**Table 4.32 The effect of the change in the coding of social class**

1970 Social class	1980 Social class						Not classified	1971 population	%
	I	II	III N	III M	IV	V			
I	<b>90.9</b>	4.4	0.1	0.1	0.1	0.0	0.2	80,080	3.7
II	6.3	<b>91.0</b>	1.5	1.7	1.2	0.1	0.3	375,596	17.4
III N	1.7	2.3	<b>93.9</b>	1.2	0.7	0.2	0.2	466,262	21.6
III M	0.7	1.7	2.5	<b>92.4</b>	7.6	1.8	1.2	598,380	27.8
IV	0.4	0.6	2.0	3.6	<b>88.6</b>	6.7	2.6	435,579	20.2
V	0.0	0.0	0.0	1.0	1.7	<b>91.1</b>	0.4	158,145	7.3
Not classified	0.0	0.0	0.0	0.0	0.1	0.1	<b>95.1</b>	42,808	2.0
1971 population*	68,061	383,536	474,689	587,518	441,061	157,957	44,028	2,156,850	100.0
%	3.2	17.8	22.0	27.2	20.5	7.3	2.0	100.0	

\* The figure for males, females and persons are those in employment in England and Wales from the recoded 1971 1 per cent subsamples and rated up to published 1971 totals.

Source: OPCS. *Classification of Occupations 1980*. HMSO (London 1980), table 2c.<sup>37</sup>

**Table 4.33 The effect of the change in the coding of socio-economic group**

1970 Socio-economic group	1980 Socio-economic group																	1971 population	%		
	1.1 & 2.1	1.2 & 2.2	3	4	5.1	5.2	6	7	8	9	10	11	12	13	14	15	16			17	
1.1 & 2.1	<b>99.3</b>	0.2	0.4	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.1	46,720	2.2
1.2 & 2.2	0.2	<b>90.9</b>	0.0	1.9	0.9	8.3	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.2	156,008	7.2
3	0.2	0.0	<b>97.9</b>	4.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13,535	0.6
4	0.0	3.4	0.0	<b>86.8</b>	6.5	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	66,545	3.1
5.1	0.1	0.8	0.2	3.9	<b>87.3</b>	0.9	0.3	1.8	4.7	0.9	0.2	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.2	153,062	7.1
5.2	0.0	0.5	0.0	0.0	0.1	<b>72.8</b>	0.3	0.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15,532	0.7
6	0.0	1.8	0.1	1.9	2.4	5.4	<b>96.5</b>	2.2	0.4	0.5	7.7	0.8	0.0	0.0	0.0	0.2	0.0	0.6	472,582	21.9	
7	0.0	1.1	0.0	0.0	0.0	0.0	0.2	<b>94.8</b>	0.0	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	114,701	5.3	
8	0.0	0.8	0.0	0.2	0.2	10.8	0.0	0.0	<b>89.1</b>	0.1	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.2	54,875	2.6	
9	0.0	0.3	0.0	0.5	0.8	0.2	1.3	0.0	1.7	<b>93.7</b>	10.2	1.3	0.0	0.0	0.0	0.7	0.0	2.2	460,841	21.4	
10	0.0	0.2	0.0	0.4	0.3	1.4	1.0	0.0	1.4	3.4	<b>79.0</b>	5.4	0.0	0.0	0.0	1.6	0.0	4.4	275,288	12.8	
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.3	2.2	<b>91.2</b>	0.0	0.0	0.0	0.3	0.0	0.8	153,589	7.1	
12	0.0	0.0	1.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>99.3</b>	0.0	0.4	4.6	0.0	0.1	80,870	3.7	
13	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>98.4</b>	0.6	1.3	0.0	0.0	11,815	0.5	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	<b>98.1</b>	7.3	0.0	0.0	13,296	0.6	
15	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.0	0.9	<b>82.8</b>	0.0	0.2	24,783	1.1	
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>100.0</b>	0.4	23,047	1.1	
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	<b>89.5</b>	19,761	1.0	
1971 population	45,599	164,341	10,257	57,092	158,848	16,633	450,006	114,567	56,262	416,222	309,736	152,998	79,020	11,393	11,251	28,617	23,016	20,992	2,156,850	100.0	
%	2.1	7.6	0.5	2.6	7.4	0.8	20.9	5.3	2.6	20.7	14.3	7.1	3.7	0.5	0.5	1.3	1.1	1.0	100.0		

\* The figures for males, females and persons are those in employment in England and Wales from the recorded 1971 1 per cent subsample and rated up to published 1971 totals.

Source: OPCS. *Classification of Occupations 1980*. HMSO (London 1980), table 3c.<sup>37</sup>

The Standard Occupational Classification comprises:

- nine major groups, sub-divided into
- 22 sub-major groups, sub-divided into
- 77 minor groups, sub-divided into
- 371 unit groups based on the 3,800 CODOT (Classification of Occupations and Directory of Occupational Titles) occupational titles.

At its most detailed level, direct one-to-one correspondence between the two classifications is maintained for about 46 per cent of the 1981 population, complicating comparison at this level. However, the use of operational codes to produce the 1991 SOC allows coding back to the 1980 Classification of Occupations, thereby facilitating a comparison between 1981 and 1991 using the 1980 base.

As mentioned in section 4.3.1, the LS contains the 1991 occupation, social class and socio-economic group (SEG) coded to the 1980 Classification of Occupations for all of those with valid occupational data. The third volume of the Standard Occupational Classification (OPCS and Employment Group)<sup>42</sup> describes the relationship of SOC to the 1980 Classification of Occupations including the extent of continuity between the two classifications.

*Social class based upon occupation*

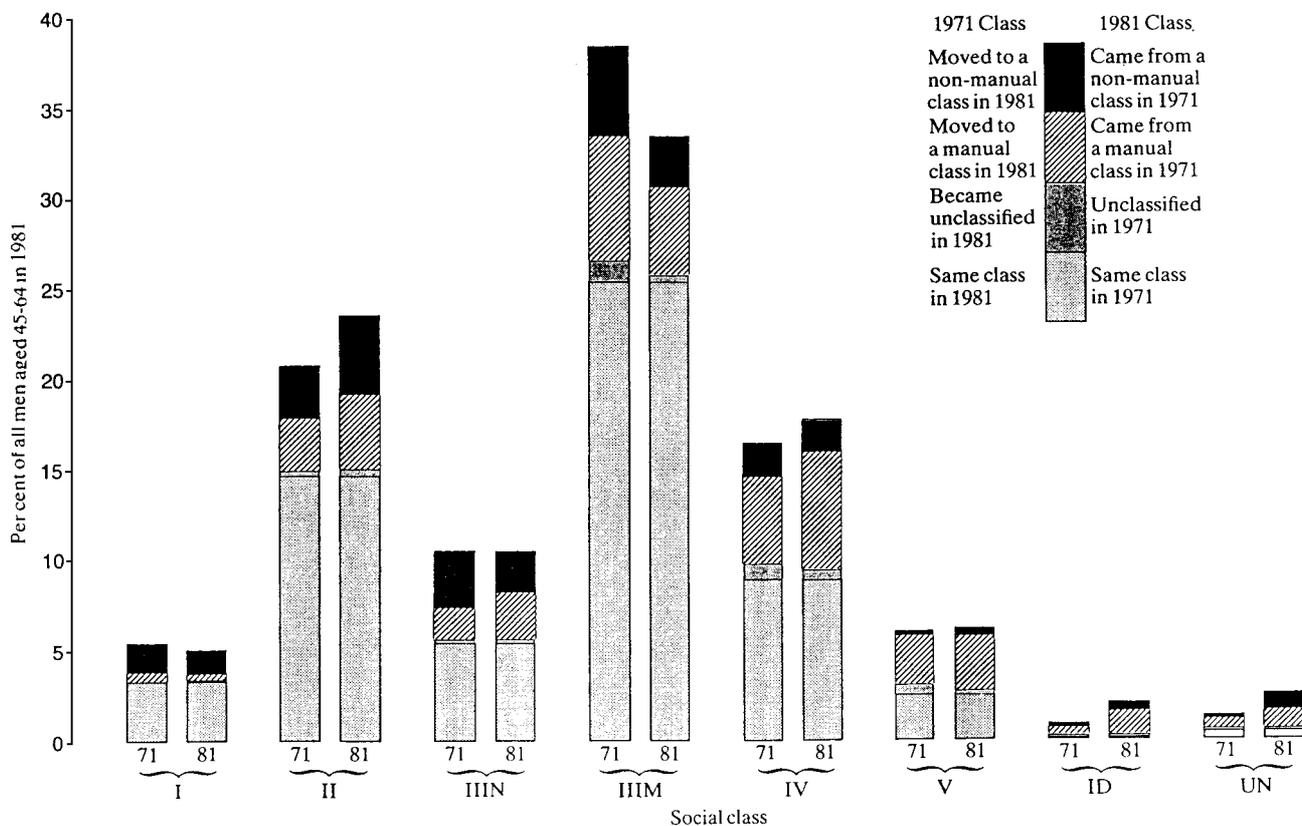
As mentioned above, considerable changes took place between the 1971 and 1981 Censuses, in terms of the

occupational classifications that were used. The results of work to compare the effect of these changes on the composition of social class for a group of male LS members who were present at both censuses and aged 45-64 in 1981, are reported in Goldblatt.<sup>43</sup> Moves between classes within this group are summarised in Figure 4.3.

The main changes concerned an increase in the size of Social Class II and a decrease in the size of Social Class IIIM. While a total of 61 per cent of men were in the same social class at both censuses this varied according to the class to which they were classified in 1971: from 42 per cent of those in Social Class V to 71 per cent of those classified to Social Class II. Only 9 per cent of the inadequately described and 38 per cent of the unoccupied remained in the same category. Although moves mainly involved mutually compensatory changes, Goldblatt identified that a chain of moves accounted for the changing composition of social classes.

Social Class II increased in relative size at the expense of equal numbers from the non-manual and manual classes; Class IIIN was unchanged in size, but those who moved out were predominantly 'promoted' to Social Classes I and II while those moving in were similarly 'promoted' from the manual classes. The net reduction in the size of Social Class IIIM was mainly the result of losses to manual and non-manual classes, while most of the increase in the proportion unclassified can be attributed to this class. Social

**Figure 4.3 Comparison of social class distributions in 1971 and 1981 for men aged 45-64 in 1981, showing the extent of class mobility**



Source: Goldblatt P. Changes in social class between 1971 and 1981: could these affect mortality differences among men of working ages. *Population Trends*, 51, 1988, pp 9-17.<sup>43</sup>

Classes IV and V gained most from the other manual classes but also lost men to the unclassified category.

Although the same basic social class schema has been used for each of the censuses, in 1991 the title was extended to 'Social class based upon occupation' to clarify that occupation provides the key to the classification.

The overall measure of discontinuity between social class using the 1980 Classification of Occupations and that using SOC, is 2.3 per cent (OPCS and Employment Group, table 3).<sup>42</sup> This is based upon the proportion of cases that fall into the off-diagonal cells of the table when the two variables are cross-tabulated. More than half of this disparity is produced by a shift from Social Class IV to Social Class V, resulting from a change in the treatment of domestic workers and cleaners.

#### *Socio-economic group (SEG)*

The overall extent of discontinuity between the 1981 and 1991 codings of SEG is 2 per cent. This is slightly less than for social class and also arises as a result of changes in the coding of domestic workers and cleaners (OPCS and Employment Group, table 4).<sup>42</sup>

#### *Questions asked of each person*

##### *Q2 Sex (B3/Q2)*

A small proportion (0.4 per cent) of LS members present at both the 1971 and 1981 Censuses quoted a different sex between censuses (see section 5.2.3).

##### *Q3 Date of birth (B2/Q3)*

Each of the three censuses asked the form-filler to provide information on date of birth. This information has been used to identify potential sample members born on one of the four LS dates of birth and enumerated at one or more of the censuses. Further information on how the LS sample is selected may be found in Chapter 3. Approximately 3 per cent of LS members who were enumerated in 1971 and 1981 quoted inconsistent dates of birth, large enough to change their ages in completed years (see section 5.2.3).

##### *Q4 Marital status (B6/Q4)*

Between 1971 and 1991 there have been a number of slight wording changes to the marital status categories. For example, the 1981 Census form enabled a distinction to be made between 'married (first marriage)' and 're-married' whereas the 1971 schedule grouped all married respondents together. The 1991 Census included a separate category for 'single (never married)', and the accompanying instructions specified that persons who had received a decree absolute should tick the 'divorced' category. The purpose of this was to minimise the number of divorced or widowed people who reported themselves as 'single'. (Some information on the 'impossible' changes in marital status in the LS which took place between 1971 and 1981 may be found in section 5.2.3.)

##### *Q5 Relationship to first person on the form (B5/Q5)*

The 1981 Census was the first census to provide information

on cohabitation based on the responses to this question. However, individuals would only have been coded as such if they had explicitly stated they were cohabiting. A crude comparison based on combined results of the 1981 and 1982 General Household Survey suggests that the methods used by the census to identify *de facto* couples underestimated the proportion of women who were cohabiting by approximately 40 per cent (LS Support Programme).<sup>44</sup>

Because of this, the 1981 classification of family types classified a significant proportion of cohabiting couples as lone parents living with another single adult. If the couple had children, and the male partner was classified as the head of household, then the census question on relationship to the first person on the form identified the child as the child of the male cohabitee (head of household), who then appeared as a lone parent living with a single female. This led to a very high proportion of cohabiting men being wrongly identified as lone fathers (see Brown)<sup>45</sup> which is evident in a comparison of family structure in the GHS and LS carried out by Harrop and Plewis<sup>34</sup>.

In 1991 an additional category for those 'living together as a couple' was added to the question on relationship to the first person on the form. This was specifically included to identify couples of the opposite sex who were living together, but not married. The question was not designed to identify couples of the same sex who were living together. (Unfortunately, requests from census users requiring this information were received too late to change the wording of the question, as the contents of the 1991 Census had already been approved by Parliament.)

While the responses to this question are used to determine the relationship of each person on the census schedule to a reference person (first person on the form), other relationships within the household have to be imputed.

##### *Q6 Whereabouts on census night (Q6)*

A question was included in the 1981 Census schedule to identify the whereabouts of each individual on census night. This was a departure from the method used in 1971 which had required form-fillers to complete a separate part of the form for persons absent on census night. A separate category has been added to the 1991 Census form for children under one year.

##### *Q7 Term-time address of students and schoolchildren*

In 1991 an additional question was incorporated asking form-fillers to indicate whether a student's or school child's address of enumeration was their term-time address. If the addresses were not the same, they were asked to give the term-time address. The rationale behind this question is explained in section 4.4.2.1.

##### *One-year and five-year migration*

In 1991 the identification of a 'migrant' was based on answers to the questions on usual address (Q7) and address one year ago (21 April 1990) (Q9). This question was unchanged from the 1981 Census. Information on five-year migration was only asked at the 1971 Census (B12).

It is important to remember that this information represents net migration over a one-year period and ignores any other moves during the year. Moves within the year before the census, away from and then back to the original address, will not be recorded either (see Nicholson).<sup>46</sup>

#### *Q10 Country of Birth (B9/Q9)*

Both the 1981 and 1991 Censuses provided tick boxes for England, Scotland, Wales, Northern Ireland, Irish Republic and elsewhere. (The 1971 Census schedule did not include a separate category for the Irish Republic. It did however include two questions (B9 and B10) enquiring about the country of birth of the respondent's parents.) If 'elsewhere' was ticked, then the form-filler was asked to supply the present name of the country. These responses were then coded to about 100 categories.

A small proportion (0.4 per cent) of LS members enumerated in 1971 and 1981 gave inconsistent replies to this question (see section 5.2.3).

#### *Q11 Ethnic group*

The 1991 Census was the first to include a question on ethnic group, resulting from an extensive consultation and testing process. The final question provided nine tick boxes and, for two of these, asked for further written information.

#### *Q12 Limiting long-term illness*

The 1991 Census contained a new question enquiring whether an individual had a health problem which limited day-to-day activity. A similar question on long-standing illness, disability or infirmity which limits activity has been asked in the General Household Survey for most years since 1973. Following the introduction of this question the census now provides a unique source of data on health at a local level. (The scope for analyses using this question is outlined in section 2.2.1.2.)

#### *Q17 Address of place of work (B20/Q14)*

The 1991 question differed from that asked in 1981 in that members of the armed forces were no longer required to give their place of work. (The 1991 Census form included a note stating 'Armed Forces - leave blank'.)

#### *Q18 Daily journey to work (Q15)*

The 1991 question differed from that asked in 1981 in the omission of the category 'car or van-pool, sharing driving'.

#### *Q19 Degrees, professional and vocational qualifications (B14/Q16)*

Each of the three censuses asked for details of higher qualifications obtained after age 18, including subject area and type of qualification.

The 1971 Census schedule allowed form-fillers to provide details of the first six educational qualifications including subject area, type of qualification and awarding institution.

The 1981 question (Q16) differed from that asked in 1971 (B14) in that form-fillers were instructed to 'exclude qualifications normally obtained at school', such as GCE,

CSE and school certificate. This was used for the LS to code the highest qualification. Second and third qualification(s) and awarding institution were not coded.

The 1991 Census recorded details of the first six qualifications obtained after the age of 18. This was used to code the level and subject of up to the first six qualifications - all of which are available in the LS. Details of the awarding institution were only collected to improve the accuracy with which these variables were coded.

#### *W Welsh language (W)*

A separate category was added to the 1991 Census form to identify those individuals who do not speak, read or write Welsh. (This question was only included on the census forms distributed to addresses in Wales and applied to all people aged three and over.)

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## 5 The Census–LS link

### 5.1 THE 1981 CENSUS–LS LINK

Planning for the addition and linkage of 1981 Census data to the Longitudinal Study (LS) began in 1978. The work of extracting data for LS members from the census, matching and linking it with the existing LS data took place between 1982 and 1985. OPCS was involved in the exercise for LS members and their households enumerated in England and Wales, and the General Register Office, Edinburgh in the exercise for LS members enumerated in Scotland.

A data cleaning exercise was undertaken before starting the Census–LS link. This involved adding late notifications of events occurring to LS members between 1971 and 1981, and deleting event records where an incorrect match was found to have been made with an LS member by the National Health Service Central Register (NHSCR). After the data had been cleaned, the LS had to be updated with all entry and exit events (new births, immigrations, deaths and emigrations) that had occurred after 31 December 1980 but prior to Census day 1981. This was to ensure that the ‘rolled forward’ LS population could be correctly matched with the LS extract from the 1981 Census.

#### 5.1.1 The 1981 Census extract

The first stage in the 1981 Census–LS link involved extracting data from the 1981 GB Census Households File for potential LS members and their households. Every person enumerated as usually resident in England and Wales, or in Scotland, at the 1981 Census who was recorded as being born on one of the four LS dates of birth was considered a potential LS member and was allocated a 1981 LS number. The extract program produced three outputs, an extracted 1981 LS households file, a listing of all LS members included in the file, and a set of computer printed 1981 LS index cards. The listings were cross-checked with the index cards to confirm the consistency of the data. The data printed on the cards included the following:

- \* Local authority code
- \* Ward identifier
- \* Enumeration district
- \* Census form number
- \* Person number on the census form
- Present or absent resident flag
- # Sex
- # Marital status
- # Country of birth
- One year migrant indicator
- Year of birth + 1981 LS serial number + check digit
- # 1981 Census-quoted year of birth.

The listings were used to locate the census schedules for each household containing an LS member. Those items marked \* in the above list were used to locate the correct census form, and those marked # were then used to find the correct person(s).

Once the census schedules had been identified and extracted, the surname and forename(s) in full, address of usual residence and enumeration address (if different from the address of usual residence) of the potential LS member(s) were added to the index cards.

Any discrepancies that were discovered between the index cards and listings, or between the index cards and the information held on the census schedules, were dealt with as follows:

1. If an entry on the listing existed, and when checked, proved to be for an LS member, but no index card had been printed, then a card was produced manually.
2. If an index card existed, and when checked proved to be for an LS member, but there was no entry given on the listing, then the listing was updated with the entry.
3. If the index card specified a person with an LS date of birth who could not be found on the census schedules, or whose surname was missing, then the index card was destroyed. The listing was also annotated to indicate that the entry should be deleted from the 1981 sample.
4. If two identical index cards and two identical entries in the listing existed for one person, then one copy of the index card was destroyed and the listing was annotated for deletion of the duplicate entry. This type of duplication was not associated with usual census night residence/absence pairs where the address of enumeration and the address of residence were different.
5. Where minor discrepancies between the index card and the census schedule were found, extra data were added to the card to assist with linkage at NHSCR. These discrepancies included differences in date of birth, sex, marital status, country of birth and year of entry into the UK.
6. If, however, an LS date of birth had been keyed in by mistake and the census schedule did not show an LS date of birth the card was destroyed.

Once the index cards and listings had been checked for any discrepancies the cards were sent to NHSCR for matching against the LS index. The census schedules were boxed and sent to Census processing for additional coding of 'hard-to-code' items.

### 5.1.2 Additional coding of census schedules

At census only a 10 per cent sample of schedules are fully coded (including the 'hard-to-code' items such as occupation and educational qualifications). However, because the LS was originally set up to examine occupational mortality in England and Wales,<sup>1</sup> and has subsequently been used to examine mortality and additional data in the light of social class and other socio-demographic variables (see Chapter 2), all data on the schedules for LS members and their households need to be coded to the 100 per cent level. As a result, those schedules which were originally not included in the census 10 per cent sample were extracted for the additional coding of the 'hard-to-code' items. It should be noted that in 1981 it was not considered cost effective for 'journey to work' and 'address of place of work' to be coded for the LS, and 'educational qualifications' were only coded for the highest qualification level. Once coding was completed and the additional information was validated using the census validation programs (see Chapter 4), the data was transferred onto magnetic tape. These data were then used to update the 1981 Census-LS households extract file.

### 5.1.3 The matching process

The 1981 LS index cards were divided into two sets: those whose serial numbers identified them as potential England and Wales LS members and those whose numbers identified them as potential members of the Scottish LS. The Scottish 1981 LS index cards were then sent to the Central Register at the General Register Office (GRO) Edinburgh.

The 1981 England and Wales LS index cards were dispatched to NHSCR in batches of 50,000. Each index card was checked against the LS Live Index, which included those members recorded in the 1971 Census plus new births and immigrants who had entered the study after the 1971 Census but prior to Census day 1981. If no match was found it was checked against the LS Dead file (deaths since Census day 1981). If a match was still not found, tracing was undertaken (see section 5.1.3.2).

In Scotland the 1981 LS index cards were matched against the Scottish LS Index, and if matched, the 1971 Scottish LS number was added to the 1981 card. Matched 1981 cards were then coded. It should be noted that a person enumerated in Scotland in 1981 could be a 1971 English LS member. As such they could not be matched to the 1971 Scottish LS and were returned to NHSCR for processing. The processing of unmatched Scottish cards was done utilising both GRO and NHSCR and is covered in section 5.1.3.3.

#### 5.1.3.1 Matched England and Wales sample index cards

If a 1981 LS index card matched a 1971 LS index card or a first decade new birth or immigrant index card in the LS index, then the earlier LS number was entered onto the 1981 index card. The 1971 (or first decade new birth or immigrant) LS index card was marked to show that a match had been achieved. Each batch of matched cards (the 1981 cards updated with the earlier LS numbers) was sent to OPCS for further processing. Figure 5.1 shows an LS index card at each stage of the matching process.

If the matched cards proved to be examples of double enumerations (that is, a second or third 1981 card matching the same 1971 index card), then the 1981 index cards were marked with the 1971 number but were sent in separate batches from the normal matched cards.

#### 5.1.3.2 Unmatched index cards - England and Wales

If the 1981 card could not be matched with an existing card in the LS index, a number of different avenues were employed to process the card through NHSCR (tracing).

- (i) If the card had a Scottish LS number, but the birthplace of the member was given as in England and Wales, the card was sent to Scotland for matching. Other types of unmatched England and Wales LS index cards were also sent to Scotland. These included cards where the birthplace of the member was shown as Scotland; cards where the one year migration indicator showed residence in Scotland one year before census; and, those where the Central Register showed either Scottish postings or that the NHS number for the member was Scottish (see section 5.1.3.3 for further details).
- (ii) For cards that had LS numbers originating in England and Wales, the first step was to search in the Central Register for an NHS number and any LS flag. If the name in the Central Register differed from that shown in the main alphabetical index (e.g. a woman who had married after the 1971 Census and who entered the LS in 1971 under her maiden name), then the original name was used to search the 1971 LS index for a match. It should be noted that the new name would only be held in the registers if a change of name had been notified to NHSCR by the LS member's FPC. The only two occasions on which that was likely to occur were either as a result of an FPC move or notification of a change of name received by the FPC from that woman's GP. If a match was found, the card was returned to OPCS once it had been marked with the 1971 number.
- (iii) Where a 1981 index card was found to have an NHS number in the Central Register, but there was no trace of the member in the LS index, and no LS flag was entered in the Central Register, the Central Register was flagged 'LS81' to indicate that the member had been found at the 1981 Census. The index card was processed as a new LS member.

Figure 5.1 LS index cards showing the process of linking data from the 1971 and 1981 Censuses

LAWPED FORM PERSON P S M BP V										1971	SERIAL	CD	YB	1981	SERIAL	CD	NHS
SAEF30 160 0064 P F D 64 1														32	60000010	16	
SURNAME										COOB			NHS NO.				
SURNAME CHANGE										DD MM 19YY							
FORENAME(S)										BLUE/GREEN CARD SENT			SSI				
UR ADDRESS										1	2	3	4				
POSTCODE AB1 1CD										5	6	7	8				
EN ADDRESS										9	10	11	12				
POSTCODE WX1 1YZ										13	14	15	16				

(1) Card printed by GRO Scotland

LAWPED FORM PERSON P S M BP V										1971	SERIAL	CD	YB	1981	SERIAL	CD	NHS
SAEF30 160 0064 P F D 64 1														32	60000010	16	
SURNAME <b>OTHER</b>										COOB			NHS NO.				
SURNAME CHANGE										DD MM 19YY							
FORENAME(S) <b>JOANNA PRISCILLA</b>										BLUE/GREEN CARD SENT			SSI				
UR ADDRESS <b>47, GARDEN WAY, ENFIELD</b>										1	2	3	4				
POSTCODE AB1 1CD										5	6	7	8				
EN ADDRESS <b>14, WEST ST. PLYMOUTH</b>										9	10	11	12				
POSTCODE WX1 1YZ										13	14	15	16				

(2) Name and address added by Census Processing Office

LAWPED FORM PERSON P S M BP V										1971	SERIAL	CD	YB	1981	SERIAL	CD	NHS	
SAEF30 160 0064 P F D 64 1										1	2	3	4	5	6	7	8	9
SURNAME <b>OTHER</b>										COOB			NHS NO.					
SURNAME CHANGE										DD MM 19YY			<b>ABCD 50.5</b>					
FORENAME(S) <b>JOANNA PRISCILLA</b>										BLUE/GREEN CARD SENT			SSI					
UR ADDRESS <b>47, GARDEN WAY, ENFIELD</b>										1	2	3	4					
POSTCODE AB1 1CD										5	6	7	8					
EN ADDRESS <b>14, WEST ST. PLYMOUTH</b>										9	10	11	12					
POSTCODE WX1 1YZ										13	14	15	16					

(3) LS number and NHS number added by NHSCR

- (iv) If no NHS number was found in the alphabetical index the relevant FPC was asked to provide this information. Initially, this was the FPC covering the address of usual residence as given on the 1981 index card. If that did not result in an NHS number being found, an enquiry was sent to the FPC covering the enumeration address if it differed from the address of usual residence. If an NHS number was successfully found, the Central Register was checked and the index card was either matched with the 1971 LS index or was found to be a new entrant at the 1981 Census and treated as (iii) above.
- (v) Any remaining cards were referred to the 1971 LS no trace index. Cards residing in this index normally have no NHS number associated with them. However, in some cases an NHS number was subsequently identified in the Central Register and written on the card. Where this happened and a 1981 LS index card matched the 1971 card, the 1981 card was annotated with the 1971 serial number and treated as a matched and late traced card. The 1971 card was then left in the no trace index until after the linkage exercise was complete, when it was moved to the traced index. If no NHS number was given and the 1981 index card matched the 1971 no trace index card, the 1971 card was marked as matched. The 1981 card was not annotated with the 1971 number but was identified as 'matched but not traced' before being sent for further processing. After processing these cards were returned to NHSCR where they were placed in the LS no trace index together with the 1971 card.
- (vi) If the 1981 index cards were not matched with either the LS index or the no trace index and no NHS number could be located, their details were checked against the original census schedules. If the information on the cards was originally transcribed incorrectly, it was corrected and the cards were returned to NHSCR to be put through the matching process again. If there was still no match, the card was processed as a no trace LS member (as in (v)).

### 5.1.3.3 Unmatched index cards — Scotland

The Scottish LS index cards were divided into three types:

- (a) those where both the country of enumeration and the country of usual residence was Scotland;
- (b) those where the country of enumeration was Scotland but the country of usual residence was England and Wales; and
- (c) those where the country of enumeration was England and Wales but the country of usual residence was Scotland.

Where these cards were initially unmatched with the 1971 Scottish LS index a number of different methods were employed to attempt to match them later.

If the 1981 Scottish LS index cards were of type (a) three methods of attempting a match were tried.

- (i) If the birthplace of the LS member was not England and Wales the registers were searched for a change of name. If this was found the Scottish LS index was then rechecked for a match.
- (ii) If the birthplace of the LS member was found to be England and Wales and no match had been achieved with the Scottish index then the card was sent to NHSCR for matching and tracing.
- (iii) If neither method (i) nor method (ii) achieved a match then the member was originally planned to be treated as a new Scottish LS member entering at the 1981 Census. However, the Scottish LS was discontinued in 1981 and new Scottish entries were not added to it.

If the 1981 index cards were of type (b) two methods of attempting a match were used.

- (i) If the birthplace of the member was given as Scotland the NHSCR index was checked to see if the NHS entry was flagged 'LS/E'. The presence of this flag indicated that the member was in the England and Wales LS sample and the card was sent on to NHSCR. If no flag was shown, and there was evidence of a change of name then the Scottish LS index was rechecked. If the card was still unmatched then the NHSCR index was flagged 'LS/E/81', the NHS number was added to the card and it was sent to NHSCR.
- (ii) If the birthplace of the member was other than Scotland then the card was sent to NHSCR for matching and inclusion in the England and Wales LS sample.

Where the cards were of type (c) the same methods for attempting matching were used as for type (a) cards.

### 5.1.3.4 Corrections — the verification process

When cards were returned for verification or correction of details the most common transcription errors were found to be:

- (a) the details of the wrong person had been copied from the Census form;
- (b) spelling errors in surname and/or forename(s);
- (c) forename(s) missing;
- (d) errors in address(es) or wrong address(es).

If these errors had occurred then the cards were corrected and returned to NHSCR.

If the details on the card were found to be correct when the Census form was checked, additional details to aid in tracing were added to the card. These included name and date of birth of spouse, parent(s), child(ren), and address one year ago of the LS member. The cards were then returned to NHSCR for attempted matching. If they still could not be matched (or the NHS number traced), a search of the 1981 and 1982 Electoral Registers and the Marriage Indexes was made to attempt to trace any alternative names. After this the cards were returned to NHSCR for processing. Any cards that remained untraced were returned to be processed as LS no trace members.

#### 5.1.4 Match and trace categories — tracing history indicators

When NHSCR undertook the matching and tracing exercise for the 1981 Census–LS link they initially categorised the different types of matching and tracing as follows:

1. **1981 matched and traced cases** A 1971 entry already existed for these LS members in the LS index and they had an NHS number. (Two other subsets of 1981 matched and traced cases exist. These are new births on LS dates occurring before the 1981 Census but after the 1971 Census, and immigrants who were not present at the 1971 Census but who entered the LS before Census day 1981 via registration with a GP).
2. **1981 traced only cases** No previous entry existed in the LS index but their NHS number was traced in the Central Register where they were flagged 'LS81'. These were new entrants at the 1981 Census.
3. **1981 untraced and unmatched cases** There was no entry in the LS index, no entry in the 1971 no trace index and no NHS number could be traced. These were new entrants into the LS no trace index in 1981.
4. **1971/1981 unmatched but linked cases** There was no entry in the LS index for 1971 but there was an entry in the LS no trace index. These cases could be either:
  - (a) traced (NHS number found for the 1981 entry); or
  - (b) untraced (NHS number not found).
5. **1971 no trace cases** These cases had no 1981 card and no NHS number, but had been identified at the 1971 Census as LS members.
6. **1971 traced but unmatched cases** An entry in the LS index existed but there was no corresponding 1981 LS index card. (It should be noted that this category includes cases who had died intercensally, emigrants before the 1981 Census and persons who missed the 1981 Census but who might still be present in the country. As

such this group is not relevant to the 1981 Census, but members still alive and resident in England and Wales are relevant to events occurring after 1981 and to any following censuses).

These categories were later expanded to allow different subsets of the LS population to be identified and extracted from the sample for analysis. The categories, known as tracing history indicators, were coded and added to the LS members' records in the 1981 LS personal file. A detailed account of the LS tracing history indicators is given in Appendix XIII.

#### 5.1.5 Final processing and creation of the 1981 LS files

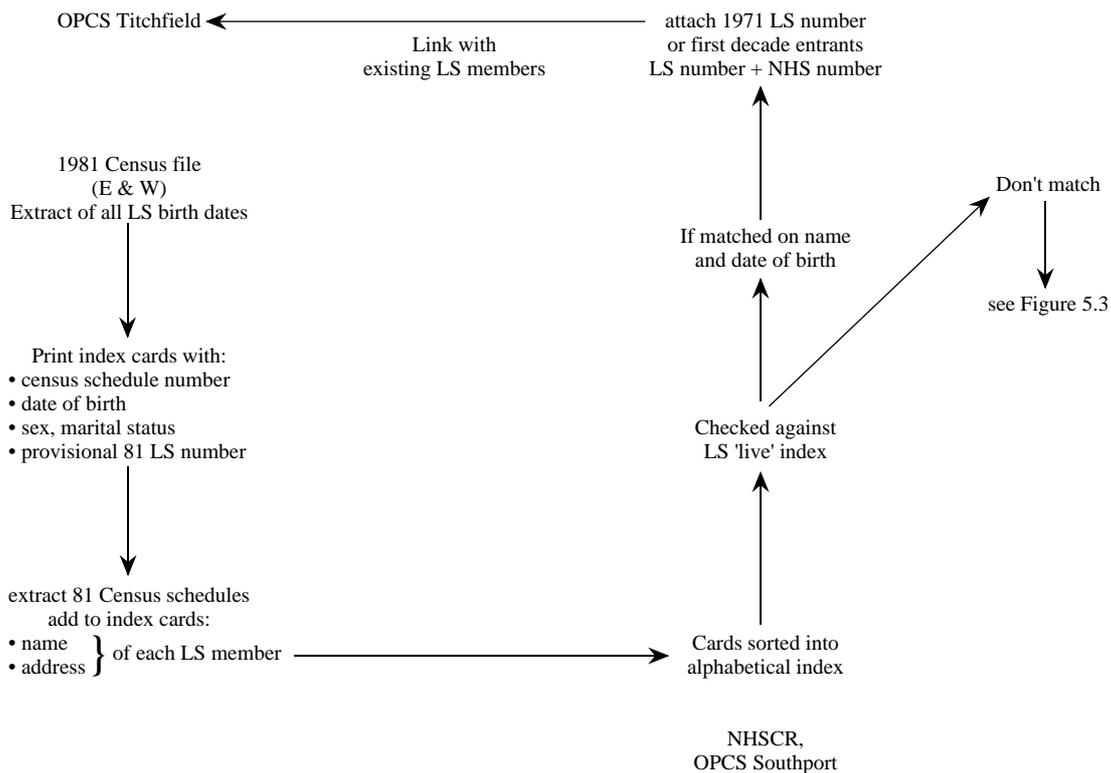
Once the 1981 index cards had gone through the matching and tracing process at NHSCR they were returned to OPCS for data processing. Information on whether the 1981 LS sample matched (or did not match) the 1971 LS sample had to be added to the 1981 LS household file so that the link between the 1971 and 1981 Censuses could be achieved. The data used for matching the entries on the cards with the entries in the LS households file depended on the matching/tracing history of the 1981 cards. There were five subgroups of 1981 cards:

- (a) matched to a card in the existing LS;
- (b) not matched to the existing LS but NHS number traced — (new) 1981 entrant;
- (c) not matched to the existing LS, NHS number not traced — new 1981 entrant (no trace);
- (d) matched to an existing LS no trace index card either (i) with an NHS number, or (ii) without an NHS number; or
- (e) matched but double enumeration.

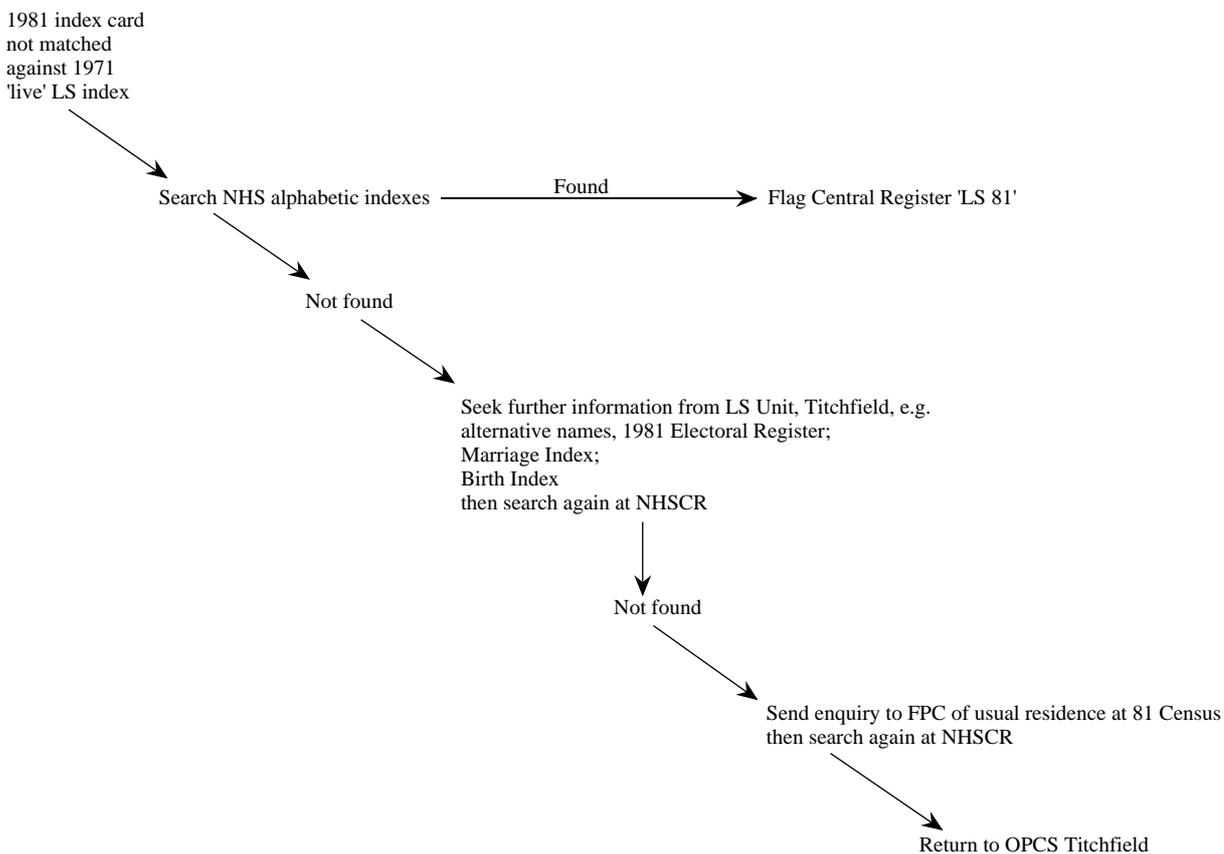
If the cards were of type (a), then the 1981 and 1971 LS numbers (or the 1981 and existing new birth or immigrant LS number) and check digits together with the year of birth of the member were keyed into the computer. For type (b) cards, the 1971 LS number and check digit were entered as '—' followed by a series of blanks. The 1981 LS number, check digit and year of birth were then entered as for type (a). The data on type (c) cards were also keyed as for type (b), but the 1971 LS number and check digit were entered as '\$' followed by a series of blanks. The data on type (d) (i) cards were keyed as for type (a). Type (d) (ii) cards were keyed with '\*' to show that the NHS number had not been found and the rest of the keying was as for type (a) cards. Data from the first card only of a double enumeration set (type (e) cards) were keyed.

As each batch of cards was processed, validation of the 1971 (or other existing LS number) and the 1981 LS numbers and check digits allowed any invalid or duplicate records to be identified and rejected. The validated file was then run against the LS households file to match against the 1981 LS number in order to add the 1971, or other existing LS number (if present) to the records.

**Figure 5.2 Linkage between 1981 Census and LS**



**Figure 5.3 1981 Census-LS Link: 'no match' problems**



The final process in the link was the creation of separate LS household and LS personal files from the 1981 household file. An outline of the processes involved in linking the 1981 Census into the LS are shown in Figures 5.2 and 5.3.

After the linkage exercise was complete the 1981 LS index cards were returned to NHSCR and were inserted into the LS index to replace 1971 cards (or later new birth or immigrant cards) where they existed. 1981 no trace cards which were linked to 1971 no trace cards (or to new birth or immigrant no trace cards) were filed next to the previous card — they did not replace them.

## 5.2 THE QUALITY OF THE 1971–1981 CENSUS LINKAGE

The original LS sample extracted from the 1971 Census population comprised 529,764 persons enumerated as resident in England and Wales at the 1971 Census. Of these persons 512,881 (96.8 per cent) were traced initially by NHSCR. In 1981 the Census sample selected by LS birth date was 536,243 persons of whom 528,310 (98.5 per cent) were traced. The change in the sample size at the 1981 Census was due to natural population change (births and deaths) together with migration occurring during the intercensal period. Exits and entrances from the sample can only be measured if these events can be successfully linked to the sample members experiencing them. Linking an exit or entry event to a member of the sample involves using the NHS number. If a sample member has no NHS number (is untraced), and thus has no entry in the Central Register, then no events can be linked to that person. Also if an event is not recorded, for example an emigration, it cannot be accounted for in any linkage exercise. As a result the measurement of the quality of the census link must take into account both the percentage of untraced members and the amount of population change attributable to intercensal exit and entry events.

The population which can be linked between two censuses is that which was present at the first census and was also present at the second. Therefore any persons who have

died or emigrated, or who have immigrated or been born into the sample between the two censuses cannot be included in the assessment of linkage rates between censuses.

Of the original 512,881 traced persons in the LS sample, 408,451 were found at the 1981 Census (see Figure 5.4). Of the traced LS members, 58,911 were known to have died during the intercensal period and 5,625 traced members were known to have left England and Wales before the 1981 Census. Among the 16,883 persons selected into the LS sample from the 1971 Census who were untraced at NHSCR at the beginning of the study, 6,550 were found at the 1981 Census. Only 1,153 of those 6,550 were still untraced at NHSCR in 1981. The total number of LS persons found in both the 1971 and 1981 Censuses was 415,001, of whom 413,848 were traced (99.7 per cent). A total of 39,894 traced persons present in 1971 (7.5 per cent of the original 1971 sample) were not found at the 1981 Census. These persons had no record of either an emigration or a death before the 1981 Census.<sup>2</sup>

### 5.2.1 Forward and backward linkage

Linkage between the censuses can be examined in two ways, forward (from the first census to the next census) or backward (from the second census back to the first census).<sup>3</sup>

Using forward linkage (1971 Census forward to the 1981 Census), the 1971 sample members who moved forward to the 1981 Census should comprise the original 1971 LS Census sample minus the deaths and emigrations that occurred in the intervening period. Using backward linkage (1981 Census back to the 1971 Census) the 1981 LS sample members present at the 1971 Census should be the 1981 sample minus the new births and immigrations that occurred after the 1971 Census. Logically the two methods of examining the linkage should result in an identical sample size. However, this cannot be the case due to differences in the quality of entry and exit information, which is shown in Table 5.1. Using forward linkage the sample of traced members expected to be in the 1981 Census was 448,345

**Table 5.1 1971 and 1981 LS-Census samples: forward and backward linkage**

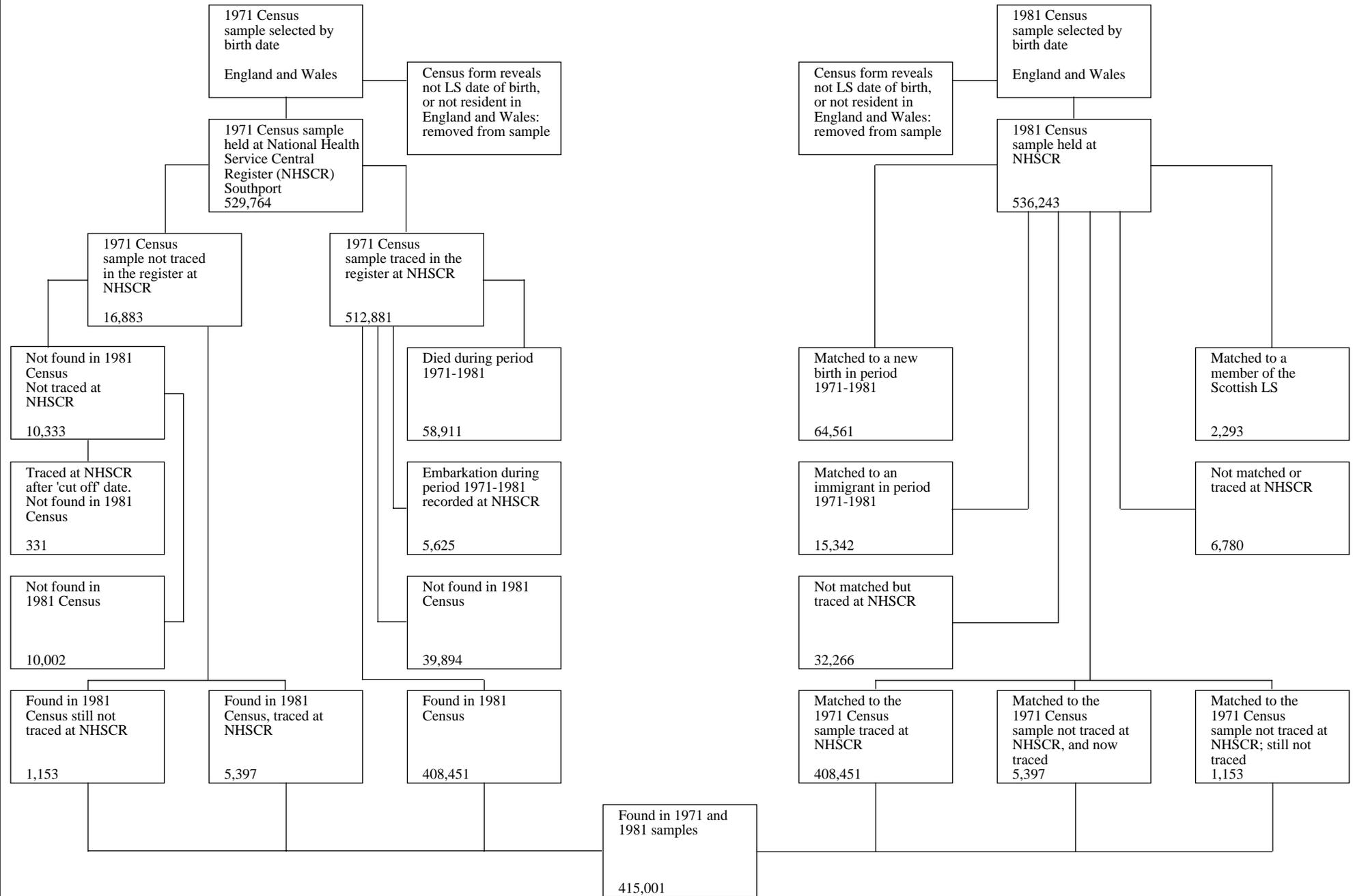
Forward Linkage	Number	Backward Linkage	Number
1971 Census sample*	512,881	1981 Census sample†	528,310
Died before 1981 Census	58,911	Born after 1971 Census	63,534
Embarked before 1981 Census	5,625	Immigrant after 1971 Census‡	13,773
		New birth entering via 1981 Census	1,027
		Immigrant entering via 1981 Census	3,862
Eligible to be in 1981 Census	448,345	Should have been in 1971 Census	446,114
Recorded in 1981 Census	408,451	Recorded in 1971 Census	413,848
Forward linkage rate	91.1%	Backward linkage rate	92.8%

\* Traced at NHSCR prior to 1981 Census.

† Traced at NHSCR.

‡ Immigrant to England and Wales, includes persons resident in Scotland in 1971.

**Figure 5.4 Component parts of the Longitudinal Study population, 1981 Census - LS link**



but the sample recorded by this method as actually present was 408,451, a forward linkage rate of 91.1 per cent. Of the 39,894 LS members who were missing from the 1981 sample, approximately 37 per cent were due to discrepant dates of birth being given at either of the two Censuses. A further 38 per cent were persons who were not enumerated (or whose households were not enumerated) at the usual address (see section 5.2.4).

Backward linkage resulted in the identification of a sample of 446,114 traced LS members in 1981 who should have originated from the 1971 Census. Only 413,848 of them were actually recorded in the 1971 Census (a backward linkage rate of 92.8 per cent). The 32,266 persons present in the 1981 Census who should have been present in the 1971 sample but were not, resulted mainly from date of birth discrepancies. These people gave an LS date of birth at the 1981 Census but not at the 1971 Census.

## 5.2.2 Linkage rates

Tables 5.2 to 5.10 show the forward linkage rates for initially traced members of the LS sample between the 1971 and 1981 Censuses. It should be noted that the linkage success rate is based on those members who were known to be still alive, and who were not recorded as having emigrated during the intercensal period. The overall linkage success rate for the sample was 91 per cent.

The 1971–1981 linkage rates have been examined in detail for both demographic and social characteristics and show

which subgroups of the LS population are more prone to ‘loss to follow-up’ than others. When using this data for research it is essential to take into consideration that some groups in the population (for example, the very old, persons living in communal establishments, those whose country of birth was outside of England and Wales, etc.) show much lower linkage rates between the two censuses than other groups.

The linkage rates by sex, age, marital status, household composition, tenure, household size, country of birth, economic activity and social class for the sample are summarised below.

### 5.2.2.1 Sex

The 1971 LS sample of 512,881 traced members was made up of 250,483 males and 262,398 females. Seventy-nine per cent of these males and 80 per cent of females were also present at the 1981 Census. The linkage success rates (after excluding deaths and emigrations) were 91.4 per cent for females and 90.7 per cent for males.

### 5.2.2.2 Age

Table 5.2 shows the forward linkage rates for traced members of the LS sample by five-year age groups (as at 1971 Census). In 1971 the traced sample was made up of 122,284 persons aged under 15, 322,764 aged between 15 and 65, and 67,833 aged 65 years or over. In the oldest age group 1,045 LS members were aged 90 or above in 1971.

**Table 5.2 Linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR following the 1971 Census by age at 1971 Census**

Age-group at 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent*
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
0-4	41,097	89.8	0.4	1.6	8.2	91.6
5-9	42,647	90.8	0.3	0.9	8.0	91.6
10-14	38,540	88.4	0.3	0.7	8.0	91.9
15-19	34,784	86.9	0.7	1.8	10.6	89.1
20-24	38,146	87.3	0.6	2.3	9.8	89.9
25-29	33,094	88.3	0.8	2.1	8.7	91.0
30-34	30,147	88.4	1.2	1.8	8.6	91.1
35-39	29,516	89.4	2.1	1.2	7.3	92.5
40-44	30,906	88.6	3.8	0.8	6.8	92.9
45-49	33,167	86.8	6.7	0.4	6.6	92.8
50-54	30,759	82.1	10.5	0.4	7.0	92.1
55-59	32,475	73.8	16.6	0.7	8.9	89.2
60-64	29,770	68.5	25.2	0.7	5.6	92.4
65-69	25,513	56.9	37.3	0.4	5.4	91.4
70-74	18,539	43.6	51.3	0.4	4.6	90.4
75-79	12,257	28.6	67.1	0.3	4.0	87.8
80-84	7,270	15.1	81.8	0.1	3.0	83.9
85-89	3,209	6.3	91.9	<0.1	1.7	78.4
90+	1,045	2.2	95.5	-	2.3	48.9
All	512,881	79.6	11.5	1.1	7.8	91.1

\* The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

Among persons aged under 10 in 1971 (aged 10 – 19 in 1981), 89.8 per cent of 0–4 year olds, and 90.8 per cent of 5–9 year olds were found at the 1981 Census. Less than 1 per cent of each age group had died and less than 2 per cent had emigrated during the intercensal period. Over 91 per cent of these two age groups were successfully forward linked.

In the next three age groups, 10–14, 15–19 and 20–24 (aged 20–34 in 1981), the percentages enumerated at the 1981 Census were 88.4 per cent for those aged 10–14, 86.9 per cent for those aged 15–19 and 87.3 per cent for those aged 20–24 in 1971. These age groups comprised the younger, mobile working population and had the highest rates of non-linkage (9.8 per cent to 10.6 per cent) among the LS population. The percentage emigrating between the Censuses was also higher than most other age groups. Successful forward linkage rates ranged from 89.1 to 89.9 per cent.

Among the elderly (75 and over in 1971) deaths occurring intercensally accounted for much of the loss in this section of the sample by 1981. Only 28.6 per cent of the 75–79 age group, 15.1 per cent of the 80–84 age group, 6.3 per cent of the 85–89 age group and 2.2 per cent of those aged

90 and over in 1971 were found at the 1981 Census. Losses due to deaths ranged from 67.1 per cent of 75–79 year olds to 95.5 per cent of those aged 90+. However, the success rate for forward linkage dropped quite substantially and fell as low as 48.9 per cent for the very old (90+ in 1971, 100+ in 1981). In this group 2.3 per cent were not linked. This suggests that approximately 2 per cent of deaths among the very old were missed probably due to inconsistent reporting of dates of birth.<sup>2</sup>

### 5.2.2.3 Marital status

In 1971, out of the sample of 512,881 traced persons 41 per cent were single, 51 per cent were married, 7 per cent were widowed and 1 per cent divorced (see Table 5.3). In 1981, 85.7 per cent of those single in 1971 were found at Census. Among those who were married in 1971, 79.4 per cent were enumerated at the 1981 Census. Out of the total number of persons who were widows and widowers in 1971, 48 per cent had died before 1981 and a further 46.5 per cent of them were found in 1981. Of those whose marital status was given as divorced at the 1971 Census, 76 per cent were found in the 1981 Census. Forward linkage success rates were highest among the married (92.1 per cent) and lowest among the divorced (88.2 per cent).

**Table 5.3 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR by marital status at the 1971 Census**

Marital status in 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent*
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
Single	207,953	85.7	3.5	1.4	9.4	90.1
Married	264,218	79.4	12.8	1.0	6.8	92.1
Widowed	35,834	46.5	48.0	0.5	5.1	90.2
Divorced	3,705	76.0	12.8	1.0	10.2	88.2
All	512,881	79.6	11.5	1.1	7.8	91.1

\* The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

**Table 5.4 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR by household composition at the 1971 Census**

Household composition in 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent*
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
Living in private household	495,211	80.3	11.0	1.1	7.6	91.4
Living in communal establishment	7,672	49.8	34.3	2.5	13.5	78.7
Visitor	9,998	67.5	17.7	2.0	12.9	84.0
All	512,881	79.6	11.5	1.1	7.8	91.1

\* The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

### 5.2.2.4 Household composition

In the 1971 traced LS sample 495,211 persons were enumerated as living in private households where they were usually resident, 7,672 in communal establishments and the remaining 9,998 were visitors either to private households or to communal establishments. Table 5.4 shows that 80.3 per cent of 1971 LS members living in private households, 49.8 per cent of those living in communal establishments, and 67.5 per cent of visitors were enumerated in the 1981 Census. The forward linkage rate for those living in private households in 1971 was 91.4 per cent compared with the far less successful linkage rate of 78.7 per cent for those living in communal establishments.

### 5.2.2.5 Position of LS members in the household

Table 5.5 shows the forward linkage rates for LS members by their position in the household in 1971. The highest successful forward linkage rates between the 1971 and 1981 Censuses were found among married couples, both with and without children. The rates ranged from 91.9 per cent for a wife in a married couple without dependent children to 92.8 per cent for husbands and wives in married couples with dependent children. The lowest forward linkage success rate (86.5 per cent) was found among children living with lone fathers.

### 5.2.2.6 Tenure

The linkage success rate for traced LS members by tenure in 1971, ranged from 92 per cent among local authority

tenants to 79 per cent among those in furnished rented accommodation. Persons in furnished rented accommodation had the highest rates of non-linkage between the two censuses at 18.9 per cent (see Table 5.6).

### 5.2.2.7 Household size

Table 5.7 shows the linkage rates for LS members by household size in 1971. The highest forward linkage rates were found among households whose size was between 3 and 6 persons in 1971 (mainly families with children) and among 2 person households (91.9 per cent and 91.5 per cent respectively). The lowest forward linkage rate at 87.1 per cent was found among households containing 7 or more persons.

### 5.2.2.8 Country of birth

Successful forward linkage rates by country of birth of LS member as stated at 1971 Census ranged between 92.3 per cent and 60.5 per cent (see Table 5.8). LS members who stated their country of birth as England or Wales had the highest forward linkage rates (92.3 and 91.8 per cent respectively). The lowest forward linkage rates were found among members who had stated their country of birth as the USA (60.5 per cent), the Caribbean Commonwealth (69 per cent), the Old Commonwealth (71 per cent), the Irish Republic (71 per cent) and Ireland — part not stated (72.6 per cent). The number of LS members who did not state their country of birth in the 1971 Census was 2,009.

**Table 5.5 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR by position of LS member in the household at the 1971 Census**

Position in household in 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent*
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
Husband in married couple with dependent children	60,570	87.2	4.6	1.3	6.8	92.8
Husband in married couple without dependent children	65,765	66.5	27.3	0.7	5.6	92.3
Wife in married couple with dependent children	59,535	90.1	1.9	1.0	7.0	92.8
Wife in married couple without dependent children	65,355	77.7	14.8	0.6	6.8	91.9
Lone Father	1,049	78.7	9.3	1.0	10.0	87.8
Lone Mother	4,558	85.7	3.8	1.1	9.4	90.1
Children in married couple family	119,532	90.0	0.4	1.2	8.4	91.5
Children with lone father	1,684	85.3	0.4	0.9	13.4	86.5
Children with lone mother	8,122	85.8	0.5	1.0	12.8	87.0
Others	109,041	69.8	20.3	1.3	8.6	89.1
All	512,881	79.6	11.5	1.1	7.8	91.1

\* The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

**Table 5.6 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR by tenure at the 1971 Census**

Tenure in 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent†
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
Owner-occupied	257,900	81.4	10.3	1.2	7.2	91.9
Local authority	153,030	81.4	10.9	0.6	7.1	92.0
Rented furnished	16,052	71.2	5.2	4.7	18.9	79.0
Rented unfurnished	72,942	76.0	15.3	0.9	7.8	90.7
All*	499,924	80.3	11.0	1.1	7.6	91.3

\* Excludes 12,828 persons who were resident in non-private establishments in 1971; 128 persons were also excluded as they did not state tenure.

† The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

**Table 5.7 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR by household size at the 1971 Census**

Household size in 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent†
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
1	31,357	56.0	35.5	0.9	7.6	88.0
2	111,323	69.8	22.9	0.8	6.5	91.5
3 - 6	325,357	85.9	5.4	1.1	7.5	91.9
7+	31,528	83.7	2.7	1.3	12.4	87.1
All*	499,514	80.3	11.0	1.1	7.6	91.3

\* Excludes 13,154 persons not enumerated as in households. Of these 12,828 were resident in communal establishments and a further 538 were either domestic servants or were in temporarily rented accommodation such as holiday flats which are listed as with no known usual residents.

† The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

### 5.2.2.9 Economic activity

Forward linkage rates by economic activity are shown in Table 5.9. The overall forward linkage rate for LS members by economic activity as stated in 1971 was 91.1 per cent. Successful forward linkage rates ranged from a high of 91.8 per cent for housewives and those of independent means, to a low of 85.9 per cent for the unemployed.

### 5.2.2.10 Social class

The social class of a member of the LS sample is based on 'own' social class. Only those aged over 15 in the 1971 sample were given a social classification. Children (aged less than 15 and economically inactive in 1971) were classified as 'not applicable'. For a description of the social class definitions used, and the changes to those definitions between censuses, see Chapter 4, section 4.4.5.

Details of an individual LS member's social class are only available for 71 per cent of those present at the 1971 Census.

The remaining 29 per cent were either 'inadequately described' or the social class classification was deemed 'not applicable'. The 118,849 LS members who were classified as 'not applicable' (aged under 15 and economically inactive in 1971) are excluded from Table 5.10 which shows linkage rates by social class in 1971.

Among those LS members traced at NHSCR in 1971, with either a social class given or defined as 'students, housewives, permanently sick or those with independent means', the successful forward linkage rates ranged between 81.5 per cent and 92.6 per cent. Forward linkage was most successful for members classed as IIIN (92.6 per cent) and II (90.6 per cent). It was least successful for those classified as 'armed forces' (81.5 per cent) or as Social Class V (89 per cent). Where the social class of LS members was 'inadequately described' only 88.2 per cent could be forward linked. Of this group only 49.4 per cent were present at the 1981 Census, 43.4 per cent of them having died in the intercensal period.

**Table 5.8 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR following the 1971 Census by country of birth**

Country of birth as given at 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent*
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
England	439,176	80.9	11.6	0.8	6.7	92.3
Wales	30,388	79.9	12.5	0.5	7.2	91.8
Scotland	7,702	76.5	12.4	1.0	10.1	88.4
N. Ireland	2,163	70.5	11.7	3.0	14.8	82.7
Other UK	295	73.2	12.2	2.4	12.2	85.7
Irish Republic	6,261	63.2	13.2	3.7	19.9	71.0
Ireland (part not stated)	947	61.1	8.3	5.5	25.0	72.6
Europe (including USSR)	7,780	65.6	11.7	4.6	18.1	78.3
Mediterranean Commonwealth	1,410	66.6	5.2	3.0	25.1	72.6
African Commonwealth	1,678	67.0	2.0	4.4	26.5	71.7
Far Eastern Commonwealth	810	68.4	2.3	6.0	23.2	74.7
Caribbean Commonwealth	3,075	63.5	3.4	4.7	28.5	69.0
Pakistan & Bangladesh	1,920	64.2	2.2	9.6	23.9	72.9
India	4,192	70.9	5.9	4.3	18.9	78.9
Rest of New Commonwealth	162	69.8	6.8	2.5	21.0	76.9
Old Commonwealth	1,267	58.5	7.9	9.7	23.9	71.0
USA	637	45.7	8.3	16.2	29.8	60.5
Rest of the World	1,009	62.4	11.5	6.6	19.4	76.3
Not Stated	2,009	58.9	19.1	4.1	17.9	76.7
All	512,881	79.6	11.5	1.1	7.8	91.1

\* The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

**Table 5.9 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR following the 1971 Census by economic activity in 1971**

Economic activity in 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent†
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
In employment	229,152	83.9	7.1	1.2	7.7	91.6
Out of employment - short term sick	2,744	64.0	26.0	0.8	9.2	87.5
Out of employment - other	8,861	77.2	8.7	1.4	12.6	85.9
Retired	51,417	41.1	54.1	0.4	4.4	90.2
Permanently sick	4,453	52.1	40.3	0.2	7.4	87.6
Student	17,781	83.8	0.6	2.6	13.0	86.6
Other inactive (housewives & those of independent means)	79,624	78.4	13.7	0.8	7.0	91.8
All*	394,032	76.6	14.8	1.1	7.5	91.1

\* Excludes 118,849 LS members who were economically inactive and aged under 15 in 1971.

† The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

**Table 5.10 Forward linkage rates between 1971 and 1981 Censuses - sample members traced at NHSCR following the 1971 Census by social class in 1971**

Social class in 1971	Members present in 1971	Position in 1981 (per cent)				Linkage success rate per cent†
		Linked at 1981 Census	Died before Census	Embarked before Census	Not linked	
I	9,406	80.4	8.9	2.8	8.0	91.0
II	45,918	79.0	12.5	1.3	7.3	91.6
IIIN	54,662	83.7	8.6	1.1	6.7	92.6
IIIM	73,865	79.1	12.9	1.1	6.8	92.0
IV	54,204	77.5	13.7	1.0	7.8	90.9
V	20,888	72.0	18.2	0.9	8.9	89.0
Armed Forces	2,087	76.4	4.8	1.5	17.3	81.5
Students, housewives, the permanently sick & those with independent means	101,867	78.2	12.6	1.1	8.1	90.6
Inadequate description	31,135	49.4	43.4	0.6	6.6	88.2
All*	394,032	76.6	14.8	1.1	7.5	91.1

\* Excludes 118,849 LS members present in 1971 where the Social Class was recorded as 'not applicable' (economically inactive and aged under 15 in 1971)

† The denominator for the percentage linkage success rate is those members present at the 1971 Census minus deaths and embarkations from the sample before the 1981 Census.

### 5.2.3 Inconsistencies and double enumerations

Among the 415,001 LS members who were found in both the 1971 and 1981 Censuses both inconsistencies of response to census questions and some cases of double enumeration occurred. The three variables which would be expected to remain constant between two censuses are date of birth, sex and country of birth. As Table 5.11 shows, 14,232 LS members quoted dates of birth with inconsistencies large enough to change their ages in completed years, 1,360 members had recorded a different sex at each census and 1,764 members had discrepancies in their country of birth. There appear to be three reasons for these discrepancies, census form completion error, punching error or an error when the census auto-edit routines were applied to impute missing values (in 1981 only).

Some cases of an impossible change in marital status were also found at the 1981 Census, with 1,229 LS members reverting to single in 1981 when they had been recorded as married, widowed or divorced in 1971.<sup>2</sup>

The 1981 Census recorded both visitors to households and absent residents, unlike the 1971 Census where absent residents had not been enumerated (see Chapter 4, section 4.4.2 for a discussion of the differences in population coverage). As a result, in 1981 a person could be counted twice, first at their address of enumeration and second at their address of usual residence. In the 1981 Census, 4,300 LS members were returned as enumerated at two addresses. Double enumerations of LS members in the 1971, 1981 and 1991 Censuses are described in detail in Appendix XIV.

**Table 5.11 Inconsistencies between the 1971 and 1981 Censuses**

Characteristics in 1971 Census	Characteristic in 1981 Census		Per cent with discrepancy
	Consistent with 1971	Inconsistent with 1971	
<b>Sex</b>			
Persons	413,641	1,360	0.3
Male	199,226	578	0.3
Female	214,415	782	0.4
<b>Country of birth</b>			
All countries	413,237	1,764	0.4
England	359,303	294	0.1
Wales	24,669	24	0.1
Scotland	6,056	24	0.4
Northern Ireland	1,452	132	8.3
Irish Republic	3,962	244	5.8
India	3,025	184	5.7
Pakistan & Bangladesh	1,277	104	7.6
Caribbean Commonwealth	1,993	113	5.4
African Commonwealth	1,118	96	7.9
<b>Age</b>			
All ages	400,769	14,232	3.4
Under 10	73,880	2,314	3.0
10-24	96,389	2,515	2.5
25-59	184,937	6,477	3.4
60-74	41,345	2,228	5.1
75+	4,218	698	14.2

Source: OPCS Census 1971-1981, *The Longitudinal Study: linked census data, England and Wales*. OPCS Series CEN 81 LS, HMSO (London 1988).

## 5.2.4 Linkage failures

As shown in Figure 5.4, 39,894 LS members who were enumerated in the 1971 Census and traced at NHSCR were not found in the 1981 Census. No record of either a death or emigration in the intercensal period existed for these people. A further 278 persons were found after the completion of the 1981 Census-LS link, reducing linkage failures to 39,616.

Although all these people were recorded in the 1971 Census with an LS date of birth, 9,700 of them were subsequently discovered to have a different date of birth in the NHS Central Register. The remaining 29,916 unmatched cases that did not have a date of birth discrepancy were

**Table 5.12 Unmatched cases: postings at NHSCR**

All unmatched cases with no date of birth discrepancy	Sample number 397	Grossed-up number 29,916
<b>Status at NHS Central Register</b>		
Death since 1981 Census	24	1,800
Cancelled cipher	14	1,100
No postings	7	500
Under service medical care	6	400
Northern Ireland	3	200
Isle of Man	1	100
No visible explanation at NHSCR	342	25,800

Source: OPCS. *Census 1971–1981, The Longitudinal Study: linked census data, England and Wales*. OPCS Series CEN 81 LS, HMSO (London 1988).

**Table 5.13 Investigations of 1981 Census forms for addresses relating to unmatched cards**

Total queries referred to 1981 Census form	1971 Census	
	Sample number 342	Census grossed-up 25,800
Not LS date of birth on 1981 Census form	60	4,500
LS date of birth on 1981 Census form but not selected; probable keying error	33	2,500
Date of birth not given on Census form - or incomplete	11	800
LS date of birth on 1981 Census form but failed match (including change of name)	10	700
Dummy form with LS person's surname	17	1,300
Dummy form with someone else's name or no name given	26	2,000
Person not on form	154	11,600
LS member mentioned on Panel B but not on form	2	200
Census form not found	21	1,600
No address from FPC	8	600

Source: OPCS. *Census 1971–1981, The Longitudinal Study: linked census data, England and Wales* OPCS Series CEN 81 LS, HMSO (London 1988).

investigated at NHSCR. A sample of 397 records was taken from the 29,916 (1.3 per cent) and examined using NHSCR postings data.<sup>2</sup> Six per cent (24) of the cases were found to belong to members who had died following Census day, 8 per cent (31) to cases who had left the NHS either by emigration or by enlisting in the armed services, and the remaining 86 per cent (342 cases) required further investigation (see Table 5.12). NHSCR wrote to the relevant FPCs for the remaining 342 cases requesting their address at the time of the 1981 Census. The 1981 Census schedules for those addresses were then examined for reasons for the linkage failures. The results of this investigation are shown in Table 5.13.

In approximately 20 per cent of cases the date of birth given on the 1981 Census form was found either not to be an LS date of birth, to be missing or incomplete. Ten per cent of cases that had an LS date of birth were not selected into the 1981 LS sample probably due to inaccurate punching of the date of birth information at 1981 Census. In 45 per cent of cases the LS person was not included on the 1981 Census form at all. Twelve per cent of cases were found on dummy forms which were issued when a household's census schedule was not returned. Dummy forms were completed by the census enumerators when they could not find any members of a household present and could not obtain a completed schedule. The information on these forms was of the most basic kind and only included the name of the householder (if known), address of the dwelling and the number of rooms. The enumerator collected this data from other local informants (such as neighbours).

A summary of the results is given in Table 5.14. The most common reason for linkage failure is inconsistent reporting of date of birth (found in 37 per cent of linkage failures).

**Table 5.14 Reasons for linkage failure**

Reasons for linkage failure	1971 Census sample traced at NHSCR
Number believed to be still in sample in 1981 and not found in Census	39,616
Date of birth discrepancy between 1971 Census and NHSCR	9,700 (24%)
Date of birth discrepancy between 1971 Census and 1981 Census	5,300 (13%)
NHSCR postings indicate person no longer resident in England and Wales	2,300 (6%)
Household at person's usual address not enumerated in the 1981 Census	3,000 (8%)
Person not on form at usual address at 1981 Census	11,800 (30%)
Clerical or linkage error	3,200 (8%)
Still unexplained	4,000 (10%)

Source: OPCS. *Census 1971–1981, The Longitudinal Study: linked census data, England and Wales*. OPCS Series CEN 81 LS, HMSO (London 1988).

## 5.3 THE 1991 CENSUS–LS LINK

Government approval for the 1991 Census–LS link was obtained in July 1988. The planning of the link started in December of that year and work on the link itself in late 1991.

Initially two options were considered for performing the link, one manual, the other a computer-based system taking advantage of the CHRIS database at NHSCR. It was decided to proceed with the manual system (as was done for the 1981 Census–LS link) rather than use a computerised linkage system which would have posed problems of confidentiality.

As with the 1981 Census–LS link, listings of the 1991 Census schedules containing persons with LS dates of birth were produced. The relevant schedules were extracted and 100 per cent coding of ‘hard-to-code’ items was undertaken. Unlike 1981 all ‘hard-to-code’ items were fully coded.

### 5.3.1 The 1991 Census extract

The first stage of the 1991 Census extract involved extracting data from the 1991 GB Census households file for each household containing an LS member. Every person who was enumerated as usually resident in England and Wales (but not Scotland) at the 1991 Census and who gave an LS date of birth on the census form was considered a potential LS member and was allocated a 1991 LS number. It should be noted that though the potential LS member could not be ‘usually resident’ in Scotland they could have been enumerated there. As in 1981, the extract program produced three outputs, an extracted 1991 LS households file, a listing of all LS members included in that file and a set of 1991 LS index cards pre-printed with census schedule identification details. The cards were used to identify the relevant census schedules, and once they had been extracted, the name and address of the potential LS members were added to the index cards.

Once the index cards and listings had been cross-checked for any discrepancies the index cards were sent to NHSCR for matching and tracing. This part of the exercise was much faster and more efficient than the corresponding work that had been carried out for the 1981 Census–LS link. It was no longer necessary to pre-sort the cards into alphabetical order as they were checked against the CHRIS database, rather than against the clerical LS index and alphabetic registers used in 1981. The extracted census forms were then used by Census Division for coding of the ‘hard-to-code’ items.

### 5.3.2 Additional coding of 1991 Census schedules

As in 1981, all census schedules for LS members and their households which had not been included in the Census 10 per cent sample were extracted. The ‘hard-to-code items’ were then coded to the 100 per cent level. The items that

required this additional coding in 1991 were ‘relationship to head of household’, ‘hours worked’, ‘occupation’, ‘industry’, ‘workplace’, ‘journey to work’ and ‘higher qualifications’.

### 5.3.3 The matching process — the effect of computerisation at NHSCR

The introduction of the CHRIS system at NHSCR both simplified and improved the rate of matching the 1991 LS index cards. Before computerisation the basic procedures for matching and tracing for the 1981 Census–LS link were manual. The 1981 LS index cards had been matched against the LS live (and dead) index cards and traced using both the alphabetical index and the Central Register. After computerisation both initial matching and tracing could be done using CHRIS.

In the 1991 Census–LS link the procedures used for matching and tracing were as follows. Each LS index card was checked against the computerised Central Index to see if there was an entry for that particular LS member. The LS member’s NHS number was then transcribed onto the card together with any pre–1991 LS number shown on the CHRIS entry. If no previous LS number existed, or if there was no entry on CHRIS, the old LS index and the main clerical alphabetical indexes and registers were searched for a match and/or trace. If the problems still could not be resolved then the cards were checked against the 1991 Census schedules for possible transcription errors. If additional information was found the corrected cards were sent back to NHSCR for further attempts at tracing.

#### 5.3.3.1 Matched 1991 England and Wales sample index cards

Out of the initial 553,722 cards sent to NHSCR, 511,780 (92.4 per cent) were matched with an existing LS number. Each batch of matched cards was returned to OPCS for further processing.

#### 5.3.3.2 Unmatched 1991 England and Wales sample index cards

If the 1991 LS index card could not be matched with an existing LS number then, as in 1981, a number of different methods were used to attempt to match and trace the card.

- (i) If the card was for a potential LS member who was either born after the 1981 Census or immigrated after that date, their entry on the CHRIS system should have been flagged as ‘LS’. However, some new births and immigrants are missed from the intercensal updating of events and eventually become part of the new entrant intake at a census. There were 17,890 members (3.23 per cent) who were new entrants to the LS with 1991 LS numbers and had to be flagged as such on the NHSCR database. It should be noted that all these members had NHS numbers and were therefore traced. These cards were then processed as new LS members.

- (ii) Where the 1991 LS index cards could not be matched with any entry on the CHRIS system, the manual LS indexes were used. In some cases the cards were matched to pre-1991 cards in the LS no trace index and their 1971 and/or 1981 LS numbers were added to the cards. On further investigation 213 were found to have an NHS number and were added to the matched and traced set of LS members. Another 273 cards were also matched in the LS no trace index but no NHS number could be found for these members. Once a match had been found and the cards annotated with their earlier numbers they were returned to OPCS.
- (iii) Where 1991 index cards could not be matched and the NHS number could not be traced they were returned to OPCS for investigation. The unmatched and untraced category stood at 8,968 cards (1.65 per cent of the total).

### 5.3.3.3 Corrections — the verification process

In 1991, as in 1981, when cards were returned to OPCS for verification the most common errors were found to be errors in the names and addresses. Additional information was added to the cards giving the previous name (if there had been any change), address one year previously, details of other family members, correct spelling of names and date of birth. Once the additional information had been added, the cards were returned to NHSCR for attempted matching against entries on the CHRIS system.

Multiple enumerations were identified and simple Absent Usual Resident/Visitor pairs were resolved. Complex multiple enumerations were resolved into primary LS member records and secondary records by reference to the appropriate census forms and with the assistance of NHSCR. Complex multiple enumerations are discussed in detail in Appendix XIV.

### 5.3.3.4 Final processing and the addition of the 1991 LS sample to the Model 204 LS database

When the processing of the extracted census 100 per cent coded variables was complete, the now fully coded 10 per cent variables, derived area codes and country of birth codes were added to the file. The extract file was then loaded into the four 1991 Census files in the LS database. These files were the 1991 Census–LS members file, the 1991 Census–LS members households file (containing details of non-LS members in the households), the 1991 Census–LS absent members file and finally a file holding details of the absent members households.

## 5.4 MATCH AND TRACE CATEGORIES

In 1981 the match and trace categories, known as tracing history indicators, were fairly simple, consisting of 17 separate codes. After the 1991 Census the codes had to be

expanded to include LS members present at the 1991 Census who may, or may not, have been present at the previous censuses. Twenty two codes were defined for 1991 which were then combined with the 1981 codes to give full tracing histories. The valid combined codes totalled 114 in number and are given, together with a full description of their meanings, in Appendix XIII.

## 5.5 THE QUALITY OF THE 1981–1991 CENSUS–LS LINKAGE

At the time of the 1981 Census 536,243 LS members were enumerated as resident in England and Wales. Cleaning before and during the creation of the LS database reduced this figure to 535,862 LS members. At the 1991 Census a sample of 543,884 LS members were enumerated. A total of 98.8 per cent of the 1981 LS sample and 98.3 per cent of the 1991 LS sample had been traced at NHSCR by the time of the 1991 Census–LS link. Intercensal population change due to deaths, emigrations, immigrations and new births affected the size of the LS sample in 1991. Figure 5.5 shows the components of the Longitudinal Study population at the 1991 Census–LS link.

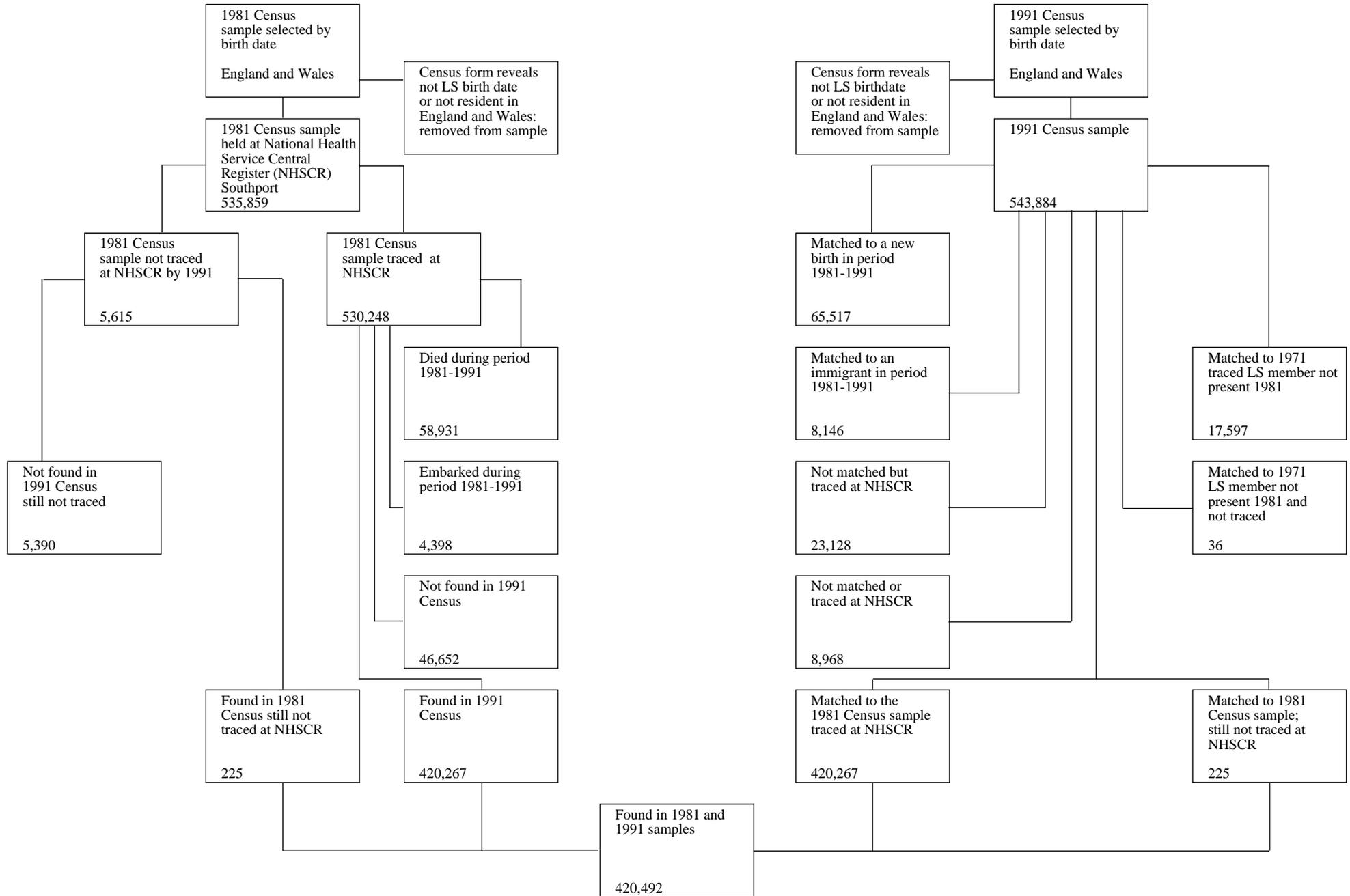
Of the 530,248 traced LS members present at the 1981 Census, 420,267 were found and linked at the 1991 Census. A further 225 untraced LS members were linked in 1991 giving the total number of members who were found in both censuses as 420,492. Intercensally 58,931 traced LS members had died, and 4,398 were known to have emigrated from England and Wales. Of the traced LS members who had been present at the 1981 Census, 46,652 (8.8 per cent) were not found at the 1991 Census. There was no record of a death or emigration occurring before the 1991 Census for these persons.

### 5.5.1 Forward and backward linkage (1981-1991)

Forward and backward linkage have been used to examine the quality of entry and exit information. Both forward linkage (from the 1981 Census forward to the 1991 Census) and backward linkage (from the 1991 Census backward to the 1981 Census) should logically give the same sample size but differences in the accuracy of recording deaths, emigrations, immigrations and new births ensure that this is not so. Table 5.15 shows both forward and backward linkage of the 1981 and 1991 Census–LS samples.

Among the sample of 530,248 LS members present at the 1981 Census who were traced by 1991, 466,918 persons were eligible to be forward linked into the 1991 Census sample. Only 90 per cent (420,267) of those eligible were in fact linked. Using backward linkage, the 1991 Census sample of 534,647 traced persons was reduced to 460,984 LS members after the subtraction of intercensal births and immigrations into the sample. However, only 420,267 of those members had been recorded in the 1981 Census giving a backward linkage rate of 91.2 per cent.

**Figure 5.5 Component parts of the Longitudinal Study population, 1991 Census - LS link**



**Table 5.15 1981 and 1991 LS-Census samples: forward and backward linkage**

Forward Linkage	Number	Backward Linkage	Number
1981 Census sample*	530,248	1991 Census sample†	534,647
Died before 1991 Census	58,931	Born after 1981 Census	65,517
Embarked before 1991 Census	4,399	Immigrant after 1981 Census‡	8,146
Eligible to be in 1991 Census	466,918	Should have been in 1981 Census	460,984
Recorded in 1991 Census	420,267	Recorded in 1981 Census	420,267
Forward linkage rate	90.0%	Backward linkage rate	91.2%

\* Traced at NHSCR prior to 1991 Census

† Traced at NHSCR.

‡ Immigrant to England and Wales, includes persons resident in Scotland in 1971.

**Table 5.16 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR following the 1981 Census by sex in 1981**

Sex in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent*
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
Male	258,010	78.1	11.2	0.8	9.8	88.8
Female	272,238	80.3	11.0	0.8	7.8	91.1
All	530,248	79.3	11.1	0.8	8.8	90.0

\* The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

The inability to link 46,652 traced members from the 1981 sample in 1991, may be partially explained by census under-enumeration, unreported intercensal emigrations and discrepancies in the recording of LS member's birthdates in the 1991 Census. It is not possible to measure the contribution of each factor to the loss. However, it is believed that approximately two thirds of emigrations from England and Wales by LS members were missed between 1981 and 1991. This is discussed further in Chapter 7.

Among the 40,725 LS members found in 1991 who should have been in the 1981 Census but were not, 17,597 had been present in 1971, missed the 1981 Census and were sampled again in 1991. The remaining 23,128 were either genuine new entrants who had not been present at the 1971 and 1981 Censuses and were not second decade new births or immigrants, or were examples of discrepant recording of birthdates.

## 5.5.2 Linkage rates

Tables 5.16 to 5.25 show forward linkage rates for traced members of the 1981 LS sample at the 1991 Census. The linkage success rate is based on those members who were known to have neither died nor emigrated during the intercensal period. The overall linkage success rate for the sample was 89 per cent. This was slightly lower than the 91 per cent linkage success rate found for the 1971 sample at the 1981 Census.

The 1981–1991 forward linkage rates are examined in some detail below. As with the 1981 Census-LS link, certain groups show more 'loss to follow-up' than others. These groups include LS members in the younger age groups (aged 10-19 in 1981, 20-29 in 1991), those who were single in 1981, persons living in communal establishments or in furnished accommodation in 1981, students and those whose birthplace was given as outside England and Wales.

The forward linkage rates for the traced LS sample for 1981–1991 are summarised below. They are examined by sex, age, marital status, household composition, tenure, household size, country of birth, economic activity and social class. Eight records were excluded from Tables 5.17, 5.18, 5.19 and 5.23 as they were known to be incomplete and did not contain a full set of Census variables.

### 5.5.2.1 Sex

The 1981 sample of 530,248 traced LS members was made up of 258,010 males and 272,238 females (see Table 5.16). Seventy-eight per cent of the males and 80 per cent of the females in the 1981 sample were also found at the 1991 Census. After excluding losses from deaths and emigrations in the intercensal period, the forward linkage rate was 88.8 per cent for males and 91.1 per cent for females.

**Table 5.17 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR by age at the 1981 Census**

Age-group at 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent*
		Linked at	Died before 1991 Census	Embarked Census	Not linked before Census	
0-4	31,855	90.5	0.2	1.2	8.1	91.8
5-9	35,101	89.2	0.2	1.0	9.5	90.4
10-14	41,240	83.8	0.4	0.7	15.0	84.8
15-19	43,450	83.7	0.6	0.8	14.9	84.9
20-24	39,421	85.8	0.6	1.1	12.5	87.3
25-29	36,274	87.2	0.7	1.2	10.8	89.0
30-34	39,824	89.1	1.0	1.2	8.6	91.2
35-39	34,013	89.3	1.6	1.0	8.0	91.7
40-44	30,575	88.5	2.9	0.7	7.8	91.9
45-49	29,771	87.4	4.9	0.5	7.1	92.5
50-54	30,474	84.3	9.0	0.6	6.1	93.3
55-59	31,272	79.1	14.7	0.7	5.6	93.4
60-64	27,688	72.0	22.2	0.7	5.1	93.4
65-69	26,955	60.5	32.5	0.6	6.3	90.5
70-74	22,231	48.3	47.0	0.4	4.2	92.0
75-79	15,835	33.0	63.1	0.3	3.6	90.3
80-84	8,878	19.0	78.1	0.2	2.7	87.5
85-89	3,865	8.2	90.0	0.1	1.7	83.0
90+	1,518	3.6	94.8	0.3	1.4	72.0
All	530,240	79.3	11.1	0.8	8.8	90.0

\* The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

### 5.5.2.2 Age

Table 5.17 shows the forward linkage rates for the sample by five-year age groups (as at the 1981 Census). At the 1981 Census the traced sample contained 108,196 persons aged under 15, 342,762 persons aged between 15 and 64 and 79,282 persons aged 65 or over. Among the very old LS members in the 1981 sample population, 1,518 were aged 90 or more.

The highest proportions of the 1981 sample members who were subsequently enumerated at the 1991 Census were those aged 9 and under in 1981 (10–19 in 1991), with 90.5 per cent of those aged between 0–4 years and 89.2 per cent of those aged 5–9 found in 1991. Less than 1 per cent of members in these age groups had died and less than 2 per cent were known to have emigrated intercentally. Successful forward linkage occurred in over 90 per cent of these two age groups. The percentages of members in the next three age groups (10–14, 15–19 and 20–24 in 1981) enumerated at the 1991 Census ranged from 83.8 per cent for the youngest group to 85.8 per cent for those aged 30

to 34. Loss to link between the two censuses was particularly high for these age groups, ranging from 12.5 per cent for those aged 20–24 in 1981 to 15 per cent for those aged 10–14 (20–24 in 1991). At the previous Census–LS link, loss to linkage was also found to be particularly high in these age groups (around 10 per cent).

Among the elderly population (aged 75 and over in 1981) only 33 per cent of the 75–79 age group, 19 per cent of the 80–84 age group, 8.2 per cent of the 85–89 age group and 3.6 per cent of those aged 90 or over in 1981 were enumerated at the 1991 Census. Deaths caused the most losses intercentally. By the 1991 Census 63.1 per cent of those aged 75–79 in 1981 had died, rising to 94.8 per cent of those who had been aged 90 or over in 1981. There was little loss to linkage in these age groups (between 1.4 and 3.6 per cent) but the linkage success rates dropped from over 87 per cent for the 75–79 age group to 72 per cent for those aged 90+. As the proportions of the very elderly emigrating intercentally were extremely small (less than 0.3 per cent), this suggests that some deaths may have been missed due to inconsistent reporting of birthdates.

### 5.5.2.3 Marital status

Out of the sample of 530,240 traced LS members at the 1981 Census, 40 per cent were single, 50 per cent married, 3 per cent divorced and 7 per cent widowed (see Table 5.18). The numbers found at the 1991 Census are as follows: 83.6 per cent of those LS members who were single in 1981, 80.5 per cent of those who were married, 78.5 per cent of those who were divorced and 46.6 per cent of those who were widowed. Among the group who were recorded as widow(er)s in 1981, 48.4 per cent had died intercensally. As at the 1981 Census–LS link, the highest forward linkage success rates were found among those who were married (92.3 per cent) and the lowest among those who were single in 1981 (87.3 per cent).

### 5.5.2.4 Household composition

Table 5.19 shows forward linkage rates for the traced LS sample by type of household. At the 1981 Census 512,377 LS members were enumerated as usually resident in private households, 7,318 in communal establishments and 10,545 as visitors to either private households or communal establishments. Eighty per cent of those resident in private households, 45.5 per cent in communal establishments and

68.4 per cent of visitors in 1981 were enumerated in the 1991 Census. The forward linkage success rate for those living in private households in 1981 was 90.3 per cent, far higher than the 76.1 per cent for those living in communal establishments.

### 5.5.2.5 Position of LS members in the household

Forward linkage rates for LS members by their position in the household in 1981 are shown in Table 5.20. As at the 1981 Census–LS link, the highest forward linkage success rates were found among married couples, both with and without children. These ranged from 93.5 per cent for married men with no dependent children in 1981 to 91.9 per cent for those (married men) with children. The lowest forward linkage rates were found among LS members living in communal establishments in 1981, shown as ‘other’ in the table, and children living in one parent families where the parent was the father.

### 5.5.2.6 Tenure

Table 5.21 shows the linkage success rate for traced LS members by their tenure in 1981. In 1991 those persons in

**Table 5.18 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR by marital status at the 1981 Census**

Marital status in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent*
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
Single	211,977	83.6	3.3	0.9	12.1	87.3
Married	265,303	80.5	12.0	0.8	6.7	92.3
Widowed	38,178	46.6	48.4	0.3	4.7	90.9
Divorced	14,782	78.5	10.3	0.9	10.3	88.4
All	530,240	79.3	11.1	0.8	8.8	90.0

\* The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

**Table 5.19 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR by household composition at the 1981 Census**

Household composition in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent*
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
Living in private household	512,377	80.0	10.6	0.8	8.6	90.3
Living in communal establishment	7,318	45.5	39.0	1.2	14.3	76.1
Visitor	10,545	68.4	16.3	1.5	13.4	83.6
All	530,240	79.3	11.1	0.8	8.8	90.0

\* The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

the sample who were owner-occupiers in 1981 had the highest forward linkage rates (91.3 per cent) and those in rented furnished accommodation the lowest (76.1 per cent). Loss to linkage between the 1981 and 1991 Censuses was highest among those in rented furnished accommodation (21.7 per cent).

### 5.5.2.7 Household size

Table 5.22 shows the forward linkage rates for LS members in 1991 by household size in 1981. It should be noted that 12,520 persons were excluded from this table as they were either resident in communal establishments or in temporary accommodation in 1981. The highest forward linkage rates were found among households consisting of two persons or between three and six persons in 1981 (91.7 and 90.3 per cent respectively). The lowest forward linkage rate

was found for households with 7 or more members (81.2 per cent).

### 5.5.2.8 Country of birth

Forward linkage rates by country of birth as stated at the 1981 Census are shown in Table 5.23. Successful forward linkage rates in 1991 ranged from 91.6 per cent for members who had given their country of birth as England to 65.5 per cent for those who had stated it as the USA. The lowest rates were found among those born in the USA (65.5 per cent), the Far Eastern Commonwealth (67.6 per cent) and the Rest of the World (67.4 per cent). This showed a change from the forward linkage rates in 1981 where the lowest rates were found amongst those born in the USA, the Caribbean Commonwealth and the Old Commonwealth.

**Table 5.20 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR by position of the LS member in the household at the 1981 Census**

Position in household in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent*
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
Husband in married couple with dependent children	60,068	87.8	3.7	0.9	7.7	91.9
Husband in married couple without dependent children	65,362	68.2	26.1	0.7	5.0	93.5
Wife in married couple with dependent children	59,917	90.6	1.6	0.9	6.8	93.0
Wife in married couple without dependent children	66,138	78.8	14.4	0.7	6.1	92.8
Lone father	2,320	80.4	5.3	0.7	13.5	85.6
Lone mother	7,639	87.3	2.4	0.8	9.4	90.2
Children in married couple family	108,486	87.8	0.3	1.0	10.9	89.0
Children with lone father	3,512	80.4	0.5	0.7	18.4	81.4
Children with lone mother	12,536	82.1	0.4	0.8	16.7	83.1
Others	144,211	69.0	19.7	0.8	10.4	79.5
All	530,240	79.3	11.1	0.8	8.8	90.0

\* The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

**Table 5.21 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR by tenure at 1981 Census**

Tenure in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent†
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
Owner-occupied	317,033	82.3	9.0	0.9	7.8	91.3
Local authority	146,693	77.3	12.9	0.5	9.3	89.3
Rented furnished	10,715	69.1	6.0	3.2	21.7	76.1
Rented unfurnished	44,262	73.9	15.3	1.0	9.8	88.2
All*	518,703	79.9	10.6	0.8	8.7	90.2

\* Excludes 11,545 persons who were resident in non-private establishments in 1981.

† The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

**Table 5.22 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR in 1981 by household size**

Household size in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent†
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
1	41,928	57.0	35.3	0.6	7.0	89.0
2	123,057	71.6	21.1	0.8	6.5	91.7
3 - 6	334,996	85.8	4.1	0.9	9.2	90.3
7+	17,747	78.3	2.6	0.8	18.2	81.2
All*	517,728	79.9	10.6	0.8	8.7	90.2

\* Excludes 12,520 persons not enumerated as in households. Of these 11,545 were resident in communal establishments and a further 975 were either domestic servants or were in temporarily rented accommodations such as holiday flats which are listed as with no known usual residents.

† The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

**Table 5.23 Linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR following the 1981 Census by country of birth**

Country of birth as given at 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent*
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
England	448,349	80.7	11.3	0.6	7.4	91.6
Wales	29,814	80.0	12.5	0.5	7.0	91.9
Scotland	8,261	61.0	12.2	4.0	22.9	72.7
N. Ireland	2,278	70.0	11.8	4.6	13.5	83.8
Other UK	328	70.4	14.9	2.7	11.9	85.6
Irish Republic	6,446	65.6	14.4	1.7	18.3	78.2
Ireland (part not stated)	12	50.0	5.0	0.0	8.3	85.7
Europe (including USSR)	7,825	67.0	12.6	3.0	17.8	79.0
Mediterranean Commonwealth	1,668	67.5	6.1	2.0	24.5	73.4
African Commonwealth	3,084	72.9	1.9	1.1	24.1	75.2
Far Eastern Commonwealth	1,431	63.9	2.0	3.3	30.8	67.4
Caribbean Commonwealth	3,251	67.2	4.7	2.1	26.0	72.1
Pakistan & Bangladesh	3,977	67.9	2.4	1.2	28.5	70.4
India	6,269	73.5	6.5	1.2	18.8	79.7
Rest of New Commonwealth	658	70.5	4.1	2.3	23.1	75.3
Old Commonwealth	1,462	62.0	7.4	5.7	24.8	71.4
USA	704	54.7	7.2	9.2	28.8	65.5
Rest of the World	3,165	60.1	5.9	5.2	28.7	67.6
Not Stated	898	64.3	18.8	1.1	15.7	80.4
All	530,240	79.3	11.1	0.8	8.8	90.0

\* The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

### 5.5.2.9 Economic activity

Table 5.24 shows the forward linkage rates for traced LS members by economic activity recorded at the 1981 Census. Those aged under 16 in 1981 are excluded from this table as no economic activity could be ascribed to them.

The overall forward linkage success rate stood at 90.6 per cent at the 1991 Census, with the highest rates for those LS members who were in employment in 1981 (91.6 per cent) and the lowest for students (80.8 per cent). Students also showed the greatest loss to linkage between 1981 and 1991 (18.8 per cent).

### 5.5.2.10 Social class

Table 5.25 shows forward linkage rates by LS members 'own' social class as defined in 1981. Social class was only available for 73 per cent of LS members present in 1981. Children (aged under 16 and economically inactive in 1981) were classified as 'not applicable' and are excluded from the table. The remainder of those who had no social class were classified as 'inadequately described'. Changes in the definitions of social class are given in Chapter 4, section 4.4.5.

**Table 5.24 Linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR following the 1981 Census by economic activity in 1981**

Economic activity in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent†
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
In employment	228,130	86.4	4.8	0.8	7.9	91.6
Out of employment - short term sick	2,437	70.6	17.6	1.0	10.7	86.8
Out of employment - other	21,967	78.5	5.6	0.8	15.0	83.9
Retired	47,005	42.2	52.9	0.5	4.5	90.4
Permanently sick	8,347	50.8	43.2	0.4	5.6	90.0
Student	16,354	79.1	0.5	1.6	18.8	80.8
Other inactive (housewives & those of independent means)	89,086	73.4	19.4	0.7	6.5	91.9
All*	413,326	77.0	14.2	0.8	8.0	90.6

\* Excludes 116,922 LS members who were economically inactive and aged under 16 in 1981.

† The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

**Table 5.25 Forward linkage rates between 1981 and 1991 Censuses - sample members traced at NHSCR following the 1981 Census by social class in 1981**

Social class in 1981	Members present in 1981	Position in 1991 (per cent)				Linkage success rate per cent†
		Linked at 1991 Census	Died before Census	Embarked before Census	Not linked	
I	10,626	82.2	7.6	1.9	8.2	90.9
II	60,664	81.8	9.8	1.2	7.3	91.8
IIIN	61,804	84.9	7.5	0.8	6.7	92.6
IIIM	70,687	79.9	12.0	0.5	7.6	91.3
IV	54,216	78.3	13.0	0.6	8.2	90.5
V	18,879	74.2	15.9	0.5	9.4	88.8
Armed forces	2,534	70.3	4.7	1.3	23.7	74.8
Students, housewives, the permanently sick & those with independent means	109,869	73.2	17.7	0.8	8.3	89.8
Inadequate description	24,001	51.8	37.8	0.6	9.8	84.1
All*	413,280	77.0	14.2	0.8	8.0	90.6

\* Excludes 116,968 LS members present in 1981 where the Social Class was recorded as 'not applicable' (economically inactive and aged under 16 in 1981).

† The denominator for the percentage linkage success rate is those members present at the 1981 Census minus deaths and embarkations from the sample before the 1991 Census.

The forward linkage success rates for traced LS members by social class ranged from 92.6 per cent to 74.8 per cent. The highest linkage rates were found among those in Social Class IIIN (92.6 per cent) and in Class II (91.8 per cent). LS members in the armed forces in 1981 showed the lowest forward linkage rates (74.8 per cent). Those LS members classed as 'inadequately described' in 1981 also showed low rates of forward linkage (84.1 per cent).

### 5.5.3 Inconsistencies and double enumerations

The total number of traced and untraced LS members found in both the 1981 and 1991 LS-Census samples was 420,492. Cases of inconsistency in these LS members' responses to census questions were found for sex, date of birth and country of birth between the 1981 and 1991 Censuses (see Table 5.26). Inconsistent responses had also been found for these questions between the 1971 and 1981 Censuses (discussed in section 5.2.3 of this chapter).

At the 1991 Census, 11,577 LS members quoted dates of birth which were inconsistent by one year or more with those they had quoted in 1981. This was particularly noticeable among the elderly (those aged 60 and over in 1981, 70 and over in 1991). A total of 1,358 LS members were found to have stated a sex in 1991 opposite to the one they had quoted in 1981, while 6,104 persons stated a different country of birth in 1991 from that stated at the previous census. The highest proportion of these

**Table 5.26 Inconsistencies between the 1981 and 1991 Censuses**

Characteristics in 1981 Census	Characteristic in 1991 Census		Per cent with discrepancy
	Consistent with 1981	Inconsistent with 1981	
<b>Sex</b>			
Persons	418,874	1,358	0.3
Male	200,990	503	0.3
Female	217,884	855	0.4
<b>Country of birth</b>			
All countries	414,148	6,104	1.4
England	359,947	1,864	0.5
Wales	22,948	913	3.8
Scotland	4,650	608	11.6
Northern Ireland	1,411	184	11.5
Irish Republic	3,901	332	7.8
India	4,298	310	6.7
Pakistan & Bangladesh	2,477	224	8.3
Caribbean Commonwealth	2,040	144	6.6
African Commonwealth	2,049	200	8.9
<b>Age</b>			
All ages	408,675	11,577	2.7
Under 10	58,423	1,705	2.8
10-24	102,233	2,526	2.4
25-59	195,650	5,422	2.7
60-74	45,532	1,474	3.1
75+	6,837	450	6.2

inconsistencies came from persons who had stated their country of birth in 1981 as Scotland and Northern Ireland.

As in 1981, some cases of an 'impossible' change in marital status were recorded. There were 960 LS members who reverted from a marital status of married, widowed or divorced in 1981 to single in 1991. It should be noted, however, that it is common for many persons to describe themselves as single following a divorce.

In the 1981 Census both visitors and absent usual residents had been recorded for the first time. This was continued in the 1991 Census and allowed the counting of a person twice, as a visitor at their address of enumeration and as an absent usual resident at their address of usual residence. However, 3,795 LS members were enumerated at two addresses at the 1991 Census as other than absent resident/visitor pairs. These multiple enumerations are discussed in further detail in Appendix XIV.

### 5.5.4 Linkage failures

As shown in Figure 5.5, 46,652 traced and 5,390 untraced LS members who had been enumerated in 1981 were not found at the 1991 Census. A sample of 571 cases (approximately 1 per cent) of all LS members who had been lost to the study since the 1971 Census was sent to NHSCR for investigation. The FHSA postings data held on the CHRIS database were used to try to find an explanation for the non-linkage. Table 5.27 shows the results grossed up for the 46,652 traced members lost to linkage in 1991 and Table 5.28 shows the results for all LS members lost to linkage since the study began (excluding those lost to linkage in 1981 who subsequently rejoined the study).

Among the traced members lost to link in 1991 (Table 5.27), 61 per cent were registered at NHSCR but not enumerated at census, 21 per cent had a date of birth discrepancy between the date of birth quoted on their census schedule and that held at NHSCR, and 9 per cent had a cancelled NHS registration with no further details of their

**Table 5.27 Reasons for linkage failure between the 1981 and 1991 Census**

Reasons for linkage failure	1981 Census sample traced at NHSCR
Number believed to be still in sample in 1991 and not found in Census	46,652
Date of birth discrepancy between 1991 Census and NHSCR	9,903 (21%)
Cancelled NHS registration - whereabouts unknown	4,004 (9%)
Missed event (emigration or death)	1,401 (3%)
Gone to Scotland	458 (1%)
In armed services	421 (1%)
Not known	2,220 (5%)
Currently registered at NHSCR - but not enumerated	28,245 (61%)

whereabouts. One per cent were found to have moved to Scotland where they would have been enumerated at census but not included in the England and Wales census returns. It is probable that some of the 3 per cent of members lost to link who were reported by NHSCR to have ‘missed events’ were also movers to Scotland.

Since the LS began, 92,580 LS members (both traced and untraced) have been lost to link. This number includes 13,403 LS members who entered the study as first decade new births or immigrants and who have never been enumerated at a census. Table 5.28 shows that though the most common finding was that these members were registered at NHSCR at the time of the 1991 Census (44 per cent), the number of members about whom nothing was known since they joined the study rose from 2,224 to 16,867 when those lost to link in 1981 were included. This suggests that these LS members were not enumerated at either the 1981 or 1991 Censuses, or that they were enumerated at both censuses with a date of birth that was not an LS date. The number of cancellations of NHS registrations also rose dramatically when earlier losses to link were included. As cancellations from GPs’ lists tend to occur if a person has not been seen for over two years, this suggests that emigrations are occurring that have not been reported. This is supported by the fact that 73 per cent of these cancellations occurred to LS members who missed the 1981 Census as well as the 1991 Census.

## References

1. Fox A J and Goldblatt P O. *Longitudinal Study: socio-demographic mortality differentials*. OPCS Series LS no. 1, HMSO (London 1982).

**Table 5.28 Reasons for linkage failure for all LS members not linked at 1991\***

Reasons for linkage failure	All LS members who failed to link by 1991 Census
Number believed to be still in sample in 1991 and not found in Census	92,580
Date of birth discrepancy between 1991 Census and NHSCR	16,406 (18%)
Cancelled NHS registration - where abouts unknown	14,788 (16%)
Missed event (emigration or death)	2,822 (3%)
Gone to Scotland	863 (1%)
In armed services	421 (<1%)
Not known	16,867 (18%)
Currently registered at NHSCR - but not enumerated	40,413 (44%)

\* Includes members lost to link at 1981 and still not linked at 1991 plus those present in 1981 but lost to link in 1991. It excludes those LS members lost to link in 1981 who were subsequently found at the 1991 Census.

2. Office of Population Censuses and Surveys. *Census 1971–1981, The Longitudinal Study: linked census data, England and Wales*. OPCS Series CEN81 LS, HMSO (London 1988).
3. Macdonald Davies I. Data quality and the OPCS Longitudinal Study. In: *Symposium 92 Proceedings, Design and analysis of longitudinal surveys*. Statistics Canada, (Ottawa, Ontario 1993).

## 6 Linkage of event data within the Longitudinal Study

This chapter is divided into two sections. Section 6.1 describes the mechanisms used to link events data to the Longitudinal Study (LS) and section 6.2 describes changes over time occurring to the event data sources that are used by the LS.

### 6.1 LINKING EVENT DATA

There are two main mechanisms for identifying events occurring to LS members. First, through routine notification of events to the National Health Service Central Register (NHSCR) and second, through searching the annual OPCS computer files for events happening to persons with an LS date of birth. For some events only one mechanism is used; for others, both are used to maximise linkage.

#### 6.1.1 Linkage through routine notification

Events affecting LS members that are routinely recorded at NHSCR and which can be detected by the presence of an LS flag in the Central Register include:

- (i) enlistment into the armed forces;
- (ii) embarkation or emigration;
- (iii) entry into long-stay psychiatric hospitals (recorded until (and including) 1983);
- (iv) reinstatements to the NHS from the above;
- (v) internal migration (FPC moves, recorded between 1971 and 1974);
- (v) new entrants to the LS: immigrants and re-entrants to the NHS picked up on stated date of birth.

#### 6.1.2 Linkage through stated date of birth on an event document

Events detected by the use of date of birth stated on an event document and picked up through a search of the annual computer files for England and Wales are:

- (i) live births occurring on LS dates (new birth additions to the LS);
- (ii) live births and stillbirths where the mother was born on an LS date;
- (iii) live births and stillbirths where the father was born on an LS date (recorded between 1971–78, and for 1981);
- (iv) widow(er)hoods to LS members;
- (v) infant mortality (of births to LS members).

For some events both routine notification procedures and linkage through the stated date of birth on an event

document are used. These events are:

- (i) deaths to sample members;
- (ii) cancer registrations.

Table 6.1 summarises the method of linkage used for each event.

**Table 6.1 The method of linkage used for each event**

Event type	NHSCR flag	Date of-birth search
a New births		*
b Births (and stillbirths) to LS sample member		*
c Infant death to LS sample members		*
d Deaths to LS sample members	*	*
e Immigrants	*	
f Cancer registrations	*	*
g Widow(er)hoods		*
h Embarkations	*	
i Enlistments into the armed forces	*	
j Entries into long-stay psychiatric hospitals (1971-1983)	*	
k Re-instatements to NHS from h-j	*	
l Internal migration	*	

#### 6.1.3 Methods of linkage for each type of event

Prior to 1991 much of the linkage was done manually, with both event notification forms (e.g. birth draft entry forms and death draft entry forms) and index cards being annotated by hand. These forms and copies of the cards were sent back and forth between the LS units at NHSCR and OPCS to enable the LS card indexes, the Central Register and the LS computer system to be updated. In 1991 the NHS Central Register at NHSCR was computerised and though all the original documentation (comprising register volumes, LS card indexes, alphabetical indexes, etc.) was retained, LS members are now flagged on the NHSCR database (known as CHRIS). Much of the work requiring clerical effort by NHSCR has been superceded and data is now sent on tape to OPCS. However, because the current computer records of events held by OPCS contain no data on names, the draft entry forms still have to be located and sent to NHSCR together with paper listings.

##### 6.1.3.1 New births on LS dates

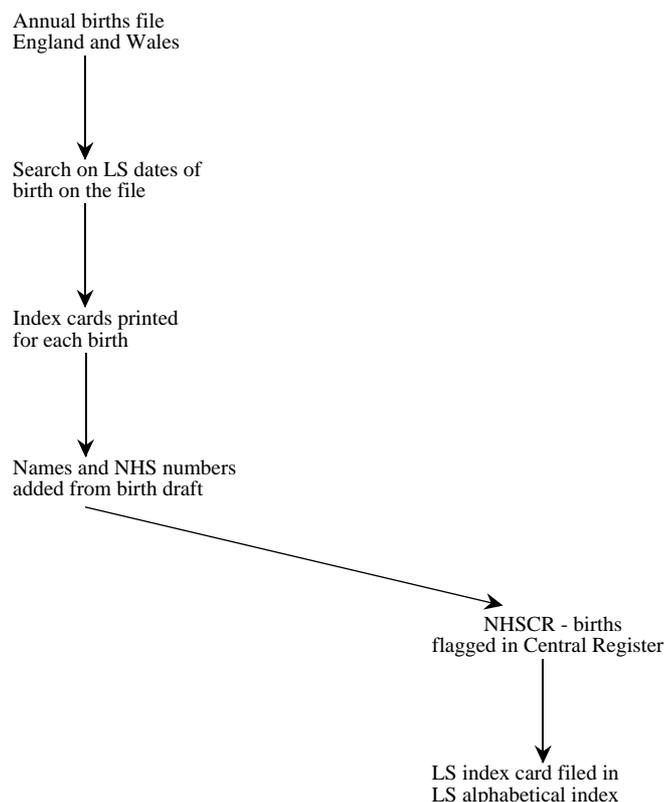
Any live birth occurring in England and Wales on an LS date is added to the LS as a new member. As there is no automatic flag in the NHSCR register the identification of

these new members is made by searching the annual births computer file maintained by OPCS. This file is used to produce a listing of all live births that have occurred in England and Wales (where England or Wales is the mother's usual residence) on one of the four LS dates.

#### *Pre NHSCR computerisation*

Prior to computerisation an index card with an allocated LS serial number was printed for each birth as well as a computer listing. The relevant birth registration draft entry forms were identified from the computer listing and names and NHS numbers were copied from the draft entries onto the cards which were then sent to NHSCR. After 1986 the NHS numbers were printed onto the index cards when they were produced. At NHSCR, the entries were flagged in the Central Register and the index cards were added to the LS index. The new LS members were also added to the LS database. This was done on an annual basis (see Figure 6.1).

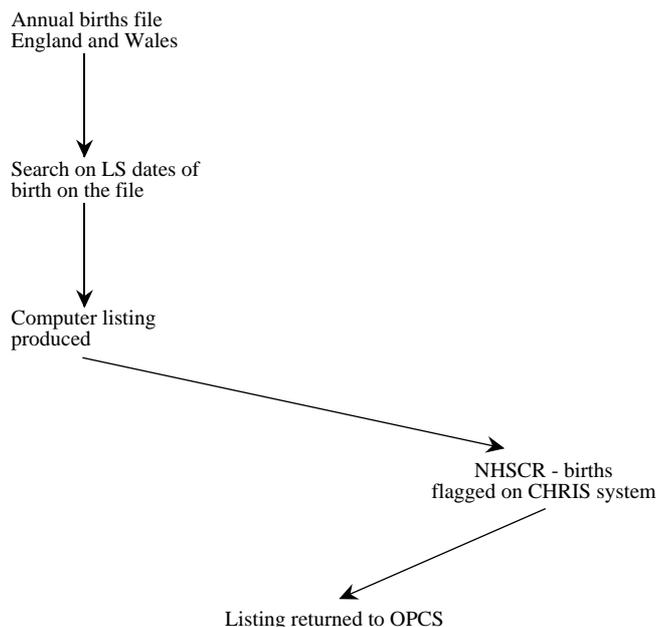
**Figure 6.1 Linkage of 'new births' into the LS pre-computerisation of NHSCR**



#### *Post NHSCR computerisation*

After computerisation, cards were no longer produced by OPCS for the new births. A paper listing containing information on annual new births occurring on LS dates is now sent to NHSCR, where the appropriate entry is flagged as an LS member on the computer system. The listing is pre-printed with the NHS number, LS number, check digit, post code and date of birth of the new LS member. This listing is subsequently returned to the LS unit at OPCS (see Figure 6.2).

**Figure 6.2 Linkage of 'new births' into the LS post-computerisation of NHSCR**



#### **6.1.3.2 Births to LS sample members (mothers and fathers)**

Births (both live and still) to female LS members have been recorded since 1971; for male LS members, births were recorded for 1971–8 and for 1981. The method used for linking births to sample members has not been altered since the computerisation of NHSCR.

Births to LS sample members are identified from the parent's date of birth as recorded in the confidential particulars at birth registration and included in the annual births computer file. A copy of the draft entry form is sent to NHSCR where the LS index is searched and the LS member's LS number is added to the draft. It is then sent back to OPCS where the LS member's number is used to link all the data on the birth draft (see Appendix VII — live birth draft and Appendix VIII — stillbirth draft) to the relevant LS member. This data includes employment status, occupation and industry of the 'working parent' (usually the father, though since 1986 information for both parents has been recorded), parents' place of birth, birth weight (if available), place of baby's birth and, for stillbirths, underlying cause of stillbirth. (Multiple causes of stillbirth were only fully coded for the LS during the first decade, 1971–80). If both parents have an LS date of birth then the information would have been linked to both the mother and the father separately during the period 1971–8 and 1981. Industry of 'the working parent' is still present on the birth draft but was only coded for the LS sample from 1971 to 1980.

This method of identifying events is known to be less reliable than the dual system used to identify deaths and cancer registrations. It is estimated that about 14 per cent of births to LS members are missed and the main reason

for this appears to be inconsistency in quoting the mother's date of birth on the registration document.

After the 1981 Census a back-linkage exercise was performed to attempt to improve the linkage rates for births to LS members. The 'missing' births were identified from information given in the 1981 Census on the number of 'own' children present in the household of the LS mother. The number of children an LS mother was reported to have resident at the 1981 Census was matched with the number reported in the LS. If the number of births she was reported to have had in the LS was less than the number of children reported at the Census, the birth registers at NHSCR were searched to identify those missing. The birth registration draft entry forms were then examined and if the mother was an LS member the births were added to the LS. This exercise increased linkage rates in the first decade (1971–80) by 12 per cent to 94 per cent.<sup>1</sup>

### 6.1.3.3 Infant mortality of LS members' children

Before 1975 an ad hoc system was used to produce information on infant mortality among LS members' children. A check of all births to LS sample members was made against the main NHSCR register at least one year after the birth to ascertain whether the baby had died. NHSCR entered the details of the death registration on to the birth entry form for all deaths of the linked births to LS members. If the infant was less than one year of age, a death posting was entered on the birth draft and it was returned to the LS Unit at OPCS. The death record from the primary deaths file was then extracted and the LS files were updated with the infant mortality details.

From 1975, OPCS has produced a computerised file (the infant mortality linked file) which links information from the death record of a child under one year of age to the corresponding birth record. This file, compiled centrally for all infant deaths in England and Wales is searched annually for children of LS members. The process of extracting these deaths involves matching the infant mortality records where the mother has an LS date of birth, to the annual file of births to LS sample mothers. Deaths which occur to LS members' children who are over one year of age are not included in the LS.

### 6.1.3.4 Deaths to LS members

Deaths to LS members are identified both by flagging at NHSCR ('matched deaths') and by an annual computer file search for all deaths occurring to persons who have LS dates of birth ('unmatched deaths'). The introduction of the CHRIS database at NHSCR has only affected the methods used for linking 'matched deaths'; the linkage methods for 'unmatched deaths' are unchanged.

#### *'Matched' deaths*

All deaths are routinely notified to NHSCR. A 'short' copy of all death drafts goes to NHSCR for entry in the Central Register, while the full copy (containing confidential particulars) is sent to OPCS for entry into the computerised

deaths file. As the weekly returns of death drafts are noted in the Central Register database, the presence of an LS flag ensures that the deaths of LS members will be included in the LS notification tapes sent to OPCS. Prior to the computerisation of NHSCR a copy of the LS index card showing the LS serial number, date of death and date of death registration, as well as other death identification details, was forwarded to the LS unit at OPCS. These cards were used to add the information recorded on the full death draft and derived information, such as age at death, to the LS member's record, using the LS number to make the link. The system is now computerised and a twice-yearly tape is sent to OPCS from NHSCR in place of the index card transfer. These tapes are used to automatically update the LS dataset.

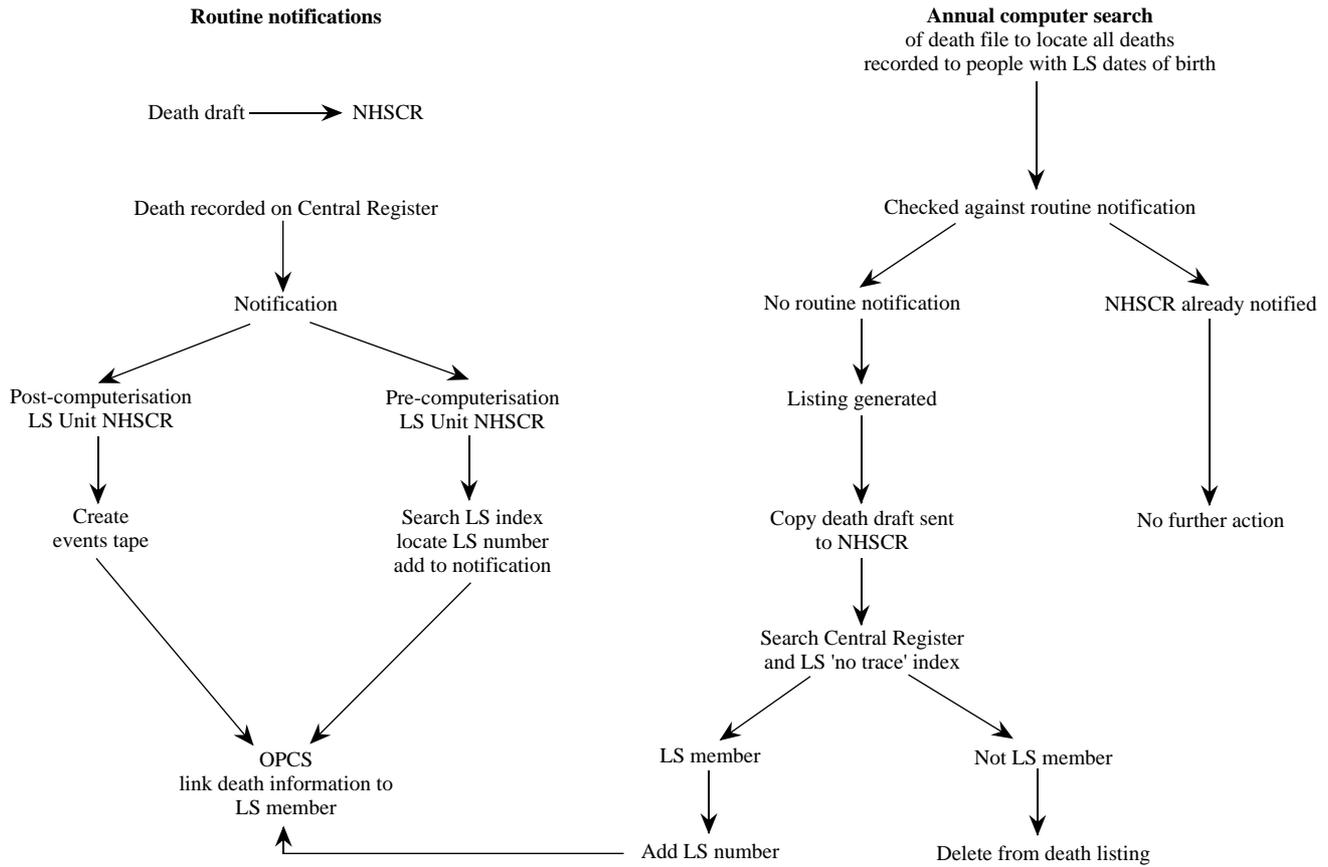
#### *'Unmatched' deaths*

All deaths are processed as part of the regular statistics collected by OPCS. The annual deaths file is searched for any deaths that have occurred to persons with an LS date of birth and a listing of these is produced. This listing is checked against the routine notifications received from NHSCR for LS members. If an NHSCR noted death does not appear in the listing, it is added to the computer file. If an LS death occurs in the listing but not on the routine notification from NHSCR, then a copy of the death draft is sent to the LS unit at NHSCR. When the copy draft is received the Central Register and the no-trace index are checked to see whether or not the person is flagged as an LS member. If the person is found to be an LS member, the LS number is added to the draft which is returned for processing. If there is no record of the person in the LS, the death is deleted from the LS computer file (see Figure 6.3).

For all LS members for whom a death is recorded, the LS number is used to link the information recorded on the death draft into the LS database. The death draft (see Appendix IX) records data on occupation, employment status, industry of deceased (and spouse) (only coded during the first decade, 1971 to the day prior to Census day 1981), social class (derived from occupation and employment status), multiple causes of death (between 1971 and 1986), underlying cause of death, detailed place of birth (only available until 1985; currently this is coded as country of birth) and information on where that death occurred (type of institution).

The use of two different methods to identify deaths occurring to LS members greatly improves the linkage rates. If the date of birth quoted at death registration is not an LS date of birth, but an LS date of birth was given at Census, or at entry into the country, then that death will not be included in the listing from the annual deaths file. However, it will be identified as occurring to an LS member when NHSCR update the Central Register from the routine notification. It is estimated that currently only 1 per cent of deaths are missed, even allowing for two methods of linkage being used. Before the introduction of CHRIS the missing deaths were estimated at 4 per cent. Much of the improvement in linkage was due to the cleaning of LS data that occurred on the one-off LS index load onto CHRIS.

**Figure 6.3 Death linkage in the LS**



Further improvement is due to the easier identification and updating of LS members' records on the CHRIS database, compared with the previous clerical searches and manual updating of the LS index cards.

**6.1.3.5 Immigrants and re-entrants to the NHS (not previously in the LS)**

Events data on persons who appear to be entering the LS for the first time (either as immigrants or re-entrants from abroad) are linked on the basis of the stated date of birth. Immigrants are distinguished from re-entrants in that the former are entering the country for the first time and do not possess an NHS number until they register with a GP. Re-entrants on the other hand, have an NHS number but left the country prior to the 1971 Census and subsequently returned. Neither immigrants nor re-entrants become members of the LS until they need to use an NHS number, typically through registering with a GP.

*Pre NHSCR computerisation*

Immigrant and re-entrant files are compiled annually from Family Health Service Authority (FHSA) (previously Family Practitioner Committee – FPC) data obtained from NHSCR. Prior to the computerisation of NHSCR, photocopies of FPC documents were used as the source of this data. If an LS date of birth was given, then an LS number was allocated and index cards containing name,

address and NHS number were sent to NHSCR for inclusion in the LS index and flagging on the Central Register.

Some immigrants with LS birthdates who were present before the 1971 Census, but had not registered with a GP, would have been included in the LS via the 1971 Census. However, until they registered with a GP they would have had no NHS number and their index cards would have been placed in the 'no-trace' index. Once registered, their LS index cards would have been moved to the traced index. It should be noted that though these persons were immigrants to NHSCR, they were not recorded as such by the LS because they had entered the study at the 1971 Census. Similar situations arise after every census.

*Post NHSCR computerisation*

Information on immigrants is obtained from the FHSA data which are included by NHSCR on tapes used for updating the LS database. A listing is produced from the files for those immigrants and re-entrants with LS dates of birth, and LS numbers are allocated. This listing is then sent to NHSCR where it is used to update the CHRIS system by flagging the LS immigrants and re-entrants.

**6.1.3.6 Cancer registrations**

Cancer registrations are collected by independent regional registries in England and Wales. These registries differ in

both the completeness and accuracy of cancer registration data, but the best are known to have very complete records.<sup>2</sup> The regional cancer registries notify OPCS of all cancer registrations and information on all these registrations is then sent from OPCS to NHSCR who use the data to update the relevant records. Additionally, the cancer registrations file held at OPCS is searched annually to locate any LS dates of birth and a list is extracted and sent to NHSCR. All cancer notifications for which NHS numbers can be traced are recorded in the Central Register. It should be noted that only 10 per cent of notifications received from the cancer registries quote an NHS number. However, though this makes tracing more difficult, it is estimated that the capture of registration data at NHSCR is 96 per cent complete.<sup>2</sup>

Prior to 1986 a copy of the cancer registration abstract card from the Cancer Section of OPCS, or cards copied from the cancer statistics listing were sent to NHSCR instead of the listing. When an LS member was identified in the Central Register, the LS unit at Southport was notified and a copy of the cancer notification document with the LS number and check digit written on it was sent to the LS Unit at OPCS, where the LS member's records were updated. Since computerisation at NHSCR, paper cancer notification documents have been replaced by notifications on tape. Cancer notifications are included in the 'events' tapes sent from NHSCR to OPCS where they are offloaded and stored until the appropriate cancer primary file is available. A dual system is used to link cancer registrations with LS members and functions in the same way as that for deaths.

A copy of the cancer registration abstract card is shown in Appendix XI.

#### **6.1.3.7 Death of the spouse of an LS member**

The death of an LS member's spouse is identified from the annual deaths computer file which records the date of birth of the surviving spouse. Copies of the death draft entry forms are sent to NHSCR where they are matched against the LS index to obtain the LS member's LS number.

Using this linkage method the recording of deaths of spouses is known to be incomplete. If the LS member did not state an LS date of birth at the registration of their spouse's death, or if the marital status of the deceased was not given as 'married', the death will not be linked. Additionally, if the surviving spouse is female, her name is only recorded on the death draft if she is the informant. By contrast, the names of widowers are always recorded as part of the death draft information collected for married women. The recording of a spouse's death is therefore more complete where the LS member (the surviving spouse) is male rather than female. It should be noted that no change has been made to this method of linkage since the computerisation of NHSCR.

#### **6.1.3.8 Enlistments into the armed forces, embarkations, entries into long-stay psychiatric hospitals and re-entrants back into the NHS**

All these events are routinely notified to NHSCR and

recorded in the Central Register. From early 1985, embarkations include those persons leaving England and Wales to take up residence in Northern Ireland and the Isle of Man. The information available is very limited — mainly type of event, date of occurrence and date of birth. Long-stay psychiatric hospitals are also coded by type of institution, and re-entrants are given codes to distinguish between moves back into the NHS on leaving the armed services, re-entry following embarkation and discharge from long-stay psychiatric hospitals.

Data on embarkations are particularly lacking. As there is no statutory obligation to declare an embarkation, it is estimated that only 50 per cent are notified to NHSCR. Some extra information relating to embarkations is available to NHSCR from DSS records. Information relating to entry into long-stay psychiatric hospital was only recorded in the LS up to the end of 1983. Re-entry to the NHS on leaving long-stay psychiatric hospitals is still being recorded, but only for those who entered long-stay psychiatric hospitals before 1984.

#### **6.1.3.9 Events occurring to LS members in Scotland**

When the initial LS sample was selected from the 1971 Census for England and Wales, about 11,000 people were found to have a Scottish NHS number. They therefore had NHS entries in the General Register Office (GRO) in Edinburgh, rather than at NHSCR. These cases were flagged on the Central Register in Scotland and notifications of any events were passed to OPCS.

In addition, there are births to LS members, deaths, cancers and widow(er)hoods which occur in Scotland to LS members whose usual place of residence is recorded as England or Wales. Listings with drafts for deaths and listings with cancer registration documents for cancer registrations showing an LS date of birth are sent to NHSCR for matching against the LS index. On receipt of a death draft from OPCS for deaths to LS member's spouses occurring in Scotland, checks are made on the Scottish database by NHSCR. They are then processed in the usual way. It should be noted that immigrants into Scotland from abroad with LS dates of birth, and new births occurring in Scotland on LS dates are not identified to either NHSCR or the LS.

When LS members move from England and Wales to Scotland, the entry on the Central Register at NHSCR is marked closed and flagged with an 'in Scotland' notification. A manual notification is sent from NHSCR to Edinburgh so that the LS member can be flagged in the Scottish register. When deaths or cancer registrations are notified to the Central Register, Edinburgh, the LS flag in the register enables identification. Copies of listings recording these events are sent to NHSCR. No other events occurring to English LS members resident in Scotland are notified to NHSCR.

If an LS member subsequently returns to England or Wales from Scotland their Central Register entry at NHSCR is reopened and updated with details of their latest FHSA posting and any relevant flags.

Although the Scottish LS was started on a similar basis to that for England and Wales, it was discontinued shortly after 1981. Linked census data for England and Wales LS members enumerated in Scotland in 1981 are available. However, data from the 1991 Census are not available for England and Wales LS members enumerated in Scotland unless they were normally resident in England and Wales.

### 6.1.3.10 Events occurring to LS members in Northern Ireland, Isle of Man and the Channel Islands

From 1985 onwards LS members moving to Northern Ireland, the Isle of Man or the Channel Islands have been treated as emigrants abroad. Information on any events occurring to these persons is not notified to NHSCR and they are effectively lost to follow-up.

If a person with an LS date of birth enters England and Wales from any of these areas they are treated as an immigrant from abroad. However, if that person was originally an emigrant from England and Wales to one of these areas, and has an NHS number in the Central Register, then on their return they will be treated as a re-entrant. If the LS member is in one of the re-entrant categories a reinstatement notification is sent to OPCS Titchfield.

## 6.2 CHANGES IN THE EVENT DATA

This section focuses on the comparability of the different types of event data recorded in the LS, with a separate subsection dedicated to each of the various events. Points relating to the national record systems from which the LS events data are derived, where these may be of importance for the interpretation of event data in the LS, are highlighted at the beginning of each section.

### 6.2.1 Births

#### 6.2.1.1 Issues which relate to the birth registration system

All live and stillbirths of 24 weeks gestation or more fall within the statutory birth registration system described in sections 6.1.3.1 and 6.1.3.2 above. Since data on births and stillbirths first started to be linked in the LS, a number of minor changes have taken place in the type of information collected and registration procedures in use.

#### 6.2.1.2 Comparability of data over time: birthweight

One of the most important changes concerns the quality of information on birthweight. Since it was first collected there has been a significant improvement in the quality of birthweight information on live births. Table 6.2 shows how the proportion of live birth draft forms, with a recorded birthweight, increased between 1977 and 1992. (Though OPCS started to collect information on birthweight for live births in 1975, published national data is unavailable for the period 1975-6.)

**Table 6.2 Proportion of live birth draft entry forms with birthweight recorded**

Year	Percentage
1977	58.2
1978	61.9
1979	66.4
1980	86.8
1981	96.0*
1982	96.0*
1983	99.9
1984	99.9
1985	99.9
1986	99.9
1987	99.9
1988	99.9
1989	96.9
1990	96.1
1991	96.3
1992	96.2

\* As a result of the dispute between registration officers and the local authorities the figures for 1981 and 1982 have been estimated.  
Source: OPCS Monitors (Series DH3)<sup>3</sup> and OPCS.<sup>4</sup>

The most significant increase took place between 1979 and 1980. This may be attributed to a change in OPCS procedures, around autumn 1980, which enabled registrars to retain live birth draft entry forms for a longer period of time to allow for the transfer of birthweight information from the appropriate Area Health Authority.<sup>5</sup> (In England and Wales registrars record the birthweight of a baby from the information provided on the 'birth notification form' supplied to them by the local health services. In some areas the notifications may reach the registrar after the draft entries have been despatched to OPCS for processing.)

More recently there has been a small increase in the proportion of live births for which no birthweight was recorded - from 0.1 per cent in 1988 to almost 4 per cent in 1990. This is related to another change in the administrative procedures governing the transfer of information on birthweight to registrars. Since mid-1989 this has meant that, in those cases when the birth notification arrives late, there is no means by which OPCS may recover the missing birthweight information.

Although there has been a significant improvement in the recording of birthweight since the 1970s, prospective users of the data should note that there is still considerable variation at the local level. For example, in 1990 in 13 District Health Authorities over 10 per cent of the births registered had no birthweight information.<sup>7</sup> (Overall, information on birthweight was missing for 4 per cent of births registered in 1990.)

In contrast with live births, information on birthweight for stillbirths has been consistently recorded for over 80 per cent of all entries since 1976. In part this is due to the fact that a system for collecting these details for stillbirths has been in operation since 1960. Table 6.3 shows how the proportion of stillbirth entry forms with birthweight recorded changed between 1976 and 1992.

**Table 6.3 Proportion of stillbirth draft entry forms with birthweight recorded**

Year	Percentage
1976	81.0
1977	83.0
1978	81.0
1979	82.0
1980	85.0
1981	90.9
1982	88.8
1983	98.6
1984	98.1
1985	99.0
1986	99.4
1987	96.2
1988	95.3
1989	95.0
1990	94.7
1991	98.4
1992*	99.2

\* This relates to stillbirths of 28 weeks gestation or more  
Source: OPCS Monitors (Series DH3)<sup>3</sup> and OPCS.<sup>4</sup>

A number of modifications have been made to the procedures for registering a stillbirth. From January 1981 an attempt was made to enlist the involvement of Area Health Authorities (AHA) in supplying birthweight information. (After the NHS reorganisation of 1982 Area Health Authorities were replaced by District Health Authorities (DHA).)<sup>5</sup> To improve the quality of this information all stillbirth draft entries with no recorded birthweight were returned by OPCS to the appropriate AHA/DHA. However, as a result of industrial action in 1981 between registration officers and the local authorities, this system was suspended in the early stages and was not resumed until the end of 1982.

Recently, legislation has been passed to lower the definition of a stillbirth from 28 to 24 weeks. This means that since October 1992 all babies born dead after 24 weeks gestation are registered as a stillbirth. Prior to this those babies born dead before 28 weeks gestation would not have been included in the stillbirth statistics (including those for birthweight). This reduction (in the definition of a stillbirth) is the result of successful lobbying on behalf of the Stillbirth and British Neonatal Death Society (SANDS), the British Medical Association and the Royal College of Midwives.

Information on birthweight in the LS may have been influenced, over time, by additional factors. For example, Pharoah and Alberman<sup>8</sup> suggest that the development of intensive care facilities have increased the proportion of registered births with an 'extremely low' (< 1000g) or 'very low' (1001-1500g) birthweight. Thus the upward trend in the proportion of low birthweight births is partially an artefact. Very low birthweight babies, which in the past would have been classified as abortions or stillbirths and would not have appeared in the live birth statistics, are now resuscitated and registered as live births. Because these

babies are at high risk of dying, they are also likely to increase overall mortality rates.

Figure 6.4 shows how the proportion of live births registered with a 'low' birthweight increased over the ten-year period 1976-86.

### 6.2.1.3 Comparability of data over time: cause of death

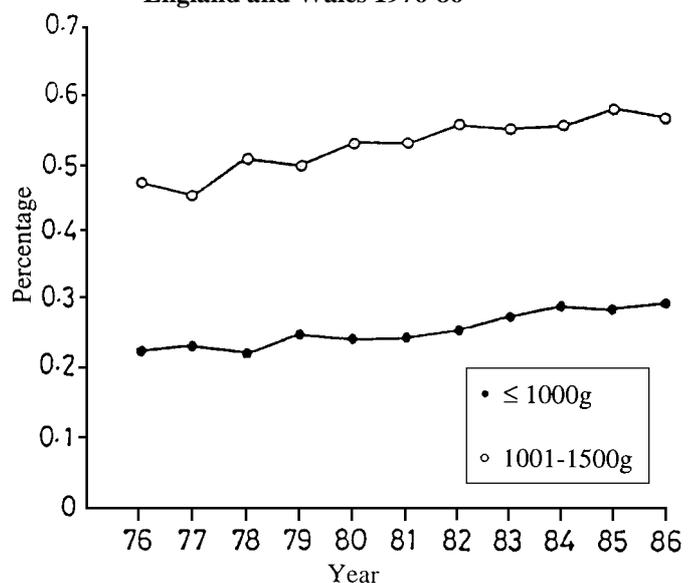
In 1986 OPCS introduced new stillbirth and neonatal death certificates. Prior to this, a 'single underlying cause' had been derived from the information given on the certificate. However, from 1986 onwards 'main foetal' and 'main maternal' conditions were recorded separately - in line with WHO recommendations. This now precludes further attempts to derive a 'single underlying cause'. A copy of the most recent neonatal death certificate is reproduced in Appendix X at the end of this volume.

However, it is important to highlight that the certification of post-neonatal deaths was unaffected. (Post-neonatal deaths relate to those deaths which occur at 28 days and over but under one year.) Therefore it is still possible to derive a 'single underlying cause' for infant deaths which occur in this period.

### 6.2.1.4 Comparability of data over time: social class of parent

Information on the social class of one or both parents is available from birth registration. This is usually the father if the birth occurred within marriage or was jointly registered by both parents. In the LS, the social class of the parent(s) at birth registration is coded to the 1970 Classification of Occupations<sup>9</sup> for births occurring up to and including Census day 1981 and to the 1980 Classification of Occupations<sup>10</sup> for those born in 1979 and later. The information is therefore coded to both classifications for births occurring in 1979, 1980 and 1981.

**Figure 6.4 Proportions of live low weight births in England and Wales 1976-86**



Source: Pharoah P.O.D. and Alberman E. (1988) 'Annual Statistical Review', *Archives of disease in childhood*, **63**, pp. 1511-1514.

Those wishing to carry out analyses of socio-economic differences in birth outcome should be aware that, though the recording of both parents' occupations began in 1986, there is still no obligation to supply details of the mother's occupation. The non-recording of occupation is believed to be a particular problem among younger women in low status occupations, such as supermarket merchandising. The fact that the information recorded at birth registration is used for a permanent, public record (the birth registers) may influence some women to state they have 'no occupation' rather than giving it as 'supermarket shelf-filler'. As a result of this the recording of mother's social class is known to be incomplete. (Creaser<sup>11</sup> highlights that this information was recorded for only about 10 per cent of first births recorded between 1986 and 1988.)

#### **6.2.1.5 Methods used to improve birth data linkage rates**

Since the inception of the LS several attempts have been made by OPCS to improve birth linkage rates. The first exercise (which was restricted to female LS members who had been traced at NHSCR) compared the details of children under 10 years of age, enumerated in the same household as the LS member at the 1981 Census, with those details already linked into the LS (see Werner).<sup>12</sup> Where the exercise identified a child for whom there was no corresponding birth record in the LS, OPCS used the information on the census schedule to trace the child's birth registration form and the LS was updated with details of the 'additional' birth (see Chapter 7, section 7.3.1).

Another attempt made use of the supplementary information on number of previous births by the 'present or former husband' that the mother is asked to provide when registering a birth inside marriage. The exercise involved identifying those LS members who had registered a second birth inside marriage and for whom there was no previous LS birth record. In these cases information on the woman's 1981 Census form was used to trace the child's birth registration record and the mother's LS record was updated accordingly (see Penhale).<sup>13</sup>

As a result of these exercises an additional 4,394 births to LS sample mothers were identified and incorporated into the LS. As outlined in section 7.3.1, the quality of linkage of births to sample mothers in the LS is generally good - linkage rates were 92 and 93 per cent for those registered in the first and second decades respectively - though not as high as the corresponding (linkage) rates for new births registered on an LS date of birth.

## **6.2.2 Deaths**

The main purpose of this section is to outline the changes which have taken place in the information recorded at death registration. The section also covers some of the shortcomings associated with the national data, such as the poor recording of occupational data for women. (As Chapter 2 highlighted, the availability of several alternative

measures of socio-economic status, such as tenure and car ownership, facilitate the use of the LS for studies to investigate differences in mortality among women.)

### **6.2.2.1 Issues which relate to the death registration system**

#### *Changes in the registrars instructions: occupation*

Occupational data provided for women at death registration is particularly poor. The authors of OPCS (1986)<sup>14</sup> show that for the period 1979-80 and 1982-3 only 32 per cent of female deaths in the age range 20-59 years and only 23 per cent in the age range 60-74 had an occupation recorded at death. By comparison the 1981 Census suggests that 60 per cent and 26 per cent of women in these age ranges, respectively, were employed. One obvious explanation for the poor quality of this data is the instructions issued to registrars which exclude the recording of part-time work. As the level of part-time work among British women is high this is particularly problematic. (Burchell et al.<sup>15</sup> show that by 1991 about 45 per cent of British women in the workforce were working part-time.)

When registering a death, registrars are specifically instructed to enter the latest full-time occupation and to disregard any subsequent part-time occupations. Inaccurate occupational information may be recorded if informants report an earlier occupation as opposed to the last. It is clear that the opportunity for this is greater for those occupations which are associated with early retirement, such as policemen, firemen, aircraft pilots and members of the armed forces. For instance, an informant registering a death may report an armed service occupation rather than the deceased's last occupation.

Given the importance of the death certificate as a social document it is feasible that some informants may try to elevate the deceased's previous work, for example by describing a mechanic as an 'engineer'. In this case registrars are instrumental in eliciting further information on the duties performed to ensure that the correct occupation is recorded.

Some of the more traditional occupations carry with them a certain degree of 'community prestige' and this may also result in such an occupation being recorded at death registration even when it was not the last occupation. A study carried out before the LS began compared the occupational information provided at death registration for individuals whose occupation had been recorded as 'coal miner' with an independent assessment of the occupation performed (see Heasman et al.).<sup>16</sup> One of the conclusions from this study was that 'promotion' to the more prestigious underground mining occupations was occurring. In many cases informants recorded the deceased's last occupation as 'coal miner' or 'face worker' where the last mining occupation was known to be on the surface.

Of course inaccurate information may simply be the result of a misunderstanding with respect to the deceased person's occupation or marital status. Similarly, the person

registering the death may be unable to provide precise details of the deceased's occupation or of the duties performed. Both types of information affect the final coding and allocation to an occupational group.

Occupational information on the institutional population in the LS may be particularly prone to this type of inaccuracy. For example, in an institution it is likely that the person providing the information may know less about the deceased person's occupation than a relative or spouse.

***Accuracy of information provided at death registration: 'cause of death'***

Since 1927 a two-part death certificate has been in use in England and Wales. For all deaths up to 1985 and for deaths occurring at 28 days and over from 1986, the events which have led to the death are recorded in Part I of the certificate.<sup>17</sup> Part II is reserved for any diseases which have contributed to the death but which were not part of the direct sequel. In cases where more than one cause of death is mentioned on the death certificate, internationally agreed procedures ensure the consistent coding of an 'underlying cause of death'. In the manuals to the eighth and ninth revisions of the International Classification of Diseases, Injuries and Causes of Death (ICD) (WHO)<sup>18,19</sup> this is referred to as Rule 3. This states that where a condition in Part I of the death certificate is clearly a direct sequel to the condition in Part II, the latter is to be preferred as the underlying cause of death.

There is a considerable literature on the biases that may be introduced in recording 'cause of death' at death registration, and only a few references can be mentioned here. A number of studies have compared information provided as part of clinical diagnosis with that provided in the form of autopsy findings. Waldron and Vickerstaff<sup>20</sup> (cited in Alderson),<sup>21</sup> using data on 1126 autopsy patients in the Birmingham region, showed that for almost half of the cases the clinical diagnosis was confirmed and in about a quarter there was partial agreement. In the remaining quarter the clinical diagnosis and pathological diagnosis disagreed.

Horner<sup>22</sup> (cited in Alderson)<sup>21</sup> carried out a study concentrating on a sample of deaths which occurred in the Croydon area between 1975 and 1981. Out of 11,457 deaths about 43 per cent had been the subject of an autopsy or had been certified by HM Coroners (usually following autopsy). The study revealed inconsistencies for 1,994 of the deaths. For deaths which had not been subject to a Coroner's enquiry, the results showed a slight change for about a fifth of cases and substantial differences (sometimes concerning a change in body system) for about a third.

Evidence suggests that the accuracy with which 'cause of death' is recorded varies according to a number of key variables, including age. The effect of age on the accuracy of 'cause of death' was explored by a study carried out prior to the LS (see Heasman and Lipworth).<sup>23</sup> Table 6.4 shows the effect of age and certainty of diagnosis on the certified 'cause of death' for cases in the study.

The percentage of cases for which new facts were found at autopsy appears to increase with age and to be greatest for those aged 75 and over. This suggests that 'cause of death' data, recorded for deaths in the older age groups, is more likely to be subject to inaccuracies. This is not surprising given that 'potentially lethal conditions' are frequently confounded in the elderly, making the selection of an underlying 'cause of death' more difficult.

Clearly the deaths which form the basis of these studies are not necessarily representative of all deaths which occur. For example, there may be a tendency to perform an autopsy in cases when a diagnosis has not been satisfactorily established.

Leon and Adelstein<sup>24</sup> suggest that the accuracy with which 'cause of death' is recorded for individuals who have been diagnosed with cancer may be the subject of certification biases. They show that cancer is understated as the underlying cause of death in favour of other causes. One explanation for this is that as individuals with cancer develop other life-threatening conditions these become the focus of medical intervention, even after cancer is diagnosed.

**Table 6.4 The effect of age and certainty of diagnosis on 'certified cause of death'**

	Clinician's opinion	Age at death				
		1-14	15-44	45-64	65-74	75 and over
Cases with new facts found as percentage of all post-mortem cases	Fairly certain	3	7	12	20	27
	Probable	11	24	30	38	43
	Uncertain	47	36	45	58	56
Cases with AM/PM agreement as percentage of all post-mortem cases	Fairly certain	61	63	62	54	43
	Probable	54	42	40	33	28
	Uncertain	20	35	27	19	20

Source: Heasman M A and Lipworth L. Accuracy of certification of cause of death, OPCS. Studies on Medical and Population Subjects no. 20, HMSO (London 1966).<sup>23</sup>

'If the individual dies shortly after presentation, there will exist some ambiguity about the role of the diagnosed cancer in their demise. In the absence of an obvious history of progressive malignant disease, the resultant, subsidiary condition may be incorrectly specified as the underlying cause of death'.

Source: Leon and Adelstein, p. 7.<sup>24</sup>

### 6.2.2.2 Comparability of data over time: OPCS procedures for coding of 'cause of death'

A number of changes have taken place in OPCS procedures for coding data on 'cause of death'.

A study carried out by OPCS in 1983 suggested that errors were occurring in the assignment of an 'underlying cause of death', particularly for deaths from bronchopneumonia. In the light of this, from 1 January 1984, the following additional guidelines were issued for the use of Rule 3 and the assignment of an 'underlying cause of death'. Rule 3 was to be implemented:

Where there was major disease recorded in Part II of the death certificate, and the underlying cause recorded in Part I of the certificate was classifiable to the following conditions (the numbers in the first column are the ICD-9 codes):

- 4151 Pulmonary embolism
- 4275 Cardiac arrest
- 428 Heart failure
- 4511 Phlebitis and thrombophlebitis of deep vessels of lower extremities
- 4512 Phlebitis and thrombophlebitis of lower extremities, unspecified
- 4519 Phlebitis and thrombophlebitis of unspecified site
- 4539 Venous embolism or thrombosis of unspecified site
- 485 Bronchopneumonia, unspecified
- 486 Pneumonia, unspecified
- 514 Pulmonary congestion or hypostasis
- 5728 Hepatic failure or liver failure.

Source: OPCS (1985).<sup>25</sup>

A study was carried out in the initial stages of implementation to ascertain the effects of the additional guidelines in relation to Rule 3 (see OPCS, 1985).<sup>25</sup> As part of this exercise, duplicate copies of the details on cause of death were scrutinised at the WHO centre at OPCS. Enquiries were then sent to a sample of certifiers who were required to evaluate the suitability of coding the underlying cause of death according to the information provided in Part II of the death certificate. In this and a subsequent enquiry, 71 per cent and 79 per cent respectively of those involved, agreed that the material in Part II of the death certificate should be used as the underlying cause of death.

### 6.2.2.3 Comparability of data over time: OPCS certification procedures

OPCS introduced new stillbirth and neonatal death certificates in January 1986. The implications of this are covered in section 6.2.1, focusing on the data on births and stillbirths included in the LS.

### *Changes in the ICD classification used to code 'cause of death' in the LS*

A common problem associated with longitudinal research is that the classification schemes and coding procedures used change over time. One of the most important changes for the LS concerns the coding of 'cause of death'.

Information on cause of death recorded in the LS is classified according to the International Classification of Diseases, Injuries and Causes of Death (ICD), using the definitions in the eighth revision (ICD-8) for the period 1971-8 and the definitions in the ninth revision (ICD-9) from 1979 onwards. While the ICD-9 codes for some important individual diseases are comparable with the codes in ICD-8, this is not necessarily so. The contents of several of the chapters have been completely restructured. Throughout the ninth revision there is also much additional detail to the four-digit level. A detailed examination of the effects of the change in classification may be found in OPCS.<sup>26</sup> The changes may be summarised as follows:

'Fourth digit changes occurred for conditions of the central and peripheral nervous system, eyes and ears, gynaecology, pregnancy, childbirth and puerperium, musculoskeletal and perinatal conditions. There was also some rearrangement of the E code for external causes. For all these changes the main three-digit categories remained unchanged, but with major rearrangement of the 4th digits'.

Source: Alderson, p. 16.<sup>21</sup>

At the time of writing, the ICD-9 was still being used to code data on 'cause of death'. OPCS was also in the process of redeveloping its computer system, to include the automated coding of 'cause of death'. When this is fully implemented it will allow deaths to be cause-coded to ICD-9. In due course the system should allow deaths registered from Census day 1991 to be coded to ICD-10.

One of the changes associated with the tenth revision of the ICD has been the introduction of an alphanumeric coding scheme (see Ashley).<sup>27</sup> This has had the effect of increasing the number of available codes - the majority of which are included in the chapters of the ICD associated with signs and symptoms, congenital abnormalities and perinatal conditions.

As indicated in Table 6.5, there has also been a growth in the number of chapters, from 17 to 21. The ICD-10 now contains separate chapters for the nervous system, the eye and the ear, which were previously combined as a single chapter. Similarly, some chapters, such as Chapter XX (External causes of morbidity and mortality), have undergone extensive revision. (Chapter XX now incorporates a new logical scheme for classifying transport accidents.)

Users need to be aware that several conditions are now assigned to a different chapter from that used in ICD-9. One of the reasons for doing this was to bring together conditions with a recently discovered aetiological affinity. By comparison, most post-surgical and post-procedural

**Table 6.5 A comparison of ICD-9 and ICD-10**

ICD9	Chapter and title	'Equivalent' chapter in ICD10	Number of 3-character categories in chapter	
			ICD9	ICD10 (% increase 9:10)
I	Infectious and parasitic diseases	I	120	170 (42)
II	Neoplasms	II	92	136 (48)
III & IV	Endocrine, Nutrition, Metabolic and diseases of the blood	III & IV	47	106 (125)
V	Mental disorders	V	30	78 (160)
VI	Diseases of the nervous system and sense organs	VI, VII & VIII	65	138 (112)
VII	Diseases of the circulatory system	VIII & IX	58	77 (33)
VIII	Diseases of the respiratory system	X	50	63 (26)
IX	Diseases of the digestive system	XI	48	71 (48)
X	Diseases of the genito-urinary system	XIV	47	82 (74)
XI	Complications of pregnancy etc.	XV	46	75 (63)
XII	Diseases of the skin and subcutaneous tissue	XII	26	72 (177)
XIII	Diseases of the musculo-skeletal system etc.	XIII	30	79 (163)
XIV	Congenital abnormalities	XVII	20	87 (335)
XV	Conditions in the perinatal period	XVI	20	59 (195)
XVI	Symptoms, signs etc.	XVIII	20	89 (345)
XVII	Injury and poisoning	XIX	190	195 (3)
sup	External causes	XX	192	372 (94)
sup	Health status etc.	XXI	77	84 (9)
Total			1,178	2,033 (73)

Source: Ashley J. The International Classification of diseases: the structure and content of the tenth revision. *Health Trends*, vol. 22 (4), 1990/91, pp. 135-7.<sup>27</sup>

disorders, previously subsumed under the same category (997), have now been reassigned to the appropriate body system chapter. To give an example, Mendelson's syndrome (unless related to pregnancy, labour or delivery), which was included in 997.3 of the ninth revision, has now been assigned the code J95.4 in the respiratory diseases chapter.

### ***Changes in the classification scheme used to code occupation in the LS***

The procedures for coding the occupational data collected at death registration in the LS have also been subject to change. From 1971 to 1981 coding of occupation was carried out by OPCS using the 1970 OPCS Classification of Occupations,<sup>9</sup> while from 1981 to 1991 the 1980 edition (see OPCS)<sup>10</sup> was used. (In common with the changes in other LS coding procedures the new classification came into use on census day.) The most obvious difference between the two classifications is that the 1980 version is divided according to the skill level of the occupation. A fuller discussion of the differences between the two classifications is given in Chapter 4 (section 4.4.5). However, data on occupation for all LS deaths which occurred from 1979 until the 1981 Census were dual coded, using both the 1970 and 1980 Classifications. The 1990 Standard Occupational Classification (SOC) (OPCS and Employment Group)<sup>28, 29, 30</sup> was adopted for coding the occupational data for deaths registered after Census day 1991. Further details on SOC may also be found in Chapter 4, section 4.4.5.

## **6.2.3 Cancer registrations**

### **6.2.3.1 Issues which relate to the National Cancer Registration System (NCRS)**

#### ***Regional differences in registration rates***

An appreciation of the National Cancer Registration System (NCRS), its strengths and weaknesses, must underpin any interpretation of cancer incidence data from the LS. Until 1993, cancer registration in England and Wales was the work of a voluntary, non-statutory scheme. One of the major difficulties in achieving complete registration under this system was the variation between regional cancer registries, in the staffing and methods that were used. The work of two neighbouring registries may have been carried out by very different complements of staff and this in turn would have been reflected in the completeness of cancer registration data.

As an example, it is known that many people with skin cancer (ICD-9 140 to 208) are treated solely as hospital out-patients. The under-registration of cases of non-melanoma skin cancer (ICD-9 173) is a particular problem, highlighted by the steering committee which undertook the 1990 review of the National Cancer Registration System (OPCS).<sup>31</sup> Registration varies widely, depending on a number of issues, including the registry's access to outpatient and GP records (see OPCS).<sup>32</sup> In 1989 one of the cancer registries stopped registering non-melanoma skin cancer.

The extent to which basal cell carcinomas (BCCs) are registered also varies between registries - as does the maximum number of BCC registrations per individual. This variation in policies and the acknowledged under-registration in the 'active' registries mean that the national figures for this type of cancer are highly unreliable and inter-regional comparisons are meaningless.

A number of ad hoc studies (e.g. Benn *et al.*, cited in Swerdlow)<sup>33</sup> to evaluate the coverage of the NCRS, predominantly focusing on the regional registries for Liverpool and the North West Region, have shown very high registration rates (93-96 per cent). (At the time of writing, coverage in the regions is estimated to range from 90 to 95 per cent.)

Some measure of completeness can be obtained by considering the regional standardised registration ratios (SRRs) and the incidence to mortality ratios (i:m), reported in OPCS's annual Cancer Statistics. Most of the regional i:m ratios for cancers associated with short survival (oesophagus, stomach, liver, pancreas, lung, ovary and brain) are close to 1, whereas there is more variability in the longer survival sites. If both the SRR and i:m ratio are relatively low, this may suggest that under-registration is occurring.

Cancer registration became mandatory in the NHS in 1993 - in response to the 1990 review of the system and the findings of the Alberman Report (OPCS).<sup>31</sup> Following the review it was agreed that a cancer registration 'minimum data set' (mds) would be implemented - for those cases where the 'anniversary date' (or date of onset of cancer) was 1 January 1993 or later. (In some cases an extra six months was allowed.) Now cancer registration is mandatory in all spheres of the NHS (including NHS Trusts). This covers both the supply of data to the regional cancer registries and its transmission to OPCS.

There are two further problems with the national cancer registration data published for 1985.<sup>34</sup> First, as a result of administrative problems associated with the establishment of the Thames Cancer Registry, there was a reduction in registrations in the North East Thames Region compared with previous years. There was also a shortfall of approximately 10 per cent in cancer registrations in the North Western Region due to problems experienced with processing a set of data from the registry. Prospective users should note that most problems have been corrected subsequently on the OPCS computer files and that all 'late' registrations have fed through to the LS system.

#### **Methods to improve the registration rates of NCRS**

In an attempt to improve the completeness of the cancer registration scheme, details of each death notified to NHSCR in which cancer is mentioned on the death certificate are sent by OPCS to the relevant regional cancer registry. The way in which this material is used by the regional registries may contribute to geographical differences in cancer registration data. At one end of the

spectrum some registries appear to be rigorous about validating the diagnosis of cancer on the death certificate by comparing it with the diagnosis given in the clinical notes. Others simply enter the death as a registration, and the year of death as the incidence or 'anniversary' year.

#### **6.2.3.2 Comparability of LS data over time: coding of 'site and type of tumour'**

There have been a small number of changes in the procedures adopted by OPCS for the coding of information on cancer registration. The most significant change has been in the versions of the International Classification of Diseases used to code information on 'site and type of tumour'. For all registrations occurring after 1979, the ninth version of the ICD (or alternatively the International Classification of Diseases for Oncology) has been used in the LS. Users will find more specific information on the changes which have taken place in ICD 'site' coding in Swerdlow.<sup>33</sup>

Another change at OPCS affects cancer registrations processed from mid-March 1982 onwards. Prior to this, in cases where individuals had cancer on opposite sides of a 'paired organ' (for example an ovary or testis), a record of both registrations was kept on file. From mid-March 1982 onwards only one cancer registration was retained. One of the results of this will have been an artefactual decrease in the registration rates for cancers in such organs.

#### **6.2.4 Internal migration**

##### **6.2.4.1 Comparability of LS internal migration data**

The reorganisation of the NHS in 1974 and the resulting changes in the general practitioner service in England and Wales have important implications for the comparability of the internal migration data available in the LS. Prior to NHS reorganisation the general practitioner service was composed of 132 Executive Councils (ECs). Reorganisation resulted in the formation of 98 Family Practitioner Committees (FPCs).

In the LS the EC codes have been recoded to an 'equivalent' FPC code. For 103 ECs there was no problem in allocating an 'equivalent' FPC code as the entire area was included in the new FPC area. However, 29 of the old EC areas fell into more than one of the FPC areas. Mostly this involved just two new FPC areas, but in two cases a single EC was shared out between more than a dozen FPCs. In these cases the FPC code of the area containing the largest number of persons from the old EC was allocated as the FPC 'equivalent'. Obviously these 29 cases present a number of problems for the comparability of the internal migration data.

##### **6.2.5 Entries into long-stay psychiatric hospitals**

Until 1983 entries into long-stay psychiatric hospitals were recorded in the LS. The numbers which were recorded are

very small (never more than 60 per year), which in part explains why no systematic checks have been made of the quality of the data. In addition OPCS does not routinely use or receive any data which could be used to validate the data. (Table 7.21 shows the number of LS members entering long-stay psychiatric hospitals by sex and year of entry.)

## 6.2.6 Infant mortality

### 6.2.6.1 Comparability of infant mortality data over time

Since 1971 there have been several changes in the methods of recording and classifying a number of key variables. For the purposes of infant mortality data, information on social class is derived from the occupation of the child's parent as recorded on the birth certificate/live birth draft. For the period 1975-1978 this was derived using the 1970 Classification of Occupations and from 1979 onwards using the 1980 Classification of Occupations. Results of a study of the 1979 live birth records, reported in the OPCS DH3 Monitor Series (see OPCS),<sup>2</sup> show that 9 per cent of these records were allocated to a different social class under the two classifications.

Until 1975 birthweight was recorded in pounds and ounces; from 1976 onwards it was recorded in grammes. Although there have been no specific studies of this it is possible that the changeover may have resulted in 'rounding errors' when imperial measures were converted to metric.

As mentioned in section 6.2.2, information recorded in the LS on 'cause of death' is classified according to the International Classification of Diseases, Injuries and Causes of Death (ICD), using the definitions in the eighth revision (ICD-8) for the period 1971-78 and those in the ninth revision (ICD-9) from 1979 onwards.

### 6.2.6.2 Comparability of LS infant mortality data over time

One of the most important issues to be considered here concerns the methods used to derive the LS infant mortality data. For the first five years of the study (1971-5) LS infant mortality data were derived from the main OPCS birth and death files. From 1976 onwards they were derived from the main OPCS infant mortality file. Although there have been no specific studies of this, one of the likely effects is an improvement in the quality of the LS infant mortality data.

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5. Between 1974 and 1982 the National Health Service (NHS) was based upon three organisational levels which, for the purpose of health care administration, divided England and Wales into regions, areas and districts. The second level of the administrative hierarchy contained 98 Area Health Authorities (AHAs), of which there were between three and 11 in each Regional Health Authority (the 'top' level). Each Area Health Authority contained between one and six Health Districts. In 1982 the NHS was restructured and the two lower levels of the hierarchy were replaced by a single level - the District Health Authority (DHA). By coincidence, the number of DHAs corresponded exactly with the number of former Health Districts (216). Although most of the DHAs retained the same boundaries as the Health Districts, 52 were the result of amalgamations and divisions. The early 1990s have seen further changes at the lower level of the NHS. This now consists of 198 District Health Authorities (DHAs) and 90 Family Health Service Authorities (FHSAs) - each of which conforms to a major local authority area and generally follows DHA boundaries. Thirty-seven FHSAs relate to only one DHA, while the remainder relate to between two and seven DHAs. Further details of the NHS areas identified in the LS may be found in Creeser.<sup>6</sup>
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## 7 The quality of event sampling and linkage within the Longitudinal Study

Three different types of event are collected for the Longitudinal Study (LS). The first type are events causing the entry of new members to the study: births on LS dates and immigration of persons born on LS dates. The second, are events causing exits from the study: deaths of LS members and emigrations of LS members from England and Wales. The third, are those occurring to LS members while alive and active in the study, such as the birth of children, cancer registrations or widow(er)hoods.

Event data quality within the LS has two components. First, the quality of the original event data collected for the England and Wales population; and second, the quality of the sampling of those events and of their linkage into the LS.

The quality of event data varies according to both the type of event and to the method(s) used for collecting it, whether for England and Wales or for the LS (see Chapter 6 for further details of the collection and linkage of events into the LS).

By definition entry events cannot be linked to existing LS members, so an entry rate is used to measure quality rather than a linkage rate. If all possible entries to the LS in a year are captured the entry rate will be 100 per cent. The quality of sampling for LS entry events is very high for new births of LS members into the study, with entry rates around 100 per cent. However, the quality is low for new LS members entering through immigration. Oversampling is particularly evident between 1971 and 1981, resulting in entry rates of well over 100 per cent.

The sampling and linkage of exit events from the study is of high quality for deaths. Ninety-eight per cent of deaths were captured in the first decade, but there was some oversampling of deaths among elderly LS members in the second decade resulting in a linkage rate of 109 per cent. Exits through emigration (embarkation) from the LS are of low quality. Only 64 per cent of emigrations were linked to LS members in the first decade, dropping to 36 per cent linkage in the second.

The linkage of events occurring to LS members is also of variable quality depending on the type of event being linked. The linkage of births occurring to women in the sample (sample mothers) is of good quality in both the first and second decades (92 per cent linkage in the first decade rising to 94 per cent in the second). At 86 per cent, the linkage rate is not so good for births occurring to sample fathers (only collected until 1978). Cancer registration linkage for LS members is also of good quality overall (over 98 per cent linkage) but highly variable at younger ages. Linkage for widow(er)hoods of LS members is of

lower quality than some other events, with a linkage rate of 77 per cent in the first decade rising to 84 per cent in the second.

Infant mortality, collected since 1976, suffers from the small numbers of infant deaths occurring in England and Wales. As a result the quality of linkage in the first decade was not particularly good at 86 per cent, however it rose to 91 per cent in the second.

The following events, though available for LS members, are not examined for quality as the England and Wales data are not easily available. These are enlistments to the armed forces, entries to long-stay psychiatric hospitals and re-entrants to the LS from previous embarkations, enlistments or periods in psychiatric hospital. Internal migration is also omitted as only four years' data (1971 to 1974) were collected for the LS. Counts for the number of these events occurring in the LS are given in section 7.3.6.

The quality of annual event data was examined for the two decades up to the 1991 Census. The first decade is defined as Census day 1971 to the day prior to Census day 1981, and the second decade as Census day 1981 to the day prior to Census day 1991. In 1971 the part year was 251 days, 1981 had 95 days in the first decade and 270 days in the second decade, and in 1991 there were 110 days prior to census day.

The data were examined in two ways. First by calculating the proportion of the population sampled in the LS for each event (the sampling fraction), and second, by examining the linkage rate (or in the case of entries, the entry rate) of each event to the sample. Because the LS is an approximate 1 per cent sample of the population of England and Wales, it would be expected that approximately 1 per cent of all events collected for the England and Wales population would occur to members of the LS sample (exact population sampling fractions are shown in Chapter 9). Both sampling fractions and linkage rates (or entry rates if appropriate) are used to examine this hypothesis.

The sampling fraction is calculated as:

$$\frac{\text{Events occurring to LS members in year } n}{\text{Events occurring to England \& Wales population in year } n} \times 100$$

The linkage rate for events is calculated as:

$$\frac{\text{Actual events occurring to the LS population in year } n}{\text{Events expected to occur to the LS population in year } n} \times 100$$

The entry rate for events is calculated as:

$$\frac{\text{Actual new members entering the LS in year } n}{\text{Expected number of new entries to the LS in year } n} \times 100$$

The expected number of events has been calculated in different ways depending on the type of event and the probability of that event occurring in the LS population. Each method of calculating expected events is given in the relevant sections of this chapter.

The LS population data were examined yearly, as well as over each decade, for the occurrence of each type of event. Analysis was also done, where possible, by age and sex.

## 7.1 THE QUALITY OF ENTRY EVENT DATA

Between censuses entries to the LS are either by birth in England and Wales on an LS date (new births), or by immigration into England and Wales where the immigrant was born on an LS date. New births are collected and entered into the study from birth registration data and 100 per cent of these new LS members should be captured. Immigrants only enter between censuses when they register with a general practitioner (GP) and are subsequently included in the index held at the National Health Service Central Register (NHSCR).

### 7.1.1 New births into the LS

Over the period from Census day 1971 to the day prior to Census day 1991, 144,893 new members entered the LS by virtue of being born on LS dates in England and Wales. Of these births, 71,888 occurred in the first decade.

The quality of new birth event data in the LS is extremely good and 100 per cent of all births occurring on LS dates enter the study. There is more variability in the entry rate in the first decade due to the capture of a small number of new births from the 1981 Census rather than from registration data (see Chapter 5, Table 5.1). Sampling fractions are higher than expected for most years but the LS still maintains an approximate 1 per cent sample of all births in England and Wales.

The quality of births data for the whole of England and Wales (used as the denominator for calculating sampling fractions for new births) is known to be extremely high. All births must be registered within six weeks of occurrence by law, and coverage is around 100 per cent.

#### 7.1.1.1 By sex and year of birth

New births occurring in the first decade are shown in Table 7.1a together with sampling fractions and entry rates.

The sampling fractions for LS new births are the proportions of all live births in England and Wales collected as new

entries to the study by virtue of being born on LS dates. Because births are not equally distributed either by day of the week,<sup>1</sup> or throughout the year, a selection effect producing a certain amount of variation must be expected in both the sampling fractions and the entry rates. The inclusion of a small number of new births entering via the 1981 Census (see below) rather than through birth registration, adds to the variation.

The overall sampling fraction for this decade was 1.12, 0.07 per cent above the sampling fraction of 1.05 expected in the LS. Sampling fractions ranged from a high of 1.23 to a low of 0.80 for males, and 1.21 to 0.80 for females.

The entry rate for the decade was only 1 per cent over the expected 100 per cent, but yearly rates fluctuated from 95 per cent (for the pre-census period of 1981) to just over 102 per cent in 1975. From 1974 to 1980, and from 1982 to 1991, the expected births on LS dates are taken from the England and Wales statistics for births that actually took place on those dates. In 1981 the Registrars of Births and Deaths in England and Wales took industrial action and as a result the daily birth figures are only available as a 10 per cent sample. When grossed up these figures are lower than would be expected compared with other years. A formula has therefore been used to calculate expected LS births for 1981 as well as for the period 1971 to 1973. The formula that was applied used the number of possible LS birth dates in a year. For 1971 the formula was:

$$3/365 \times \text{total births for the year in England and Wales}$$

as only three possible LS birth dates were available from census day onwards. The following year, 1972, was a leap year, therefore the fraction of births was 4/366, the fraction for 1973 was 4/365, and for 1981 pre-census the fraction was 1/365 and post-census 3/365. A correction factor was also applied for these three years to cope with the fact that births are not evenly distributed across days of the week.<sup>1</sup>

The births given as actual LS new births are those recorded in the LS. The differences seen in Table 7.1a between actual and expected numbers of new births are due to a gain of approximately 100 births per year from entries in the 1981 Census where an LS date of birth occurring after the 1971 Census was stated (see Chapter 5, Table 5.1). The percentage of female LS members entered as new births via the 1981 Census was slightly higher than the percentage of males. Subsequent examination of the birth records for these entries showed dates other than LS dates on their birth registration documents. Exclusion of these births (1095 in all) lowers the overall entry rate to 99.34 per cent. It is possible to use tracing history indicators to extract those new birth entries who entered at the 1981 Census but not before (see Appendix XIII). All tables in this section referring to first decade new births include these extra entries.

The second decade new births data analysed in this section do not include additional entries collected at the 1991 Census. The 'expected' LS new births are the actual births

(with the exception of the post-Census period of 1981 mentioned previously) occurring in England and Wales on LS dates in each year. It should be noted that the statistics on daily numbers of births occurring in England and Wales do include a very small number of births to women who are not residents of the country. All new birth entrants to the LS must be resident in England and Wales. The slightly higher numbers of births shown as expected LS births in the second decade are due to births to non-resident women.

The births for England and Wales have been apportioned for both 1981 and 1991 as these were part years. In 1981 the proportion of the year from census day onwards was

270/365, and for 1991, 110/365 for the period prior to census day.

Table 7.1b shows second decade new births by sex and year of birth. The overall sampling fraction is still higher than the 1.09 expected but is slightly lower than that observed in the first decade. Likewise, the entry rates are lower than those in the first decade, and with the exception of 1981, show yearly entry rates for all new births of 100 per cent. Male and female new births examined separately show slight variation, but there does not seem to be any systematic under- or over-sampling over the decade.

**Table 7.1a First decade new births by sex and year of birth**

Year of birth	Males					Females					Total				
	LS births	E & W births	S.F.	Exp. in LS	Entry rate	LS births	E & W births	S.F.	Exp. in LS	Entry rate	LS births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1971	3,016	277,285	1.09	3,126	96.47	2,886	261,268	1.10	2,946	97.97	5,902	538,553	1.10	6,072	97.20
1972	4,142	373,982	1.11	4,169	99.35	3,972	351,458	1.13	3,918	101.38	8,114	725,440	1.12	8,087	100.34
1973	4,155	348,678	1.19	4,079	101.86	3,828	327,275	1.17	3,829	99.98	7,983	675,953	1.18	7,908	100.95
1974	3,953	329,459	1.20	3,929	100.60	3,770	310,426	1.21	3,701	101.88	7,723	639,885	1.21	7,630	101.22
1975	3,375	310,751	1.09	3,362	100.37	3,286	292,694	1.12	3,167	103.77	6,661	603,445	1.10	6,529	102.02
1976	2,923	300,313	0.97	2,842	102.86	2,691	283,957	0.95	2,676	100.55	5,614	584,270	0.96	5,518	101.74
1977	3,079	292,957	1.05	3,067	100.38	2,977	276,302	1.08	2,889	103.06	6,056	569,259	1.06	5,956	101.68
1978	3,594	307,088	1.17	3,591	100.10	3,501	289,330	1.21	3,381	103.54	7,095	596,418	1.19	6,972	101.76
1979	4,024	328,308	1.23	3,946	101.98	3,745	309,720	1.21	3,716	100.78	7,769	638,028	1.22	7,662	101.40
1980	3,960	335,954	1.18	3,882	102.01	3,683	320,280	1.15	3,656	100.74	7,643	656,234	1.16	7,538	101.39
Part 1981	682	84,774	0.80	717	95.12	646	80,368	0.80	674	95.85	1,328	165,142	0.80	1,391	95.47
Total	36,903	3,289,549	1.12	36,710	99.48	34,985	3,103,078	1.13	34,552	98.76	71,888	6,392,627	1.12	71,263	100.88

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.1b Second decade new births by sex and year of birth**

Year of birth	Males					Females					Total				
	LS births	E & W births	S.F.	Exp. in LS	Entry rate	LS births	E & W births	S.F.	Exp. in LS	Entry rate	LS births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1981	2,591	240,937	1.08	2,531	102.37	2,392	228,413	1.05	2,336	102.40	4,983	469,350	1.06	4,867	102.38
1982	3,207	321,352	1.00	3,244	98.87	3,099	304,579	1.02	3,074	100.80	6,306	625,931	1.01	6,318	99.81
1983	3,517	323,192	1.09	3,427	102.61	3,149	305,942	1.03	3,245	97.06	6,666	629,134	1.06	6,672	99.91
1984	3,732	326,039	1.14	3,847	97.01	3,769	310,779	1.21	3,667	102.78	7,501	636,818	1.18	7,514	99.83
1985	4,045	336,835	1.20	3,993	101.31	3,733	319,582	1.17	3,788	98.54	7,778	656,417	1.18	7,781	99.96
1986	3,789	338,852	1.12	3,754	100.93	3,529	322,166	1.10	3,569	98.88	7,318	661,018	1.11	7,323	99.93
1987	3,422	349,624	0.98	3,495	97.92	3,387	331,887	1.02	3,317	102.10	6,809	681,511	1.00	6,812	99.96
1988	3,782	354,954	1.07	3,773	100.23	3,582	338,623	1.06	3,600	99.51	7,364	693,577	1.06	7,373	99.88
1989	4,034	352,381	1.14	4,078	98.92	3,923	335,344	1.17	3,881	101.08	7,957	687,725	1.16	7,959	99.97
1990	4,176	361,412	1.16	4,237	98.55	4,094	344,728	1.19	4,042	101.29	8,270	706,140	1.17	8,279	99.89
Part 1991	1,031	108,013	0.95	1,055	97.69	1,022	102,710	1.00	1,004	101.83	2,053	210,723	0.97	2,059	99.71
Total	37,326	3,413,591	1.09	37,435	99.71	35,679	3,244,753	1.10	35,522	100.44	73,005	6,658,344	1.10	72,957	100.07

S.F. = Sampling fraction.

Exp. = Expected.

### 7.1.1.2 By mother's age at registration

Table 7.2a shows new births by mother's age at registration in the first decade. England and Wales daily birth figures are not available by age of mother, therefore the 'expected' LS new births for each age group of mothers have been distributed proportionately using the formula:

$$\sum \text{LS Expected in year } n \times \frac{\text{E \& W births for age grp } x \text{ in year } n}{\sum \text{E \& W births in year } n}$$

The majority of new births in the first decade occurred to mothers aged 25-29 (36 per cent of all LS new births). Sampling fractions for each age group are higher than the

expected 1.05, varying from 1.11 to 1.16 for the whole decade.

The overall entry rates are highest for new births to mothers aged between 25 and 39. This suggests that 'new birth' entries coming from the 1981 Census rather than from registration data are more common for mothers in this age group than among those older or younger.

New births by mother's age at registration for the second decade (Table 7.2b) show reductions in the overall sampling fractions for each age group, but there is still a noticeable variability from year to year. Entry rates on the whole are nearer to 100 per cent than in the first decade but not

**Table 7.2a First decade new births by year of birth and mother's age at registration**

Year of new birth	Mother's age at registration														
	Under 20					20-24					25-29				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1971	652	56,830	1.15	641	101.76	2,137	196,470	1.09	2,215	96.47	1,867	170,019	1.10	1,917	97.40
1972	950	79,087	1.20	882	107.76	2,734	249,109	1.10	2,777	98.45	2,708	247,676	1.09	2,761	98.08
1973	818	73,270	1.12	857	95.43	2,665	223,675	1.19	2,617	101.85	2,906	243,753	1.19	2,852	101.91
1974	781	68,724	1.14	819	95.31	2,512	208,084	1.21	2,481	101.24	2,890	235,593	1.23	2,809	102.88
1975	704	63,507	1.11	687	102.46	2,065	190,198	1.09	2,058	100.35	2,486	225,990	1.10	2,445	101.67
1976	602	57,943	1.04	547	110.01	1,744	182,210	0.96	1,721	101.35	2,116	220,712	0.96	2,084	101.51
1977	590	54,477	1.08	570	103.51	1,778	174,544	1.02	1,826	97.36	2,264	207,916	1.09	2,175	104.07
1978	617	55,984	1.10	654	94.28	2,130	182,580	1.17	2,134	99.80	2,557	210,598	1.21	2,462	103.87
1979	710	59,143	1.20	710	99.97	2,282	193,209	1.18	2,320	98.35	2,720	222,102	1.22	2,667	101.98
1980	686	60,754	1.13	698	98.30	2,297	201,541	1.14	2,315	99.22	2,625	223,438	1.17	2,567	102.28
Part 1981	139	14,724	0.94	125	111.20	402	50,623	0.79	431	93.27	446	56,157	0.79	473	94.29
Total	7,249	644,443	1.12	7,191	100.81	22,746	2,052,243	1.11	22,895	99.35	25,585	2,263,954	1.13	25,212	101.48
Year of new birth	30-34					35-39					40 and over				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
	Part 1971	788	75,380	1.05	850	92.72	355	31,099	1.14	351	101.25	103	8,755	1.18	99
1972	1,138	98,739	1.15	1,101	103.39	455	39,821	1.14	444	102.50	129	11,008	1.17	123	105.12
1973	1,116	91,800	1.22	1,074	103.92	387	34,178	1.13	400	96.79	91	9,277	0.98	109	83.85
1974	1,081	89,132	1.21	1,063	101.71	355	30,308	1.17	361	98.23	104	8,044	1.29	96	108.43
1975	1,030	88,379	1.17	956	107.72	303	28,147	1.08	305	99.50	73	7,224	1.01	78	93.40
1976	849	90,791	0.94	857	99.01	255	26,117	0.98	247	103.38	48	6,497	0.74	61	78.23
1977	1,062	100,807	1.05	1,055	100.69	286	25,527	1.12	267	107.08	76	5,988	1.27	63	121.31
1978	1,353	113,077	1.20	1,322	102.36	370	27,937	1.32	327	113.30	68	6,242	1.09	73	93.19
1979	1,551	125,664	1.23	1,509	102.78	428	31,394	1.36	377	113.53	78	6,516	1.20	78	99.68
1980	1,540	129,908	1.19	1,492	103.20	416	33,893	1.23	389	106.85	79	6,700	1.18	77	102.65
Part 1981	244	32,948	0.74	278	87.77	76	8,904	0.85	70	108.57	21	1,785	1.18	14	150.00
Total	11,752	1,036,625	1.13	11,557	101.69	3,686	317,325	1.16	3,537	104.21	870	78,037	1.11	870	99.97

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.2b Second decade new births by year of birth and mother's age at registration**

Year of new birth	Mother's age at registration														
	Under 20					20-24					25-29				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1981	428	41,846	1.02	438	97.72	1,536	143,877	1.07	1,509	101.79	1,703	159,603	1.07	1,655	102.90
1982	577	55,435	1.04	560	103.12	1,979	192,322	1.03	1,941	101.94	2,079	211,905	0.98	2,139	97.20
1983	599	54,059	1.11	573	104.48	2,039	191,852	1.06	2,035	100.22	2,265	214,078	1.06	2,270	99.77
1984	608	54,058	1.12	638	95.32	2,298	191,455	1.20	2,259	101.72	2,585	218,031	1.19	2,573	100.48
1985	630	56,929	1.11	675	93.36	2,306	193,958	1.19	2,299	100.30	2,684	227,486	1.18	2,697	99.53
1986	623	57,406	1.09	636	97.96	2,118	192,064	1.10	2,128	99.54	2,557	229,035	1.12	2,537	100.78
1987	563	57,545	0.98	575	97.88	1,956	193,232	1.01	1,931	101.27	2,405	238,929	1.01	2,388	100.70
1988	690	58,741	1.17	624	110.50	2,103	193,726	1.09	2,059	102.12	2,584	243,460	1.06	2,588	99.84
1989	620	55,543	1.12	643	96.45	2,109	185,239	1.14	2,144	98.38	2,804	242,822	1.15	2,810	99.78
1990	632	55,541	1.14	651	97.05	2,076	180,136	1.15	2,112	98.30	3,010	252,577	1.19	2,961	101.64
Part 1991	164	15,791	1.04	154	106.29	504	52,244	0.96	510	98.73	723	74,959	0.96	732	98.71
Total	6,134	562,894	1.09	6,167	99.46	21,024	1,910,105	1.10	20,928	100.46	25,399	2,312,885	1.10	25,351	100.19
Year of new birth	30-34					35-39					40 and over				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
	Part 1981	1,002	93,642	1.07	973	102.98	260	25,306	1.03	243	107.00	54	5,076	1.06	49
1982	1,248	120,758	1.03	1,219	102.39	371	38,992	0.95	394	94.26	52	6,519	0.80	66	79.03
1983	1,289	120,996	1.07	1,283	100.45	413	41,277	1.00	438	94.35	61	6,872	0.89	73	83.70
1984	1,423	122,774	1.16	1,449	98.23	508	42,921	1.18	506	100.31	79	7,579	1.04	89	88.34
1985	1,502	126,185	1.19	1,496	100.42	571	44,393	1.29	526	108.51	85	7,466	1.14	89	96.05
1986	1,450	129,487	1.12	1,435	101.08	492	45,465	1.08	504	97.68	78	7,561	1.03	84	93.12
1987	1,368	136,558	1.00	1,365	100.22	438	46,604	0.94	466	94.03	79	8,643	0.91	86	91.45
1988	1,430	140,974	1.01	1,499	95.42	464	47,649	0.97	507	91.60	93	9,027	1.03	96	96.91
1989	1,719	145,320	1.18	1,682	102.21	587	49,465	1.19	572	102.54	118	9,336	1.26	108	109.21
1990	1,838	156,264	1.18	1,832	100.32	613	51,905	1.18	609	100.73	101	9,717	1.04	114	88.65
Part 1991	458	48,599	0.94	475	96.45	160	16,167	0.99	158	101.29	44	2,964	1.48	29	151.93
Total	14,727	1,341,557	1.10	14,706	100.14	4,877	450,144	1.08	4,922	99.09	844	80,760	1.05	883	95.62

S.F. = Sampling fraction.

Exp. = Expected.

markedly so. The variability in sampling fractions is probably due to day-of-the-week effect.

As in the first decade, the majority of LS new births occurred to mothers' aged between 25 and 29 (35 per cent), but the percentage of births observed for older mothers (aged 30 and over) rose from 22 per cent in the first decade to 28 per cent in the second decade. This closely reflects the pattern among the England and Wales population from which the sample is drawn.<sup>2</sup>

### 7.1.1.3 By marital status of mother

Table 7.3a shows new births in the first decade by marital status of mother. Sampling fractions for marital births show

similar variability to those for non-marital births. More variation is shown for entry rates between marital and non-marital new births. Part of this variation may be due to the small numbers of non-marital new births (approximately 10 per cent of all new births entries to the LS in the first decade).

Table 7.3b shows second decade new births by marital status. The percentage of births occurring outside marriage doubled over the two decades, from 10 per cent in the first decade to 21 per cent in the second. Entry rates in the second decade are slightly lower for non-marital births than for marital births (98.62 and 100.93 per cent respectively).

**Table 7.3a First decade new births by year of birth and marital status of mother**

Year of birth	Births within marriage					Births outside marriage					All new births				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1971	5,364	493,388	1.09	5,563	96.43	538	45,165	1.19	509	105.65	5,902	538,553	1.10	6,072	97.20
1972	7,369	662,928	1.11	7,390	99.72	745	62,512	1.19	697	106.91	8,114	725,440	1.12	8,087	100.34
1973	7,274	617,856	1.18	7,228	100.64	709	58,097	1.22	680	104.32	7,983	675,953	1.18	7,908	100.95
1974	7,049	583,399	1.21	6,959	101.29	674	56,486	1.19	671	100.45	7,723	639,885	1.21	7,630	101.22
1975	6,065	548,554	1.11	5,935	102.19	596	54,891	1.09	594	100.35	6,661	603,445	1.10	6,529	102.02
1976	5,072	530,504	0.96	5,010	101.24	542	53,766	1.01	508	106.74	5,614	584,270	0.96	5,518	101.74
1977	5,448	513,880	1.06	5,378	101.30	608	55,379	1.10	578	105.19	6,056	569,259	1.06	5,956	101.68
1978	6,409	535,781	1.20	6,261	102.36	686	60,637	1.13	711	96.48	7,095	596,418	1.19	6,972	101.76
1979	6,979	568,561	1.23	6,827	102.23	790	69,467	1.14	835	94.61	7,769	638,028	1.22	7,662	101.40
1980	6,734	578,862	1.16	6,648	101.29	909	77,372	1.17	890	102.13	7,643	656,234	1.16	7,538	101.39
Part 1981	1,147	144,064	0.80	1,210	94.79	181	21,078	0.86	181	100.00	1,328	165,142	0.80	1,391	95.47
Total	64,910	5,777,778	1.12	64,409	100.78	6,978	614,849	1.13	6,854	101.81	71,888	639,267	1.12	71,263	100.88

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.3b Second decade new births by year of birth and marital status of mother**

Year of birth	Births within marriage					Births outside marriage					All new births				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1981	4,350	409,445	1.06	4,234	102.74	633	59,905	1.06	633	100.00	4,983	469,350	1.06	4,867	102.38
1982	5,437	536,074	1.01	5,411	100.48	869	89,857	0.97	907	95.81	6,306	625,931	1.01	6,318	99.81
1983	5,597	529,923	1.06	5,620	99.59	1,069	99,211	1.08	1,052	101.60	6,666	629,134	1.06	6,672	99.91
1984	6,204	526,353	1.18	6,211	99.89	1,297	110,465	1.17	1,303	99.51	7,501	636,818	1.18	7,514	99.83
1985	6,372	530,167	1.20	6,284	101.39	1,406	126,250	1.11	1,497	93.95	7,778	656,417	1.18	7,781	99.96
1986	5,712	519,673	1.10	5,757	99.22	1,606	141,345	1.14	1,566	102.56	7,318	661,018	1.11	7,323	99.93
1987	5,260	523,080	1.01	5,228	100.60	1,549	158,431	0.98	1,584	97.82	6,809	681,511	1.00	6,812	99.96
1988	5,470	516,225	1.06	5,488	99.68	1,894	177,352	1.07	1,885	100.46	7,364	693,577	1.06	7,373	99.88
1989	5,826	501,921	1.16	5,809	100.30	2,131	185,804	1.15	2,150	99.10	7,957	687,725	1.16	7,959	99.97
1990	6,018	506,141	1.19	5,934	101.41	2,252	199,999	1.13	2,345	96.04	8,270	706,140	1.17	8,279	99.89
Part 1991	1,430	147,045	0.97	1,437	99.53	623	63,678	0.98	622	100.13	2,053	210,723	0.97	2,059	99.71
Total	57,676	5,246,047	1.10	57,143	100.93	15,329	1,412,297	1.09	15,544	98.62	73,005	6,658,344	1.10	72,957	100.07

S.F. = Sampling fraction.

Exp. = Expected.

**7.1.1.4 By mother's parity at registration**

Parity is defined here as the number of previous liveborn children a woman has had within marriage by her present or any former husband. A birth shown as occurring at parity 0 is a first birth within marriage. A birth at parity 1 is a second birth within marriage, etc. It should be noted that the previous marital births question on the birth registration document is only asked of women who are married to the current child's father at the time of

registration. Table 7.4a shows new births in the first decade by parity.

Information about previous non-marital births is not collected by the registrar. Therefore, only marital births are used in this table due to the lack of data for England and Wales non-marital parity. Sampling fractions tend to be over 1.05 for all parities and all years except parity 4+. Parity 4+ shows a low sampling fraction in 1977. Entry

**Table 7.4a First decade new births by year of birth and mother's parity at registration\***

Year of new birth	Parity 0					Parity 1					Parity 2				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1971	2,139	195,034	1.10	2,199	97.28	1,812	165,580	1.09	1,867	97.06	848	76,779	1.10	866	97.96
1972	2,981	265,924	1.12	2,964	100.56	2,584	229,701	1.12	2,561	100.91	1,063	98,816	1.08	1,102	96.50
1973	2,979	253,814	1.17	2,969	100.33	2,584	222,483	1.16	2,603	99.28	1,022	86,118	1.19	1,007	101.44
1974	2,858	242,826	1.18	2,897	98.67	2,607	215,826	1.21	2,574	101.26	960	77,882	1.23	929	103.34
1975	2,505	226,944	1.10	2,455	102.02	2,277	206,155	1.10	2,230	102.09	814	73,312	1.11	793	102.62
1976	2,113	217,211	0.97	2,051	103.01	1,923	203,576	0.94	1,923	100.02	672	70,967	0.95	670	100.27
1977	2,259	214,573	1.05	2,246	100.60	2,108	195,035	1.08	2,041	103.28	714	68,796	1.04	720	99.17
1978	2,654	226,586	1.17	2,648	100.23	2,391	198,088	1.21	2,315	103.29	924	74,173	1.25	867	106.60
1979	2,824	238,890	1.18	2,868	98.45	2,601	206,667	1.26	2,482	104.81	1,050	82,742	1.27	994	105.68
1980	2,773	240,975	1.15	2,768	100.20	2,374	209,164	1.13	2,402	98.83	1,068	86,336	1.24	992	107.71
Part 1981	480	58,377	0.82	484	97.28	401	53,536	0.75	448	89.51	176	21,447	0.82	182	96.70
Total	26,565	2,381,154	1.12	26,549	100.33	23,662	2,105,811	1.12	23,445	100.92	9,311	817,368	1.14	9,121	102.08
Year of new birth	Parity 3					Parity 4 +									
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate					
Part 1971	326	31,536	1.03	356	91.57	239	24,459	0.98	276	86.67					
1972	431	39,462	1.09	440	97.95	310	29,025	1.07	324	95.81					
1973	415	32,692	1.27	382	108.64	274	22,749	1.20	266	102.96					
1974	379	27,889	1.36	333	113.81	245	18,976	1.29	226	108.24					
1975	290	25,410	1.14	275	105.45	179	16,733	1.07	181	98.87					
1976	201	23,569	0.85	223	90.13	163	15,181	1.07	143	113.69					
1977	241	21,935	1.10	230	104.78	126	13,541	0.93	142	88.91					
1978	256	23,358	1.10	273	93.77	184	13,576	1.36	159	115.98					
1979	316	25,963	1.22	312	101.28	188	14,299	1.31	172	109.50					
1980	356	27,537	1.29	316	112.66	163	14,850	1.10	171	95.58					
Part 1981	56	6,809	0.82	60	93.33	34	3,899	0.87	36	94.44					
Total	3,267	286,160	1.14	3,200	102.09	2,105	187,288	1.12	2,095	100.49					

\* Marital births only.

S.F. = Sampling fraction.

Exp. = Expected.

rates are again variable, more so for births at higher parities where the numbers of LS new births are low.

Second decade new births by mother's parity are shown in Table 7.4b. Both yearly sampling fractions and entry rates are highly variable at each parity, but variability is greater at higher parities where the numbers of LS births are low. The overall entry rates for each parity show less variation than in the first decade.

### 7.1.2 Immigrants into the LS

Immigrants into the LS join the study when they register for the first time with a GP. The issue of an NHS number

and the subsequent notification to NHSCR generates the entry of those immigrants born on LS dates into the sample. It should be noted that not all immigrants will register with a GP, and among those who register, many do so long after they have arrived in England and Wales.

The total number of immigrants entering the LS between Census day 1971 and the day prior to Census day 1991 was 54,851, with 31,224 immigrants recorded as entering the LS in the first decade. Among these, 3,681 immigrants were not identified until the 1981 Census-LS link exercise when they were found to have stated an LS date of birth on the census form. When these entrants were checked against the records at NHSCR they were found to possess an NHS number of the type issued to immigrants. They

**Table 7.4b Second decade new births by year of birth and mother's parity at registration\***

Year of birth	Parity 0					Parity 1					Parity 2				
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate
Part 1981	1,823	165,913	1.10	1,694	107.62	1,553	152,154	1.02	1,567	99.11	641	60,953	1.05	635	100.94
1982	2,139	211,862	1.01	2,138	100.02	2,004	200,681	1.00	2,026	98.93	884	81,431	1.09	822	107.55
1983	2,191	211,753	1.03	2,246	97.56	2,157	195,630	1.10	2,075	103.97	841	80,728	1.04	856	98.23
1984	2,450	210,421	1.16	2,483	98.67	2,302	193,093	1.19	2,279	101.03	943	80,643	1.17	952	99.10
1985	2,540	212,017	1.20	2,513	101.07	2,305	193,058	1.19	2,288	100.73	986	82,403	1.20	977	100.95
1986	2,258	206,942	1.09	2,293	98.49	2,039	189,186	1.08	2,096	97.29	931	80,842	1.15	896	103.96
1987	2,156	209,971	1.03	2,099	102.74	1,887	189,370	1.00	1,893	99.70	768	81,180	0.95	811	94.66
1988	2,236	209,291	1.07	2,225	100.50	1,985	185,553	1.07	1,973	100.63	813	79,411	1.02	844	96.30
1989	2,329	200,970	1.16	2,326	100.13	2,139	182,765	1.17	2,115	101.12	903	77,518	1.16	897	100.65
1990	2,390	200,394	1.19	2,349	101.73	2,212	185,334	1.19	2,173	101.80	927	79,040	1.17	927	100.04
Part 1991	542	58,365	0.93	570	95.03	522	53,739	0.97	525	99.40	241	22,948	1.05	224	107.46
Total	23,054	2,097,899	1.10	22,936	100.51	21,105	1,920,564	1.10	21,009	100.46	8,878	807,098	1.10	8,841	100.42
Year of birth	Parity 3					Parity 4 +									
	LS new births	E & W births	S.F.	Exp. in LS	Entry rate	LS new births	E & W births	S.F.	Exp. in LS	Entry rate					
Part 1981	211	19,351	1.09	212	99.53	122	11,081	1.10	127	96.06					
1982	271	27,123	1.00	274	98.99	139	14,977	0.93	151	91.95					
1983	252	26,646	0.95	283	89.18	156	15,166	1.03	161	96.99					
1984	311	26,860	1.16	317	98.12	198	15,336	1.29	181	109.41					
1985	363	26,865	1.35	318	114.00	178	15,824	1.12	188	94.90					
1986	299	26,920	1.11	298	100.26	185	15,783	1.17	175	105.81					
1987	286	26,593	1.08	266	107.60	163	15,966	1.02	160	102.15					
1988	274	26,379	1.04	280	97.71	162	15,591	1.04	166	97.74					
1989	291	25,807	1.13	299	97.43	164	14,861	1.10	172	95.35					
1990	306	25,984	1.18	305	100.45	183	15,389	1.19	180	101.43					
Part 1991	77	7,559	1.02	74	104.24	48	4,434	1.08	43	110.77					
Total	2,941	266,087	1.11	2,925	100.53	1,698	154,408	1.10	1,703	99.68					

\* Marital births only.

S.F. = Sampling fraction.

Exp. = Expected.

had not entered the study at the time of their original registration due to a non-LS date of birth on their NHS record. Like the group of new births into the LS who were found at the 1981 Census, this group of immigrants can be identified for analysis using tracing history indicators (see Appendix XIII).

Of the total 31,224 first decade immigrants only 15,342 traced immigrants were identified as such at the 1981 Census.<sup>3</sup> A further 12,201 persons were identified as immigrants after the 1981 Census though they had entered England and Wales in the first decade. Once identified they were added to the first decade LS immigrant file by date of entry.

During the second decade, 23,627 immigrants entered the LS as the result of registration with a GP. Any new immigrants identified from the 1991 Census who registered with the NHS prior to the census, have yet to be added to the second decade figures.

It should be noted that immigrants to the LS include persons entering England and Wales from Scotland, Northern Ireland, the Isle of Man and the Channel Islands, as well as those entering from abroad. A small number of immigrants are known as re-entrants to the NHS. Although born in England and Wales, these persons were not enumerated at the 1971 Census when the original LS sample was drawn. They subsequently returned to the country after

1971 and registered (or re-registered) with a GP retaining their original NHS number.

The capture of immigrants in the LS using information generated at NHSCR is known to be unreliable. This reflects the quality of migration data as a whole. Immigration figures for England and Wales are gathered from a number of different sources all of which are prone to error.<sup>4</sup> Migration data for the United Kingdom and its constituent parts should only be seen as an indicator of the true situation, due to the way in which the data is collected.

The main source of data on international migration is that collected by the International Passenger Survey (IPS) which samples travellers at ports and airports throughout the UK. Because only international arrivals and departures are sampled, anyone arriving on domestic flights (which include those from Southern Ireland) or via ferry routes across the Irish Sea is not included. The IPS surveys between 1971 and 1980 had standard errors for their yearly inflow estimates ranging from  $\pm 3$  per cent to  $\pm 4$  per cent. In the second decade the standard errors ranged from  $\pm 4$  per cent to  $\pm 5$  per cent.

Data on migration from Southern Ireland is estimated using inflow data from the British Labour Force Survey (LFS) and inflow and outflow data from the Irish LFS. The British LFS is a small survey with an accordingly large sampling error and tends to underestimate the inflow from Southern Ireland. The Irish LFS is a larger population sample and has smaller error estimates. However, the wording of the migration question in the Irish LFS tended to produce underestimates of the outflow until 1988, when the question was clarified to ensure that living abroad for long periods of time was considered to be emigration.<sup>4</sup>

Immigration into England and Wales from Northern Ireland, Scotland, the Isle of Man and the Channel Islands is recorded by NHSCR.

Both the numerators used for the number of immigrants entering the LS in each year and the denominators (all immigrants entering England and Wales in each year) are not only derived from different sources but are also known to be inaccurate. This must be taken into account particularly when examining the sampling fractions and linkage rates in the tables that follow.

### 7.1.2.1 By sex and year of entry

Table 7.5a shows the first decade immigrants and re-entrants to the LS by sex and year of entry to the LS. The sampling fractions and linkage rates are far higher than would be expected (with sampling fractions of over 2 per cent in some cases). The overall sampling fraction for the first decade was 1.78 per cent.

The first decade figures include the 3,681 immigrants found during the 1981 Census-LS link exercise to have an NHS immigrant number but a discrepant date of birth. However, exclusion of these extra persons only reduced the overall sampling fraction to 1.57 per cent and the linkage rate from 161.68 per cent to 142.62 per cent.

It is clear that there are problems with the capture of immigrants, especially in the first decade. It is probable that much of the bias in sampling fractions and linkage rates is due to the denominators used being too low. The England and Wales immigration figures used in calculating LS sampling fractions and expected entry rates are grossed up from the sample surveys discussed above.<sup>5</sup>

**Table 7.5a First decade immigrants and re-entrants by sex and year of entry**

Year of entry	Males					Females					Total				
	LS immi-grants	E & W immi-grants	S.F.	Exp. in LS	Entry rate	LS immi-grants	E & W immi-grants	S.F.	Exp. in LS	Entry rate	LS immi-grants	E & W immi-grants	S.F.	Exp. in LS	Entry rate
Part 1971	1,049	67,048	1.56	801	130.90	1,078	61,959	1.74	741	145.57	2,127	129,007	1.65	1,542	137.95
1972	1,816	108,300	1.68	1,184	153.43	1,851	100,800	1.84	1,102	168.02	3,667	209,100	1.75	2,285	160.46
1973	1,754	97,800	1.79	1,072	163.65	1,774	84,700	2.09	928	191.12	3,528	182,500	1.93	2,000	176.40
1974	1,537	94,300	1.63	1,033	148.73	1,652	71,900	2.30	788	209.66	3,189	166,200	1.92	1,821	175.09
1975	1,530	94,100	1.63	1,031	148.37	1,871	87,000	2.15	953	196.24	3,401	181,100	1.88	1,985	171.36
1976	1,637	93,000	1.76	1,016	161.06	1,712	85,700	2.00	937	182.79	3,349	178,700	1.87	1,953	171.48
1977	1,325	80,400	1.65	881	150.38	1,673	69,100	2.42	757	220.93	2,998	149,500	2.01	1,638	182.99
1978	1,443	89,700	1.61	983	146.79	1,600	86,300	1.85	946	169.18	3,043	176,000	1.73	1,929	157.77
1979	1,382	96,700	1.43	1,060	130.41	1,429	85,300	1.68	935	152.87	2,811	181,000	1.55	1,984	141.71
1980	1,225	86,400	1.42	944	129.73	1,321	77,200	1.71	844	156.57	2,546	163,600	1.56	1,788	142.40
Part 1981	273	19,755	1.38	208	131.28	292	16,996	1.72	179	163.22	565	36,751	1.54	387	146.05
Total	14,971	927,503	1.61	10,214	146.58	16,253	826,955	1.97	9,109	178.43	31,224	1,753,458	1.78	19,312	161.68

S.F. = Sampling fraction.

Exp. = Expected.

The second decade immigrants and re-entrants are shown in Table 7.5b. Both sampling fractions and linkage rates are much improved over those seen in the first decade (1.14 and 106.09 per cent respectively). It is not clear why there was such a noticeable improvement in the quality of data in the second decade.

## 7.2 THE QUALITY OF EXIT EVENT DATA

Between censuses exits from the LS occur by two means, death or emigration. Given the methods used to collect and link death information for LS members (see Chapter 6), the coverage of deaths to LS members should be in the region of 100 per cent. Emigration from the LS occurs when an LS member leaves England and Wales permanently. Information on emigrations is obtained from NHSCR.

### 7.2.1 Deaths of LS members

There were 125,919 deaths of LS members during the period from Census day 1971 to the day prior to Census 1991. Of these, 61,029 occurred in the first decade.

The quality of death data in the LS is good, with a linkage rate of 98.35 per cent for the first decade rising to 109.09 per cent in the second decade. The expected numbers of deaths to the LS population needed to calculate the linkage rates were generated by applying the England and Wales age-specific (and sex-specific) death rates for each year to the LS population. The LS population was aged by single years of age, adding immigrants and new births to the sample, and subtracting emigrants and deaths. Each decade

was dealt with separately using the 1971 and 1981 Census–LS samples as starting points.

The quality of death data for England and Wales is, like births data, extremely high. Death certificates are required by law before burial or cremation of a body, and as a result, virtually all deaths occurring in England and Wales are registered. Some delays in certification can occur if an inquest is required or a person has died while abroad. The number of deaths registered as occurring to LS members abroad is small; between 1971 and the Census in 1981 only 116 deaths of LS members were notified as occurring outside England and Wales. Deaths will only be missed where no body has been found as a result of disappearance either because of successful crime or misadventure.

#### 7.2.1.1 First decade deaths

Table 7.6a shows deaths by sex and age at death for the first decade. Overall the sampling fraction was 1.05 and the linkage rate 98.35 per cent. Some variation can be seen, particularly in the younger age groups, but much of this is likely to be due to the small numbers of deaths prior to reaching the age of 45. The majority of deaths occurred to those aged 65 and over (75 per cent in the first decade). A small number of deaths may have been missed because they occurred overseas after an LS member emigrated and were never notified to NHSCR. The deaths of the very elderly (85 and over) appear to be oversampled with linkage rates of over 100 per cent. This may be due to an over-estimation of age among the elderly, particularly those living in institutions. It should be noted that when a death is registered the deceased's date of birth is taken from the informant. No documentary evidence of that date is legally required.

**Table 7.5b Second decade immigrants and re-entrants by sex and year of entry**

Year of entry	Males					Females					Total				
	LS immi-grants	E & W immi-grants	S.F.	Exp. in LS	Entry rate	LS immi-grants	E & W immi-grants	S.F.	Exp. in LS	Entry rate	LS immi-grants	E & W immi-grants	S.F.	Exp. in LS	Entry rate
Part 1981	690	56,145	1.23	461	149.52	800	48,304	1.66	397	201.50	1,490	104,449	1.43	858	173.56
1982	782	96,200	0.81	1,054	74.18	889	93,900	0.95	1,029	86.39	1,671	190,100	0.88	2,083	80.21
1983	851	97,700	0.87	1,071	79.48	998	88,300	1.13	968	103.13	1,849	186,000	0.99	2,038	90.71
1984	917	93,400	0.98	1,021	89.83	1,066	93,500	1.14	1,022	104.32	1,983	186,900	1.06	2,043	97.08
1985	979	92,100	1.06	1,009	97.00	1,191	124,500	0.96	1,364	87.29	2,170	216,600	1.00	2,374	91.42
1986	1,215	113,500	1.07	1,244	97.68	1,399	118,300	1.18	1,296	107.91	2,614	231,800	1.13	2,540	102.90
1987	1,174	97,200	1.21	1,065	110.21	1,364	103,100	1.32	1,130	120.72	2,538	200,300	1.27	2,195	115.62
1988	1,195	101,700	1.18	1,111	107.51	1,357	100,400	1.35	1,097	123.67	2,552	202,100	1.26	2,209	115.54
1989	1,235	101,200	1.22	1,109	111.36	1,352	129,300	1.05	1,417	95.41	2,587	230,500	1.12	2,526	102.41
1990	1,326	124,500	1.07	1,364	97.19	1,619	125,700	1.29	1,378	117.53	2,945	250,200	1.18	2,742	107.41
Part 1991	595	32,819	1.81	298	199.43	633	39,932	1.59	363	174.37	1,228	72,751	1.69	661	185.68
Total	10,959	1,006,464	1.09	10,809	101.39	12,668	1,065,236	1.19	11,461	110.53	23,627	2,071,700	1.14	22,270	106.09

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.6a First decade deaths by sex and age at death**

Age at death	Males					Females					Total				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
0-4	702	64,267	1.09	701	100.14	548	47,383	1.16	544	100.74	1,250	111,650	1.12	1,245	100.40
5-14	134	13,207	1.01	136	98.53	71	8,415	0.84	91	78.02	205	21,622	0.95	227	90.31
15-24	320	33,064	0.97	359	89.14	138	13,467	1.02	148	93.24	458	46,531	0.98	507	90.34
25-34	313	32,301	0.97	346	90.46	219	18,733	1.17	208	105.29	532	51,073	1.04	554	96.03
35-44	611	60,163	1.02	649	94.14	356	41,000	0.87	448	79.46	967	101,163	0.96	1,097	88.15
45-54	2,073	202,009	1.03	2,170	95.53	1,321	125,116	1.06	1,377	95.93	3,394	327,126	1.04	3,547	95.69
55-64	5,431	513,164	1.06	5,568	97.54	3,212	291,621	1.10	3,248	98.89	8,643	804,785	1.07	8,816	98.04
65-74	10,156	954,623	1.06	10,115	100.41	6,823	654,678	1.04	7,063	96.60	16,979	1,609,301	1.06	17,178	98.84
75-84	8,272	785,880	1.05	8,418	98.27	10,418	1,006,725	1.03	10,883	95.73	18,690	1,792,606	1.04	19,301	96.83
85 +	2,915	276,334	1.05	2,736	106.54	6,996	680,558	1.03	6,844	102.22	9,911	956,892	1.04	9,580	103.46
Total	30,927	2,935,012	1.05	31,198	99.13	30,102	2,887,736	1.04	30,854	97.56	61,029	5,822,748	1.05	62,052	98.35

\* Expected deaths based on England and Wales age-specific death rates applied to the LS population.

S.F. = Sampling fraction.

Exp. = Expected.

Table 7.6b shows first decade deaths by sex, age and year of death. Large age groupings (0–14, 15–44, 45–64, 65–74 and 75+) are used because of the small numbers of deaths in younger age groups.

Among LS members aged 0 to 14, sampling fractions and linkage rates for deaths were very variable. This was mainly due to the small numbers of deaths in this age group (comprising only 2.7 per cent of all male deaths and 2.1 per cent of all female deaths in the first decade). Most deaths for this group occurred among those aged 0 to 4.

There were low numbers of deaths in the 15–44 age group. The small numbers again caused wide variation in both yearly sampling fractions and linkage rates for both males and females. Although the overall sampling fractions for the decade were 0.99 for males in this group and 0.97 for females, they ranged from a low of 0.87 to a high of 1.14 for males and a low of 0.70 to a high of 1.16 for females. Linkage rates showed the same patterns.

The greater number of deaths among the 45–64 age group gave a greater consistency in linkage rates and sampling fractions. The overall sampling fraction was 1.05 for males and 1.09 for females, and the overall linkage rates stood at 96.98 per cent for males and 101.18 per cent for females. Variability between the individual years was far less than for younger age groups. The number of male deaths over the decade was 60 per cent greater than the number of female deaths.

As the number of deaths increase among the older age groups, the variability decreases. Among the 65–74 age group the overall sampling fraction for males was 1.06 (a range of 0.97 to 1.11 over the decade) and for females 1.04 (with a range of 0.98 to 1.13). Linkage rates were

slightly more variable among males than females but the overall rates for both sexes were around 100 per cent.

The final age group, those aged 75 and over, had the most deaths and, as might be expected, there was a higher number of female deaths. There was little variability in either sampling fractions or linkage rates. The overall rates for sampling fractions were 1.05 for males and 1.03 for females. Overall linkage rates were 100.30 per cent and 100.97 per cent respectively.

### 7.2.1.2 Second decade deaths

Table 7.7a shows deaths by sex and age at death for the second decade. Sampling fractions and linkage rates are generally higher than in the first decade. The overall sampling fraction was 1.12 and the linkage rate was 109.09 per cent compared with 1.05 and 98.35 respectively in the first decade. Approximately 500 extra deaths were linked to the LS in this period due to the data cleaning at NHSCR following the computerisation of the index. This was an artefact of computerisation and these deaths would have been found during the data cleaning associated with the 1991 Census-LS link. Deaths to LS members which had been previously missed were linked back into the LS. Even allowing for the replacement of these missing deaths, there still appears to be undersampling of deaths for the under 14s and for LS members aged between 25 and 54 years of age. A small amount of oversampling is seen among those aged 15 to 24 and a much larger amount among those over 65. The population of LS members sampled at the 1981 Census was slightly larger than 1.05 per cent of the population of England and Wales (at 1.09 per cent; see Chapter 9) and this should be taken into account. The effect of this slightly larger sample is to allow more deaths to be included from the 1981 Census onwards. However,

**Table 7.6b First decade deaths by sex, age and year of death**

This table continues on the next page

**a) Males**

Year of death	Age at death														
	0-14					15-44					45-64				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1971	64	7,342	0.86	77	83.12	82	8,966	0.91	94	87.23	517	52,775	0.98	565	91.50
1972	120	9,985	1.20	87	137.93	112	12,853	0.87	139	80.58	846	78,039	1.08	843	100.36
1973	92	9,296	0.99	106	86.79	115	13,137	0.88	138	83.33	779	75,899	1.03	817	95.35
1974	99	8,601	1.15	105	94.29	121	12,711	0.95	139	87.05	791	74,271	1.07	804	98.38
1975	78	7,782	1.00	91	85.71	110	12,445	0.88	134	82.09	725	72,425	1.00	781	92.83
1976	69	7,070	0.98	78	88.46	131	12,496	1.05	135	97.04	782	72,497	1.08	784	99.74
1977	67	6,521	1.03	66	101.52	139	12,184	1.14	129	107.75	748	69,455	1.08	752	99.47
1978	76	6,499	1.17	67	113.43	130	12,711	1.02	136	95.59	721	69,281	1.04	754	95.62
1979	90	6,579	1.37	69	130.43	140	12,624	1.11	140	100.00	731	68,193	1.07	745	98.12
1980	72	6,202	1.16	72	100.00	130	12,271	1.06	134	97.01	653	65,746	0.99	714	91.46
Part 1981	9	1,507	0.60	18	50.00	34	3,130	1.09	34	100.00	211	16,592	1.27	179	117.88
Total	836	77,474	1.08	836	100.00	1,244	125,528	0.99	1,352	92.01	7,504	715,173	1.05	7,738	96.98

Year of death	Age at death										Total				
	65-74					75+									
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1971	597	61,754	0.97	642	92.99	665	67,368	0.99	692	96.10	1,925	198,296	0.97	2,070	93.00
1972	1,060	96,329	1.10	1,019	104.02	1,102	103,183	1.07	1,118	98.57	3,240	300,389	1.08	3,206	101.06
1973	994	95,605	1.04	1,006	98.81	1,092	102,609	1.06	1,106	98.73	3,072	296,546	1.04	3,173	96.82
1974	988	97,331	1.02	1,027	96.20	1,039	102,401	1.01	1,092	95.15	3,038	295,315	1.03	3,167	95.93
1975	1,069	96,934	1.10	1,028	103.99	1,066	104,588	1.02	1,101	96.82	3,048	294,174	1.04	3,135	97.22
1976	1,046	98,654	1.06	1,056	99.05	1,153	109,341	1.05	1,148	100.44	3,181	300,058	1.06	3,201	99.38
1977	1,048	95,873	1.09	1,024	102.34	1,137	105,740	1.08	1,106	102.80	3,139	289,773	1.08	3,077	102.01
1978	1,016	97,196	1.05	1,027	98.93	1,156	109,818	1.05	1,154	100.17	3,099	295,505	1.05	3,138	98.76
1979	1,054	96,764	1.09	1,023	103.03	1,205	113,702	1.06	1,195	100.84	3,220	297,862	1.08	3,172	101.51
1980	1,042	94,188	1.11	1,003	103.89	1,188	113,462	1.05	1,145	103.76	3,085	291,869	1.06	3,068	100.55
Part 1981	242	23,994	1.01	260	93.08	384	30,002	1.28	297	129.29	880	75,225	1.17	788	111.68
Total	10,156	954,623	1.06	10,115	100.41	11,187	1,062,214	1.05	11,154	100.30	30,927	2,935,012	1.05	31,195	99.14

\* Expected deaths based on England and Wales age-specific death rates applied to the LS population.

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.6b- continued**

**b) Females**

Year of death	Age at death														
	0-14					15-44					45-64				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1971	58	5,301	1.09	53	109.43	49	5,351	0.92	55	89.09	333	30,281	1.10	320	104.06
1972	81	7,307	1.11	64	126.56	78	7,757	1.01	80	97.50	501	45,016	1.11	480	104.38
1973	79	6,607	1.20	78	101.28	89	7,659	1.16	81	109.88	459	43,483	1.06	467	98.29
1974	82	6,096	1.35	72	113.89	73	7,394	0.99	76	96.05	504	43,299	1.16	464	108.62
1975	63	5,591	1.13	68	92.65	86	7,444	1.16	80	107.50	445	42,245	1.05	454	98.02
1976	40	4,196	0.81	55	72.73	72	7,274	0.99	81	88.89	442	42,411	1.04	454	97.36
1977	43	4,703	0.91	48	89.58	75	7,071	1.06	73	102.74	444	40,757	1.09	440	100.91
1978	51	4,813	1.06	51	100.00	52	7,447	0.70	80	65.00	461	40,518	1.06	440	104.77
1979	56	4,728	1.18	53	105.66	65	7,063	0.92	80	81.25	431	40,295	1.07	437	98.63
1980	55	4,668	1.18	55	100.00	58	6,995	0.83	74	78.38	432	38,614	1.12	418	103.35
Part 1981	11	1,067	1.03	12	91.67	16	1,784	0.90	20	80.00	111	9,819	1.13	106	104.72
Total	619	55,798	1.11	609	101.64	713	73,240	0.97	780	91.41	4,533	416,737	1.09	4,480	101.18
Year of death	Age at death										Total				
	65-74					75+									
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1971	456	44,023	1.04	459	99.35	994	106,837	0.93	1,053	94.40	1,890	191,794	0.99	1,940	97.42
1972	701	67,215	1.04	704	99.57	1,662	164,205	1.01	1,696	98.00	3,023	291,500	1.04	3,024	99.97
1973	739	67,137	1.10	700	105.57	1,728	166,046	1.04	1,720	100.47	3,094	290,932	1.06	3,046	101.58
1974	756	66,992	1.13	698	108.31	1,669	166,196	1.00	1,717	97.20	3,084	289,977	1.06	3,027	101.88
1975	645	65,822	0.98	686	94.02	1,688	167,565	1.01	1,722	98.03	2,927	288,667	1.01	3,010	97.24
1976	676	67,107	1.01	704	96.02	1,820	176,750	1.03	1,830	99.45	3,050	298,458	1.02	3,124	97.63
1977	692	64,903	1.07	680	101.76	1,798	168,721	1.07	1,723	104.35	3,052	286,155	1.07	2,964	102.97
1978	666	65,411	1.02	682	97.65	1,803	172,207	1.05	1,748	103.15	3,003	290,396	1.03	3,001	100.07
1979	686	65,646	1.04	687	99.85	1,843	177,425	1.04	1,800	102.39	3,081	295,157	1.04	3,057	100.79
1980	637	64,087	0.99	680	93.68	1,867	175,152	1.07	1,770	105.48	3,049	289,516	1.05	2,997	101.74
Part 1981	169	16,335	1.03	175	96.57	542	46,179	1.17	468	115.81	849	75,185	1.13	781	108.71
Total	6,823	654,678	1.04	6,855	99.53	17,414	1,687,284	1.03	17,247	100.97	30,102	2,887,736	1.04	29,971	100.44

\* Expected deaths based on England and Wales age-specific death rates applied to the LS population.

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.7a Second decade deaths by sex and age at death**

Age at death	Males					Females					Total				
	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate
0-4	428	42,136	1.02	438	97.72	297	31,095	0.96	323	91.95	725	73,231	0.99	761	95.27
5-14	78	8,059	0.97	88	88.73	51	5,344	0.95	65	78.46	129	13,403	0.96	153	84.36
15-24	355	31,966	1.11	340	104.41	141	12,006	1.17	127	111.02	496	43,972	1.13	467	106.21
25-34	343	32,416	1.06	366	93.72	203	17,003	1.19	196	103.57	546	49,419	1.10	562	97.15
35-44	611	57,798	1.06	641	95.32	386	38,317	1.01	420	91.90	997	96,115	1.04	1,061	93.97
45-54	1,533	146,711	1.04	1,630	94.05	979	91,255	1.07	997	98.19	2,512	237,966	1.06	2,627	95.62
55-64	4,794	430,479	1.11	4,708	101.83	2,819	258,296	1.09	2,830	99.61	7,613	688,775	1.11	7,538	100.99
65-74	9,695	844,537	1.15	9,195	105.44	6,676	583,467	1.14	6,368	104.84	16,371	1,428,004	1.15	15,563	105.19
75-84	10,452	941,044	1.11	9,684	107.93	12,016	1,051,079	1.14	11,016	109.08	22,468	1,992,123	1.13	20,700	108.54
85+	3,674	323,081	1.14	2,324	158.09	9,359	832,995	1.12	7,727	121.12	13,033	1,156,076	1.13	10,051	129.67
Total	31,963	2,858,227	1.12	29,414	108.67	32,927	2,920,855	1.13	30,069	109.50	64,890	5,779,082	1.12	59,483	109.09

\* Expected deaths based on England and Wales age-specific death rates applied to the LS population.

S.F. = Sampling fraction.

Exp. = Expected.

the application of age-specific death rates to the aged-on LS population should have taken this into account. It is probable that much of the variation seen is due to the effect of sampling variation and in the case of the 15–24 age group, small numbers of deaths.

Table 7.7b shows second decade deaths by sex, age and year of death. The numbers of deaths occurring to the 0–14 age group in this period are very small, averaging 50 per year for males and 35 per year for females. As a result both sampling fractions and linkage rates show high variability with overall sampling fractions of 1.01 for males and 0.96 for females. The overall linkage rates are low at 96.40 per cent for males and 89.80 per cent for females.

Low numbers of deaths are also seen in the 15–44 age group for both males and females. Males had an average of 130 deaths per year, nearly twice as many as the females in this age group with an average of 73 deaths per year. Again there was high variability in both sampling fractions and linkage rates. Sampling fractions ranged from 0.88 to 1.20 for males with an overall sampling fraction of 1.07. For females the sampling fractions ranged from 0.85 to 1.40 with an overall sampling fraction of 1.08 for the decade. The overall linkage rates were 97.40 per cent for males and 98.49 per cent for females.

The number of deaths rose in the 45–65 age group. Males had double the number of deaths of females in the decade, and with the higher number of deaths the variability of sampling fractions and linkage rates lessened. The overall sampling fraction for males was 1.10 and for females 1.09. Given that the overall sampling fraction at the 1981 Census for the LS population was 1.09, these figures indicate that the deaths in this age group are probably being sampled correctly. The overall linkage rates of 99.81 per cent for males and 99.28 per cent for females tend to reinforce this.

The 65–74 age group is slightly oversampled. The overall

sampling fractions are 1.15 for males and 1.14 for females with linkage rates of 105.41 per cent and 104.84 per cent respectively. It is not clear why this group should be oversampled. The 75 and over age group also shows oversampling, with sampling fractions of 1.12 for males and 1.13 for females for the whole decade. Linkage rates however, are somewhat higher than expected at 117.65 per cent for males and 114.04 per cent for females.

## 7.2.2 Emigrants out of the LS

Two sources of emigration data are used to update the index at NHSCR. One source is Family Health Service Authority (FHSA) (previously FPC) data on persons leaving the NHS system, and the other is data acquired from the Department of Social Security (DSS). NHSCR is notified of embarkations from England and Wales if the persons emigrating return their NHS registration cards to their FHSAs. The notification that a person has left the NHS system is then passed to NHSCR by the FHSAs (see Chapter 6). However, most people do not bother to return their cards, or to inform their GPs that they are leaving the country permanently.

Additional data on emigration is available from the DSS. However, this data applies to specific groups of individuals claiming allowances or benefits rather than the whole population. The groups covered are mothers who can no longer claim child benefit if leaving the country, and pensioners who need to alter the method of claiming their statutory retirement pension if resident in another country. The DSS figures do not include those persons leaving England and Wales for countries in the rest of the UK – the benefit systems are the same in Northern Ireland and Scotland and are centrally administered. Both FHSA and DSS data are used by NHSCR in generating information on LS emigrations, but because of the gaps in coverage noted above a great number of emigrations are missed.

**Table 7.7b Second decade deaths by sex, age and year of death**

This table continues on the next page

**a) Males**

Year of death	Age at death														
	0-14					15-44					45-64				
	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate
Part 1981	49	4,283	1.14	46	106.52	107	8,896	1.20	95	112.63	485	47,155	1.03	509	95.28
1982	61	5,503	1.11	49	124.49	117	11,985	0.98	131	89.31	678	62,665	1.08	684	99.12
1983	53	5,163	1.03	53	100.00	123	11,867	1.04	127	96.85	732	62,947	1.16	687	106.55
1984	51	4,902	1.04	51	100.00	114	11,757	0.97	129	88.37	675	61,987	1.09	678	99.56
1985	42	4,979	0.84	56	75.00	134	11,831	1.13	127	105.51	659	60,542	1.09	666	98.95
1986	45	5,002	0.90	57	78.95	134	12,046	1.11	133	100.75	623	58,007	1.07	638	97.65
1987	51	4,928	1.03	52	98.08	140	12,241	1.14	137	102.19	590	55,045	1.07	609	96.88
1988	52	5,012	1.04	48	108.33	117	12,303	0.95	138	84.78	599	53,492	1.12	590	101.53
1989	50	4,682	1.07	50	100.00	136	12,434	1.09	139	97.84	582	51,087	1.14	564	103.19
1990	40	4,471	0.89	49	81.63	153	12,958	1.18	144	106.25	546	49,747	1.10	552	98.91
Part 1991	12	1,270	0.94	14	86.20	34	3,862	0.88	44	77.27	158	14,517	1.09	162	97.53
Total	506	50,195	1.01	525	96.40	1,309	122,180	1.07	1,344	97.40	6,327	577,191	1.10	6,339	99.81

Year of death	Age at death										Total				
	65-74					75+									
	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate
Part 1981	754	68,195	1.11	730	103.29	987	85,268	1.16	881	112.03	2,382	213,797	1.11	2,262	105.31
1982	990	91,079	1.09	995	99.50	1,305	118,934	1.10	1,249	104.48	3,151	290,166	1.09	3,109	101.35
1983	1,020	88,622	1.15	965	105.70	1,337	120,820	1.11	1,185	112.83	3,265	289,419	1.13	3,017	108.22
1984	936	83,728	1.12	912	102.63	1,364	119,983	1.14	1,162	117.38	3,140	282,357	1.11	2,932	107.09
1985	975	85,695	1.14	923	105.63	1,467	128,270	1.14	1,232	119.07	3,277	291,317	1.12	3,004	109.09
1986	1,009	84,437	1.19	914	110.39	1,349	128,402	1.05	1,211	111.40	3,160	287,894	1.10	2,953	107.01
1987	950	82,021	1.16	948	100.21	1,357	125,942	1.08	1,167	116.28	3,088	280,177	1.10	2,913	106.01
1988	921	80,870	1.14	874	105.38	1,444	129,254	1.12	1,178	122.58	3,133	280,931	1.12	2,829	110.75
1989	954	79,012	1.21	852	111.97	1,506	134,075	1.12	1,202	125.29	3,228	281,290	1.15	2,807	115.00
1990	896	77,604	1.15	833	107.56	1,477	132,516	1.11	1,176	125.60	3,112	277,296	1.12	2,754	113.00
Part 1991	290	23,274	1.25	251	115.54	533	40,661	1.31	364	146.43	1,027	83,583	1.23	834	123.14
Total	9,695	844,536	1.15	9,197	105.41	14,126	1,264,125	1.12	12,007	117.65	31,963	2,858,228	1.12	29,414	108.67

\* Expected deaths based on England and Wales age-specific death rates applied to the LS population.

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.7b- continued**

**b) Females**

Year of death	Age at death														
	0-14					15-44					45-64				
	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate
Part 1981	19	3,034	0.63	31	61.29	69	5,071	1.36	56	124.17	311	27,905	1.11	303	102.64
1982	30	3,952	0.76	34	88.24	70	6,749	1.04	74	94.64	401	37,741	1.06	412	97.33
1983	34	3,817	0.89	40	85.00	72	6,589	1.09	73	98.63	465	37,578	1.24	412	112.92
1984	31	3,610	0.86	37	83.78	72	6,530	1.10	71	100.89	372	37,147	1.00	404	92.08
1985	43	3,696	1.16	42	102.38	64	6,596	0.97	72	88.54	394	36,775	1.07	403	97.77
1986	40	3,600	1.11	41	97.56	94	6,716	1.40	73	128.77	385	34,546	1.11	377	102.12
1987	38	3,607	1.05	40	95.00	65	6,769	0.96	75	86.67	359	33,774	1.06	368	97.55
1988	38	3,569	1.06	39	97.44	71	6,887	1.03	78	91.03	344	32,552	1.06	357	96.43
1989	35	3,379	1.04	37	94.52	58	6,784	0.85	75	77.33	348	31,742	1.10	350	99.43
1990	32	3,241	0.99	36	90.10	75	6,665	1.13	71	105.63	323	30,848	1.05	341	94.72
Part 1991	8	935	0.86	11	72.73	20	1,970	1.02	23	86.96	96	8,942	1.07	99	96.97
Total	348	36,439	0.96	388	89.80	730	67,326	1.08	741	98.49	3,798	349,551	1.09	3,826	99.28

Year of death	Age at death										Total				
	65-74					75+									
	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS*	Linkage rate
Part 1981	487	46,427	1.05	498	97.79	1,524	131,247	1.16	1,351	112.81	2,410	213,683	1.13	2,240	107.59
1982	718	62,221	1.15	678	105.90	2,046	181,032	1.13	1,897	107.85	3,265	291,695	1.12	3,095	105.49
1983	684	59,913	1.14	652	104.91	2,036	182,292	1.12	1,881	108.24	3,291	290,189	1.13	3,059	107.58
1984	640	57,812	1.11	632	101.29	2,016	179,424	1.12	1,832	110.04	3,131	284,524	1.10	2,976	105.21
1985	695	59,285	1.17	643	108.09	2,069	192,091	1.08	1,930	107.20	3,265	298,443	1.09	3,090	105.66
1986	720	58,360	1.23	633	113.74	2,166	190,087	1.14	1,909	113.46	3,405	293,309	1.16	3,034	112.23
1987	670	56,858	1.18	624	107.37	2,114	185,809	1.14	1,823	115.96	3,246	286,817	1.13	2,930	110.78
1988	616	56,567	1.09	622	99.04	2,184	190,902	1.14	1,846	118.31	3,253	290,477	1.12	2,942	110.57
1989	663	55,932	1.19	618	107.28	2,256	197,745	1.14	1,875	120.32	3,360	295,582	1.14	2,956	113.67
1990	608	53,770	1.13	590	103.05	2,209	193,986	1.14	1,826	120.97	3,247	288,510	1.13	2,865	113.33
Part 1991	175	16,321	1.07	178	98.31	755	59,458	1.27	574	131.53	1,054	87,627	1.20	884	119.23
Total	6,676	583,467	1.14	6,368	104.84	21,375	1,884,073	1.13	18,744	114.04	32,927	2,920,856	1.13	30,071	109.50

\* Expected deaths based on England and Wales age-specific death rates applied to the LS population.

S.F. = Sampling fraction.

Exp. = Expected.

As with immigrations there is a numerator/denominator mismatch. NHSCR LS migration data (though known to be inadequate) is used for the numerator when calculating sampling fractions and linkage rates. The denominator is the emigration data for England and Wales taken from the published migration figures.<sup>5</sup> It should be noted that emigration data for the total population of England and Wales are based on the same sources as those used for estimating immigration<sup>4</sup> and are subject to the same caveats (see section 7.1.2).

### 7.2.2.1 First decade emigration

First decade emigrations by sex and year of emigration are shown in Table 7.8a. The number of known emigrants from the LS in the first decade is small both in terms of sampling fractions and linkage rates. An overall sampling fraction of 0.71 probably indicates that there is undersampling in the LS but, given the caveats on the England and Wales emigration figures, it cannot be seen as an accurate measure of the quality of the data.

### 7.2.2.2 Second decade emigration

The quality of the LS emigration data for the second decade is far worse than in the first decade as Table 7.8b shows. The overall sampling fraction dropped from 0.71 in the first decade to 0.39 in the second decade and the linkage rate from 64.49 per cent to 35.80 per cent. This latter figure will rise over the decade as many emigrations are notified belatedly. After the 1981 Census data had been linked to the sample only 5,625 LS members were known to have emigrated in the first decade.<sup>3</sup> By the end of 1993 the number of first decade emigrations had increased to

14,123 due to a combination of data cleaning and late reporting of first decade emigrants. Similarly, late reports of second decade emigrants will still be coming into NHSCR for some time to come and sampling fractions and linkage rates will rise.

## 7.3 THE QUALITY OF OTHER EVENT DATA

As well as entry and exit events occurring to members of the LS, data on a number of other events are collected. These fall into two types – those for which quality can be measured and those for which it cannot.

The events for which quality can be measured are births occurring to women in the LS sample (and to men in the LS sample between 1971 and 1978), widow(er)hoods, cancer registrations and infant mortality of children of female LS members.

The quality of event data cannot be assessed for enlistments into the armed services, entries into long-stay psychiatric hospitals (collected from 1971 to 1983), inter-FPC moves (between 1971 and 1974), and re-entries to the NHS of LS members returning from the armed services, psychiatric hospitals and previous emigrations. All these events were collected and recorded at NHSCR, but before the introduction of the computerised database in 1991 all processing was manual. No annual figures for England and Wales are available. These data are shown as tables in section 7.3.6, giving the number of events occurring to LS members by sex and year of occurrence.

**Table 7.8a First decade emigrations (embarkations) by sex and year of emigration**

Year of emigration	Males					Females					Total				
	Emig-rants from LS	Emig-rants from E & W	S.F.	Exp. in LS	Linkage rate	Emig-rants from LS	Emig-rants from E & W	S.F.	Exp. in LS	Linkage rate	Emig-rants from LS	Emig-rants from E & W	S.F.	Exp. in LS	Linkage rate
Part 1971	560	75,438	0.74	827	67.74	485	71,930	0.67	788	61.53	1,045	147,368	0.71	1,615	64.71
1972	954	109,800	0.87	1,200	79.50	799	96,400	0.83	1,054	75.84	1,753	206,200	0.85	2,254	77.79
1973	980	110,100	0.89	1,207	81.22	897	109,100	0.82	1,196	75.02	1,877	219,200	0.86	2,402	78.14
1974	1,058	124,900	0.85	1,369	77.30	897	111,200	0.81	1,219	73.61	1,955	236,100	0.83	2,587	75.56
1975	750	112,200	0.67	1,230	61.00	669	99,400	0.67	1,089	61.41	1,419	211,600	0.67	2,319	61.19
1976	562	105,000	0.54	1,148	48.97	590	82,600	0.71	903	65.36	1,152	187,600	0.61	2,050	56.19
1977	651	105,600	0.62	1,157	56.25	604	80,300	0.75	880	68.64	1,255	186,000	0.67	2,038	61.57
1978	622	94,300	0.66	1,033	60.19	562	75,600	0.74	828	67.83	1,184	169,900	0.70	1,862	63.59
1979	533	96,000	0.56	1,052	50.66	573	75,300	0.76	825	69.44	1,106	171,200	0.65	1,876	58.95
1980	522	120,300	0.43	1,315	39.70	524	80,100	0.65	875	59.86	1,046	200,400	0.52	2,190	47.76
Part 1981	178	31,181	0.57	342	52.09	153	22,696	0.67	249	61.51	331	53,877	0.61	590	56.06
Total	7,370	1,084,818	0.68	11,941	61.72	6,753	904,626	0.75	9,957	67.82	14,123	1,989,445	0.71	21,898	64.49

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.8b Second decade emigrations (embarkations) by sex and year of emigration**

Year of emigration	Males					Females					Total				
	Emig-rants from LS	Emig-rants from E & W	S.F.	Exp. in LS	Linkage rate	Emig-rants from LS	Emig-rants from E & W	S.F.	Exp. in LS	Linkage rate	Emig-rants from LS	Emig-rants from E & W	S.F.	Exp. in LS	Linkage rate
Part 1981	510	119,800	0.43	971	52.51	482	87,200	0.55	707	68.19	992	207,000	0.48	1,678	59.12
1982	634	117,500	0.54	1,288	49.24	577	112,200	0.51	1,230	46.93	1,211	229,700	0.53	2,517	48.11
1983	416	80,500	0.52	882	47.16	452	80,900	0.56	887	50.98	868	161,400	0.54	1,769	49.07
1984	358	73,200	0.49	800	44.75	363	77,800	0.47	850	42.69	721	151,000	0.48	1,650	43.69
1985	302	78,800	0.38	864	34.97	272	76,100	0.36	834	32.61	574	154,900	0.37	1,698	33.81
1986	281	96,300	0.29	1,055	26.63	251	92,000	0.27	1,008	24.90	532	188,300	0.28	2,064	25.78
1987	280	96,200	0.29	1,054	26.56	270	92,900	0.29	1,018	26.52	550	189,100	0.29	2,072	26.54
1988	340	110,400	0.31	1,207	28.18	368	102,600	0.36	1,121	32.82	708	213,000	0.33	2,328	30.41
1989	267	97,000	0.28	1,063	25.12	387	91,400	0.42	1,002	38.64	654	188,400	0.35	2,065	31.68
1990	332	99,300	0.33	1,088	30.51	446	103,700	0.43	1,136	39.25	778	203,000	0.38	2,225	34.97
Part 1991	11	32,699	0.03	358	3.07	17	3,158	0.05	346	4.91	28	64,282	0.04	704	3.97
Total	3,731	1,001,699	0.37	10,927	34.15	3,885	916,800	0.42	10,001	38.85	7,616	1,950,082	0.39	21,272	35.80

S.F. = Sampling fraction.

Exp. = Expected.

In the following sections (7.3.1 to 7.3.5) events are examined for the quality of sampling and linkage. The population base against which each event is measured varies according to the type of event being studied. Births to women in the LS sample (sample mothers) are measured against all births (live and still) occurring in England and Wales, except when examining parity (defined here as the number of previous marital liveborn children – see section 7.1.1.4) and births by mother's place of birth. Only live birth data is available for parity and for births in England and Wales by mother's place of birth. Births to men in the LS sample (sample fathers) are measured against marital and non-marital jointly registered live births in England and Wales. LS live birth data (rather than all birth data) are therefore used when examining parity, births by birthplace of mother and births to sample fathers. LS widow(er)hoods are measured against all widow(er)hoods occurring in England and Wales and collected at death registration by OPCS. Cancer registrations for LS members are compared with cancer registrations recorded for the population of England and Wales by the cancer registries and sent to NHSCR. LS infant mortality is measured against infant mortality occurring to children born to women in England and Wales for the years in question.

### 7.3.1 Births to women in the LS sample

Both live and stillbirths occurring to LS women have been collected since Census day 1971 and include both marital and non-marital births. Up to Census day 1991 there were 133,304 births to mothers in the sample. Less than 1 per cent (895) of these births were stillbirths. The quality of linkage of these births to sample mothers is good overall (92 per cent linkage in the first decade rising to 93 per cent

in the second) but the capture rate is not as high as that for new birth entries into the LS. Unlike new births, which enter the sample if the infant's birthdate is on an LS date, births occurring to LS women are linked to the sample using the mother's birthdate. If there is a discrepancy between the mother's birthdate given at census or at immigration and that given when registering her child's birth, then no linkage between the mother and child can be made. It is likely that most of the births that have not been linked have been missed because of a discrepancy in the mother's birthdate as given at birth registration.

After the 1981 Census an exercise was undertaken to try and improve the linkage of births to sample mothers. Checks were made of the number of children present in the household of an LS mother at the 1981 Census and the number reported for her in the LS. If the census showed a higher number of children than the LS then the birth files were searched to identify any missing births. The draft birth entry forms were examined to check whether the mother was an LS member and if so, the birth was added into the LS. A total of 4,394 births occurring to traced LS women between 1971 and Census day 1981 were added to the sample by this exercise and are included in the tables (see also Chapter 6, section 6.2.1).

The method used for calculating expected births to sample mothers assumes that approximately 1.1 per cent (4/365) of all births occurring in England and Wales would be to women in the LS and that those births would be spread equally throughout the year. Apart from fractional years (1971, 1981 and 1991) the proportion of births occurring to sample mothers would be 4/365 (or 4/366 if the year was a leap year). This was based on two assumptions.

First, that of all births in a year, four out of every 365 would be to a woman with an LS date of birth, and second, that the age distribution of women in the LS sample is the same as that of the population of England and Wales. The expected number of births in fractional years was calculated differently, but the probability of a birth occurring in the fraction of the year was assumed, as in non-fractional years, to be equally spread across the fraction of the year. In 1971 there were 251 days from census day to the end of the year; in 1981, 95 days before the census and 270 from census day on; and in 1991 the pre-census period was 110 days. The expected number of births for these fractional

years was calculated as follows:

$$\Sigma \text{ of all births in E \& W for year } x \text{ (fraction of year)} \times (4/365)$$

### 7.3.1.1 By sex and year of birth

Table 7.9a shows first decade births to sample mothers by sex and year of birth. Sampling fractions are lower than would be expected at 0.99 over the decade for male births and 1.01 for female births.

Linkage rates are slightly better for female births than for

**Table 7.9a First decade births to sample mothers by sex and year of birth**

Year of birth	Males					Females					Total				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1971	2,467	280,748	0.88	3,077	80.18	2,521	264,612	0.95	2,900	86.93	5,168	545,360	0.95	5,977	86.46
1972	3,743	378,395	0.99	4,135	90.51	3,674	355,844	1.03	3,889	94.47	7,417	734,239	1.01	8,024	92.43
1973	3,540	352,714	1.00	3,865	91.58	3,389	331,175	1.02	3,629	93.38	6,929	683,889	1.01	7,495	92.45
1974	3,387	333,038	1.02	3,650	92.80	3,079	314,022	0.98	3,441	89.47	6,466	647,060	1.00	7,091	91.19
1975	3,043	313,866	0.97	3,440	88.47	2,984	295,874	1.01	3,242	92.03	6,027	609,740	0.99	6,682	90.20
1976	3,045	303,263	1.00	3,314	91.87	2,932	286,716	1.02	3,134	93.57	5,977	589,979	1.01	6,448	92.70
1977	3,062	295,770	1.04	3,241	94.47	2,892	278,894	1.04	3,056	94.62	5,954	574,664	1.04	6,298	94.54
1978	3,193	309,722	1.03	3,394	94.07	3,003	291,804	1.03	3,198	93.91	6,196	601,526	1.03	6,592	93.99
1979	3,356	330,964	1.01	3,627	92.53	3,136	312,189	1.00	3,421	91.66	6,492	643,153	1.01	7,048	92.11
1980	3,329	338,437	0.98	3,699	90.00	3,193	322,570	0.99	3,525	90.57	6,522	661,007	0.99	7,224	90.28
Part 1981	839	85,343	0.98	935	89.73	883	80,894	1.09	887	99.55	1,722	166,237	1.04	1,822	94.51
Total	33,004	3,322,260	0.99	36,378	90.73	31,686	3,134,594	1.01	34,323	92.32	64,870	6,456,854	1.00	70,701	91.75

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.9b Second decade births to sample mothers by sex and year of birth**

Year of birth	Males					Females					Total				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1981	2,472	242,554	1.02	2,658	93.00	2,325	229,908	1.01	2,520	92.28	4,797	472,462	1.02	5,178	92.65
1982	3,388	323,444	1.05	3,545	95.58	3,037	306,426	0.99	3,358	90.44	6,425	629,870	1.02	6,903	93.08
1983	3,416	325,152	1.05	3,563	95.87	3,204	307,613	1.04	3,371	95.04	6,620	632,765	1.05	6,934	95.47
1984	3,533	328,006	1.08	3,585	98.56	3,233	312,455	1.03	3,415	94.68	6,766	640,461	1.06	7,000	96.66
1985	3,438	338,818	1.01	3,713	92.59	3,363	321,244	1.05	3,520	95.53	6,801	660,062	1.03	7,234	94.02
1986	3,464	340,756	1.02	3,734	92.76	3,262	323,811	1.01	3,549	91.92	6,726	664,567	1.01	7,283	92.35
1987	3,491	351,493	0.99	3,852	90.63	3,349	333,441	1.00	3,654	91.65	6,840	684,934	1.00	7,506	91.13
1988	3,718	356,765	1.04	3,899	95.36	3,320	340,194	0.98	3,718	89.30	7,038	696,959	1.01	7,617	92.40
1989	3,684	354,143	1.04	3,881	94.92	3,396	336,818	1.01	3,691	92.00	7,080	690,961	1.02	7,572	93.50
1990	3,677	363,165	1.01	3,980	92.39	3,539	346,231	1.02	3,794	93.27	7,216	709,396	1.02	7,774	92.82
Part 1991	1,139	108,533	1.05	1,189	95.76	986	103,171	0.96	1,131	87.21	2,125	211,704	1.00	2,320	91.59
Total	35,420	3,432,829	1.03	37,600	94.20	33,014	3,261,312	1.01	35,721	92.42	68,434	6,694,141	1.02	73,320	93.34

S.F. = Sampling fraction.

Exp. = Expected.

male births. The addition of the 4,394 missing births to the first decade sample after the 1981 Census improved the overall linkage rate by 6.21 per cent from 85.54 to the 91.75 per cent shown in the table, and the sampling fraction rose from 0.95 to 1.

In the second decade, despite the lack of an exercise to improve linkage retrospectively, there was a slight improvement in both sampling fractions and linkage rates, with male births showing better rates than female births. Overall the sampling fraction rose to 1.02 and the linkage rate to 93.34 per cent.

Much of this improvement in linkage over the second decade is due to the higher tracing rates of the LS population after 1981. At the 1971 Census women either already in the fertile period (aged 15–44 at census), or entering it by the next census (aged 5–14 in 1971) had ‘no trace’ rates that averaged over 5 per cent for women aged 20–39. The lowest no trace rates were found among those aged 5–14 (around 2 per cent). At the 1981 Census the ‘no trace’ rates for women aged between 5 and 44 at census had dropped to between 0.1 and 1.7 per cent (see Chapter 8 for further details of tracing rates).

### 7.3.1.2 By marital status of the mother

First decade births by marital status of the mother (Table 7.10a) show a consistently higher rate of linkage for marital births than for non-marital births. The proportion of non-marital births among births to sample mothers in the first decade was 8.8 per cent compared with 9.6 per cent of all births in England and Wales. The linkage rates for marital births ranged between 87.57 and 95.65 per cent over the decade compared with rates which did not rise over 86.38 per cent for non-marital births.

By the second decade (Table 7.10b), non-marital births were increasing as a proportion of all births (21 per cent of all births to sample mothers were outside marriage between the 1981 and 1991 Censuses). Births outside marriage had become more socially acceptable and the improvements in linkage rates for this group may be a reflection of this. On the whole the quality of linkage for both marital and non-marital birth data improved. However, the improvement was more marked for non-marital births where the overall sampling fraction increased from 0.91 in the first decade to 0.99 in the second decade, and the overall linkage rate rose from 83.31 per cent to 90.70. Neither the sampling fractions nor the linkage rates were as high as those for second decade marital births overall which stood at 1.03 and 94.05 per cent respectively.

### 7.3.1.3 By mother’s age at registration

Table 7.11a shows first decade births to sample mothers by year of birth and mother’s age at the registration of the birth. The linkage of births was most complete among the mothers aged 20–24 where the overall sampling fraction was 1.02 and the linkage rate 93.32 per cent for the whole

decade. The largest number of births actually occurred among the 25–29 year age group, and though both the sampling fractions and linkage rates were lower than those found among the 20–24 year age group, the variability was less. Variability in sampling fractions and linkage rates was high at both ends of the age distribution. Some of this variability was probably due to the small numbers of births occurring among women aged over 35, accounting for only 6 per cent of all births to sample mothers in the first decade.

During the second decade (Table 7.11b) linkage of births to sample mothers improved greatly for all age groups, but particularly for those aged under 20, where the overall linkage rate for the decade was 94.24 per cent. Variability in sampling fractions and linkage rates was still high at either end of the age distribution but low variability was now found for two age groups, 20–24 and 25–29. Overall sampling fractions ranged from 1 to 1.03 compared with a range of 0.92 to 1.02 in the first decade.

### 7.3.1.4 By mother’s place of birth

Only live births by mother’s place of birth are available for England and Wales. The LS births shown in Tables 7.12a and 7.12b are live births only.

Eighty-eight per cent of all live births to sample mothers, in both the first and second decades, occurred to women whose place of birth was the UK. In the first decade 1.7 per cent of sample births were to women born in the Irish Republic but this dropped to 0.8 per cent in the second decade. The proportion of births occurring to women born in the New Commonwealth and Pakistan rose from 7.9 per cent in the first decade to 9 per cent in the second.

The quality of data was good for births occurring to mothers born in the UK but unreliable for other groups. Births occurring to women born in the New Commonwealth and Pakistan were oversampled in both decades, with the oversampling increasing in the second decade. Large numbers of women in this group entered the UK in the 1970s and 80s to join husbands who were already resident. Many, especially those coming from agricultural areas of the Indian subcontinent, were illiterate and either did not know their dates of birth or could not translate from one dating system to another.

First decade births to sample mothers by mother’s place of birth are shown in Table 7.12a. The quality of the data for births to sample mothers whose birthplace was the UK was high, and variability of both sampling fractions and linkage rates was low, with an overall sampling fraction of 1.01 and linkage rate of 91.92 per cent.

Where the mother’s place of birth was given as the Irish Republic the quality of the data was low and the variability was extremely high. Linkage rates ranged between 55.16 and 88.12 per cent but much of this was probably due to the low numbers of births. The overall sampling fraction was 0.82 and the overall linkage rate 74.72 per cent.

**Table 7.10a First decade births to sample mothers by year of birth and marital status of mother**

Year of birth	Marital births					Non-marital births					All births				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1971	4,793	499,458	0.96	5,474	87.57	375	45,902	0.82	503	74.55	5,168	545,360	0.95	5,977	86.47
1972	6,828	670,777	1.02	7,331	93.14	589	63,462	0.93	694	84.92	7,417	734,239	1.01	8,024	92.43
1973	6,371	624,913	1.02	6,848	93.03	558	58,976	0.95	646	86.34	6,929	683,889	1.01	7,495	92.45
1974	5,942	589,740	1.01	6,463	91.94	524	57,320	0.91	628	83.42	6,466	647,060	1.00	7,091	91.19
1975	5,534	554,133	1.00	6,073	91.13	493	55,607	0.89	609	80.90	6,027	609,740	0.99	6,682	90.20
1976	5,475	535,526	1.02	5,853	93.55	502	54,453	0.92	595	84.35	5,977	589,979	1.01	6,448	92.70
1977	5,436	518,586	1.05	5,683	95.65	518	56,078	0.92	615	84.29	5,954	574,664	1.04	6,298	94.54
1978	5,623	540,190	1.04	5,920	94.98	573	61,336	0.93	672	85.25	6,196	601,526	1.03	6,592	93.99
1979	5,871	572,971	1.02	6,279	93.50	621	70,182	0.88	769	80.74	6,492	643,153	1.01	7,048	92.11
1980	5,785	582,939	0.99	6,371	90.80	737	78,068	0.94	853	86.38	6,522	661,007	0.99	7,224	90.28
Part 1981	1,532	144,978	1.06	1,589	96.43	190	21,259	0.89	233	81.55	1,722	166,237	1.04	1,822	94.52
Total	59,190	5,834,211	1.01	63,883	92.65	5,680	622,643	0.91	6,818	83.31	64,870	6,456,854	1.00	70,701	91.75

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.10b Second decade births to sample mothers by year of birth and marital status of mother**

Year of birth	Marital births					Non-marital births					All births				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1981	4,202	412,041	1.02	4,516	93.06	595	60,421	0.98	662	89.86	4,797	472,462	1.02	5,178	92.65
1982	5,501	539,356	1.02	5,911	93.07	924	90,514	1.02	992	93.15	6,425	629,870	1.02	6,903	93.08
1983	5,599	532,836	1.05	5,839	95.88	1,021	99,929	1.02	1,095	93.23	6,620	632,765	1.05	6,934	95.47
1984	5,636	529,178	1.07	5,783	97.45	1,130	111,283	1.02	1,216	92.91	6,766	640,461	1.06	7,000	96.66
1985	5,540	532,940	1.04	5,840	94.86	1,261	127,122	0.99	1,393	90.52	6,801	660,062	1.03	7,234	94.02
1986	5,312	522,273	1.02	5,724	92.81	1,414	142,294	0.99	1,559	90.68	6,726	664,567	1.01	7,283	92.35
1987	5,311	525,484	1.01	5,759	92.23	1,529	159,450	0.96	1,747	87.50	6,840	684,934	1.00	7,506	91.13
1988	5,332	518,547	1.03	5,667	94.09	1,706	178,412	0.96	1,950	87.49	7,038	696,959	1.01	7,617	92.40
1989	5,254	504,090	1.04	5,524	95.11	1,826	186,871	0.98	2,048	89.16	7,080	690,961	1.02	7,572	93.50
1990	5,154	508,317	1.01	5,571	92.52	2,062	201,079	1.03	2,204	93.57	7,216	709,396	1.02	7,774	92.82
Part 1991	1,472	147,678	1.00	1,618	90.95	653	64,025	1.02	702	93.07	2,125	211,704	1.00	2,320	91.59
Total	54,313	5,272,741	1.03	57,752	94.05	14,121	1,421,400	0.99	15,568	90.70	68,434	6,694,141	1.02	73,320	93.34

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.11a First decade births to sample mothers by year of birth and age of mother at registration**

Year of birth	Mother's age at registration														
	Under 20					20-24					25-29				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1971	500	57,566	0.87	631	79.26	1,864	198,646	0.94	2,177	85.62	1,720	171,951	1.00	1,884	91.28
1972	776	80,015	0.97	874	88.74	2,635	251,824	1.05	2,752	95.74	2,532	250,356	1.01	2,736	92.54
1973	700	74,170	0.94	813	86.12	2,281	226,006	1.01	2,477	92.10	2,524	246,339	1.02	2,700	93.50
1974	695	69,579	1.00	763	91.15	2,113	210,259	1.00	2,304	91.70	2,379	237,844	1.00	2,607	91.27
1975	646	64,198	1.01	704	91.82	1,944	192,023	1.01	2,104	92.38	2,196	228,151	0.96	2,500	87.83
1976	629	58,585	1.07	640	98.24	1,832	183,836	1.00	2,009	91.18	2,230	222,637	1.00	2,433	91.65
1977	588	55,112	1.07	604	97.36	1,842	176,149	1.05	1,930	95.42	2,152	209,647	1.03	2,298	93.67
1978	595	56,599	1.05	620	95.93	1,922	184,064	1.04	2,017	95.28	2,174	212,197	1.02	2,325	93.49
1979	579	59,722	0.97	654	88.47	2,075	194,729	1.07	2,134	97.23	2,230	223,695	1.00	2,451	90.97
1980	593	61,262	0.97	670	88.57	2,106	202,928	1.04	2,218	94.96	2,236	224,898	0.99	2,458	90.97
Part 1981	154	14,842	1.04	163	94.68	552	50,944	1.08	558	98.87	599	56,489	1.06	619	96.76
Total	6,455	651,651	0.99	7,135	90.46	21,166	2,071,408	1.02	22,681	93.32	22,972	2,284,204	1.01	25,011	91.85
Year of birth	30-34					35-39					40 and over				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
	Part 1971	691	76,400	0.90	837	82.53	319	31,759	1.00	348	91.66	74	9,039	0.82	99
1972	981	100,029	0.98	1,093	89.74	400	40,661	0.98	444	90.01	93	11,354	0.82	124	74.95
1973	963	92,971	1.04	1,019	94.52	361	34,841	1.04	382	94.55	100	9,562	1.05	105	95.43
1974	897	90,169	0.99	988	90.78	292	30,934	0.94	339	86.13	90	8,275	1.09	91	99.24
1975	880	89,318	0.99	979	89.90	294	28,632	1.03	314	93.70	67	7,418	0.90	81	82.42
1976	966	91,722	1.05	1,002	96.37	264	26,530	1.00	290	91.05	56	6,669	0.84	73	76.83
1977	1,073	101,732	1.05	1,115	96.24	241	25,915	0.93	284	84.86	58	6,109	0.95	67	86.63
1978	1,175	113,988	1.03	1,249	94.06	270	28,307	0.95	310	87.04	60	6,371	0.94	70	85.94
1979	1,241	126,622	0.98	1,388	89.43	301	31,733	0.95	348	86.55	66	6,652	0.99	73	90.54
1980	1,220	130,861	0.93	1,430	85.30	310	34,236	0.91	374	82.85	57	6,822	0.84	75	76.45
Part 1981	318	33,163	0.96	363	87.50	80	8,986	0.89	98	81.23	19	1,812	1.05	20	95.71
Total	10,405	1,046,975	0.99	11,464	90.76	3,132	322,534	0.97	3,532	88.69	740	80,082	0.92	877	84.39

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.11b Second decade births to sample mothers by year of birth and age of mother at registration**

Year of birth	Mother's age at registration														
	Under 20					20-24					25-29				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1981	398	42,184	0.94	462	86.09	1,503	144,787	1.04	1,587	94.72	1,631	160,548	1.02	1,759	92.70
1982	574	55,832	1.03	612	93.81	1,981	193,508	1.02	2,121	93.42	2,156	213,052	1.01	2,335	92.34
1983	553	54,456	1.02	597	92.66	2,021	192,892	1.05	2,114	95.61	2,265	215,184	1.05	2,358	96.05
1984	585	54,453	1.07	595	98.30	1,955	192,554	1.02	2,104	92.90	2,392	219,144	1.09	2,395	99.87
1985	642	57,290	1.12	628	102.26	2,029	194,997	1.04	2,137	94.95	2,332	228,594	1.02	2,505	93.09
1986	611	57,773	1.06	633	96.50	1,890	193,081	0.98	2,116	89.32	2,345	230,133	1.02	2,522	92.98
1987	588	57,865	1.02	634	92.72	1,924	194,190	0.99	2,128	90.41	2,436	240,008	1.01	2,630	92.62
1988	586	59,077	0.99	646	90.76	1,977	194,620	1.02	2,127	92.95	2,444	244,507	1.00	2,672	91.46
1989	542	55,868	0.97	612	88.53	1,878	186,075	1.01	2,039	92.10	2,539	243,832	1.04	2,672	95.02
1990	596	55,873	1.07	612	97.34	1,922	180,941	1.06	1,983	96.93	2,551	253,619	1.01	2,779	91.78
Part 1991	173	15,874	1.09	174	99.44	516	52,492	0.98	575	89.70	765	75,271	1.02	825	92.74
Total	5,848	566,545	1.03	6,205	94.24	19,596	1,920,138	1.02	21,031	93.18	23,843	2,323,892	1.03	25,453	93.67
Year of birth	30-34					35-39					40 and over				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
	Part 1981	973	94,253	1.03	1,033	94.20	243	25,541	0.95	280	86.82	49	5,148	0.95	56
1982	1,267	121,524	1.04	1,332	95.14	389	39,326	0.99	431	90.26	58	6,628	0.88	73	79.85
1983	1,265	121,685	1.04	1,334	94.86	434	41,595	1.04	456	95.21	82	6,953	1.18	76	107.62
1984	1,305	123,406	1.06	1,349	96.76	462	43,242	1.07	473	97.76	67	7,212	0.93	79	85.00
1985	1,269	126,930	1.00	1,391	91.23	438	44,697	0.98	490	89.42	91	7,554	1.20	83	109.93
1986	1,341	130,167	1.03	1,426	94.01	463	45,780	1.01	502	92.29	76	7,633	1.00	84	90.86
1987	1,306	137,219	0.95	1,504	86.85	505	46,919	1.08	514	98.21	94	8,733	1.08	96	98.22
1988	1,473	141,680	1.04	1,548	95.13	474	47,961	0.99	524	90.43	84	9,114	0.92	100	84.33
1989	1,508	146,002	1.03	1,600	94.25	528	49,774	1.06	545	96.80	85	9,410	0.90	103	82.43
1990	1,575	156,933	1.00	1,720	91.58	480	52,219	0.92	572	83.88	92	9,811	0.94	108	85.57
Part 1991	495	48,811	1.01	535	92.54	145	16,264	0.89	178	81.35	31	2,991	1.04	33	94.56
Total	13,777	1,348,610	1.02	14,771	93.27	4,561	453,317	1.01	4,965	91.86	809	81,188	1.00	889	90.98

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.12a First decade live births to sample mothers by year and mother's place of birth**

Year of birth	Mother's place of birth														
	United Kingdom					Irish Republic*					New Commonwealth and Pakistan				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1971	4,529	474,285	0.95	5,198	87.13	123	14,842	0.83	163	75.62	310	31,057	1.00	340	91.18
1972	6,514	640,010	1.02	6,995	93.12	158	18,911	0.84	207	76.45	479	43,003	1.11	470	101.91
1973	6,053	596,893	1.01	6,541	92.54	120	16,383	0.73	180	66.84	489	40,968	1.19	449	108.91
1974	5,638	564,191	1.00	6,183	91.19	141	14,601	0.97	160	88.12	463	39,982	1.16	438	105.71
1975	5,329	530,481	1.00	5,813	91.67	79	12,823	0.62	141	56.22	402	39,965	1.01	438	91.78
1976	5,208	511,212	1.02	5,587	93.22	99	11,387	0.87	124	79.55	442	41,953	1.05	459	96.30
1977	5,158	494,470	1.04	5,419	95.18	86	10,373	0.83	114	75.65	493	44,349	1.11	486	101.44
1978	5,302	517,795	1.02	5,674	93.44	81	9,767	0.83	107	75.68	568	47,964	1.18	526	107.98
1979	5,541	554,212	1.00	6,074	91.22	91	9,658	0.94	106	85.98	643	52,181	1.23	572	112.41
1980	5,575	569,069	0.98	6,219	89.64	73	9,154	0.80	100	72.97	629	55,478	1.13	606	103.80
Part 1981	1,488	143,523	1.04	1,573	94.60	13	2,150	0.60	24	55.16	164	13,837	1.19	152	107.89
Total	56,335	5,596,141	1.01	61,276	91.94	1,064	130,049	0.82	1,424	74.72	5,082	450,737	1.13	4,936	102.96
Year of birth	Old Commonwealth					Other (includes not stated)					Total				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
	Part 1971	7	1,680	0.42	18	38.89	154	16,689	0.92	183	84.15	5,123	538,553	0.95	5,902
1972	17	2,410	0.71	26	65.38	192	21,106	0.91	231	83.12	7,360	725,440	1.01	7,928	92.84
1973	23	2,435	0.94	27	85.19	181	19,274	0.94	211	85.78	6,866	675,953	1.02	7,408	92.68
1974	14	2,333	0.60	26	53.85	155	18,778	0.83	206	75.24	6,411	639,885	1.00	7,012	91.43
1975	19	2,172	0.87	24	79.17	154	18,004	0.86	197	78.17	5,980	603,445	0.99	6,613	90.43
1976	14	2,105	0.67	23	60.87	170	17,613	0.97	192	88.54	5,933	584,270	1.02	6,385	92.92
1977	17	2,170	0.78	24	70.83	149	17,897	0.83	196	76.02	5,902	569,259	1.04	6,238	94.61
1978	32	2,212	1.45	24	133.33	149	18,680	0.80	205	72.68	6,135	596,418	1.03	6,536	93.86
1979	16	2,488	0.64	27	59.26	160	19,489	0.82	214	74.77	6,452	638,028	1.01	6,992	92.28
1980	33	2,497	1.32	27	122.22	164	20,036	0.82	219	74.89	6,474	656,234	0.99	7,172	90.27
Part 1981	7	602	1.16	7	100.00	36	5,028	0.72	55	65.45	1,708	165,142	1.03	1,810	94.36
Total	199	23,104	0.86	253	78.66	1,664	192,594	0.86	2,109	78.90	64,340	6,392,627	1.01	69,996	91.92

\* Includes Ireland part not stated.

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.12b Second decade live births to sample mothers by year and mother's place of birth**

Year of birth	Mother's place of birth															
	United Kingdom					Irish Republic*					New Commonwealth and Pakistan					
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	
Part	1981	4,115	407,909	1.01	4,470	92.05	58	6,112	0.95	67	86.60	437	39,328	1.11	431	101.40
	1982	5,494	544,407	1.01	5,966	92.09	55	7,302	0.75	80	68.73	647	53,186	1.22	583	111.00
	1983	5,649	549,435	1.03	6,021	93.82	66	6,711	0.98	74	89.74	667	52,010	1.28	570	117.02
	1984	5,842	556,518	1.05	6,082	96.05	52	6,428	0.81	70	74.02	638	52,445	1.22	573	111.31
	1985	5,904	575,220	1.03	6,304	93.66	49	6,311	0.78	69	70.85	630	52,733	1.19	578	109.02
	1986	5,788	579,322	1.00	6,349	91.17	59	6,188	0.95	68	87.00	618	52,705	1.17	578	107.00
	1987	5,993	600,734	1.00	6,583	91.03	48	6,000	0.80	66	73.00	583	51,574	1.13	565	103.15
	1988	6,180	612,530	1.01	6,694	92.32	41	6,483	0.63	71	57.87	576	50,570	1.14	553	104.22
	1989	6,199	607,228	1.02	6,655	93.15	50	6,561	0.76	72	69.54	609	49,532	1.23	543	112.19
	1990	6,325	624,160	1.01	6,840	92.47	59	6,424	0.92	70	83.81	586	49,790	1.18	546	107.40
Part	1991	1,901	186,049	1.02	2,039	93.24	17	1,819	0.93	20	85.29	143	14,857	0.96	163	87.83
Total		59,390	5,843,511	1.02	64,003	92.79	554	66,338	0.84	727	76.24	6,134	518,729	1.18	5,682	107.96
Year of birth	Old Commonwealth					Other (includes not stated)					Total					
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	
	Part	1981	22	1,711	1.29	19	117.33	126	14,292	0.88	157	80.45	4,758	469,350	1.01	5,144
	1982	23	2,187	1.05	24	95.96	171	18,849	0.91	207	82.78	6,390	625,931	1.02	6,860	93.16
	1983	31	2,246	1.38	25	125.95	174	18,732	0.93	205	84.76	6,582	629,134	1.05	6,895	95.47
	1984	28	2,321	1.21	25	110.38	173	19,106	0.91	209	82.85	6,733	636,818	1.06	6,960	96.74
	1985	30	2,361	1.27	26	115.95	157	19,792	0.79	217	72.38	6,770	656,417	1.03	7,194	94.11
	1986	31	2,470	1.26	27	114.52	184	20,333	0.90	223	82.58	6,680	661,018	1.01	7,244	92.21
	1987	27	2,498	1.08	27	98.63	157	20,705	0.76	227	69.19	6,808	681,511	1.00	7,469	91.15
	1988	21	2,653	0.79	29	72.43	191	21,341	0.89	233	81.89	7,009	693,577	1.01	7,580	92.47
	1989	24	2,772	0.87	30	79.00	170	21,632	0.79	237	71.71	7,052	687,725	1.03	7,537	93.57
	1990	37	2,998	1.23	33	112.62	178	22,768	0.78	250	71.34	7,185	706,140	1.02	7,739	92.85
Part	1991	5	934	0.54	10	48.85	49	7,070	0.69	77	63.24	2,115	210,723	1.00	2,309	91.59
Total		279	25,151	1.11	275	101.28	1,730	204,619	0.85	2,241	77.19	68,082	6,658,344	1.02	72,928	93.35

\* Includes Ireland part not stated.

S.F. = Sampling fraction.

Exp. = Expected.

Births to women born in the New Commonwealth and Pakistan were, as stated above, oversampled in most years. There was high variability in the linkage rates, which ranged from 91.18 to 112.41 per cent. The overall linkage rate was 102.96 per cent and the overall sampling fraction 1.13. The population originating from the New Commonwealth and Pakistan is known to have been oversampled and undertraced at the 1971 Census.<sup>6</sup> Many women in this group will only have registered with the NHS when they became pregnant. This is borne out by the fact that the percentage of 'no trace' women from the New Commonwealth and Pakistan at the 1971 Census was 17 per cent and had fallen to 6 per cent at the 1981 Census. It should be noted that name-based tracing at NHSCR is made more difficult by the structure of many Asian women's names.

Births to sample mothers originating from the Old Commonwealth and from 'other' (the rest of the world plus 'not stated') areas showed high variability and poor quality of data. This was partially due to sampling variation because of small numbers, but was also related to very high 'no trace' rates for the women in these groups.

Because births to sample mothers born in the UK made up the majority of births in the first decade, the lower quality of birth data for the other groups had very little effect on either linkage rates or sampling fractions for total births. Six births are known to have been missed due to miscoding of the mother's place of birth.

Table 7.12b shows second decade births to sample mothers by mother's place of birth. The quality of data for births to sample mothers whose birthplace was in the UK was slightly better than in the first decade. The overall sampling fraction had risen to 1.02, and the linkage rate for the decade to 93.35 per cent. The variability of the data over the second decade was slightly less than in the first decade.

Births to mothers born in the Irish Republic were fewer than in the first decade and there was a slight improvement in linkage rates and sampling fractions. Variability was still high but less than in the first decade. The overall sampling fraction was 0.84 with an overall linkage rate of 76.24 per cent.

Births to sample mothers born in the New Commonwealth and Pakistan in the second decade show higher linkage rates and sampling fractions than in the first decade. Oversampling of women born in this area occurred at the 1981 Census with a sampling fraction of 1.22 compared with a sampling fraction at the 1971 Census of 1.12. This tends to reflect the fact that only traced persons are used to calculate the sampling fractions. By 1981 the tracing rate for these women had increased from 83.3 to 93.8 per cent. Consequently more births could be linked to an already oversampled population. Linkage rates ranged from 87.83 per cent for 1991 (a part year) to 117.02 per cent for 1983. The low rate for 1991 pulled down the overall linkage rate to 107.96 per cent for the whole decade, but this was still 5 per cent higher than in the first decade. The overall sampling fraction for the second decade births was 1.18.

Births to sample mothers born in the Old Commonwealth and also from the rest of the world were small in number, and as in the first decade, showed great variability in both sampling fractions and linkage rates.

The effect of the births that occurred to sample mothers born in the UK (87 per cent of all second decade sample mothers) was again noticeable in the second decade total births. The lower quality of data on births to mothers born outside the UK had very little effect on either the overall sampling fractions or linkage rates. Twenty births are missing from Table 7.12b due to the miscoding of the mother's place of birth.

### **7.3.1.5 Live births to sample mothers by mother's parity**

Parity data is only collected for marital live births in England and Wales, therefore only marital live births, not all births, to sample mothers are examined in this section. The term parity is defined here as the number of previous liveborn children a woman has had inside marriage. Births occurring at parity 0 are therefore first births within marriage, births at parity 1 are second births within marriage, etc. (see section 7.1.1.4).

The quality of this data is slightly better in the second decade than in the first, but both decades show high rates of linkage. In the first decade 92 per cent of marital live births to the sample occurred within parity 0, 1 or 2, with the majority occurring at parity 0. Only 8 per cent occurred at parities of 3 or over. In the second decade a slight change of pattern was seen with 91 per cent of births occurring within parities 0, 1 or 2 and a rise to 9 per cent for marital births at higher parities.

First decade live births to sample mothers by mother's parity at registration are shown in Table 7.13a. The overall sampling fraction for all marital births was 0.99 and the overall linkage rate for the decade was 90.41 per cent. These overall rates were affected by the lower linkage rates and sampling fractions found at higher parities.

Births at parity 0 showed very little variation over the decade with an overall linkage rate of 92.65 per cent and a sampling fraction of 1.01. Variation in linkage rates began to increase as the parities increased, with overall linkage rates slightly worse for parity 1, at 91.10 per cent, and parity 2, at 91.21 per cent. The overall sampling fraction at parity 1 was 1.02 and 1.03 at parity 2. Variation in linkage rates at parities 3 and 4+ was high, but numbers of births at these parities were small. The overall linkage rates at these parities were 87.03 and 85.97 per cent respectively. Sampling fractions were less than 1.00, at 0.95 for parity 3 and 0.94 for parity 4+.

Second decade live marital births by mother's parity at registration are shown in Table 7.13b. There was a general improvement in linkage rates and sampling fractions in the second decade when compared with the first decade. The rise in linkage rates and sampling fractions was particularly noticeable for births to sample mothers at parities 1, 2 and 3.

**Table 7.13a First decade live births to sample mothers by mother's parity at registration\***

Year of birth	Parity 0					Parity 1					Parity 2				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1971	1,910	195,034	0.98	2,137	89.36	1,582	165,580	0.96	1,815	87.18	746	76,779	0.97	841	88.66
1972	2,646	265,924	1.00	2,906	91.04	2,416	229,701	1.05	2,510	96.24	1,030	98,816	1.04	1,080	95.37
1973	2,601	253,814	1.02	2,782	93.51	2,245	222,483	1.01	2,438	92.08	936	86,118	1.09	944	99.18
1974	2,479	242,826	1.02	2,661	93.16	2,144	215,826	0.99	2,365	90.65	803	77,882	1.03	854	94.08
1975	2,254	226,944	0.99	2,487	90.63	2,165	206,155	1.05	2,259	95.83	704	73,312	0.96	803	87.63
1976	2,239	217,211	1.03	2,374	94.32	2,062	203,576	1.01	2,225	92.68	756	70,967	1.07	776	97.47
1977	2,239	214,573	1.04	2,351	95.22	2,077	195,035	1.06	2,137	97.18	721	68,796	1.05	754	95.63
1978	2,350	226,586	1.04	2,483	94.64	2,092	198,088	1.06	2,171	96.37	756	74,173	1.02	813	93.01
1979	2,428	238,890	1.02	2,618	92.74	2,129	206,667	1.03	2,265	94.00	873	82,742	1.06	907	96.28
1980	2,402	240,975	1.00	2,634	91.21	2,098	209,164	1.00	2,286	91.78	838	86,336	0.97	944	88.81
Part 1981	610	58,377	1.04	640	95.35	568	53,536	1.06	587	96.81	219	21,447	1.02	235	93.18
Total	24,158	2,381,154	1.01	26,073	92.65	21,006	2,052,275	1.02	23,058	91.10	8,163	795,921	1.03	8,950	91.21
Year of birth	Parity 3					Parity 4 +					Total				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1971	288	31,536	0.91	346	83.33	228	24,459	0.93	268	85.06	4,754	493,388	0.96	5,407	87.92
1972	394	39,462	1.00	431	91.36	292	29,025	1.01	317	92.05	6,778	662,928	1.02	7,245	93.55
1973	307	32,692	0.94	358	85.69	228	22,749	1.00	249	91.45	6,317	617,856	1.02	6,771	93.29
1974	275	27,889	0.99	306	89.98	196	18,976	1.03	208	94.25	5,897	583,399	1.01	6,393	92.24
1975	224	25,410	0.88	278	80.44	148	16,733	0.88	183	80.71	5,495	548,554	1.00	6,012	91.41
1976	234	23,569	0.99	258	90.84	145	15,181	0.96	166	87.40	5,436	530,504	1.02	5,798	93.76
1977	228	21,935	1.04	240	94.85	125	13,541	0.92	148	84.23	5,390	513,880	1.05	5,632	95.71
1978	246	23,358	1.05	256	96.10	123	13,576	0.91	149	82.67	5,567	535,781	1.04	5,872	94.81
1979	261	25,963	1.01	285	91.73	145	14,299	1.01	157	92.53	5,836	568,561	1.03	6,231	93.66
1980	270	27,537	0.98	301	89.72	133	14,850	0.90	162	81.95	5,741	578,862	0.99	6,326	90.75
Part 1981	77	6,809	1.13	75	103.19	46	3,899	1.18	43	107.66	1,520	144,067	1.06	1,579	96.27
Total	2,727	286,160	0.95	3,133	87.03	1,763	187,288	0.94	2,051	85.97	57,199	5,777,780	0.99	63,265	90.41

\* Marital births only.

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.13b Second decade live births to sample mothers by mother's parity at registration\***

Year of birth	Parity 0					Parity 1					Parity 2				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1981	1,673	165,913	1.01	1,818	92.01	1,532	152,154	1.01	1,667	91.88	655	60,953	1.07	668	98.06
1982	2,158	211,862	1.02	2,322	92.95	2,040	200,681	1.02	2,199	92.76	822	81,431	1.01	892	92.11
1983	2,183	211,753	1.03	2,321	94.07	2,064	195,630	1.06	2,144	96.27	830	80,728	1.03	885	93.82
1984	2,158	210,421	1.03	2,300	93.84	2,113	193,093	1.09	2,110	100.13	871	80,643	1.08	881	98.83
1985	2,166	212,017	1.02	2,323	93.22	2,014	193,058	1.04	2,116	95.19	843	82,403	1.02	903	93.35
1986	2,027	206,942	0.98	2,268	89.38	1,965	189,186	1.04	2,073	94.78	811	80,842	1.00	886	91.54
1987	2,073	209,971	0.99	2,301	90.09	1,856	189,370	0.98	2,075	89.43	882	81,180	1.09	890	99.14
1988	2,168	209,291	1.04	2,287	94.78	1,866	185,553	1.01	2,028	92.02	805	79,411	1.01	868	92.75
1989	2,018	200,970	1.00	2,202	91.63	1,913	182,765	1.05	2,003	95.51	806	77,518	1.04	850	94.88
1990	2,006	200,394	1.00	2,196	91.34	1,898	185,334	1.02	2,031	93.45	820	79,040	1.04	866	94.67
Part 1991	548	58,365	0.94	640	85.68	563	53,739	1.05	589	95.60	237	22,948	1.03	251	94.24
Total	21,178	2,097,899	1.01	22,978	92.17	19,824	1,920,564	1.03	21,036	94.24	8,382	807,098	1.04	8,840	94.82
Year of birth	Parity 3					Parity 4 +					Total				
	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1981	206	19,351	1.06	212	97.14	100	11,081	0.90	121	82.35	4,166	409,453	1.02	4,487	92.84
1982	281	27,123	1.04	297	94.54	174	14,977	1.16	164	106.01	5,475	536,074	1.02	5,875	93.19
1983	318	26,646	1.19	292	108.90	171	15,166	1.13	166	102.89	5,566	529,923	1.05	5,807	95.84
1984	290	26,860	1.08	294	98.79	179	15,336	1.17	168	106.80	5,611	526,353	1.07	5,752	97.54
1985	299	26,865	1.11	294	101.56	193	15,824	1.22	173	111.29	5,515	530,167	1.04	5,810	94.92
1986	267	26,920	0.99	295	90.50	211	15,783	1.34	173	121.99	5,281	519,673	1.02	5,695	92.73
1987	281	26,593	1.06	291	96.42	203	15,966	1.27	175	116.02	5,295	523,080	1.01	5,732	92.37
1988	279	26,379	1.06	288	96.78	197	15,591	1.26	170	115.61	5,315	516,225	1.03	5,642	94.21
1989	311	25,807	1.21	283	109.97	190	14,861	1.28	163	116.66	5,238	501,921	1.04	5,501	95.23
1990	236	25,984	0.91	285	82.88	174	15,389	1.13	169	103.17	5,134	506,141	1.01	5,547	92.56
Part 1991	66	7,559	0.87	83	79.67	52	4,434	1.17	49	107.01	1,466	147,045	1.00	1,611	90.97
Total	2,834	266,087	1.07	2,914	97.24	1,844	154,408	1.19	1,691	109.03	54,062	5,246,055	1.03	57,460	94.09

\* Marital births only.

S.F. = Sampling fraction.

Exp. = Expected.

Variability in rates was lowest at parity 2. Parity 3 births showed high variation in linkage rates from 79.67 per cent in 1991 (a part year) to 109.97 per cent in 1989. Much of this variation is probably due to the low numbers of marital live births occurring at this parity. Births at parity 4+ appear to have been oversampled with a sampling fraction of 1.19 for the whole decade. However, this parity suffers from the effects of small numbers of births and subsequently from a lot of variation or random noise. Overall, for all marital births to sample mothers, there was a rise of over 4 per cent in the linkage rate from 90.41 per cent in the first decade to 94.09 in the second.

### 7.3.2 Live births to men in the LS sample

Live births to sample fathers were collected between 1971 and 1978 (see Table 7.14). These births were collected from birth registrations where the father quoted an LS date of birth. As a result only births which gave details of the father at registration are included. The father's details are only normally given if the birth occurs either within marriage or, if occurring outside marriage, is jointly registered. No data on the sex of the child is published for births to fathers in England and Wales.

**Table 7.14 First decade live births to sample fathers by year of birth\***

Year of birth	LS births	E & W births	S.F.	Exp. in LS	Linkage rate
Part 1971	4,796	513,937	0.93	5,632	85.15
1972	6,837	691,768	0.99	7,560	90.43
1973	6,069	644,785	0.94	7,066	85.89
1974	5,805	610,487	0.95	6,690	86.77
1975	5,283	575,459	0.92	6,306	83.77
1976	5,227	557,911	0.94	6,097	85.73
1977	5,146	543,195	0.95	5,953	86.45
1978	5,127	568,583	0.90	6,231	82.28
Total	44,290	4,706,125	0.94	51,537	85.94

\* Births to sample fathers not available for 1979 onwards.

S.F. = Sampling fraction.

Exp. = Expected.

The quality of the data is not particularly good with linkage rates ranging from 82.28 to 90.43 per cent. The overall sampling fraction for the period was 0.94 and the overall linkage rate 85.94 per cent. It should be noted that the exercise to find missing births to sample mothers after the 1981 Census was not attempted for births to sample fathers. The linkage rate for births to sample fathers is comparable to the 85.54 per cent linkage rate for first decade births to sample mothers before the enhancement exercise.

### 7.3.3 Widow(er)hoods of LS members

Widow(er)hoods of LS members are generated from death registrations using the date of birth of the surviving spouse (if an LS date) as the selection criteria (see Chapter 6).

The quality of linkage for widow(er)hoods is not particularly high, 77 per cent linkage over the first decade rising to 84 per cent in the second. Although some of the failure to link can be attributed to date of birth discrepancies on the part of the LS member registering the death of his/her spouse, much of it arises from the idiosyncracies of death registration. If the date of birth of the surviving spouse given in the confidential particulars on the death draft is an LS date, then the registers at NHSCR are searched using the name of the spouse given on the draft. If the surviving spouse is female her name is only given on the death draft if she is the informant at registration. Although there are more widows than widowers recorded in the LS, the sampling fractions suggest that proportionately more widows are missed from the LS than widowers. If the surviving spouse is male his name is always given on the death draft whether or not he is the informant. It should also be remembered that if the marital status of the deceased is not given as married on the death draft, even though he or she was, no tracing of a surviving spouse can be attempted.

The England and Wales widow(er)hood data suffers from most of the problems mentioned above, but it is particularly unreliable for 1981. During 1981 the registrars in England and Wales took industrial action which caused over 80 per cent of deaths to be processed using 'quarterly copies' of death registrations. Unlike death draft entry forms, 'quarterly copies' contain no confidential particulars so the details that included the spouse's date of birth were not available. Recorded widow(er)hoods for England and Wales for the year are approximately half the number that would have been expected if the pattern of the surrounding years had been followed. The LS was less affected by the strike, as a manual search of the 1981 death drafts was undertaken to identify surviving spouses with LS dates of birth.

#### 7.3.3.1 Widow(er)hoods by sex of dead spouse and year of death registration

First decade widow(er)hoods by the sex of the dead spouse and year of death registration are shown in Table 7.15a. The linkage rates for widowerhoods are better at 80.10 per cent overall than for widowhoods at 75.49 per cent. It should be noted that the low England and Wales widow(er)hood figures for the pre-census part of 1981 grossly distort the expected LS widow(er)hood figures for that year resulting in high sampling fractions and linkage rates. However, the exclusion of widow(er)hoods for 1981 from total widow(er)hoods for the decade only lowers the overall sampling fractions from 0.85 to 0.83, and the overall linkage rates from 77.19 per cent to 75.84 per cent.

Second decade widow(er)hoods (see Table 7.15b) show generally higher sampling fractions and linkage rates than those seen in the first decade. There is no great variability between years for either males or females with the exception of the two partial years. The reasons for the high sampling fractions and linkage rates in 1981 have been discussed above. The linkage rates for widowerhoods are better than for widowhoods (88.69 per cent compared with 81.87 per cent for the decade), as are sampling fractions.

**Table 7.15a First decade widow(er)hoods by sex of dead spouse and year of death registration**

Year of death registration	Sex of dead spouse										Total				
	Male					Female									
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1971	1,007	125,263	0.80	1,373	73.36	439	56,359	0.78	618	71.08	1,446	181,623	0.80	1,990	72.65
1972	1,625	189,693	0.86	2,073	78.38	778	84,641	0.92	925	84.10	2,403	274,334	0.88	2,998	80.15
1973	1,519	187,042	0.81	2,050	74.11	724	83,898	0.86	919	78.74	2,243	270,940	0.83	2,969	75.54
1974	1,497	186,154	0.80	2,040	73.38	671	83,495	0.80	915	73.33	2,168	269,649	0.80	2,955	73.37
1975	1,512	186,072	0.81	2,039	74.15	719	82,687	0.87	906	79.35	2,231	268,759	0.83	2,945	75.75
1976	1,504	188,301	0.80	2,058	73.08	702	84,290	0.83	921	76.20	2,206	272,591	0.81	2,979	74.05
1977	1,540	183,328	0.84	2,009	76.65	707	81,662	0.87	895	79.00	2,247	264,990	0.85	2,904	77.38
1978	1,558	186,125	0.84	2,040	76.38	707	82,684	0.86	906	78.02	2,265	268,809	0.84	2,946	76.89
1979	1,493	186,296	0.80	2,042	73.13	706	82,907	0.85	909	77.70	2,199	269,203	0.82	2,950	74.54
1980	1,467	182,472	0.80	1,994	73.56	755	81,190	0.93	887	85.09	2,222	263,662	0.84	2,882	77.11
Part 1981	444	24,447	1.82	268	165.73	236	10,715	2.20	117	201.71	680	35,162	1.93	385	176.62
Total	15,166	1,825,193	0.83	20,090	75.49	7,144	814,528	0.88	8,918	80.10	22,310	2,639,722	0.85	28,904	77.19

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.15b Second decade widow(er)hoods by sex of dead spouse and year of death registration**

Year of death registration	Sex of dead spouse										Total				
	Male					Female									
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1981*	1,033	69,481	1.49	761	135.66	537	30,452	1.76	334	160.91	1,570	99,933	1.57	1,095	143.36
1982	1,467	179,668	0.82	1,969	74.51	772	80,216	0.96	879	87.82	2,239	259,884	0.86	2,848	78.62
1983	1,537	178,884	0.86	1,960	78.40	771	79,176	0.97	868	88.86	2,308	258,060	0.89	2,828	81.61
1984	1,516	174,502	0.87	1,907	79.49	739	77,591	0.95	848	87.15	2,255	252,093	0.89	2,755	81.85
1985	1,490	177,923	0.84	1,950	76.42	724	80,548	0.90	883	82.02	2,214	258,471	0.86	2,833	78.16
1986	1,595	175,123	0.91	1,919	83.11	712	78,280	0.91	858	83.00	2,307	253,403	0.91	2,777	83.07
1987	1,464	169,749	0.86	1,860	78.70	724	77,128	0.94	845	85.66	2,188	246,877	0.89	2,706	80.87
1988	1,489	167,990	0.89	1,836	81.10	715	76,875	0.93	840	85.10	2,204	244,865	0.90	2,676	82.36
1989	1,477	166,500	0.89	1,825	80.95	736	77,071	0.95	845	87.14	2,213	243,571	0.91	2,669	82.91
1990	1,415	163,574	0.87	1,793	78.94	682	75,458	0.90	827	82.47	2,097	239,032	0.88	2,620	80.05
Part 1991	512	48,840	1.05	535	95.70	227	22,693	1.00	249	91.16	739	71,533	1.03	783	94.38
Total	14,995	1,672,234	0.90	18,315	81.87	7,339	755,488	0.97	8,275	88.69	22,334	2,427,722	0.92	26,589	84.00

\* Note: 1981 figures for deaths distorted due to registrars' strike.

S.F. = Sampling fraction.

Exp. = Expected.

### 7.3.4 Cancer registrations

NHSCR flags all cancer registrations in the central NHS registers. If an LS member has a cancer registration and is traced they will be automatically flagged. Untraced LS members may also be flagged as a result of the date of birth search of the OPCS cancer statistical files (see Chapter 6). The England and Wales data used for the denominator, and as the basis of calculating expected numbers of cancer registrations for the LS, are all NHSCR flagged cancer registrations occurring in England and Wales in the years in question.

The national cancer registration scheme was started in 1945, initially under the aegis of the Radium Commission, and from 1947 under the General Register Office (later known as the Office of Population Censuses and Surveys). All regions have been covered since 1962. Data is collected by several independent regional registries which differ both in their methods of data collection and in the completeness of the data (see Chapter 6, section 6.2.3). In 1971 there were 13 regional registries, which reduced to 12 in 1985. The completeness and accuracy of the data that these registries collect are affected not only by the methods used but also by late registrations and duplication of data. Late registration of cancers was found to be particularly common in the over-75 age group and where survival was known to be long. Duplication of registrations generally occurs where a patient is resident in one region but treated in another. OPCS identifies duplicate data and deletes one record. Between 1971 and 1981 only 70,000 cancer registrations flagged at NHSCR (4 per cent of all England and Wales cancer registrations in the same period) were found to be duplicates. Of these, it was estimated that 60 per cent were genuine multiple primary cancers and 40 per cent were duplicate registrations.<sup>7</sup>

Cancer registration information is collected for all malignant neoplasms, reticuloses, carcinoma in situ, neoplasms of

uncertain behaviour, benign neoplasms and hydatidiform moles. Registration rates for benign neoplasms and uncertain and unspecified neoplasms are believed to be underestimates of the true incidence of these conditions in the population.<sup>8</sup>

Although the accuracy and completeness of data for the whole of England and Wales are known to be variable, ascertainment is improving over time and the flagging of those registrations that are received at NHSCR is known to be almost complete. It is estimated that approximately 96 per cent of cancer registrations received by OPCS in recent years have been successfully linked to a record in the NHSCR index.<sup>8</sup>

#### 7.3.4.1 Cancer registrations occurring to LS members

There were 30,910 cancer registrations linked to LS members between 1971 and 1985. The quality of cancer registration data in the LS is good (98.50 per cent overall linkage rate for the first decade, rising to 104.42 per cent for the 1981 to 1985 period). However, it must be remembered that the denominator is not all cancers occurring to the population of England and Wales, but all cancer registrations flagged at NHSCR. The LS reflects the population levels of cancer registrations well, but the caveats expressed in section 7.3.4 above concerning the quality of cancer registrations in England and Wales, should be taken into account.

#### 7.3.4.2 First decade cancer registrations

Table 7.16a shows the total cancer registrations by age and sex for the first decade. The variation in linkage rates and sampling fractions seen for both sexes in this table is partially explained by the low numbers of cancers registered for younger age groups. Only from age 50 do the linkage rates start to stabilise as the numbers of cancers increase. The overall sampling fractions at 1.08 for males and 1.09 for females are a reflection of the quality of the flagging

**Table 7.16a First decade cancer registrations by age and sex**

Age at diagnosis of cancer	Males					Females					Total				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
0-9	49	4,724	1.04	52	94.24	34	3,517	0.97	39	87.82	83	8,241	1.01	91	91.50
10-19	46	4,572	0.97	52	87.94	33	3,924	0.84	43	76.40	79	8,677	0.91	96	82.72
20-29	96	9,699	0.99	107	89.92	214	13,551	1.58	149	143.48	309	23,250	1.33	256	120.75
30-39	192	16,789	1.14	185	103.89	459	33,972	1.35	374	122.75	651	50,761	1.28	559	116.51
40-49	526	47,021	1.12	518	101.63	880	80,653	1.09	888	99.13	1,406	127,674	1.10	1,405	100.05
50-59	1,644	150,063	1.10	1,652	99.53	1,754	156,068	1.12	1,718	102.10	3,398	306,131	1.11	3,370	100.84
60-69	3,347	303,505	1.10	3,341	100.19	2,461	229,239	1.07	2,523	97.53	5,808	532,744	1.09	5,864	99.05
70-79	3,000	287,689	1.04	3,167	94.74	2,624	238,405	1.07	2,624	96.83	5,541	526,094	1.05	5,791	95.69
80+	1,034	99,469	1.04	1,095	94.44	1,454	139,825	1.04	1,539	94.47	2,488	239,294	1.04	2,634	94.46
Total	9,934	923,712	1.08	10,167	97.70	9,830	899,154	1.09	9,897	99.32	19,764	1,822,866	1.08	20,065	98.50

S.F. = Sampling fraction.

Exp. = Expected.

of cancer registrations at NHSCR. The overall linkage rate was 98.50 per cent, again reflecting the good quality of flagging. It should be noted that female cancer registrations exceed male registrations by 2 to 1 for the 20–29 and 30–39 age groups, and by 1½ times for the 40–49 year age group. This pattern changes after age 50 and female registrations do not exceed male until age 80.

First decade cancers by sex, age and year of cancer occurrence are shown in Table 7.16b. The 10-year age groups used in Table 7.16a have been further grouped because of the small number of cancers diagnosed in a single year for all 10-year age groups.

Among males under 50 both sampling fractions and linkage rates were highly variable, but the number of cancers diagnosed each year was small. Because of the small numbers involved the sampling fractions and linkage rates for the pre-census period of 1981 (95 days) were particularly distorted. The quality of cancer registration linkage for LS males improved in the 50–69 and 70+ age groups with overall sampling fractions of 1.10 and 1.04, and linkage rates of 99.97 and 94.66 per cent respectively. Some variability was still present, but excluding the linkage rates for part years (1971 and 1981) the range of linkage rates for males aged 50–69 was 92.32 to 108.82 per cent, and for males aged 70 and over, 84.84 to 100.02 per cent.

**Table 7.16b First decade cancer registrations by sex, age and year of occurrence of cancer**

a) Males

This table continues on the next page

Year of diagnosis of cancer	Age at cancer occurrence														
	0-19					20-49					50-69				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
Part 1971	10	637	1.57	5	208.16	51	5,148	0.99	39	131.46	328	29,846	1.10	225	145.83
1972	11	958	1.15	10	105.06	72	7,456	0.97	81	88.36	482	43,633	1.10	477	101.08
1973	13	887	1.47	10	133.74	84	7,351	1.14	81	104.27	531	44,527	1.19	488	108.82
1974	9	940	0.96	10	87.37	85	7,586	1.12	83	102.24	472	46,655	1.01	511	92.32
1975	10	989	1.01	11	92.26	100	7,390	1.35	81	123.48	512	45,604	1.12	500	102.45
1976	10	983	1.02	11	93.08	94	7,360	1.28	80	116.86	518	46,746	1.11	511	101.39
1977	8	946	0.85	10	77.17	77	7,330	1.05	80	95.86	515	46,976	1.10	515	100.04
1978	6	949	0.63	10	57.69	82	7,109	1.15	78	105.25	469	45,395	1.03	497	94.28
1979	8	995	0.80	11	73.37	61	7,438	0.82	82	74.84	533	46,310	1.15	508	105.02
1980	8	938	0.85	10	78.04	80	7,379	1.08	81	99.20	511	45,944	1.11	502	101.77
Part 1981	2	254	0.79	1	276.31	28	1,962	1.43	6	500.22	120	11,932	1.01	34	352.60
Total	95	9,476	1.00	104	91.08	814	73,509	1.11	809	100.60	4,991	453,568	1.10	4,992	99.97
Year of diagnosis of cancer	70+					Total									
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate					
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate					
Part 1971	230	20,761	1.11	156	147.01	619	56,392	1.10	425	145.65					
1972	323	31,093	1.04	340	95.05	888	83,140	1.07	909	97.73					
1973	356	33,528	1.06	367	96.89	984	86,293	1.14	946	104.05					
1974	377	37,126	1.02	407	92.66	943	92,307	1.02	1,012	93.22					
1975	405	38,245	1.06	419	96.63	1,027	92,228	1.11	1,011	101.61					
1976	388	39,463	0.98	431	89.96	1,010	94,552	1.07	1,033	97.74					
1977	448	41,796	1.07	458	97.81	1,048	97,048	1.08	1,064	98.54					
1978	393	42,270	0.93	463	84.84	950	95,723	0.99	1,049	90.56					
1979	472	44,797	1.05	491	96.14	1,074	99,540	1.08	1,091	98.46					
1980	499	45,649	1.09	499	100.02	1,098	99,910	1.10	1,092	100.56					
Part 1981	143	12,430	1.15	35	403.32	293	26,578	1.10	76	386.49					
Total	4,034	387,158	1.04	4,262	94.66	9,934	923,712	1.08	10,167	97.70					

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.16b - continued**

**b) Females**

Year of diagnosis of cancer	Age at cancer occurrence														
	0-19					20-49					50-69				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
Part 1971	4	487	0.82	4	109.02	112	8,062	1.39	61	184.35	283	24,077	1.18	181	155.97
1972	6	723	0.83	8	75.93	140	11,888	1.18	130	107.76	413	36,410	1.13	398	103.79
1973	10	689	1.45	8	132.44	150	11,669	1.29	128	117.30	448	37,236	1.20	408	109.79
1974	9	718	1.25	8	114.38	148	12,294	1.20	135	109.85	443	39,592	1.12	434	102.10
1975	2	720	0.28	8	25.35	132	11,808	1.12	129	102.01	399	38,614	1.03	423	94.29
1976	4	795	0.50	9	46.04	160	11,655	1.37	127	125.61	445	39,319	1.13	430	103.56
1977	9	774	1.16	8	106.10	157	11,690	1.34	128	122.55	432	39,847	1.08	437	98.93
1978	6	697	0.86	8	78.55	178	11,470	1.55	126	141.61	395	39,221	1.01	430	91.90
1979	7	804	0.87	9	79.45	161	16,293	0.99	179	90.17	411	40,133	1.02	440	93.45
1980	5	816	0.61	9	56.07	166	16,718	0.99	183	90.85	439	40,239	1.09	440	99.82
Part 1981	5	218	2.29	1	500.00	49	4,629	1.06	13	371.10	107	10,619	1.01	30	353.27
Total	67	7,441	0.90	82	81.80	1,553	128,176	1.21	1,411	110.08	4,215	385,307	1.09	4,241	99.38
Year of diagnosis of cancer	70+					Total									
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate					
Part 1971	245	20,269	1.21	153	160.39	644	52,895	1.22	399	161.56					
1972	332	30,390	1.09	332	99.96	891	79,411	1.12	868	98.06					
1973	362	32,617	1.11	357	101.27	970	82,211	1.18	901	107.67					
1974	402	37,179	1.08	407	98.66	1,002	89,783	1.12	984	101.84					
1975	373	37,920	0.98	416	89.76	906	89,062	1.02	976	92.83					
1976	407	38,922	1.05	425	95.68	1,016	90,691	1.12	991	102.51					
1977	388	40,458	0.96	443	87.51	986	92,769	1.06	1,017	96.99					
1978	450	41,379	1.09	453	99.24	1,029	92,767	1.11	1,017	101.22					
1979	442	43,177	1.02	473	93.41	1,021	100,407	1.02	1,100	92.79					
1980	473	43,850	1.08	479	98.70	1,083	101,623	1.07	1,111	97.51					
Part 1981	121	12,069	1.00	34	351.50	282	27,535	1.02	79	359.05					
Total	3,995	378,230	1.06	4,163	95.96	9,830	899,154	1.09	9,897	99.32					

S.F. = Sampling fraction.

Exp. = Expected.

Female first decade cancer registrations showed slightly more variability than male cancer registrations, especially among the younger age groups. Sampling fractions and linkage rates were as good as those for males in the oldest age groups, with overall sampling fractions of 1.09 and 1.06, and overall linkage rates of 99.38 and 95.96 per cent respectively.

The quality of the linkage for females for single years was reasonably good, with the exception of the youngest age group where the highest numbers of cancers registered in a single year (1973) was 10 and the lowest two (in 1975).

### 7.3.4.3 Second decade cancer registrations

Second decade cancer registration data is not yet complete (see section 7.3.4). As a result, Table 7.17a showing second decade cancer registrations by age and sex, only contains data collected until 1985.

The cancer registration data for 1981 to 1985 did not show as much variability as those seen in the first decade. Both overall sampling fractions and linkage rates were slightly higher. However, the rise in linkage rates shown in the table is probably partially due to the data cleaning that was undertaken at NHSCR when the NHS registers were computerised. The distribution patterns for male and female cancers were the same as in the first decade.

Table 7.17b shows second decade cancers by sex, age and year of occurrence. Like Table 7.16b, the age groups have been aggregated to provide a reasonable number of cancers per year. Variability was particularly high among the younger age groups but much of this was due to small numbers which exacerbated the effect of sampling variation. Linkage rates were best among the older ages for both sexes, but it would appear that there was some

oversampling of cancer registration data particularly in 1983. The reason for this is unknown. Compared with the first decade, the numbers of cancers registered as occurring to those aged over 50 appear to have increased. However, this could be an artefact of improvements in the cancer registration system together with the improvements associated with the computerisation of the NHSCR registration system.

## 7.3.5 Infant mortality

Data on infant mortality to children born to LS mothers (and for three years to LS fathers) has been collected since 1976. Because data is only available between 1976 and 1978 for infant deaths to LS fathers they have not been included in this section. The numbers of infant deaths occurring in England and Wales are small and this affects the numbers collected for the LS.

### 7.3.5.1 By sex and year of death

In the first decade (from 1976 to the day before Census day 1981) the small numbers of infant deaths collected for the LS showed variability in both sampling fractions and linkage rates. This was particularly noticeable among female infant deaths where the number of deaths recorded over the period was 30 per cent lower than male infant deaths. The overall sampling fraction for both sexes was 0.94 and the overall linkage rate was 86.11 per cent.

In the second decade the number of infant deaths occurring each year had dropped substantially (see Table 7.18b). However, due to the small numbers of deaths, both male and female sampling fractions and linkage rates were highly variable. Overall sampling fractions and linkage rates were higher than in the first decade and had risen to 1.00 and 91.27 per cent respectively.

**Table 7.17a Second decade cancer registrations by age and sex\***

Age at diagnosis of cancer	Males					Females					Total				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
0-9	21	2,035	1.03	21	100.00	18	1,651	1.09	17	105.88	39	3,686	1.06	38	102.63
10-19	29	2,589	1.12	27	107.41	28	2,474	1.13	26	107.69	57	5,063	1.13	53	107.55
20-29	52	4,946	1.05	52	100.00	195	17,775	1.10	188	103.72	247	22,721	1.09	240	102.92
30-39	90	9,573	0.94	101	89.11	389	35,821	1.09	379	102.64	479	45,394	1.06	480	99.79
40-49	248	21,065	1.18	221	112.22	471	42,520	1.11	448	105.13	719	63,585	1.13	669	107.47
50-59	735	66,998	1.10	702	104.70	781	73,313	1.07	769	101.56	1,516	140,311	1.08	1,471	103.06
60-69	1,646	145,064	1.13	1,524	108.01	1,329	118,179	1.12	1,242	107.00	2,975	263,243	1.13	2,766	107.56
70-79	1,908	172,740	1.10	1,818	104.95	1,500	138,470	1.08	1,457	102.95	3,408	311,210	1.10	3,275	104.06
80+	722	67,842	1.06	716	100.84	984	91,569	1.07	965	101.97	1,706	159,411	1.07	1,681	101.49
Total	5,451	492,854	1.11	5,183	105.17	5,695	521,773	1.09	5,491	103.72	11,146	1,014,627	1.10	10,674	104.42

\* Only available for the LS until 1985.

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.17b Second decade cancer registrations by sex, age and year of occurrence of cancer\***

**a) Males**

Year of diagnosis of cancer	Age at cancer occurrence														
	0-19					20-49					50-69				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
Part 1981	4	721	0.55	6	68.41	66	5,578	1.18	45	145.97	355	33,911	1.05	275	129.14
1982	11	977	1.13	11	102.74	68	7,340	0.93	80	84.54	512	45,427	1.13	498	102.85
1983	12	1,027	1.17	11	106.62	89	7,603	1.17	83	106.82	558	44,397	1.26	487	114.69
1984	14	987	1.42	11	129.79	80	7,494	1.07	82	97.68	492	44,659	1.10	488	100.80
1985	9	912	0.99	10	90.05	87	7,570	1.15	83	104.87	464	43,668	1.06	479	96.96
Total	50	4,624	1.08	49	102.04	390	35,585	1.10	373	104.56	2,381	212,062	1.12	2,227	106.92

Year of diagnosis of cancer	70+					Total				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
Part 1981	391	35,329	1.11	286	136.53	816	75,539	1.08	612	133.25
1982	510	49,461	1.03	542	94.09	1,101	103,205	1.07	1,131	97.35
1983	599	50,639	1.18	555	107.94	1,258	103,666	1.21	1,136	110.73
1984	525	52,379	1.00	572	91.71	1,111	105,519	1.05	1,153	96.34
1985	605	52,775	1.15	578	104.61	1,165	104,925	1.11	1,150	101.32
Total	2,630	240,583	1.09	2,533	103.83	5,451	492,854	1.11	5,182	105.19

S.F. = Sampling fraction.

Exp. = Expected.

**b) Females**

Year of diagnosis of cancer	Age at cancer occurrence														
	0-19					20-49					50-69				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
Part 1981	4	621	0.64	5	79.50	142	13,157	1.08	107	133.40	358	30,180	1.19	245	146.33
1982	6	809	0.74	9	67.68	192	18,237	1.05	200	96.07	450	40,800	1.10	447	100.64
1983	14	898	1.56	10	142.26	230	19,012	1.21	208	110.39	431	40,173	1.07	440	97.90
1984	12	896	1.34	10	122.54	231	21,028	1.10	230	100.52	434	40,394	1.07	441	98.31
1985	10	902	1.11	10	101.16	260	24,682	1.05	270	96.12	437	39,945	1.09	438	99.83
Total	46	4,126	1.11	44	104.55	1,055	96,116	1.10	1,015	103.94	2,110	191,492	1.10	2,011	104.92

Year of diagnosis of cancer	70+					Total				
	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate	LS cancers	E & W cancers	S.F.	Exp. in LS	Linkage rate
Part 1981	414	34,301	1.21	278	148.89	918	78,259	1.17	634	144.70
1982	478	47,137	1.01	517	92.53	1,126	106,983	1.05	1,172	96.04
1983	533	48,364	1.10	530	100.56	1,208	108,447	1.11	1,188	101.64
1984	542	49,945	1.09	546	99.30	1,219	112,263	1.09	1,227	99.35
1985	517	50,292	1.03	551	93.80	1,224	115,821	1.06	1,269	96.43
Total	2,484	230,039	1.08	2,422	102.56	5,695	521,773	1.09	5,490	103.73

\* Only available for the LS until 1985.

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.18a First decade infant mortality by sex and year of death**

Year of death	Males					Females					Total				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
1976	47	4,787	0.98	52	90.38	28	3,393	0.83	37	75.51	75	8,180	0.92	89	83.89
1977	43	4,437	0.97	49	88.43	33	3,274	1.01	36	91.97	76	7,711	0.99	85	89.94
1978	40	4,432	0.90	49	82.36	29	3,298	0.88	36	80.24	69	7,730	0.89	85	81.45
1979	43	4,678	0.92	51	83.88	34	3,386	1.00	37	91.63	77	8,064	0.95	88	87.13
1980	47	4,408	1.07	48	97.56	24	3,382	0.71	37	64.93	71	7,790	0.91	85	83.40
Part 1981	10	1,052	0.95	12	86.72	11	740	1.49	8	135.70	21	1,792	1.17	20	106.93
Total	230	23,794	0.97	260	88.30	159	17,473	0.91	191	83.12	389	41,267	0.94	452	86.11

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.18b Second decade infant mortality by sex and year of death**

Year of death	Males					Females					Total				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1981	19	2,991	0.64	33	57.97	20	2,102	0.95	23	86.81	39	5,093	0.77	56	69.88
1982	45	3,857	1.17	42	106.46	30	2,806	1.07	31	97.56	75	6,663	1.13	73	102.71
1983	46	3,603	1.28	39	116.50	20	2,681	0.75	29	68.07	66	6,284	1.05	69	95.84
1984	33	3,398	0.97	37	88.86	20	2,547	0.79	28	71.85	53	5,945	0.89	65	81.57
1985	40	3,448	1.16	38	105.86	23	2,579	0.89	28	81.38	63	6,027	1.05	66	95.38
1986	31	3,667	0.85	40	77.14	33	2,542	1.30	28	118.46	64	6,209	1.03	68	94.06
1987	33	3,575	0.92	39	84.23	27	2,580	1.05	28	95.49	60	6,155	0.97	67	88.95
1988	38	3,603	1.05	39	96.50	23	2,576	0.89	28	81.70	61	6,179	0.99	68	90.33
1989	33	3,323	0.99	36	90.62	19	2,378	0.80	26	72.91	52	5,701	0.91	62	83.23
1990	33	3,130	1.05	34	96.21	26	2,311	1.13	25	102.66	59	5,441	1.08	60	98.95
Part 1991	10	878	1.14	10	103.94	10	646	1.55	7	141.36	20	1,523	1.31	17	119.80
Total	361	35,473	1.02	389	92.91	251	25,748	0.97	282	89.00	612	61,220	1.00	671	91.27

S.F. = Sampling fraction.

Exp. = Expected.

### 7.3.5.2 By mother's age

Table 7.19a shows infant mortality by mother's age in the first decade. The highest numbers of infant deaths were found where the mothers were aged between 20 and 29. As a result less variability was seen among the sampling fractions and linkage rates for infant deaths to mothers in this age group than among those to mothers of younger or older ages. Overall sampling fractions varied from 0.80 to 1.12 and linkage rates from 76.03 to 102.30 per cent.

In the second decade (see Table 7.19b) the highest numbers of infant deaths were again found where the mothers were aged between 20 and 29. More variability was seen in sampling fractions and linkage rates than in the first decade as a result of the small number of infant deaths.

### 7.3.6 Events where quality cannot be assessed

A number of events collected at NHSCR for LS members cannot be checked for quality as population statistics for England and Wales are not available. The events in question are enlistments into the armed services, entries into long-stay psychiatric hospitals, inter-FPC moves and re-entries to the LS. A series of tables give the yearly occurrence figures of these events for LS members.

### 7.3.6.1 Enlistments into the armed forces

Enlistment figures have been collected for the LS since 1971. The annual number of events by decade is shown in Table 7.20. The numbers of yearly enlistments by LS members are small, and have halved over the second decade. In the first decade only 11 per cent of enlistments were women, rising to 15 per cent in the second decade.

### 7.3.6.2 Entries into long-stay psychiatric hospitals

Table 7.21 shows entries of LS members into long-stay psychiatric hospitals by sex and year of entry. This data was collected from 1971 to 1983. Although the numbers of entries per year are small, the data clearly show the much higher proportion of women than men entering these institutions.

### 7.3.6.3 Regional Family Practitioner Committee moves

Between 1971 and 1974 inter-regional FPC moves were recorded for LS members. These figures (shown in Table 7.22) give some estimate of internal migration in these years. Caution should always be used if quoting these figures for LS members as they will always be an underestimate of the situation. FPC figures have a time lag due both to delays in registration with GPs and delays in

**Table 7.19a First decade infant mortality by mother's age at birth and year of infant death**

Year of death	Mother's age at birth														
	Under 20					20-24					25-29				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
1976	15	1,279	1.17	14	107.31	24	2,763	0.87	30	79.48	24	2,545	0.94	28	86.29
1977	10	1,153	0.87	13	79.14	23	2,577	0.89	28	81.44	26	2,426	1.07	27	97.79
1978	8	1,051	0.76	12	69.46	24	2,569	0.93	28	85.25	22	2,396	0.92	26	83.79
1979	9	1,219	0.74	13	67.37	19	2,643	0.72	29	65.60	34	2,346	1.45	26	132.25
1980	6	1,066	0.56	12	51.50	23	2,612	0.88	29	80.57	31	2,361	1.31	26	120.14
Part 1981	2	239	0.84	3	76.22	7	615	1.14	7	104.23	4	516	0.77	6	70.68
Total	50	6,007	0.83	66	76.03	120	13,779	0.87	151	79.57	141	12,590	1.12	138	102.30
Year of death	30-34					35-39					40 and over				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
	1976	7	1,062	0.66	12	60.31	3	404	0.74	4	75.00	3	127	2.36	1
1977	12	1,105	1.09	12	99.10	4	331	1.21	4	100.00	3	119	2.52	1	230.04
1978	12	1,232	0.97	14	88.88	3	390	0.77	4	75.00	0	92	0.00	1	0.00
1979	12	1,332	0.90	15	82.21	3	410	0.73	4	75.00	0	114	0.00	1	0.00
1980	8	1,283	0.62	14	57.05	3	365	0.82	4	75.00	0	103	0.00	1	0.00
Part 1981	8	283	2.83	3	258.26	0	92	0.00	1	0.00	0	47	0.00	1	0.00
Total	59	6,297	0.94	69	85.59	16	1,992	0.80	21	76.17	6	602	1.00	7	91.03

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.19b Second decade infant mortality by mother's age at birth and year of infant death**

Year of death	Mother's age at birth														
	Under 20					20-24					25-29				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
Part 1981	4	681	0.59	7	53.63	14	1,746	0.80	19	73.15	10	1,468	0.68	16	62.18
1982	11	890	1.24	10	112.78	24	2,244	1.07	25	97.59	21	1,976	1.06	22	96.98
1983	7	824	0.85	9	77.52	24	2,089	1.15	23	104.83	17	1,848	0.92	20	83.94
1984	13	777	1.67	8	153.09	15	1,975	0.76	22	69.49	17	1,761	0.97	19	88.33
1985	7	801	0.87	9	79.74	21	1,979	1.06	22	96.83	18	1,758	1.02	19	93.43
1986	6	847	0.71	9	64.64	22	1,968	1.12	22	102.01	16	1,888	0.85	21	77.33
1987	8	799	1.00	9	91.36	16	2,029	0.79	22	71.96	27	1,786	1.51	20	137.95
1988	5	844	0.59	9	54.21	21	1,942	1.08	21	98.94	20	1,843	1.09	20	99.29
1989	5	765	0.65	8	59.64	14	1,710	0.82	19	74.71	11	1,747	0.63	19	57.46
1990	9	655	1.37	7	125.38	21	1,672	1.26	18	114.61	18	1,609	1.12	18	102.08
Part 1991	1	188	0.53	2	48.52	8	428	1.87	5	170.58	7	480	1.46	5	133.05
Total	76	8,071	0.94	88	85.98	200	19,782	1.01	217	92.30	182	18,164	1.00	199	91.48
Year of death	30-34					35-39					40 and over				
	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate	LS deaths	E & W deaths	S.F.	Exp. in LS	Linkage rate
	Part 1981	5	803	0.62	9	56.79	4	261	1.53	3	139.78	2	134	1.49	1
1982	13	1,086	1.20	12	109.23	6	378	1.59	4	144.84	0	89	0.00	1	0.00
1983	13	1,022	1.27	11	116.07	5	399	1.25	4	114.35	0	102	0.00	1	0.00
1984	3	970	0.31	11	28.30	4	383	1.04	4	95.56	1	79	1.27	1	115.82
1985	13	1,000	1.30	11	118.63	4	404	0.99	4	90.35	0	85	0.00	1	0.00
1986	14	984	1.42	11	129.83	5	449	1.11	5	101.61	1	73	1.37	1	125.00
1987	6	1,053	0.57	12	51.99	2	405	0.49	4	45.06	1	83	1.20	1	109.94
1988	13	1,050	1.24	11	113.29	2	414	0.48	5	44.20	0	86	0.00	1	0.00
1989	17	988	1.72	11	157.01	5	397	1.26	4	114.92	0	94	0.00	1	0.00
1990	10	1,030	0.97	11	88.59	1	399	0.25	4	22.87	0	76	0.00	1	0.00
Part 1991	0	284	0.00	3	0.00	4	118	3.39	1	309.75	0	25	0.00	0	0.00
Total	107	10,271	1.04	112	95.12	42	4,007	1.05	44	95.70	5	926	0.54	10	49.28

S.F. = Sampling fraction.

Exp. = Expected.

**Table 7.20 Enlistments of LS members into the armed forces by sex and year of enlistment**

Year of enlistment	First decade			Year of enlistment	Second decade		
	Sex		Total		Sex		Total
	Males	Females			Males	Females	
Part 1971	267	35	302	Part 1981	80	12	92
1972	357	43	400	1982	84	13	97
1973	244	46	290	1983	163	31	194
1974	267	43	310	1984	173	31	204
1975	299	29	328	1985	165	25	190
1976	280	31	311	1986	171	34	205
1977	257	35	292	1987	188	24	212
1978	280	32	312	1988	165	31	196
1979	277	36	313	1989	191	34	225
1980	289	34	323	1990	191	43	234
Part 1981	34	6	40	Part 1991	31	3	34
Total	2,851	370	3,221	Total	1,602	281	1,883

**Table 7.21 Entry of LS members into long-stay psychiatric hospitals by sex and year of entry**

Year of entry	First decade			Year of entry	Second decade		
	Sex		Total		Sex		Total
	Males	Females			Males	Females	
Part 1971	21	29	50	Part 1981	12	18	30
1972	15	31	46	1982	22	24	46
1973	23	36	59	1983	5	16	21
1974	26	32	58	1984	N/A	N/A	N/A
1975	24	27	51	1985	N/A	N/A	N/A
1976	25	30	55	1986	N/A	N/A	N/A
1977	23	37	60	1987	N/A	N/A	N/A
1978	18	42	60	1988	N/A	N/A	N/A
1979	20	31	51	1989	N/A	N/A	N/A
1980	23	31	54	1990	N/A	N/A	N/A
Part 1981	4	10	14	Part 1991	N/A	N/A	N/A
Total	222	336	558	Total	39	58	97

passing that data on to NHSCR. The only people who register with a GP immediately upon moving are those with existing health problems, families with young children and pregnant women. The young and fit do not normally register until they become sick.

#### 7.6.3.4 LS re-entrants to the NHS

Re-entries to the LS by members who had previously left the study and the NHS by either emigrating, joining the armed services or being committed to long-stay psychiatric

hospital are shown in Table 7.23. These persons remained as members of the LS but very few events could be linked to them while they were outside the NHS. For those LS members in the armed forces or in long-stay psychiatric hospitals, deaths and cancer registrations would be caught as part of the normal NHSCR registration system. On re-entry to the LS, and to the NHS, events could again be linked to them. The majority of re-entrants are those returning either from overseas or from countries in the UK other than England and Wales.

**Table 7.22 Regional FPC moves by LS members from 1971 to 1974**

Standard region of previous FPC	1971			1972			1973			1974			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Scotland	3	3	6	29	29	58	46	55	101	48	58	106	126	145	271
Northern Yorkshire and Humberside	200	233	433	308	382	690	367	366	733	303	362	665	1,178	1,343	2,521
North West	337	390	727	607	753	1,360	666	698	1,364	561	629	1,190	2,171	2,470	4,641
East Midlands	546	654	1,200	1,035	1,093	2,128	925	1,092	2,017	795	885	1,680	3,301	3,724	7,025
West Midlands	244	280	524	422	460	882	398	477	875	354	366	720	1,418	1,583	3,001
East Anglia	440	438	878	691	811	1,502	737	830	1,567	617	679	1,296	2,485	2,758	5,243
South East	130	159	289	230	266	496	231	290	521	217	245	462	808	960	1,768
South West	1,739	1,993	3,732	3,258	3,820	7,078	3,361	3,783	7,144	2,894	3,291	6,185	11,252	12,887	24,139
Wales	323	411	734	615	752	1,367	608	779	1,387	528	620	1,148	2,074	2,562	4,636
Total	164	173	337	268	341	609	263	344	607	256	316	572	951	1,174	2,125
Total	4,126	4,734	8,860	7,463	8,707	16,170	7,602	8,714	16,316	6,573	7,451	14,024	25,764	29,606	55,370

**Table 7.23 Re-entrants to the LS by re-entry type**

Year of re-entry	First decade				Year of re-entry	Second decade			
	Re-entrant type					Re-entrant type			
	From emigration	From enlistment	From LSP hospital	All types		From emigration	From enlistment	From LSP hospital	All types
Part 1971	21	12	0	33	Part 1981	238	75	4	317
1972	177	71	3	251	1982	331	105	4	440
1973	434	74	6	514	1983	391	92	3	486
1974	493	99	2	594	1984	416	73	9	498
1975	456	126	7	589	1985	406	50	6	462
1976	484	136	12	632	1986	352	75	3	430
1977	449	154	13	616	1987	393	59	1	453
1978	463	194	11	668	1988	432	69	1	502
1979	462	234	5	701	1989	463	67	2	532
1980	384	203	6	593	1990	523	67	3	593
Part 1981	80	29	2	111	Part 1991	96	48	1	145
Total	3,903	1,332	67	5,302	Total	4,041	780	37	4,858

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## 8 Tracing rates

This chapter examines the tracing rates in both the whole Longitudinal Study (LS) sample and in subgroups of the sample at each point in time when a new Census–LS sample is selected. It does not examine linkage between the samples over time (covered in Chapter 5) but considers each sample independently.

### 8.1 THE USE AND MEASUREMENT OF TRACING IN THE LS

Tracing is a term used throughout this volume to denote whether a member of the LS has an NHS number. As discussed in previous chapters, the possession of an NHS number is essential to permit the linkage of events to an LS member. Only those members of the sample with NHS numbers (traced members) will therefore be valid to use in the analysis of events, such as births or deaths, occurring to members of the LS sample over time. To define the quality of the sample a tracing measure was devised - the ‘not traced’ rate. This measure defines the percentage of the sample (or subgroup of the sample) who do not possess an NHS number and to whom no event can be linked. For subgroup<sub>*i*</sub> the ‘not-traced’ rate is defined as:

$$\frac{\text{number 'not traced' in subgroup}_i}{\text{original sample in subgroup}_i} \times 100\%$$

and the traced rate can thus be defined as:

$$100 - (\text{the 'not traced' rate}).$$

### 8.2 THE THREE CENSUS–LS SAMPLES

Three separate 1 per cent Census–LS samples based on the four LS dates of birth were drawn at each of the 1971, 1981 and 1991 Censuses. Each of the samples was examined at NHSCR to establish whether the members were traced or untraced. Initially this was done to establish the ‘definitive’ sample for analysis in 1971. In 1981 and 1991 the tracing of members was done as part of the Census–LS link (see Chapter 5).

Of the initial sample of 529,764 LS members selected from the 1971 Census, 512,881 were traced at NHSCR. The number who had still not been traced by 1976 when the 1971 sample files were frozen, was 16,883 (3.2 per cent). It should be noted that the sample actually selected in 1971 was 529,980 persons but this included 76 persons for whom the basic data were found to be inadequate. These individuals were excluded from the sample bringing the total number of persons down to 529,904. Over the period

1992–1993 all source files (including the 1971 and 1981 Census–LS files) were cleaned prior to being loaded onto the Model 204 database. A further 179 members of the 1971 sample were traced during cleaning and this brought the number of traced LS members up to 513,060 and reduced the number of untraced members to 16,844.

Tracing in the initial sample was simple; either a person was traced (had an NHS number) or was not. By the 1981 Census, when the next 1 per cent sample was drawn, the tracing categories had become more complex to allow the selection of subsamples of the LS population. Eighteen categories of what became known as ‘tracing history indicators’ had been defined (see Appendix XIII). Fifteen of these categories were traced and three were untraced. The traced groups in 1981 included new entrants at the 1981 Census, first decade births occurring on LS dates after the 1971 Census, and first decade immigrants who were born on LS dates. Among the traced LS members who were not included in the 1981 sample were those who had emigrated or died intercensally, and those who were present and traced at the 1971 Census but were not found in the 1981 Census.

The sample drawn in 1981 consisted of 536,243 LS members of whom 528,310 were traced. Only 7,933 members (1.5 per cent) in the 1981 sample were not traced by 1985. Ninety-nine further members were deleted from the file in 1986 when it was discovered that they were duplicates. After the cleaning exercise in 1992–3, the 1981 sample consisted of 536,144 LS members of whom 530,228 were traced and 5,916 (1.1 per cent) were still untraced. After the creation of the Model 204 LS database and further checking of the data the sample was reduced to 535,859 LS members of whom 530,248 were found to be traced and 5,614 untraced. The tables for 1981 tracing rates in this chapter were created before the database was loaded and use the earlier figures.

At the 1991 Census a further 1 per cent sample was drawn, consisting of 553,722 LS members. After resolving multiple enumerations and deleting duplicate records, a total of 543,884 LS members remained as the 1991 sample. Of these, 534,655 members were traced at NHSCR leaving 9,229 members still untraced at the end of 1994.

Tracing history indicators had been further expanded to take into account the second decade additions and subtractions of members to the LS. Again the 1991 sample consisted only of those members who were alive and enumerated in England and Wales on Census day 1991. They had either been present at a previous Census (or censuses), were new entrants at the 1991 Census or had entered intercensally as new births or immigrants into the LS.

### 8.3 TRACING RATES IN THE INITIAL 1971 CENSUS-LS SAMPLE

The initial LS sample was selected from the 1971 Census of population based on four dates of birth (see Chapter 3). The 1971 sample consisted of 529,904 persons of whom 257,842 were male and 272,062 were female. A total of 97.2 per cent of the males and 96.5 per cent of the females were traced at NHSCR by 1985. These tracing rates did not change with the addition of a further 179 traced members after the cleaning of the 1971 files in 1992-3.

#### 8.3.1 By age, sex and marital status

An age and sex breakdown of the sample showing the 'not traced' rates is given in Table 8.1. There were quite wide variations in the 'not traced' rates among the different age groups, particularly for females. 'Not traced' rates among males ranged from 4.10 per cent for those aged 20-24 to 1.76 per cent in the oldest age group (those aged 75 and over). The highest 'not traced' rates were found among those men aged 15-44, ranging from 3.19 per cent in the 40-44 age group, up to 4.10 per cent in the 20-24 age group.

'Not traced' rates among females were generally higher than those found among males, ranging from 1.86 per cent among the youngest age group to 5.6 per cent for the 20-24 and 30-34 age groups. Much of the variation among

females in the initial sample may be explained by a change of name at marriage which had not been reported to NHSCR by the time of the 1971 Census-LS sample selection exercise.

Table 8.2 shows the sample disaggregated by age, sex and marital status. Although the 'not traced' rates show wide variability, it is particularly noticeable that the 'not traced' rates among younger married women (aged 15-24) and the younger age groups of divorced women were high. The highest rates (8 per cent and over) occurred in those subgroups where the numbers are small and consequently not too much weight should be placed on these rates. The higher rates for married and divorced women are probably a result of a name change, as many women change their name following divorce as well as on marriage (or remarriage). The lowest 'not traced' rates for males were found among those men who were married, while for females the lowest rates were found among single women.

#### 8.3.2 By country of birth

A breakdown of the sample by sex and country of birth is given in Table 8.3. The highest 'not traced' rates were found among the population born outside the UK particularly among those born in the New Commonwealth and in the USA. Among people originating from New Commonwealth countries, those from Pakistan showed 'not traced' rates of 25 per cent and over.

**Table 8.1 1971 LS sample population by sex, age and 'not traced' rates\***

Age	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
0-4	20,949	441	21,390	2.06	20,160	383	20,543	1.86
5-9	21,878	502	22,385	2.24	20,776	435	21,211	2.05
10-14	19,828	515	20,343	2.53	18,718	388	19,106	2.03
15-19	17,927	627	18,554	3.38	16,889	550	17,439	3.15
20-24	19,161	819	19,980	4.10	19,023	1,129	20,152	5.60
25-29	16,959	691	17,650	3.92	16,152	944	17,096	5.52
30-34	15,646	634	16,281	3.89	14,506	855	15,361	5.57
35-39	15,126	571	15,697	3.64	14,402	828	15,230	5.44
40-44	15,712	518	16,230	3.19	15,200	761	15,961	4.77
45-49	16,382	425	16,807	2.53	16,790	664	17,454	3.80
50-54	15,016	367	15,383	2.39	15,752	494	16,246	3.04
55-59	15,679	358	16,037	2.23	16,804	491	17,295	2.84
60-64	14,088	276	14,364	1.92	15,691	482	16,173	2.98
65-69	11,270	223	11,493	1.94	14,250	360	14,610	2.46
70-74	7,224	152	7,376	2.06	11,319	342	11,661	2.93
75+	7,738	139	7,877	1.76	16,045	479	16,524	2.90
Total	250,583	7,259	257,842	2.82	262,477	9,585	272,062	3.52

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.2 1971 LS sample population by sex, age, marital status and 'not traced' rates\***  
(a) Males

Marital status		Traced cases	Untraced cases	Selected sample	'Not traced' rate
Single	0 - 14	62,655	1,459	64,114	2.28
	15 - 19	17,530	604	18,134	3.33
	20 - 24	11,858	609	12,467	4.88
	25 - 29	4,158	310	4,468	6.94
	30 - 34	2,056	155	2,211	7.01
	35 - 39	1,592	100	1,692	5.91
	40 - 44	1,619	98	1,717	5.71
	45 - 49	1,580	89	1,669	5.33
	50 - 64	3,654	208	3,862	5.39
	65+	1,858	74	1,932	3.83
	Total	108,560	3,706	112,266	3.30
Married	15 - 19	397	23	420	5.48
	20 - 24	7,264	210	7,474	2.81
	25 - 29	12,634	372	13,006	2.86
	30 - 34	13,323	462	13,785	3.35
	35 - 39	13,265	452	13,717	3.30
	40 - 44	13,741	406	14,147	2.87
	45 - 49	14,334	313	14,647	2.14
	50 - 64	38,869	714	39,583	1.80
	65+	19,183	311	19,494	1.60
		Total	133,010	3,263	136,273
Widowed	15 - 19	0	0	0	0.0
	20 - 24	5	0	5	0.0
	25 - 29	12	1	13	7.69
	30 - 34	20	0	20	0.0
	35 - 39	29	4	33	12.12
	40 - 44	102	3	105	2.86
	45 - 49	195	9	204	4.41
	50 - 64	1,672	58	1,730	3.35
	65+	5,044	122	5,166	2.36
		Total	7,079	197	7,276
Divorced	15 - 19	0	0	0	0.0
	20 - 24	34	0	34	0.0
	25 - 29	155	8	163	4.91
	30 - 34	247	17	264	6.44
	35 - 39	240	15	255	5.88
	40 - 44	250	11	261	4.21
	45 - 49	273	14	287	4.88
	50 - 64	588	21	609	3.45
	65+	147	7	154	4.55
		Total	1,934	93	2,027

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.2 1971 LS sample population by sex, age, marital status and 'not traced' rates\***  
**(b) Females**

Marital status		Traced cases	Untraced cases	Selected sample	'Not traced' rate
Single	0-14	59,654	1,206	60,860	1.98
	15-19	15,373	421	15,794	2.67
	20-24	7,411	414	7,825	5.29
	25-29	2,131	152	2,283	6.66
	30-34	1,091	93	1,184	7.85
	35-39	992	58	1,050	5.52
	40-44	1,082	63	1,145	5.50
	45-49	1,268	64	1,332	4.80
	50-59	2,889	118	3,007	3.92
	60+	7,602	247	7,849	3.15
	Total	99,493	2,836	102,329	2.77
Married	15-19	1,516	129	1,645	7.84
	20-24	11,531	698	12,229	5.71
	25-29	13,719	760	14,479	5.25
	30-34	12,989	720	13,709	5.25
	35-39	12,922	732	13,654	5.36
	40-44	13,383	646	14,029	4.60
	45-49	14,465	555	15,020	3.70
	50-59	25,447	696	26,143	2.66
	60+	25,299	643	25,942	2.48
		Total	131,271	5,579	136,850
Widowed	15-19	0	0	0	0.0
	20-24	16	2	18	11.11
	25-29	37	1	38	2.63
	30-34	97	8	105	7.62
	35-39	148	11	159	6.92
	40-44	382	25	407	6.14
	45-49	706	25	731	3.42
	50-59	3,529	129	3,658	3.53
	60+	23,852	751	24,603	3.05
		Total	28,767	952	29,719
Divorced	15-19	0	0	0	0.0
	20-24	65	15	80	18.75
	25-29	265	31	296	10.47
	30-34	329	34	363	9.37
	35-39	340	27	367	7.37
	40-44	353	27	380	7.11
	45-49	351	20	371	5.39
	50-59	691	42	733	5.73
	60+	552	22	574	3.83
		Total	2,946	218	3,164

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

High 'not traced' rates among those born overseas may be accounted for by a number of reasons.

- (i) Until an immigrant registers with a GP he or she will not be known to NHSCR. Only on registration with an NHS doctor will the immigrant be issued with an NHS number and become traceable.
- (ii) The recording of names of persons originating from the Indian subcontinent (India, Pakistan and Bangladesh) is not always consistent. It is not always obvious which name should be used as a surname and which as a forename, and the order in which the names may be recorded may vary at different times of reporting. This also applies to persons of Chinese origin who may record their surname first. Unfamiliar names are also liable to transcription errors (from Census form to LS index card and from document to document in the NHSCR registration system). As a result names originating from certain areas of the world are more difficult to trace in the registers at NHSCR.
- (iii) Some immigrants tend to give inaccurate or inconsistent dates of birth on different documents. This may be due to language difficulties or dating differences as well as genuinely not knowing their date of birth.

- (iv) North American males show particularly high 'not traced' rates (19.35 per cent in the 1971 sample). Much of this may be explained by the large numbers of Americans in US Armed Forces resident in Britain at the time of the 1971 Census. USAF personnel have their own medical services and therefore never enter the NHS system.

Table 8.4 gives a more detailed breakdown of some of the major birthplace areas by age and sex. (A five-year age breakdown was not done due to the small numbers that would have resulted.) The age groups used were 0–14, 15–29, 30–44, 45–retired and over retirement age.

The area with the highest overall 'not traced' rates in 1971 was the New Commonwealth and Pakistan with 'not traced' rates of 17.41 per cent for males and 16.72 per cent for females. Examined further, LS members whose birthplace was India and Pakistan made up 52 per cent of the membership from the New Commonwealth and Pakistan area. The highest 'not traced' rates were found in the 0–14 age group both for males and females. Males aged less than 15 who were born in India had 'not traced' rates of 21.35 per cent and females in the same age group 23.83 per cent. Among those LS members who were born in Pakistan, males aged less than 15 had 'not traced' rates of 34.92 per cent and females in the same age group 39.55 per cent. The overall 'not traced' rates for all LS members born in Pakistan were 25.04 per cent for males and 27.21 per cent for females.

**Table 8.3 1971 LS sample population by sex, country of birth and 'not traced' rates\***

Country of birth	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
All countries	250,583	7,259	257,842	2.82	262,477	9,585	272,062	3.52
United Kingdom	233,598	4,416	238,014	1.86	246,298	7,121	253,419	2.81
Outside UK	16,985	2,843	19,828	14.34	16,179	2,464	18,643	13.22
Irish Republic†	3,406	446	3,852	11.58	3,801	463	4,264	10.86
Old Commonwealth	583	67	650	10.31	684	74	758	9.76
New Commonwealth	7,616	1,605	9,221	17.41	5,633	1,131	6,764	16.72
Africa	923	161	1,084	14.85	755	111	866	12.82
America	1,576	256	1,832	13.97	1,500	276	1,776	15.54
India	2,372	451	2,823	15.98	1,819	357	2,176	16.41
Pakistan	1,470	491	1,961	25.04	452	169	621	27.21
Other Asia	513	89	602	14.78	460	62	522	11.88
Mediterranean	763	156	919	16.97	647	156	803	19.43
Europe	3,145	319	3,464	9.21	3,800	456	4,256	10.71
America (USA)	321	77	398	19.35	317	69	386	17.88
Other foreign and not stated	1,913	330	2,243	14.71	1,944	271	2,215	12.23

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

† Includes Ireland, part not stated

**Table 8.4 1971 LS sample population by country of birth, sex, age and 'not traced' rates\***

Age of LS member	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>United Kingdom</b>								
0-14	60,618	1,115	61,733	1.81	57,864	911	58,775	1.55
15-29	50,212	1,081	51,293	2.11	48,056	1,736	49,792	3.49
30-44	41,136	855	41,991	2.04	39,534	1,733	41,267	4.20
45-retired	56,504	958	57,462	1.67	46,026	1,290	47,316	2.73
Retired +	25,128	407	25,535	1.59	54,818	1,451	56,269	2.58
Total	233,598	4,416	238,014	1.86	246,298	7,121	253,419	2.81
<b>Irish Republic (including Ireland, part not specified)</b>								
0-14	109	14	123	11.38	89	12	101	11.88
15-29	579	151	730	20.68	740	145	885	16.38
30-44	1,117	145	1,262	11.49	1,139	123	1,262	9.75
45-retired	1,325	111	1,436	7.73	1,104	115	1,219	9.43
Retired +	276	25	301	8.31	729	68	797	8.53
Total	3,406	445	3,852	11.55	3,801	463	4,264	10.86
<b>New Commonwealth and Pakistan</b>								
0-14	1,070	253	1,323	19.12	900	188	1,088	17.28
15-29	2,244	612	2,858	21.41	1,981	428	2,409	17.77
30-44	2,950	523	3,473	15.06	1,720	364	2,084	17.47
45-retired	1,186	197	1,383	14.24	693	118	811	14.55
Retired +	166	18	184	9.78	339	33	372	8.87
Total	7,616	1,605	9,221	17.41	5,633	1,131	6,764	16.72
<b>African Commonwealth</b>								
0-14	225	47	272	17.28	222	36	258	13.95
15-29	353	68	421	16.15	351	52	403	12.90
30-44	277	37	314	11.78	137	16	153	10.46
45-retired	61	9	70	12.86	31	6	37	16.22
Retired +	7	0	7	0.00	14	1	15	6.67
Total	923	161	1,084	14.85	755	111	866	12.82
<b>American Commonwealth (mainly West Indies and Guyana)</b>								
0-14	135	19	154	12.34	143	25	168	14.88
15-29	370	78	448	17.41	491	90	581	15.49
30-44	704	112	816	13.73	617	116	733	15.83
45-retired	348	44	392	11.22	212	41	253	16.21
Retired +	19	3	22	13.64	37	4	41	9.76
Total	1,576	256	1,832	13.97	1,500	276	1,776	15.54
<b>India</b>								
0-14	221	60	281	21.35	179	56	235	23.83
15-29	683	177	860	20.58	625	149	774	19.25
30-44	965	148	1,113	13.30	554	115	669	17.19
45-retired	408	61	469	13.01	269	26	295	8.81
Retired +	95	5	100	5.00	192	11	203	5.42
Total	2,372	451	2,823	15.98	1,819	357	2,176	16.41

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.4 - continued**

Age of LS member	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Pakistan</b>								
0 - 14	192	103	295	34.92	81	53	134	39.55
15 - 29	486	192	678	28.32	176	55	231	23.81
30 - 44	630	149	779	19.13	156	47	203	23.15
45 -retired	152	43	195	22.05	30	14	44	31.82
Retired +	10	4	14	28.60	9	0	9	0.00
Total	1,470	491	1,961	25.04	452	169	621	27.21
<b>Mediterranean Commonwealth (Malta, Gibraltar, Cyprus)</b>								
0 - 14	124	12	136	8.82	131	15	146	10.27
15 - 29	188	57	245	23.27	148	44	192	22.92
30 - 44	251	47	298	15.77	181	53	234	22.65
45 -retired	175	34	209	16.27	113	27	140	19.29
Retired +	25	6	31	19.35	74	17	91	18.68
Total	763	156	919	16.97	647	156	803	19.43
<b>Europe†</b>								
0 - 14	342	28	370	7.57	310	29	339	8.55
15 - 29	477	118	595	19.83	701	161	862	18.68
30 - 44	791	96	877	10.95	1,235	148	1,383	10.70
45 -retired	1,580	105	1,685	6.23	1,052	81	1,133	7.15
Retired +	468	41	509	8.06	827	109	1,016	10.73
Total	3,658	378	4,036	9.37	4,125	487	4,612	10.56
<b>Other countries (including USA, old Commonwealth, USSR and not stated country of birth)</b>								
0 - 14	506	59	565	10.44	487	70	557	12.57
15 - 29	534	174	708	24.58	586	153	739	20.70
30 - 44	490	114	604	18.87	480	76	556	13.67
45 -retired	570	43	613	7.01	471	45	516	8.72
Retired +	204	15	219	6.85	596	39	635	6.14
Total	2,304	405	2,709	14.95	2,620	383	3,003	12.75

† Not including USSR.

### 8.3.3 By region of usual residence

Table 8.5 shows tracing rates by region of usual residence. The overall tracing rate for males in England and Wales was 97.18 per cent, with high 'not traced' rates being found in the South East (3.66 per cent) and the West Midlands (3.52 per cent). Greater London (which comprised approximately 44 per cent of the LS population enumerated in the South East in 1971) had the highest 'not traced' rate for males at 4.90 per cent. The female 'not traced' rates tended to be slightly higher than the male rates, at 3.52 per cent overall, 4.46 per cent for the West Midlands and 5.62 per cent for Greater London. In 1971 both the West Midlands and Greater London areas had larger populations of those born overseas than other standard regions, which may explain the higher 'not traced' rates.

### 8.3.4 By type of household

Tracing rates for LS members enumerated in private households and those enumerated in non-private households differed quite markedly in the 1971 sample. This is particularly noticeable for males (see Table 8.6). Where the numbers shown in the table are small (for example, only 22 females were enumerated in places of detention in 1971), less importance should be attached to the tracing rates. Information collected at census for people in non-private households is often of poorer quality than that for people in private households, and tracing at NHSCR tends to be more difficult. High 'not traced' rates are to be expected in both defence establishments where personnel come under service medical care rather than the NHS and in psychiatric institutions, where persons undergoing long-

**Table 8.5 1971 LS sample population by sex, region of usual residence and 'not traced' rates\***

Region of usual residence	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
England and Wales	250,583	7,259	257,842	2.82	262,477	9,585	272,062	3.52
North	17,170	345	17,515	1.97	17,628	609	18,237	3.34
Yorkshire & Humberside	24,868	623	25,491	2.44	26,025	741	26,766	2.77
North West	34,761	780	35,541	2.19	37,013	1,089	38,102	2.86
East Midlands	17,680	359	18,039	1.99	17,972	521	18,493	2.82
West Midlands	27,065	986	28,051	3.52	26,767	1,251	28,018	4.46
East Anglia	8,512	157	8,669	1.81	8,888	218	9,106	2.39
South East	87,363	3,316	90,679	3.66	92,941	4,116	97,057	4.24
Greater London	37,546	1,936	39,482	4.90	40,372	2,406	42,778	5.62
Remainder of SE	49,817	1,380	51,197	2.70	52,569	1,707	54,276	3.15
South West	19,068	370	19,438	1.90	20,607	537	21,144	2.54
Wales	14,096	323	14,419	2.24	14,636	503	15,139	3.32

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.6 1971 LS sample population by sex, household type and 'not traced' rates\***

Type of household	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Private households</b>	<b>244,083</b>	<b>6,578</b>	<b>250,661</b>	<b>2.62</b>	<b>256,290</b>	<b>9,052</b>	<b>265,342</b>	<b>3.41</b>
<b>Non-private households†</b>	<b>6,500</b>	<b>681</b>	<b>7,181</b>	<b>9.48</b>	<b>6,187</b>	<b>533</b>	<b>6,720</b>	<b>7.93</b>
Hotels	1,147	168	1,315	12.78	925	93	1,018	9.14
Psychiatric hospitals	731	98	829	11.82	762	114	876	13.01
Other hospitals	914	95	1,009	9.42	1,879	164	2,043	8.03
Educational establishments	1,168	63	1,231	5.12	755	31	786	3.94
Childrens homes	183	16	199	8.04	216	16	232	6.90
Places of detention	448	52	500	10.40	18	4	22	18.18
Defence establishments	692	87	779	11.17	93	13	106	12.26
Other establishments	1,217	102	1,319	7.73	1,539	98	1,637	5.99

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

† Place of enumeration, not necessarily residence

term treatment (in excess of six months) also leave the NHS. However, it should be noted that only 2.7 per cent of LS members were enumerated in non-private households in 1971. Therefore, high 'not traced' rates among the institutional population in 1971 do not seriously distort the overall sample.

### 8.3.5 By economic position

Table 8.7 shows the 1971 sample population by sex, age and economic position. The highest 'not traced' rates were found among the economically inactive population, students aged 25-34, females categorised as permanently sick, and males in the category described as 'others economically inactive'. (This category includes those of independent means, male housewives and those with no stated

occupation.) Overall there was no difference in the 'not traced' rate between economically active and economically inactive males (both were 3 per cent), and only a small difference for females (4.27 per cent as against 3.74 per cent).

### 8.3.6 By social class

Table 8.8 shows tracing rates by social class for the LS population aged 15 and over in 1971. The lowest 'not traced' rates were found among those in the non-manual occupations (Classes I, II and IIIN), at 2.35 per cent overall for males and 3.83 per cent overall for females. The highest 'not traced' rates for males were found among those who were classified as either in the armed forces or as inadequately described (6.42 per cent). The highest 'not

Table 8.7 1971 LS sample population aged 15 and over by sex, age, economic position and 'not traced' rates\*

Economic position	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Economically active</b>								
In employment								
15-24	26,896	951	27,847	3.42	19,876	857	20,733	4.13
25-34	30,485	1,125	31,610	3.56	12,878	839	13,717	6.12
35-44	29,182	994	30,176	3.29	16,392	825	17,217	4.79
45-retired	54,687	1,190	55,877	2.13	27,158	861	28,019	3.07
Retired +	4,871	125	4,996	2.50	6,772	218	6,991	3.12
Total	146,121	4,385	150,506	2.91	83,077	3,600	86,677	4.15
Out of employment - sick								
15-24	152	4	156	2.56	164	13	177	7.34
25-34	182	8	190	4.21	99	10	109	9.17
35-44	284	10	294	3.40	163	13	176	7.39
45-retired	1,179	37	1,216	3.04	423	26	449	5.79
Retired +	39	1	40	2.50	59	1	60	1.67
Total	1,836	60	1,896	3.16	908	63	971	6.49
Out of employment - other								
15-24	1,759	111	1,870	5.94	985	76	1,061	7.16
25-34	1,217	80	1,297	6.17	508	49	557	8.80
35-44	924	38	962	3.95	447	39	486	8.02
45-retired	1,961	62	2,023	3.06	746	39	785	4.97
Retired +	105	6	111	5.41	212	11	223	4.93
Total	5,966	297	6,263	4.74	2,898	214	3,112	6.88
<b>All economically active</b>	<b>153,923</b>	<b>4,742</b>	<b>158,665</b>	<b>2.99</b>	<b>86,883</b>	<b>3,877</b>	<b>90,760</b>	<b>4.27</b>
<b>Economically inactive</b>								
Retired								
35-54	103	6	109	5.50	622	6	668	0.90
55-retired	1,227	37	1,264	2.93	939	36	975	3.69
Retired +	20,916	371	21,287	1.74	27,619	790	28,409	2.78
Total	22,246	414	22,660	1.83	29,180	872	30,052	2.91
Permanently sick								
15-24	154	12	166	7.23	162	9	171	5.26
25-34	170	17	187	9.09	134	24	158	15.19
35-44	234	11	245	4.49	196	21	217	9.68
45-retired	1,820	81	1,901	4.26	847	55	902	6.10
Retired +	203	8	211	3.79	533	49	582	8.42
Total	2,581	129	2,710	4.76	1,872	158	2,030	7.78
Students								
15-24	7,796	324	8,120	3.99	7,029	251	7,280	3.45
25-34	403	70	473	14.80	207	23	230	10.00
35-44	101	14	115	12.17	120	8	128	6.25
45-retired	38	1	39	2.56	63	6	69	8.70
Retired +	-	-	-	-	-	-	-	-
Total	8,338	409	8,747	4.68	7,419	288	7,707	3.74

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.7 - continued**

Economic position	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
Others inactive								
15-24	331	44	375	11.73	7,696	473	8,169	5.79
25-34	148	25	173	14.45	16,832	854	17,686	4.83
35-44	101	20	121	16.53	12,096	665	12,761	5.21
45-retired	162	14	176	7.95	18,736	599	19,334	3.10
Retired +	98	3	101	2.97	22,109	594	22,703	2.62
Total	840	106	946	11.21	77,469	3,184	80,653	3.95
<b>All economically inactive</b>	<b>34,005</b>	<b>1,058</b>	<b>35,063</b>	<b>3.02</b>	<b>115,940</b>	<b>4,502</b>	<b>120,442</b>	<b>3.74</b>
<b>All persons</b>	<b>187,928</b>	<b>5,800</b>	<b>193,728</b>	<b>2.99</b>	<b>202,823</b>	<b>8,379</b>	<b>211,202</b>	<b>3.97</b>

**Table 8.8 1971 LS sample population aged 15 and over\* by sex, social class and 'not traced' rate†**

Social class	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Non-manual</b>								
I Professional	8,561	221	8,782	2.52	899	51	950	5.37
II Intermediate	30,393	743	31,136	2.39	15,803	706	16,509	4.28
IIIN Skilled	20,462	466	20,928	2.23	34,612	1,289	35,901	3.59
Total non-manual	59,416	1,430	60,846	2.35	51,314	2,046	53,360	3.83
<b>Manual</b>								
IIIM Skilled	64,703	1,542	66,245	2.33	9,332	387	9,719	3.98
IV Part skilled	30,437	1,055	31,492	3.35	23,955	1,174	25,129	4.67
V Unskilled	14,023	625	14,648	4.27	6,931	286	7,217	3.96
Armed forces and inadequately described	8,209	563	8,772	6.42	25,127	904	26,031	3.47
Total manual	117,372	3,785	121,157	3.12	65,345	2,751	68,096	4.04
Total	176,788	5,215	182,003	2.87	116,659	4,797	121,456	3.95

\* Includes persons 65 and over.

† 'Not traced rate' =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

traced' rate for females (5.37 per cent) was found among women in Social Class I professional occupations. This is probably due to the small number of women in this classification at the 1971 Census (950 in total).

### 8.3.7 By socio-economic group

Table 8.9 gives a further breakdown of the 1971 LS sample by sex and socio-economic groupings. This table clearly shows that nearly a quarter of all women (21.3 per cent) who were included in a socio-economic grouping were placed in inadequately described occupations in the 1971

Census. It should be noted that out of the total 1971 female LS population over 15 years of age, only 57.5 per cent, compared with 93.9 per cent of males in the sample, could be allocated to a socio-economic group.

### 8.4 TRACING RATES IN THE 1981 CENSUS-LS SAMPLE

The 1981 LS sample was selected from the 1981 Census of population for England and Wales using the same birthdate criteria as those used for selecting the original

**Table 8.9 1971 LS sample population aged 15 and over by sex, socio-economic group and 'not traced' rates\***

Socio-economic group	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
Employers and managers in large establishments	6,408	109	6,517	1.67	1,120	46	1,166	3.95
Employers and managers in small establishments	14,268	397	14,665	2.71	3,613	188	3,801	4.95
Professional workers self-employed	1,578	35	1,613	2.17	119	5	124	4.03
employees	6,983	185	7,168	2.58	780	46	826	5.57
Intermediate, non-manual	9,348	241	9,589	2.51	10,755	473	11,228	4.21
Junior non-manual workers	21,248	453	21,701	2.09	34,667	1,237	35,904	3.45
Personal service workers	1,743	198	1,941	10.20	12,087	597	12,684	4.71
Foremen and supervisors	6,355	107	6,462	1.66	563	25	588	4.25
Skilled manual workers	51,176	1,154	52,330	2.21	5,965	231	6,196	3.73
Semi-skilled manual workers	22,611	768	23,379	3.28	11,909	613	12,522	4.90
Unskilled manual workers	13,470	601	14,071	4.27	6,919	285	7,204	3.96
Own account workers	7,850	239	8,089	2.95	1,994	84	2,078	4.04
Farmers	2,961	55	3,016	1.82	439	17	456	3.73
Agricultural workers	2,580	76	2,656	2.86	602	27	629	4.29
Armed forces	2,036	273	2,309	11.82	107	14	121	1.57
Inadequately described occupations	6,173	289	6,462	4.47	25,020	889	25,909	3.43
Total	176,788	5,188	181,976	2.85	116,658	4,778	121,436	3.93

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.10 1981 LS sample population by age, sex and 'not traced' rates\***

Age	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
0-4	16,398	125	16,523	0.76	15,461	106	15,567	0.68	31,859	231	32,090	0.72
5-9	17,979	151	18,130	0.83	17,144	135	17,279	0.78	35,123	286	35,409	0.81
10-14	21,071	194	21,265	0.91	20,195	143	20,338	0.70	41,266	337	41,603	0.81
15-19	22,224	250	22,474	1.11	21,248	210	21,458	0.98	43,472	460	43,932	1.05
20-24	19,926	424	20,350	2.08	19,508	333	19,841	1.68	39,434	757	40,191	1.88
25-29	18,291	341	18,632	1.83	17,987	294	18,281	1.61	36,278	635	36,913	1.72
30-34	19,886	293	20,179	1.45	19,955	233	20,188	1.15	39,841	526	40,367	1.30
35-39	17,204	232	17,436	1.33	16,820	207	17,027	1.22	34,024	439	34,463	1.27
40-44	15,631	191	15,822	1.21	14,963	167	15,130	1.10	30,594	358	30,952	1.16
45-49	14,978	181	15,159	1.19	14,787	154	14,941	1.03	29,765	335	30,100	1.11
50-54	15,261	144	15,405	0.93	15,214	165	15,379	1.07	30,475	309	30,784	1.00
55-59	15,089	121	15,210	0.80	16,171	122	16,293	0.75	31,260	243	31,503	0.77
60-64	13,047	97	13,144	0.74	14,624	143	14,767	0.97	27,671	240	27,911	0.86
65-69	12,113	106	12,219	0.87	14,828	143	14,971	0.96	26,941	249	27,190	0.92
70-74	9,350	63	9,413	0.67	12,856	98	12,954	0.76	22,206	161	22,367	0.72
75+	9,746	103	9,849	1.05	20,273	247	20,520	1.20	30,019	350	30,369	1.15
Total	258,194	3,016	261,210	1.15	272,034	2,900	274,934	1.05	530,228	5,916	536,144	1.10

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

1971 sample. The 1981 sample consisted of 536,144 persons of whom 261,210 were male and 274,934 were female. A total of 98.8 per cent of the males and 98.9 per cent of the females were traced at NHSCR. This was an increase in the tracing rate for males of 1.6 per cent and for females of 2.3 per cent compared with the 1971 sample. The highest 'not traced' rates were found for both males and females in the age groups 20–24 and 25–29 (see Table 8.10). High 'not traced' rates were found among those of working age (aged over 15 but less than 50) and among the very elderly (aged 75 and over).

#### 8.4.1 By age, sex and marital status

'Not traced' rates by age, sex and marital status are shown in Table 8.11. Among single males there were consistently high 'not traced' rates for those aged 16 and over in 1981 (ranging from 1.17 to 3.23 per cent). There was not a great deal of variability between the age groups, and the overall 'not traced' rate for single males was 1.39 per cent. Married men showed a lower overall 'not traced' rate (0.92 per cent) than other groups, but the 'not traced' rate was over 1 per cent among those aged between 16 and 39. Both divorced and widowed males showed a high degree of variability in 'not traced' rates but this was attributable to the small numbers involved.

With the exception of the 'not traced' rates found for widows aged 20–24 and 30–34, the highest 'not traced' rates for females were found among those who were single. These rates were more variable by age than those seen among comparable males but the overall 'not traced' rate was lower at 1.06 per cent. Married women showed more variability in rates than males, with the highest 'not traced' rates being among those aged 16 to 29. Divorcees and widows had high 'not traced' rates in some of the younger age groups, but like the males this was due to small numbers. However, it should be noted that in 1981 the female LS sample population contained one third more divorced persons and four times as many widowed persons as the male LS population.

#### 8.4.2 By country of birth

Table 8.12a shows the 1981 LS population by sex, country of birth and 'not traced' rates. The overall 'not traced' rate was 1.10 per cent, with the lowest 'not traced' rate (0.5 per cent) found among males born in England and Wales. It should be noted that although 'not traced' rates for countries of birth other than England and Wales are highly variable (ranging from 1.2 for those born in 'other UK' (the Isle of Man, Channel Islands) to 40.03 per cent for those born in the USA) only 10 per cent of the LS population quoted a country of birth other than England and Wales.

The highest 'not traced' rate was found among those born in the USA, but as at the previous census these 1,164 LS members were mainly made up of USAF personnel who have their own health arrangements outside the NHS. High 'not traced' rates were found among those born in the Rest of the World (12.27 per cent), the West African Commonwealth (12.05 per cent), Bangladesh (10.9 per cent)

and the Far Eastern Commonwealth (9.39 per cent). The very high 'not traced' rates found at the 1971 Census for persons born in the New Commonwealth were not repeated at the 1981 Census, though this section of the LS population had doubled in size.

Males tended to have higher 'not traced' rates than females, with the exception of England and Wales, Pakistan, Bangladesh, India, the Mediterranean Commonwealth and where the country of birth was not stated. However where the males did have particularly high 'not traced' rates the females did as well. For example, LS members born in the West African Commonwealth had male 'not traced' rates of 12.84 per cent and female 'not traced' rates of 10.96 per cent.

A further examination of tracing by age group within selected countries of birth revealed a great deal of variability. No individual age group stood out as having consistently high 'not traced' rates (see Table 8.12b).

#### 8.4.3 By region of usual residence

Table 8.13 (page 164) shows tracing rates by region of usual residence. Overall 98.9 per cent of LS members enumerated in England and Wales at the 1981 Census were traced. Where the region of usual residence was in England and Wales the highest 'not traced' rates were found in East Anglia (2.28 per cent for males, 1.48 for females), the South East (1.82 and 1.69 per cent respectively), and the West Midlands (1.09 and 1.03 per cent). For the 4 per cent of LS members who gave their region of usual residence as outside England and Wales the 'not traced' rates were 1.52 per cent for males and 1.02 per cent for females. All LS members enumerated in other regions had 'not traced' rates of less than 1 per cent.

#### 8.4.4 By type of household

Tracing rates by type of household in 1981 are shown in Table 8.14, and as in 1971, show marked differences in rates between private and non-private households. Non-private households had consistently lower rates of tracing than private households for the reasons given in section 8.3.4. Generally the 1981 'not traced' rates for non-private households are smaller than those seen in 1971, with the exception of the rates for males enumerated in defence establishments (11.38 per cent) and females enumerated in other establishments (6.06 per cent). It should be noted that a slightly smaller percentage of LS members were enumerated in non-private households in 1981 (2.2 per cent compared with 2.7 per cent in 1971).

#### 8.4.5 By economic position

In the 1981 LS sample, overall tracing rates differed substantially between the economically active and the economically inactive groups for both males and females. For males the 'not traced' rates were 1.18 per cent and 1.5 per cent, and for females 1.1 per cent and 1.53 per cent respectively (see Table 8.15).

*Text continues page 167*

**Table 8.11 1981 LS sample population by age, sex, marital status and 'not traced' rates\***

Age	Single				Married			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Males</b>								
0-15	59,924	507	60,431	0.84	0	0	0	0.00
16-19	17,496	207	17,703	1.17	247	6	253	2.37
20-24	14,725	321	15,046	2.13	5,080	97	5,177	1.87
25-29	6,093	165	6,258	2.64	11,580	165	11,745	1.40
30-34	3,252	90	3,342	2.69	15,603	188	15,791	1.19
35-39	1,884	52	1,936	2.69	14,368	165	14,533	1.14
40-44	1,387	38	1,425	2.67	13,314	132	13,446	0.98
45-49	1,305	39	1,344	2.90	12,790	123	12,913	0.95
50-64	3,871	85	3,956	2.15	36,572	235	36,807	0.64
65+	2,395	80	2,475	3.23	22,740	118	22,858	0.52
Total	112,332	1,584	113,916	1.39	132,294	1,229	133,523	0.92
<b>Females</b>								
0-15	57,043	410	57,453	0.71	0	0	0	0.00
16-19	16,040	161	16,201	0.99	957	23	980	2.35
20-24	10,157	186	10,343	1.80	8,972	142	9,114	1.56
25-29	3,318	87	3,405	2.56	13,622	190	13,812	1.38
30-34	1,728	44	1,772	2.48	16,837	167	17,004	0.98
35-39	985	19	1,004	1.89	14,426	160	14,586	1.10
40-44	801	13	814	1.60	12,777	130	12,907	1.01
45-49	843	20	863	2.32	12,526	114	12,640	0.90
50-64	3,238	52	3,290	1.58	34,729	272	35,001	0.78
65+	5,537	71	5,608	1.27	18,161	159	18,320	0.87
Total	99,690	1,063	100,753	1.06	133,007	1,357	134,364	1.01
Age	Divorced				Widowed			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Males</b>								
0-15	0	0	0	0.00	0	0	0	0.00
16-19	4	0	4	0.00	1	0	1	0.00
20-24	117	4	121	3.31	4	2	6	33.33
25-29	607	11	618	1.78	11	0	11	0.00
30-34	998	15	1,013	1.48	33	0	33	0.00
35-39	908	14	922	1.52	44	1	45	2.22
40-44	867	20	887	2.25	63	1	64	1.56
45-49	755	17	772	2.20	128	2	130	1.54
50-64	1,453	21	1,474	1.42	1,501	21	1,522	1.38
65+	508	7	515	1.36	5,566	67	5,633	1.19
Total	6,217	109	6,326	1.72	7,351	94	7,445	1.26
<b>Females</b>								
0-15	0	0	0	.00	0	0	0	.00
16-19	7	0	7	.00	1	0	1	.00
20-24	359	4	363	1.10	20	1	21	4.76
25-29	990	16	1,006	1.59	57	1	58	1.72
30-34	1,298	18	1,316	1.37	92	4	96	4.17
35-39	1,222	24	1,246	1.93	187	4	191	2.09
40-44	1,081	16	1,097	1.46	304	8	312	2.56
45-49	902	11	913	1.20	516	9	525	1.71
50-64	1,869	34	1,903	1.79	6,173	72	6,245	1.15
65+	836	20	856	2.34	23,423	238	23,661	1.01
Total	8,564	143	8,707	1.64	30,773	337	31,110	1.08

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.12a 1981 LS sample population by sex, country of birth and 'not traced' rates\***

Country of birth	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
England and Wales	232,063	1,155	233,218	0.50	246,122	1,365	247,487	0.55	478,185	2,520	480,705	0.52
Scotland	4,354	85	4,439	1.91	4,259	81	4,340	1.87	8,613	166	8,779	1.89
Northern Ireland	1,122	43	1,165	3.69	1,151	31	1,182	2.62	2,273	74	2,347	3.15
Other UK	152	2	154	1.30	177	2	179	1.12	329	4	333	1.20
Total UK	237,691	1,285	238,976	0.54	251,709	1,479	253,188	0.58	489,400	2,764	492,164	0.56
Irish Republic†	3,000	161	3,161	5.09	3,448	150	3,598	4.17	6,448	311	6,759	4.60
India	3,262	176	3,438	5.12	3,015	183	3,198	5.72	6,277	359	6,636	5.41
Pakistan	1,949	147	2,096	7.01	1,241	116	1,357	8.55	3,190	263	3,453	7.62
Bangladesh	519	64	583	10.98	282	34	316	10.76	801	98	899	10.90
E. African Commonwealth	1,187	56	1,243	4.51	1,109	39	1,148	3.40	2,296	95	2,391	3.97
W. African Commonwealth	353	52	405	12.84	260	32	292	10.96	613	84	697	12.05
South African Commonwealth	92	6	98	6.12	86	3	89	3.37	178	9	187	4.81
African Commonwealth	1,632	114	1,746	6.53	1,455	74	1,529	4.84	3,087	188	3,275	5.74
Caribbean Commonwealth	1,570	116	1,686	6.88	1,676	87	1,763	4.93	3,246	203	3,449	5.89
Mediterranean Commonwealth	891	49	940	5.21	775	60	835	7.19	1,666	109	1,775	6.14
Far East Commonwealth	763	86	849	10.13	665	62	727	8.53	1,428	148	1,576	9.39
Rest of New Commonwealth	337	20	357	5.60	320	5	325	1.54	657	25	682	3.67
Total New Commonwealth	10,923	772	11,695	6.60	9,429	621	10,050	6.18	20,352	1,393	21,745	6.41
Old Commonwealth	670	48	718	6.69	791	41	832	4.93	1,461	89	1,550	5.74
Europe (including USSR)	3,576	185	3,761	4.92	4,239	218	4,457	4.89	7,815	403	8,218	4.90
USA	347	290	637	45.53	351	176	527	33.40	698	466	1,164	40.03
Rest of World	1,568	254	1,822	13.94	1,592	188	1,780	10.56	3,160	442	3,602	12.27
Not stated	419	21	440	4.77	475	27	502	5.38	894	48	942	5.10
Total	258,194	3,016	261,210	1.15	272,034	2,900	274,934	1.05	530,228	5,916	536,144	1.10

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

† Includes Ireland, part not stated

Table 8.12b 1981 LS sample population by age, sex, selected country of birth and 'not traced' rates\*

Country of birth and age group	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
<b>United Kingdom</b>												
0- 14	53,595	303	53,898	0.56	51,136	244	51,380	0.47	104,731	547	105,278	0.52
15- 29	55,189	374	55,563	0.67	53,405	298	53,703	0.55	108,594	672	109,266	0.62
30- 44	47,154	216	47,370	0.46	46,113	268	46,381	0.58	93,267	484	93,751	0.52
45- 59/64	52,305	219	52,524	0.42	41,620	217	41,837	0.52	93,925	436	94,361	0.46
60/65+	29,448	173	29,621	0.58	59,435	452	59,887	0.75	88,883	625	89,508	0.70
Total	237,691	1,285	238,976	0.54	251,709	1,479	253,188	0.58	489,400	2,764	492,164	0.56
<b>Irish Republic</b>												
0- 14	51	4	55	7.27	38	2	40	5.00	89	6	95	6.32
15- 29	287	25	312	8.01	357	24	381	6.30	644	49	693	7.07
30- 44	861	52	913	5.70	953	31	984	3.15	1,814	83	1,897	4.38
45- 59/64	941	32	973	3.29	1,101	42	1,143	3.67	2,042	74	2,116	3.50
60/65+	494	31	525	5.90	999	51	1,050	4.86	1,493	82	1,575	5.21
Total	3,000	161	3161	5.09	3,448	150	3,598	4.17	6,448	311	6,759	4.60
<b>New Commonwealth</b>												
0- 14	855	61	916	6.66	720	52	772	6.74	1,575	113	1,688	6.69
15- 29	3,569	273	3,842	7.11	3,491	236	3,727	6.33	7,060	509	7,569	6.72
30- 44	3,360	246	3,606	6.82	2,976	158	3,134	5.04	6,336	404	6,740	5.99
45- 59/64	2,740	166	2,906	5.71	1,610	121	1,731	6.99	4,350	287	4,637	6.19
60/65+	399	26	425	6.12	632	54	686	7.87	1,031	80	1,111	7.20
Total	10,923	772	11,695	6.60	9,429	621	10,050	6.18	20,352	1,393	21,745	6.41
<b>India</b>												
0- 14	91	3	94	3.19	88	9	97	9.28	179	12	191	6.28
15- 29	841	43	884	4.86	1,000	69	1,069	6.45	1,841	112	1,953	5.73
30- 44	1,211	74	1,285	5.76	1,025	65	1,090	5.96	2,236	139	2,375	5.85
45- 59/64	924	43	967	4.45	566	27	593	4.55	1,490	70	1,560	4.49
60/65+	195	13	208	6.25	336	13	349	3.72	531	26	557	4.67
Total	3,262	176	3,438	5.12	3,015	183	3,198	5.72	6,277	359	6,636	5.41
<b>Pakistan</b>												
0- 14	255	26	281	9.25	149	26	175	14.86	404	52	456	11.40
15- 29	768	47	815	5.77	542	44	586	7.51	1,310	91	1,401	6.50
30- 44	526	46	572	8.04	380	19	399	4.76	906	65	971	6.69
45- 59/64	378	27	405	6.67	147	27	174	15.52	525	54	579	9.33
60/65+	22	1	23	4.35	23	0	23	0.00	45	1	46	2.17
Total	1,949	147	2,096	7.01	1,241	116	1,357	8.55	3,190	263	3,453	7.62
<b>African Commonwealth</b>												
0- 14	165	8	173	4.62	177	4	181	2.21	342	12	354	3.39
15- 29	779	62	841	7.37	759	47	806	5.83	1,538	109	1,647	6.62
30- 44	491	36	527	6.83	402	18	420	4.29	893	54	947	5.70
45- 59/64	188	6	194	3.09	99	3	102	2.94	287	9	296	3.04
60/65+	9	2	11	18.18	18	2	20	10.00	27	4	31	12.90
Total	1,632	114	1,746	6.53	1,455	74	1,529	4.84	3,087	188	3,275	5.74

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.12b - continued**

Country of birth and age group	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
<b>Caribbean Commonwealth</b>												
0 - 14	30	4	34	11.76	22	2	24	8.33	52	6	58	10.34
15 - 29	313	26	339	7.67	390	23	413	5.57	703	49	752	6.52
30 - 44	467	35	502	6.97	634	22	656	3.35	1,101	57	1,158	4.92
45 - 59/64	702	49	751	6.52	526	30	556	5.40	1,228	79	1,307	6.04
60/65+	58	2	60	3.33	104	10	114	8.77	162	12	174	6.90
Total	1,570	116	1,686	6.88	1,676	87	1,763	4.93	3,246	203	3,449	5.89
<b>Mediterranean Commonwealth</b>												
0 - 14	75	2	77	2.60	64	5	69	7.25	139	7	146	4.79
15 - 29	139	9	148	6.08	143	5	148	3.38	282	14	296	4.73
30 - 44	256	14	270	5.19	207	8	215	3.72	463	22	485	4.54
45 - 59/64	254	13	267	4.87	163	19	182	10.44	417	32	449	7.13
60/65+	167	11	178	6.18	198	23	221	10.41	365	34	399	8.52
Total	891	49	940	5.21	775	60	835	7.19	1,666	109	1,775	6.14
<b>Europe</b>												
0 - 14	344	25	369	6.78	353	12	365	3.29	697	37	734	5.04
15 - 29	547	64	611	10.47	656	91	747	12.18	1,203	155	1,358	11.41
30 - 44	635	35	670	5.22	937	43	980	4.39	1,572	78	1,650	4.73
45 - 59/64	1,401	41	1,442	2.84	1,369	30	1,399	2.14	2,770	71	2,841	2.50
60/65+	649	20	669	2.99	924	42	966	4.35	1,573	62	1,635	3.79
Total	3,576	185	3,761	4.92	4,239	218	4,457	4.89	7,815	403	8,218	4.90
<b>Rest of World</b>												
0 - 14	603	77	680	11.32	553	74	627	11.80	1,156	151	1,307	11.55
15 - 29	849	279	1,128	24.73	834	188	1,022	18.40	1,683	467	2,150	21.72
30 - 44	711	167	878	19.02	759	107	866	12.36	1,470	274	1,744	15.71
45 - 59/64	988	85	1,073	7.92	472	31	503	6.16	1,460	116	1,576	7.36
60/65+	219	22	241	9.13	591	32	623	5.14	810	54	864	6.25
Total	3,004	613	3,617	16.95	3,209	432	3,641	11.86	6,213	1,045	7,258	14.40
<b>All countries</b>												
0 - 14	55,448	470	55,918	0.84	52,800	384	53,184	0.72	108,248	854	109,102	0.78
15 - 29	60,441	1,015	61,456	1.65	58,743	837	59,580	1.40	119,184	1,852	121,036	1.53
30 - 44	52,721	716	53,437	1.34	51,738	607	52,345	1.16	104,459	1,323	105,782	1.25
45 - 59/64	58,375	543	58,918	0.92	46,172	441	46,613	0.95	104,547	984	105,531	0.93
60/65+	31,209	272	31,481	0.86	62,581	631	63,212	1.00	93,790	903	94,693	0.95
Total	258,194	3,016	261,210	1.15	272,034	2,900	274,934	1.05	530,228	5,916	536,144	1.10

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.13 1981 LS sample population by sex, region of usual residence and 'not traced' rates\***

Region of usual residence	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
North	16,225	77	16,302	0.47	17,002	84	17,086	0.49	33,227	161	33,388	0.48
Yorkshire & Humberside	25,634	160	25,794	0.62	26,678	175	26,853	0.65	52,312	335	52,647	0.64
East Midlands	20,043	151	20,194	0.75	20,838	144	20,982	0.69	40,881	295	41,176	0.72
East Anglia	9,524	222	9,746	2.28	10,073	151	10,224	1.48	19,597	373	19,970	1.87
South East†	87,587	1,623	89,210	1.82	93,074	1,597	94,671	1.69	180,661	3,220	183,881	1.75
South West	22,210	118	22,328	0.53	24,138	116	24,254	0.48	46,348	234	46,582	0.50
West Midlands	27,760	307	28,067	1.09	28,056	292	28,348	1.03	55,816	599	56,415	1.06
North West	33,557	234	33,791	0.69	35,777	200	35,977	0.56	69,334	434	69,768	0.62
Wales	14,474	105	14,579	0.72	15,262	129	15,391	0.84	29,736	234	29,970	0.78
Outside England & Wales	1,105	17	1,122	1.52	1,072	11	1,083	1.02	2,177	28	2,205	1.27
<b>Total</b>	<b>258,119</b>	<b>3,014</b>	<b>261,133</b>	<b>1.15</b>	<b>271,970</b>	<b>2,899</b>	<b>274,869</b>	<b>1.05</b>	<b>530,089</b>	<b>5,913</b>	<b>536,002</b>	<b>1.10</b>

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

† Includes Greater London.

**Table 8.14 1981 LS sample population by sex, household type and 'not traced' rates\***

Household type	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
<b>Private</b>	<b>252,468</b>	<b>2,659</b>	<b>255,127</b>	<b>1.04</b>	<b>266,273</b>	<b>2,689</b>	<b>268,962</b>	<b>1.00</b>	<b>518,741</b>	<b>5,348</b>	<b>524,089</b>	<b>1.02</b>
<b>Non-private households</b>												
Hotels	991	47	1,038	4.53	788	36	824	4.37	1,779	83	1,862	4.46
Psychiatric hospitals	666	47	713	6.59	718	47	765	6.14	1,384	94	1,478	6.36
Other hospitals	872	43	915	4.70	1,802	42	1,844	2.28	2,674	85	2,759	3.08
Homes for the elderly	616	22	638	3.45	1,499	43	1,542	2.79	2,115	65	2,180	2.98
Childrens homes	130	5	135	3.70	121	4	125	3.20	251	9	260	3.46
Educational establishments	529	19	548	3.47	289	5	294	1.70	818	24	842	2.85
Places of detention	428	28	456	6.14	13	1	14	7.14	441	29	470	6.17
Defence establishments	771	99	870	11.38	97	5	102	4.90	868	104	972	10.70
Other establishments	723	47	770	6.10	434	28	462	6.06	1,157	75	1,232	6.09
Total non-private households	5,726	357	6,083	5.87	5,761	211	5,972	3.53	11,487	568	12,055	4.71
<b>Total</b>	<b>258,194</b>	<b>3,016</b>	<b>261,210</b>	<b>1.15</b>	<b>272,034</b>	<b>2,900</b>	<b>274,934</b>	<b>1.05</b>	<b>530,228</b>	<b>5,916</b>	<b>536,144</b>	<b>1.10</b>

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

Table 8.15 1981 LS sample population aged 16 and over by age, sex, economic position and 'not traced' rates\*

Economic position and age	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Economically active</b>								
In employment								
16-24	24,517	343	24,860	1.38	20,006	187	20,193	0.93
25-34	33,213	437	33,650	1.30	18,965	272	19,237	1.41
35-44	29,421	321	29,421	1.09	19,823	185	20,008	0.92
45-54	26,695	248	26,943	0.92	18,877	149	19,026	0.78
55-64	20,559	122	20,681	0.59	11,051	75	11,126	0.67
65+	3,311	24	3,335	0.72	1,730	22	1,752	1.26
Total	137,716	1,495	138,890	1.08	90,452	941	91,393	1.03
Out of employment - sick								
16-24	132	1	133	0.75	158	1	159	0.63
25-34	232	5	237	2.11	175	3	178	1.69
35-44	290	3	293	1.02	172	4	176	2.27
45-54	358	6	364	1.65	224	6	230	2.61
55-64	531	7	538	1.30	118	4	122	3.28
65 +	24	1	25	4.00	22	0	22	0.00
Total	1,567	23	1,590	1.45	869	18	887	2.03
Out of employment - other								
16-24	4,939	94	5,033	1.87	3,028	57	3,085	1.85
25-34	3,684	94	3,778	2.49	1,401	25	1,426	1.75
35-44	2,398	57	2,455	2.32	765	21	786	2.67
45-54	2,106	45	2,151	2.09	715	20	735	2.72
55-64	2,493	41	2,534	1.62	367	3	370	0.81
65+	43	1	44	2.27	24	1	25	4.00
Total	15,663	332	15,995	2.08	6,300	127	6,427	1.98
All economically active								
16-24	29,588	438	30,026	1.46	23,192	245	23,437	1.05
25-34	37,129	536	37,665	1.42	20,541	300	20,841	1.44
35-44	32,109	381	32,169	1.18	20,760	210	20,970	1.00
45-54	29,159	299	29,458	1.02	19,816	175	19,991	0.88
55-64	23,583	170	23,753	0.72	11,536	82	11,618	0.71
65+	3,378	26	3,404	0.76	1,776	23	1,799	1.28
Total	154,946	1,850	156,475	1.18	97,621	1,086	98,707	1.10
<b>Economically inactive</b>								
Wholly retired								
16-24	0	0	0	0.00	0	0	0	0.00
25-34	0	0	0	0.00	0	0	0	0.00
35-44	17	3	20	15.00	27	0	27	0.00
45-54	102	2	104	1.92	101	7	108	6.48
55-64	2,064	23	2,087	1.10	3,358	37	3,395	1.09
65+	26,714	211	26,925	0.78	14,548	193	14,741	1.31
Total	28,897	239	29,136	0.82	18,034	237	18,271	1.30

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.15 - continued**

Economic position and age	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Permanently sick</b>								
16-24	199	4	203	1.97	134	4	138	2.90
25-34	270	4	274	1.46	247	6	253	2.37
35-44	429	9	438	2.05	282	6	288	2.08
45-54	854	19	873	2.18	587	13	600	2.17
55-64	2,367	22	2,389	0.92	898	14	912	1.54
65+	817	24	841	2.85	1,243	33	1,276	2.59
Total	4,936	82	5,018	1.63	3,391	76	3,467	2.19
<b>At school/student</b>								
16-24	7,587	175	7,762	2.25	7,582	123	7,705	1.60
25-34	555	70	625	11.20	332	24	356	6.74
35-44	129	14	143	9.79	116	4	120	3.33
45-54	21	1	22	4.55	40	0	40	0.00
55-64	0	0	0	0.00	0	0	0	0.00
65+	0	0	0	0.00	0	0	0	0.00
Total	8,292	260	8,552	3.04	8,070	151	8,221	1.84
<b>Housewife</b>								
16-24	22	0	22	0.00	5,494	86	5,580	1.54
25-34	71	1	72	1.39	16,777	193	16,970	1.14
35-44	64	2	66	3.03	10,575	151	10,726	1.41
45-54	58	0	58	0.00	9,436	119	9,555	1.25
55-64	93	3	96	3.13	14,974	131	15,105	0.87
65+	280	5	285	1.75	30,316	236	30,552	0.77
Total	588	11	599	1.84	87,572	916	88,488	1.04
<b>Other inactive</b>								
16-24	278	20	298	6.71	111	8	119	6.72
25-34	152	23	175	13.14	45	4	49	8.16
35-44	87	14	101	13.86	23	3	26	11.54
45-54	45	4	49	8.16	21	5	26	19.23
55-64	29	0	29	0.00	29	1	30	3.33
65+	20	6	26	23.08	74	3	77	3.90
Total	611	67	678	9.88	303	24	327	7.34
<b>All economically inactive</b>								
16-24	8,086	199	8,285	2.40	13,321	321	21,857	1.47
25-34	1,048	98	1,146	8.55	17,401	90	5,629	1.60
35-44	726	42	768	5.47	10,996	323	24,839	1.30
45-54	1,080	26	1,106	2.35	10,084	186	11,361	1.64
55-64	4,553	48	4,601	1.04	9,890	130	10,020	1.30
65+	27,831	246	28,077	0.88	15,776	154	15,930	0.97
Total	43,324	659	43,983	1.50	16,094	250	16,344	1.53

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

The highest 'not traced' rates were found among the economically inactive population, particularly in the 'other inactive' category. It should be noted that this category made up less than 1 per cent of the total economically inactive LS sample in 1981 and includes persons of independent means and those with no stated occupation. Male housewives in the 35–44 and 55–64 age groups as well as those men categorised as wholly retired in the 35–44 age group had high 'not traced' rates, but these rates are due to the small numbers in these categories.

High 'not traced' rates were also found for students in the 25–34 age group and for those categorised as permanently sick. Among the permanently sick, males showed a different age range pattern of high 'not traced' rates compared with females. Males in the 35–54 and over 65 age groups were more likely to be untraced than those aged 16–34 or 55–64. Among females the 16–34 age group also had high 'not traced' rates.

#### 8.4.6 By social class

Tracing rates by sex and social class are shown in Table 8.16. The overall 'not traced' rates by social class for males and females in 1981 were 1.12 per cent and 1.14 per cent respectively. Overall tracing rates were lower among those in manual social classes than in non-manual, and for women than men. The lowest rate of tracing was found among those who were either serving in the armed services or whose social class was inadequately described.

#### 8.4.7 By socio-economic group

At the 1971 Census only 57 per cent of women had been allocated a socio-economic group. By the 1981 Census all females aged 16 and over were included.

Table 8.17 shows tracing rates for the 1981 LS sample by sex and socio-economic group. The 'not traced' rates as a whole are very low, with the exceptions of persons in the armed forces (11.42 per cent untraced), inadequately described persons (2.27 per cent) and personal service workers (2.03 per cent). It should be noted that among the LS sample in 1981, 45.8 per cent of female LS members were placed in the not applicable category as compared with 5.9 per cent of LS males.

### 8.5 TRACING RATES IN THE 1991 CENSUS-LS SAMPLE

The 1991 LS sample was selected from the 1991 Census of population for England and Wales using the same LS birthdate criteria as were used to select the 1971 and 1981 samples. The LS sample in 1991 consisted of 543,884 persons. Of these, 263,312 were male, 280,564 were female and 8 persons were excluded as no sex was given for them (see Table 8.18). By 1994, 98.3 per cent of both males and females had been traced at NHSCR. These tracing rates were slightly lower than those found in the 1981 sample (by 0.5 and 0.6 per cent respectively), but higher than

**Table 8.16 1981 LS sample population aged 16 and over by sex, social class and 'not traced' rates\***

Social class	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
<b>Non-manual</b>												
I Professional	9,498	113	9,611	1.18	1,120	17	1,137	1.50	10,618	130	10,748	1.21
II Intermediate	38,728	283	39,011	0.73	21,939	221	22,160	1.00	60,667	504	61,171	0.82
IIIN Skilled	21,026	144	21,170	0.68	40,790	307	41,097	0.75	61,816	451	62,267	0.72
Total non-manual	69,252	540	69,792	0.77	63,849	545	64,394	0.85	133,101	1,085	134,186	0.81
<b>Manual</b>												
IIIM Skilled	61,585	457	62,042	0.74	9,116	75	9,191	0.82	70,701	532	71,233	0.75
IV Partly skilled	31,052	347	31,399	1.11	23,165	329	23,494	1.40	54,217	676	54,893	1.23
V Unskilled	11,753	206	11,959	1.72	7,121	72	7,193	1.00	18,874	278	19,152	1.45
Armed forces & inadequately described	13,216	563	13,779	4.09	13,259	318	13,577	2.34	26,475	881	27,356	3.22
Total manual	117,606	1,573	119,179	1.32	52,661	794	53,455	1.49	170,267	2,367	172,634	1.37
Total	186,858	2,113	188,971	1.12	116,510	1,339	117,849	1.14	303,368	3,452	306,820	1.13

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.17 1981 LS sample population aged 16 and over by sex, socio-economic group and 'not traced' rates\***

Socio-economic group	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
Employers in industry/ commerce large	52	0	52	0.00	9	0	9	0.00	61	0	61	0.00
Managers in central/ local govt. large	8,658	44	8,702	0.51	2,079	16	2,095	0.76	10,737	60	10,797	0.56
Employers in industry/ commerce small	4,312	39	4,351	0.90	1,366	18	1,384	1.30	5,678	57	5,735	0.99
Managers in central/ local govt. small	13,014	111	13,125	0.85	3,587	42	3,629	1.16	16,601	153	16,754	0.91
Professionals - self employed	1,635	8	1,643	0.49	150	2	152	1.32	1,785	10	1,795	0.56
Professionals - employees	7,821	98	7,919	1.24	966	15	981	1.53	8,787	113	8,900	1.27
Ancillary workers/ artists	11,113	78	11,191	0.70	14,105	135	14,240	0.95	25,218	213	25,431	0.84
Foremen & supervisors - non-manual	1,478	3	1,481	0.20	1240	7	1,247	0.56	2,718	10	2,728	0.37
Junior non-manual	17,936	113	18,049	0.63	39,486	293	39,779	0.74	57,422	406	57,828	0.70
Personal service workers	2,054	103	2,157	4.78	12,896	207	13,103	1.58	14,950	310	15,260	2.03
Foremen & supervisors - manual	6,789	29	6,818	0.43	739	3	742	0.40	7,528	32	7,560	0.42
Skilled manual	46,849	302	47,151	0.64	4,668	39	4,707	0.83	51,517	341	51,858	0.66
Semi-skilled manual	26,507	255	26,762	0.95	11,926	136	12,062	1.13	38,433	391	38,824	1.01
Unskilled manual workers	11,317	203	11,520	1.76	7,095	71	7,166	0.99	18,412	274	18,686	1.47
Own account workers (not professional)	9,434	132	9,566	1.38	2,057	31	2,088	1.48	11,491	163	11,654	1.40
Farmers - employers and managers	1,229	5	1,234	0.41	123	1	124	0.81	1,352	6	1,358	0.44
Farmers - own account	1,221	6	1,227	0.49	169	1	170	0.59	1,390	7	1,397	0.50
Agricultural workers	2,223	21	2,244	0.94	590	4	594	0.67	2,813	25	2,838	0.88
Members of armed forces	2,351	294	2,645	11.12	171	31	202	15.35	2,522	325	2,847	11.42
Inadequately described occupations	10,865	269	11,134	2.42	13,088	287	13,375	2.15	23,953	556	24,509	2.27
Not applicable	11,412	396	11,808	3.35	98,481	1,151	99,632	1.16	109,893	1,547	111,440	1.39
<b>Total</b>	<b>198,270</b>	<b>2,509</b>	<b>200,779</b>	<b>1.25</b>	<b>214,991</b>	<b>2,490</b>	<b>217,481</b>	<b>1.14</b>	<b>413,261</b>	<b>4,999</b>	<b>418,260</b>	<b>1.20</b>

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

those for the LS sample in 1971. The highest 'not traced' rates were found among males aged 20–24 and 25–29, at 2.82 and 2.97 per cent. The same pattern was found among females with the 'not traced' rates in these age groups standing at 2.44 and 2.61 per cent respectively. Those LS members in the younger working age groups (aged between 20 and 39) and at the oldest ages (over 75) had generally higher 'not traced' rates than at other ages.

Compared with 1981, 'not traced' rates have risen for all age groups, but this is mainly due to 8,968 new entrants (27 per cent of all new entrants excluding new births and immigrants) at the 1991 Census who possessed no NHS number. In 1981 only 17 per cent of new entrants to the LS at census possessed no NHS number.

### 8.5.1 By age, sex and marital status

'Not traced' rates by age, sex and marital status are shown in Table 8.19. Overall, the highest 'not traced' rates were found among divorced males (2.4 per cent), single males (2.13 per cent) and divorced females (1.95 per cent). There was a great amount of variability, but many of the extremely high 'not traced' rates were due to small numbers in particular age and marital status categories.

The majority of high 'not traced' rates (over 3 per cent) were found among single males between the ages of 25 and 39 and divorced males under 50. Among females, only

widows up to the age of 49 showed not 'traced' rates over 3 per cent.

### 8.5.2 By country of birth

Table 8.20a shows the 1991 LS sample population by sex, country of birth and 'not traced' rates. The overall 'not traced' rate was 1.7 per cent, with the lowest 'not traced' rate of 0.94 per cent found among males whose country of birth was given at census as England and Wales. It should be noted that when examining the tracing rates shown in Table 8.20a, only 11 per cent of the LS sample in 1991 gave a country of birth outside of England and Wales. As a proportion of the LS population, this was 1 per cent more than in the 1981 sample and 3 per cent more than in the 1971 sample.

The 'not traced' rates for LS members with countries of birth other than England and Wales showed a great deal of variability. This ranged from 2.88 per cent for those born in 'other UK' (Isle of Man, Channel Islands) to 37.28 per cent for those LS members who gave their country of birth as the USA. Excluding those born in North America, particularly high 'not traced' rates were found among males and females born in the West African Commonwealth, those born in countries given as 'the Rest of the World', and males born in the Old Commonwealth.

*Text continues page 175*

**Table 8.18 1991 LS sample population by sex, age and 'not traced' rates\***

Age	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
0-4	18,000	255	18,255	1.40	17,444	244	17,688	1.38	35,444	499	35,943	1.39
5-9	17,039	287	17,326	1.66	16,266	212	16,478	1.29	33,305	499	33,804	1.48
10-14	16,429	256	16,685	1.53	15,624	207	15,831	1.31	32,053	463	32,516	1.42
15-19	17,662	278	17,940	1.55	17,153	256	17,409	1.47	34,815	534	35,349	1.51
20-24	19,133	555	19,688	2.82	19,861	496	20,357	2.44	38,994	1,051	40,045	2.62
25-29	20,383	623	21,006	2.97	21,271	570	21,841	2.61	41,654	1,193	42,847	2.78
30-34	19,450	480	19,930	2.41	19,613	417	20,030	2.08	39,063	897	39,960	2.24
35-39	17,956	362	18,318	1.98	17,980	360	18,340	1.96	35,936	722	36,658	1.97
40-44	19,377	294	19,671	1.49	19,900	287	20,187	1.42	39,277	581	39,858	1.46
45-49	16,633	226	16,859	1.34	16,589	245	16,834	1.46	33,222	471	33,693	1.40
50-54	14,919	215	15,134	1.42	14,542	245	14,787	1.66	29,461	460	29,921	1.54
55-59	14,015	176	14,191	1.24	13,980	214	14,194	1.51	27,995	390	28,385	1.37
60-64	13,448	135	13,583	0.99	14,178	183	14,361	1.27	27,626	318	27,944	1.14
65-69	12,215	146	12,361	1.18	14,371	172	14,543	1.18	26,586	318	26,904	1.18
70-74	9,268	97	9,365	1.04	12,231	159	12,390	1.28	21,499	256	21,755	1.18
75+	12,829	171	13,000	1.32	24,888	406	25,294	1.61	37,717	577	38,294	1.51
Total	258,756	4,556	263,312	1.73	275,891	4,673	280,564	1.67	534,647	9,229	543,876	1.70

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.19 1991 LS sample population by age, sex, marital status and 'not traced' rates\***

Age	Single				Married			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Males</b>								
0-15	54,565	839	55,404	1.51	0	0	0	0.00
16-19	14,455	237	14,692	1.61	95	0	95	0.00
20-24	16,865	468	17,333	2.70	2,180	83	2,263	3.67
25-29	10,749	381	11,130	3.42	8,930	224	9,154	2.45
30-34	5,252	185	5,437	3.40	12,915	265	13,180	2.01
35-39	2,837	89	2,926	3.04	13,532	234	13,766	1.70
40-44	2,127	53	2,180	2.43	15,340	190	15,530	1.22
45-49	1,453	39	1,492	2.61	13,551	147	13,698	1.07
50-64	3,304	106	3,410	3.11	34,804	323	35,127	0.92
65+	2,430	81	2,511	3.23	24,776	230	25,006	0.92
Total	114,037	2,478	116,515	2.13	126,123	1,696	127,819	1.33
<b>Females</b>								
0-15	52,363	710	53,073	1.34	0	0	0	0.00
16-19	13,786	192	13,978	1.37	327	16	343	4.66
20-24	14,930	296	15,226	1.94	4,612	184	4,796	3.84
25-29	7,874	217	8,091	2.68	12,009	320	12,329	2.60
30-34	3,404	87	3,491	2.49	14,137	287	14,424	1.99
35-39	1,682	43	1,725	2.49	14,004	268	14,272	1.88
40-44	1,247	26	1,273	2.04	16,002	201	16,203	1.24
45-49	818	24	842	2.85	13,283	172	13,455	1.28
50-64	2,285	61	2,346	2.60	31,982	421	32,403	1.30
65+	4,456	86	4,542	1.89	20,109	257	20,366	1.26
Total	102,845	1,742	104,587	1.67	126,465	2,126	128,591	1.65
Age	Divorced				Widowed			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Males</b>								
0-15	0	0	0	0.00	0	0	0	0.00
16-19	11	0	11	0.00	4	0	4	0.00
20-24	86	3	89	3.37	2	1	3	33.33
25-29	689	17	706	2.41	15	1	16	6.25
30-34	1,253	29	1,282	2.26	30	1	31	3.23
35-39	1,546	36	1,582	2.28	41	3	44	6.82
40-44	1,827	48	1,875	2.56	83	3	86	3.49
45-49	1,518	34	1,552	2.19	111	6	117	5.13
50-64	3,012	69	3,081	2.24	1,262	28	1,290	2.17
65+	999	33	1,032	3.20	6,107	70	6,177	1.13
Total	10,941	269	11,210	2.40	7,655	113	7,768	1.45
<b>Females</b>								
0-15	0	0	0	0.00	0	0	0	0.00
16-19	7	0	7	0.00	4	1	5	20.00
20-24	302	13	315	4.13	17	3	20	15.00
25-29	1,339	30	1,369	2.19	49	3	52	5.77
30-34	1,982	39	2,021	1.93	90	4	94	4.26
35-39	2,135	43	2,178	1.97	159	6	165	3.64
40-44	2,352	50	2,402	2.08	299	10	309	3.24
45-49	1,988	32	2,020	1.58	500	17	517	3.29
50-64	3,541	57	3,598	1.58	4,892	103	4,995	2.06
65+	1,542	38	1,580	2.41	25,383	356	25,739	1.38
Total	15,188	302	15,490	1.95	31,393	503	31,896	1.58

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.20a 1991 LS sample population by sex, country of birth and 'not traced' rates\***

Country of birth	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
England and Wales	232,985	2,201	235,186	0.94	248,786	2,450	251,236	0.98	481,771	4,651	486,422	0.96
Scotland	3,907	149	4,056	3.67	3,891	100	3,991	2.51	7,798	249	8,047	3.09
Northern Ireland	1,128	75	1,203	6.23	1,111	31	1,142	2.71	2,239	106	2,345	4.52
Other UK	170	7	177	3.95	167	3	170	1.76	337	10	347	2.88
Total UK	238,190	2,432	240,622	1.01	253,955	2,584	256,539	1.01	492,145	5,016	497,161	1.01
Irish Republic†	2,729	201	2,930	6.86	3,264	188	3,452	5.45	5,993	389	6,382	6.10
India	3,237	197	3,434	5.74	3,224	260	3,484	7.46	6,461	457	6,918	6.61
Pakistan	2,245	154	2,399	6.42	1,805	191	1,996	9.57	4,050	345	4,395	7.85
Bangladesh	897	74	971	7.62	909	89	998	8.92	1,806	163	1,969	8.28
East African Commonwealth	1,299	58	1,357	4.27	1,242	62	1,304	4.75	2,541	120	2,661	4.51
West African Commonwealth	421	90	511	17.61	429	77	506	15.22	850	167	1,017	16.42
South African Commonwealth	116	9	125	7.20	131	7	138	5.07	247	16	263	6.08
Total African Commonwealth	1,836	157	1,993	7.88	1,802	146	1,948	7.49	3,638	303	3,941	7.69
Caribbean Commonwealth	1,331	103	1,434	7.18	1,491	104	1,595	6.52	2,822	207	3,029	6.83
Mediterranean Commonwealth	752	48	800	6.00	704	70	774	9.04	1,456	118	1,574	7.50
Far East Commonwealth	750	58	808	7.18	766	56	822	6.81	1,516	114	1,630	6.99
Rest of New Commonwealth	191	16	207	7.73	193	10	203	4.93	384	26	410	6.34
Total New Commonwealth	11,239	807	12,046	6.70	10,894	926	11,820	7.83	22,133	1,733	23,866	7.26
Old Commonwealth	729	92	821	11.21	878	60	938	6.40	1,607	152	1,759	8.64
Europe including USSR	3,436	314	3,750	8.37	4,262	294	4,556	6.45	7,698	608	8,306	7.32
USA	425	313	738	42.41	475	222	697	31.85	900	535	1,435	37.28
Rest of the World	1,541	362	1,903	19.02	1,632	371	2,003	18.52	3,173	733	3,906	18.77
Not stated	467	35	502	6.97	531	28	559	5.01	998	63	1,061	5.94
Total	258,756	4,556	263,312	1.73	275,891	4,673	280,564	1.67	534,647	9,229	543,876	1.70

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

† Includes Ireland, part not stated.

Table 8.20b 1991 LS sample population by sex, country of birth, age and 'not traced' rates\*

Country of birth and age group	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
<b>United Kingdom</b>												
0 - 14	50,032	611	50,643	1.21	47,912	490	48,402	1.01	97,944	1,101	99,045	1.11
15 - 29	53,325	731	54,056	1.35	53,902	661	54,563	1.21	107,227	1,392	108,619	1.28
30 - 44	50,502	485	50,987	0.95	50,528	474	51,002	0.93	101,030	959	101,989	0.94
45 - 59/64	40,560	282	40,842	0.69	40,361	329	40,690	0.81	80,921	611	81,532	0.75
60/65+	43,771	323	44,094	0.73	61,252	630	61,882	1.02	105,023	953	105,976	0.90
Total	238,190	2,432	240,622	1.01	253,955	2,584	256,539	1.01	492,145	5,016	497,161	1.01
<b>Irish Republic†</b>												
0 - 14	86	8	94	8.51	98	0	98	0.00	184	8	192	4.17
15 - 29	293	66	359	18.38	391	50	441	11.34	684	116	800	14.50
30 - 44	546	34	580	5.86	634	31	662	4.66	1,180	65	1,245	5.22
45 - 59/64	924	42	966	4.35	969	49	1,018	4.81	1,893	91	1,984	4.59
60/65+	880	51	931	5.48	1,172	58	1,230	4.72	2,052	109	2,161	5.04
Total	2,729	201	2,930	6.86	3,264	188	3,452	5.45	5,993	389	6,382	6.10
<b>New Commonwealth</b>												
0 - 14	520	45	565	7.96	539	48	587	8.18	1,059	93	1,152	8.07
15 - 29	2,094	204	2,298	8.88	2,406	242	2,648	9.14	4,500	446	4,946	9.02
30 - 44	4,102	284	4,386	6.48	4,290	298	4,588	6.50	8,392	582	8,974	6.49
45 - 59/64	3,067	176	3,243	5.43	2,442	209	2,651	7.88	5,509	385	5,894	6.53
60/65+	1,456	98	1,554	6.31	1,217	129	1,346	9.58	2,673	227	2,900	7.83
Total	11,239	807	12,046	6.70	10,894	926	11,820	7.83	22,133	1,733	23,866	7.26
<b>India</b>												
0 - 14	37	2	39	5.13	45	1	46	2.17	82	3	85	3.53
15 - 29	336	25	361	6.93	513	53	566	9.36	849	78	927	8.41
30 - 44	1,207	81	1,288	6.29	1,322	87	1,409	6.17	2,529	168	2,697	6.23
45 - 59/64	1,114	53	1,167	4.54	854	77	931	8.27	1,968	130	2,098	6.20
60/65+	543	36	579	6.22	490	42	532	7.89	1,033	78	1,111	7.02
Total	3,237	197	3,434	5.74	3,224	260	3,484	7.46	6,461	457	6,918	6.61
<b>Pakistan</b>												
0 - 14	135	8	143	5.59	122	13	135	9.63	257	21	278	7.55
15 - 29	492	53	545	9.72	516	51	567	8.99	1,008	104	1,112	9.35
30 - 44	942	47	989	4.75	739	83	822	10.10	1,681	130	1,811	7.18
45 - 59/64	485	34	519	6.55	339	31	370	8.38	824	65	889	7.31
60/65+	191	12	203	5.91	89	13	102	12.75	280	25	305	8.20
Total	2,245	154	2,399	6.42	1,805	191	1,996	9.57	4,050	345	4,395	7.85
<b>African Commonwealth</b>												
0 - 14	77	10	87	11.49	120	10	130	7.69	197	20	217	9.22
15 - 29	486	55	541	10.17	499	65	564	11.52	985	120	1,105	10.86
30 - 44	844	72	916	7.86	854	42	896	4.69	1,698	114	1,812	6.29
45 - 59	350	17	367	4.63	262	19	281	6.76	612	36	648	5.56
60+	79	3	82	3.66	67	10	77	12.99	146	13	159	8.18
Total	1,836	157	1,993	7.88	1,802	146	1,948	7.49	3,638	303	3,941	7.69

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

† Includes Ireland, part not stated.

**Table 8.20b - continued**

Country of birth and age group	Males				Females				Total			
	Traced cases	Un- traced cases	Selected sample	'Not traced' rate	Traced cases	Un- traced cases	Selected sample	'Not traced' rate	Traced cases	Un- traced cases	Selected sample	'Not traced' rate
<b>Caribbean Commonwealth</b>												
0 - 14	19	3	22	13.64	18	1	19	5.26	37	4	41	9.76
15 - 29	73	5	78	6.41	79	12	91	13.19	152	17	169	10.06
30 - 44	338	30	368	8.15	485	30	515	5.83	823	60	883	6.80
45 - 59	529	39	568	6.87	579	36	615	5.85	1,108	75	1,183	6.34
60+	372	26	398	6.53	330	25	355	7.04	702	51	753	6.77
Total	1,331	103	1,434	7.18	1,491	104	1,595	6.52	2,822	207	3,029	6.83
<b>Mediterranean Commonwealth</b>												
0 - 14	32	1	33	3.03	27	1	28	3.57	59	2	61	3.28
15 - 29	130	7	137	5.11	139	10	149	6.71	269	17	286	5.94
30 - 44	224	12	236	5.08	210	10	220	4.55	434	22	456	4.82
45 - 59	230	15	245	6.12	178	19	197	9.64	408	34	442	7.69
60+	136	13	149	8.72	150	30	180	16.67	286	43	329	13.07
Total	752	48	800	6.00	704	70	774	9.04	1,456	118	1,574	7.50
<b>Europe including USSR</b>												
0 - 14	366	23	389	5.91	358	23	381	6.04	724	46	770	5.97
15 - 29	605	128	733	17.46	699	114	813	14.02	1,304	242	1,546	15.65
30 - 44	722	88	810	10.86	894	57	951	5.99	1,616	145	1,761	8.23
45 - 59	516	34	550	6.18	866	44	910	4.84	1,382	78	1,460	5.34
60+	1,227	41	1,268	3.23	1,445	56	1,501	3.73	2,672	97	2,769	3.50
Total	3,436	314	3,750	8.37	4,262	294	4,556	6.45	7,698	608	8,306	7.32
<b>Rest of the World</b>												
0 - 14	464	111	575	19.30	427	102	529	19.28	891	213	1,104	19.29
15 - 29	861	327	1,188	27.53	887	255	1,142	22.33	1,748	582	2,330	24.98
30 - 44	911	245	1,156	21.19	1,147	204	1,351	15.10	2,058	449	2,507	17.91
45 - 59	500	83	583	14.24	473	73	546	13.37	973	156	1,129	13.82
60+	426	36	462	7.79	582	47	629	7.47	1,008	83	1,091	7.61
Total	3,162	802	3,964	20.23	3,516	681	4,197	16.23	6,678	1,483	8,161	18.17
<b>All countries</b>												
0 - 14	51,468	798	52,266	1.53	49,334	663	49,997	1.33	100,802	1,461	102,263	1.43
15 - 29	57,178	1,456	58,634	2.48	58,285	1,322	59,607	2.22	115,463	2,778	118,241	2.35
30 - 44	56,783	1,136	57,919	1.96	57,493	1,064	58,557	1.82	114,276	2,200	116,476	1.89
45 - 59	45,567	617	46,184	1.34	45,111	704	45,815	1.54	90,678	1,321	91,999	1.44
60+	47,760	549	48,309	1.14	65,668	920	66,588	1.38	113,428	1,469	114,897	1.28
Total	258,756	4,556	263,312	1.73	275,891	4,673	280,564	1.67	534,647	9,229	543,876	1.70

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.21 1991 LS sample population by sex, region of usual residence and 'not traced' rates\***

Region of usual residence	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
North	15,833	133	15,966	0.83	16,793	134	16,927	0.79	32,626	267	32,893	0.81
Yorkshire & Humberside	25,435	260	25,695	1.01	26,972	280	27,252	1.03	52,407	540	52,947	1.02
East Midlands	20,762	219	20,981	1.04	21,829	227	22,056	1.03	42,591	446	43,037	1.04
East Anglia	10,262	267	10,529	2.54	10,982	235	11,217	2.10	21,244	502	21,746	2.31
South East (including London)	88,379	2,551	90,930	2.81	94,478	2,615	97,093	2.69	182,857	5,166	188,023	2.75
South West	23,843	258	24,101	1.07	25,774	273	26,047	1.05	49,617	531	50,148	1.06
West Midlands	27,349	348	27,697	1.26	28,706	336	29,042	1.16	56,055	684	56,739	1.21
North West	32,238	339	32,577	1.04	34,731	401	35,132	1.14	66,969	740	67,709	1.09
Wales	14,642	181	14,823	1.22	15,606	172	15,778	1.09	30,248	353	30,601	1.15
<b>Total</b>	<b>258,743</b>	<b>4,556</b>	<b>263,299</b>	<b>1.73</b>	<b>275,871</b>	<b>4,673</b>	<b>280,544</b>	<b>1.67</b>	<b>534,614</b>	<b>9,229</b>	<b>543,843</b>	<b>1.70</b>

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.22 1991 LS sample population by sex, household type and 'not traced' rates\***

Household type	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
<b>Private households</b>	<b>253,025</b>	<b>4,227</b>	<b>257,252</b>	<b>1.64</b>	<b>268,893</b>	<b>4,411</b>	<b>273,304</b>	<b>1.61</b>	<b>521,918</b>	<b>8,638</b>	<b>530,556</b>	<b>1.63</b>
<b>Non-private households</b>												
Hotels	1,129	73	1,202	6.07	866	49	915	5.36	1,995	122	2,117	5.76
Psychiatric hospitals	164	13	177	7.34	205	20	225	8.89	369	33	402	8.21
Other hospitals	787	33	820	4.02	1,269	40	1,309	3.06	2,056	73	2,129	3.43
Homes for the elderly	999	29	1,028	2.82	3,045	87	3,132	2.78	4,044	116	4,160	2.79
Childrens homes	52	1	53	1.89	54	2	56	3.57	106	3	109	2.75
Educational establishments	1,145	27	1,172	2.30	891	21	912	2.30	2,036	48	2,084	2.30
Places of detention	268	34	302	11.26	9	2	11	18.18	277	36	313	11.50
Defence establishments	463	69	532	12.97	76	10	86	11.63	539	79	618	12.78
Other establishments	724	50	774	6.46	583	31	614	5.05	1,307	81	1,388	5.84
<b>Total non-private households</b>	<b>5,731</b>	<b>329</b>	<b>6,060</b>	<b>5.43</b>	<b>6,998</b>	<b>262</b>	<b>7,260</b>	<b>3.61</b>	<b>12,729</b>	<b>591</b>	<b>13,320</b>	<b>4.44</b>
<b>Total</b>	<b>258,756</b>	<b>4,556</b>	<b>263,312</b>	<b>1.73</b>	<b>275,891</b>	<b>4,673</b>	<b>280,564</b>	<b>1.67</b>	<b>534,647</b>	<b>9,229</b>	<b>543,876</b>	<b>1.70</b>

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

'Not traced' rates tended to be higher for males born in all countries except England and Wales, India, Pakistan, Bangladesh and the Mediterranean Commonwealth, where female rates were higher.

Although the 'not traced' rate for persons born in the New Commonwealth was 7.26 per cent overall, the rates for Pakistan and Bangladesh were slightly higher at 7.85 and 8.28 respectively. While little difference was noticeable in 'not traced' rates between 1981 and 1991 for those giving their place of birth as either India, Pakistan or Bangladesh, there was great improvement in tracing for those of Indian or Pakistani origin between 1971 and 1981. The 'not traced' rates dropped from 16 and 25 per cent to 5 and 8 per cent respectively. There appears to have been very little change in the tracing rates for these groups since 1981.

Table 8.20b shows tracing rates for selected countries of birth by age group and sex. For most countries of birth the 'not traced' rate was higher for those LS members aged 15–29 at the 1991 Census. The only exceptions were females in the age groups 0–14 and 30–44 who were born in Pakistan and males aged 0–14 born in either the African Commonwealth or the Caribbean Commonwealth.

### 8.5.3 By region of usual residence

Table 8.21 shows tracing rates by region of usual residence at the 1991 Census. Tracing of LS sample members enumerated in the Northern region was particularly good, with 'not traced' rates of less than 1 per cent. The highest 'not traced' rates were found in the South East (including London) where 2.81 per cent of males and 2.69 per cent of females were untraced, and in East Anglia where the 'not traced' rates were 2.54 for males and 2.10 per cent for females.

### 8.5.4 By type of household

Tracing rates by sex and household type for LS members in 1991 are shown in Table 8.22. As at previous censuses, the tracing rates for persons in communal establishments were considerably lower than for those persons enumerated in private households. 'Not traced' rates were particularly high for LS members enumerated in defence establishments, places of detention and psychiatric hospitals. LS members resident in these types of establishment come under medical services outside of the NHS (see section 8.3.4).

Although the proportion of LS members enumerated in communal establishments dropped in 1981 (from 2.7 to 2.2 per cent of all LS members), it rose again in 1991 to 2.4 per cent. Much of this rise was accounted for by the higher numbers of persons resident in homes for the elderly and in educational establishments in 1991.

### 8.5.5 By economic position

In 1991, unlike 1981, differences in overall tracing rates

were found between LS members classified as economically active or economically inactive. The 1991 'not traced' rates were also generally higher than those in 1981. This was particularly noticeable for females where the overall 'not traced' rates were 1.6 per cent for those categorised as economically active (1.1 per cent in 1981) and 1.88 per cent for the economically inactive (1.14 per cent in 1981). Economically active males showed higher overall 'not traced' rates than females at 1.8 per cent, but lower 'not traced' rates where they were economically inactive (1.77 per cent) (see Table 8.23).

As in 1981, the highest 'not traced' rates were found for both males and females in the 'other inactive' group of the economically inactive population. These high rates were influenced by the small numbers of persons found in this category who included persons of independent means and those with no stated occupation. Students also had high 'not traced' rates and this was the case for both male and female students aged between 25 and 34 (10.99 and 9.85 per cent respectively). High 'not traced' rates were also found for male housewives (4.17 per cent overall).

Among the economically active population those classified as in employment had higher tracing rates than those who were out of employment. Females in employment had lower 'not traced' rates than males in the same category (1.45 compared with 1.62 per cent). The same picture was not seen for males and females who were out of employment. Females had a higher overall 'not traced' rate for the category. 'Not traced' rates for males in each age group, with the exception of that for males aged 65 and over, showed lower 'not traced' rates than females.

### 8.5.6 By social class

Tracing rates by sex and social class for the 1991 LS sample are shown in Table 8.24. The overall 'not traced' rates were 1.56 per cent for males and 1.4 per cent for females. Unlike 1981, overall tracing rates were lower for the non-manual social classes than for the manual, but they were still lower for women than for men in either classification. The highest 'not traced' rates for both sexes were found among those who were in the armed forces or whose social class was inadequately described. However, it should be noted that less than 2 per cent of all persons with a social class were in this category.

### 8.5.7 By socio-economic group

Table 8.25 shows tracing rates by sex and socio-economic group for the 1991 LS sample. 'Not traced' rates were generally low, with overall 'not traced' rates of 1.56 per cent for males and 1.40 for females. As in 1981, the highest 'not traced' rates were found among persons in the armed forces (17.43 per cent), those who were inadequately described (4.36 per cent) and personal service workers (2.34 per cent).

**Table 8.23 1991 LS sample population aged 16 and over by age, sex, economic position and 'not traced' rates\***

Economic position and age	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>Economically active</b>								
In employment								
16-24	21,443	423	21,866	1.93	19,626	334	19,960	1.67
25-34	33,816	763	34,579	2.21	25,312	489	25,801	1.90
35-44	32,639	481	33,120	1.45	26,214	333	26,547	1.25
45-54	26,621	310	26,931	1.15	21,003	229	21,232	1.08
55-64	16,457	167	16,624	1.00	9,990	114	10,104	1.13
65+	2,635	61	2,696	2.26	1,586	25	1,611	1.55
Total	133,611	2,205	135,816	1.62	103,731	1,524	105,255	1.45
Out of employment								
16-24	4,631	117	4,748	2.46	2,750	82	2,832	2.90
25-34	4,211	201	4,412	4.56	1,957	95	2,052	4.63
35-44	2,959	107	3,066	3.49	1,214	44	1,258	3.50
45-54	2,252	67	2,319	2.89	964	50	1,014	4.93
55-64	2,293	38	2,331	1.63	458	11	469	2.35
65+	45	8	53	15.09	31	5	36	13.89
Total	16,391	538	16,929	3.18	7,374	287	7,661	3.75
All economically active								
16-24	26,074	540	26,614	2.03	22,376	416	22,792	1.83
25-34	38,027	964	38,991	2.47	27,269	584	27,853	2.10
35-44	35,598	588	36,186	1.62	27,428	377	27,805	1.36
45-54	28,873	377	29,250	1.29	21,967	279	22,246	1.25
55-64	18,750	205	18,955	1.08	10,448	125	10,573	1.18
65+	2,680	69	2,749	2.51	1,617	30	1,647	1.82
Total	150,002	2,743	152,745	1.80	111,105	1,811	112,916	1.60
<b>Economically inactive</b>								
Wholly retired								
16-24	7	2	9	22.22	15	3	18	16.67
25-34	15	0	15	0.00	19	2	21	9.52
35-44	52	3	55	5.45	44	1	45	2.22
45-54	278	7	285	2.46	405	16	421	3.80
55-64	3,988	46	4,034	1.14	8,319	111	8,430	1.32
65+	30,239	309	30,548	1.01	37,826	515	38,341	1.34
Total	34,579	367	34,946	1.05	46,628	648	47,276	1.37
Permanently sick								
16-24	312	8	320	2.50	333	7	340	2.06
25-34	794	19	813	2.34	696	14	710	1.97
35-44	1,173	30	1,203	2.49	1,109	22	1,131	1.95
45-54	2,140	40	2,180	1.83	1,867	41	1,908	2.15
55-64	4,480	54	4,534	1.19	1,920	48	1,968	2.44
65+	1,164	26	1,190	2.18	1,306	45	1,351	3.33
Total	10,063	177	10,240	1.73	7,231	177	7,408	2.39

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.23 - continued**

Economic position and age	Males				Females			
	Traced cases	Untraced cases	Selected sample	'Not traced' rate	Traced cases	Untraced cases	Selected sample	'Not traced' rate
<b>At school/student</b>								
16-24	7,067	225	7,292	3.09	7,059	173	7,232	2.39
25-34	591	73	664	10.99	494	54	548	9.85
35-44	156	10	166	6.02	230	7	237	2.95
45-54	38	3	41	7.32	69	1	70	1.43
55-64	6	1	7	14.29	5	1	6	16.67
65+	5	0	5	0.00	7	0	7	0.00
Total	7,863	312	8,175	3.82	7,864	236	8,100	2.91
<b>Housewife</b>								
16-24	77	5	82	6.10	4,104	96	4,200	2.29
25-34	277	16	293	5.46	12,329	321	12,650	2.54
35-44	295	14	309	4.53	9,023	234	9,257	2.53
45-54	187	7	194	3.61	6,795	149	6,944	2.15
55-64	205	3	208	1.44	7,428	107	7,535	1.42
65+	176	8	184	4.35	10,574	142	10,716	1.33
Total	1,217	53	1,270	4.17	50,253	1,049	51,302	2.04
<b>Other inactive</b>								
16-24	161	12	173	6.94	98	10	108	9.26
25-34	129	31	160	19.38	77	12	89	13.48
35-44	59	11	70	15.71	46	6	52	11.54
45-54	36	7	43	16.28	28	4	32	12.50
55-64	34	2	36	5.56	38	5	43	11.63
65+	48	2	50	4.00	160	5	165	3.03
Total	467	65	532	12.22	447	42	489	8.59
<b>All economically inactive</b>								
16-24	7,624	252	7,876	3.20	11,609	289	11,898	2.43
25-34	1,806	139	1,945	7.15	13,615	403	14,018	2.87
35-44	1,735	68	1,803	3.77	10,452	270	10,722	2.52
45-54	2,679	64	2,743	2.33	9,164	211	9,375	2.25
55-64	8,713	106	8,819	1.20	17,710	272	17,982	1.51
65 +	31,632	345	31,977	1.08	49,873	707	50,580	1.40
Total	54,189	974	55,163	1.77	112,423	2,152	114,575	1.88

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.24 1991 LS sample population aged 16 and over by sex, social class and 'not traced' rates\***

Social class	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
<b>Non-manual</b>												
I Professional	10,732	175	10,907	1.60	2,341	79	2,420	3.26	13,073	254	13,327	1.91
II Intermediate	45,399	624	46,023	1.36	35,827	513	36,340	1.41	81,226	1,137	82,363	1.38
IIIN Skilled	18,936	238	19,174	1.24	55,139	619	55,758	1.11	74,075	857	74,932	1.14
Total non-manual	75,067	1,037	76,104	1.36	93,307	1,211	94,518	1.28	168,374	2,248	170,622	1.32
<b>Manual</b>												
IIIM Skilled	54,110	654	54,764	1.19	10,722	147	10,869	1.35	64,832	801	65,633	1.22
IV Part skilled	27,308	403	27,711	1.45	26,204	389	26,593	1.46	53,512	792	54,304	1.46
V Unskilled	9,244	174	9,418	1.85	10,979	168	11,147	1.51	20,223	342	20,565	1.66
Armed forces and inadequately described	3,253	417	3,670	11.36	1,451	115	1,566	7.34	4,704	532	5,236	10.16
Total manual	93,915	1,648	95,563	1.72	49,356	819	50,175	1.63	143,271	2,467	145,738	1.69
Total	168,982	2,685	171,667	1.56	142,663	2,030	144,693	1.40	311,645	4,715	316,360	1.49

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

**Table 8.25 1991 LS sample population aged 16 and over by sex, socio-economic group and 'not traced' rates\***

Socio-economic group	Males				Females				Total			
	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate	Traced cases	Un-traced cases	Selected sample	'Not traced' rate
Employers in industry/ commerce large	41	1	42	2.38	12	0	12	0.00	53	1	54	1.85
Managers in central/ local govt. large	8,966	95	9,061	1.05	3,378	56	3,434	1.63	12,344	151	12,495	1.21
Employers in industry/ commerce small	5,183	75	5,258	1.43	1,921	42	1,963	2.14	7,104	117	7,221	1.62
Managers in central/ local govt. small	16,029	229	16,258	1.41	7,997	129	8,126	1.59	24,026	358	24,384	1.47
Professional - self employed	2,035	24	2,059	1.17	350	8	358	2.23	2,385	32	2,417	1.32
Professional - employees	8,649	139	8,788	1.58	1,981	68	2,049	3.32	10,630	207	10,837	1.91
Ancillary workers and artists	14,319	224	14,543	1.54	21,495	270	21,765	1.24	35,814	494	36,308	1.36
Foremen/supervisors non-manual	1,252	8	1,260	0.63	1,859	17	1,876	0.91	3,111	25	3,136	0.80
Junior non-manual	15,964	196	16,160	1.21	52,494	581	53,075	1.09	68,458	777	69,235	1.12
Personal service workers	2,813	156	2,969	5.25	12,864	220	13,084	1.68	15,677	376	16,053	2.34
Foremen/supervisors manual	5,451	45	5,496	0.82	1,065	7	1,072	0.65	6,516	52	6,568	0.79
Skilled manual	36,641	387	37,028	1.05	4,414	54	4,468	1.21	41,055	441	41,496	1.06
Semi-skilled manual	22,011	287	22,298	1.29	15,635	225	15,860	1.42	37,646	512	38,158	1.34
Unskilled manual	8,290	161	8,451	1.91	10,854	161	11,015	1.46	19,144	322	19,466	1.65
Own account workers (not professional)	14,667	213	14,880	1.43	3,748	65	3,813	1.70	18,415	278	18,693	1.49
Farmers - employers and managers	838	4	842	0.48	159	2	161	1.24	997	6	1,003	0.60
Farmers - own account	980	8	988	0.81	190	0	190	0.00	1,170	8	1,178	0.68
Agricultural workers	1,600	16	1,616	0.99	796	10	806	1.24	2,396	26	2,422	1.07
Members of the armed forces	1,750	342	2,092	16.35	169	63	232	27.16	1,919	405	2,324	17.43
Inadequately described	1,503	75	1,578	4.75	1,282	52	1,334	3.90	2,785	127	2,912	4.36
<b>Total</b>	<b>168,982</b>	<b>2,685</b>	<b>171,667</b>	<b>1.56</b>	<b>142,663</b>	<b>2,030</b>	<b>144,693</b>	<b>1.40</b>	<b>311,645</b>	<b>4,715</b>	<b>316,360</b>	<b>1.49</b>

\* Not traced rate =  $\frac{\text{number not traced in subgroup}}{\text{original sample in subgroup}} \times 100\%$

## 9 Sampling fractions

This chapter examines sampling fractions in the whole LS sample and in subgroups of the sample at each census point (1971, 1981 and 1991) where a new LS sample has been selected.

### 9.1 THE DEFINITION AND USE OF SAMPLING FRACTIONS IN THE LS

The LS was designed as a 1 per cent sample of the enumerated census population of England and Wales. When a new LS sample is taken at a census, it is essential to measure how representative the sample is and what biases exist in it. Sampling fractions are used to measure whether the LS population (both as a whole and in subgroups) represents approximately 1 per cent of the originating census population (or specific subgroups of that population). Because of variations in tracing rates (see Chapter 8) and in the availability of accurate birthdate data (the sampling criterion) the sample proportions may vary.

Because only the traced LS population is used in analysis, net rather than gross sampling fractions are used as these exclude the untraced population.

The observed net sampling fraction  $\alpha_i$  (where  $i$  identifies the subgroup of interest) is defined as:

$$\alpha_i = \frac{\text{number in subgroup } i \text{ (traced LS population)}}{\text{number in subgroup in census population}} \times 100$$

The expected net sampling fractions give an estimate of the proportions of the LS sample that would have been expected in the census population and allow comparison with what was actually observed. Ideally, observed and expected net sampling fractions should be the same, but biases, not only in tracing rates but also in the sampling of certain population subgroups can distort that relationship.

Expected net sampling fractions are defined as:

$$\alpha_i(\text{expected}) = \alpha \frac{(1 - \beta_i)}{(1 - \beta)}$$

Where  $i$  indicates the subgroup of interest,  $\alpha$  is the overall sampling fraction (that is the sampling fraction for either all LS males, or for all females or for the total LS population) and  $\beta$  is the overall 'not traced' rate (that is the 'not traced' rate for either all LS males or for all LS females or for the total LS population).<sup>1</sup>

### 9.2 THE 1971 LS SAMPLE POPULATION

The 1971 LS sample population had an observed sampling fraction of 1.05, with expected sampling fractions of 1.06 for males and 1.05 for females.

Table 9.1 shows the percentage distributions by age and sex of the LS sample and the 1971 Census population, together with the observed and expected sampling fractions for the LS sample. Both distributions showed a similar pattern and no age group was noticeably over- or under-represented in the sample. The sampling fractions did not show a large variation. The lowest observed sampling fractions were found among young adults (males aged 20–24 and females aged 25–29), the highest among both males and females aged 50–59. The observed and expected sampling fractions did not differ markedly, the largest difference (0.05) being found among females aged 75 and over.

#### 9.2.1 Age, sex and marital status

Table 9.2 shows both percentage distributions and sampling fractions for the 1971 Census–LS sample, together with the original census population by age, sex and marital status. Very little variation was seen between the percentage distributions for the LS and for the England and Wales populations. However, the LS had proportionately fewer males in the elderly divorced category (60 and over) than expected, and females showed more variation among the widowed and divorced of all ages. In cases where the sampling fractions were very low, the calculation has been based on small numbers. Differences between observed and expected sampling fractions were greatest among the widowed and divorced groups.

#### 9.2.2 Country of birth

The population enumerated in the 1971 Census were asked to indicate their place of birth by answering question B9 on the census form. Tracing rates for LS members giving a birth place other than the UK showed a great deal of variation (see Chapter 8, section 8.3.2). The expectation was therefore that both percentage distributions and sampling fractions in the 1971 LS sample would also vary greatly and should be examined in some detail.

Table 9.3a shows the 1971 LS sample and the 1971 Census population by sex and birthplace. The distributions are somewhat different for those in the LS sample compared with the census population. A total of 6.78 per cent of males in the LS population were born overseas, compared with 6.75 per cent of the census population. The

**Table 9.1 1971 LS population and 1971 Census population by sex, age, percentage distributions and sampling fractions**

Age	LS population	% distribution	1971 Census population* (000's)	% distribution	Sampling fractions	
					Observed	Expected
<b>Males</b>						
0-4	20,949	4.08	2,002.8	4.11	1.05	1.07
5-9	21,878	4.26	2,074.2	4.25	1.05	1.07
10-14	19,828	3.86	1,865.3	3.83	1.06	1.06
15-19	17,927	3.49	1,696.1	3.48	1.06	1.05
20-24	19,161	3.73	1,876.1	3.85	1.02	1.05
25-29	16,959	3.31	1,612.1	3.31	1.05	1.05
30-34	15,646	3.05	1,460.3	3.00	1.07	1.05
35-39	15,126	2.95	1,409.8	2.89	1.07	1.05
40-44	15,712	3.06	1,466.8	3.01	1.07	1.06
45-49	16,382	3.19	1,551.8	3.18	1.06	1.06
50-54	15,016	2.93	1,412.0	2.90	1.06	1.06
55-59	15,679	3.06	1,433.7	2.94	1.09	1.07
60-64	14,088	2.75	1,330.2	2.73	1.06	1.07
65-69	11,270	2.20	1,063.3	2.18	1.06	1.07
70-74	7,224	1.41	692.0	1.42	1.04	1.07
75+	7,738	1.51	736.5	1.51	1.05	1.07
All ages	250,583	48.84	23,683.0	48.59	1.06	1.06
<b>Females</b>						
0-4	20,160	3.93	1,901.9	3.90	1.06	1.07
5-9	20,776	4.05	1,969.8	4.04	1.05	1.07
10-14	18,718	3.65	1,761.7	3.61	1.06	1.07
15-19	16,889	3.29	1,617.5	3.32	1.04	1.05
20-24	19,023	3.71	1,855.1	3.81	1.03	1.03
25-29	16,152	3.15	1,579.2	3.24	1.02	1.03
30-34	14,506	2.83	1,411.0	2.89	1.03	1.03
35-39	14,402	2.81	1,376.4	2.82	1.05	1.03
40-44	15,200	2.96	1,468.3	3.01	1.04	1.04
45-49	16,790	3.27	1,583.7	3.25	1.06	1.05
50-54	15,752	3.07	1,485.4	3.05	1.06	1.06
55-59	16,804	3.28	1,542.0	3.16	1.09	1.06
60-64	15,691	3.06	1,510.7	3.10	1.04	1.06
65-69	14,250	2.78	1,336.4	2.74	1.07	1.06
70-74	11,319	2.21	1,086.1	2.23	1.04	1.06
75+	16,046	3.13	1,581.3	3.24	1.01	1.06
All ages	262,477	51.16	25,066.6	51.42	1.05	1.05
Total persons	513,060	100.0	48,749.6	100.00	1.05	1.05

\* Including visitors to the United Kingdom.

**Table 9.2 1971 LS population and 1971 Census population by sex, age, marital status, percentage distributions and sampling fractions**

England and Wales

Age and marital status	LS population	% distribution	1971 Census population (000's)	% distribution	Sampling fractions			
					Observed	Expected		
<b>Males</b>								
Single	0-4	20,949	19.3	2,002.8	19.3	1.05	1.05	
	5-9	21,878	20.2	2,074.2	19.9	1.05	1.05	
	10-14	19,828	18.3	1,865.3	17.9	1.06	1.05	
	15-19	17,530	16.1	1,661.5	16.0	1.06	1.04	
	20-24	11,858	10.9	1,186.0	11.4	1.00	1.02	
	25-29	4,158	3.8	414.9	4.0	1.00	1.00	
	30-34	2,056	1.9	202.0	1.9	1.02	1.00	
	35-39	1,592	1.5	156.3	1.5	1.02	1.03	
	40-44	1,619	1.5	158.4	1.5	1.02	1.01	
	45-49	1,580	1.5	154.4	1.5	1.02	1.02	
	50-54	1,302	1.2	123.4	1.2	1.06	1.02	
	55-59	1,252	1.2	118.0	1.1	1.06	1.01	
	60-64	1,100	1.0	104.6	1.0	1.05	1.02	
	65+	1,859	1.7	176.8	1.7	1.05	1.03	
Total	108,560	100.0	10,398.8	100.0	1.04	1.04		
Married	16-19	397	0.3	34.6	0.3	1.15	1.04	
	20-24	7,264	5.5	686.7	5.5	1.06	1.07	
	25-29	12,634	9.5	1,180.6	9.5	1.07	1.06	
	30-34	13,323	10.0	1,233.8	9.9	1.08	1.06	
	35-39	13,265	10.0	1,226.0	9.9	1.08	1.06	
	40-44	13,741	10.3	1,275.9	10.3	1.08	1.06	
	45-49	14,334	10.8	1,354.6	10.9	1.06	1.07	
	50-54	13,158	9.9	1,238.8	10.0	1.06	1.07	
	55-59	13,680	10.3	1,247.8	10.0	1.10	1.08	
	60-64	12,031	9.0	1,134.9	9.1	1.06	1.08	
	65+	19,183	14.4	1,819.1	14.6	1.05	1.08	
	Total	133,010	100.0	12,432.9	100.0	1.07	1.07	
	Widowed	16-29	17	0.2	1.7	0.3	1.00	1.03
		30-39	49	0.7	6.3	0.9	0.78	1.01
40-44		102	1.4	8.6	1.3	1.19	1.06	
45-49		195	2.8	18.1	2.7	1.08	1.04	
50-54		318	4.5	28.1	4.2	1.13	1.07	
55-59		529	7.5	48.2	7.2	1.10	1.06	
60-64		825	11.7	75.3	11.3	1.10	1.04	
65+		5,044	71.3	479.7	72.0	1.05	1.06	
Total		7,079	100.0	665.9	100.0	1.06	1.06	
Divorced		16-29	189	9.8	18.3	9.9	1.03	1.05
	30-34	247	12.8	22.3	12.0	1.11	1.02	
	35-39	240	12.4	23.4	12.6	1.03	1.03	
	40-44	250	12.9	23.9	12.9	1.05	1.04	
	45-49	273	14.1	24.7	13.3	1.11	1.04	
	50-54	238	12.3	21.6	11.7	1.10	1.05	
	55-59	218	11.3	19.7	10.6	1.11	1.05	
	60-64	132	6.8	15.3	8.3	0.86	1.07	
	65+	147	7.6	16.1	8.7	0.91	1.04	
	Total	1,934	100.0	185.3	100.0	1.04	1.04	
All males	250,583		23,683.0		1.06	1.06		

**Table 9.2 - continued**

Age and marital status		LS population	% distribution	1971 Census population (000's)	% distribution	Sampling fractions		
						Observed	Expected	
<b>Females</b>								
Single	0-4	20,160	20.3	1,901.9	20.0	1.06	1.06	
	5-9	20,776	20.9	1,969.8	20.7	1.05	1.06	
	10-14	18,718	18.8	1,761.7	18.5	1.06	1.06	
	15-19	15,373	15.5	1,476.9	15.5	1.04	1.05	
	20-24	7,411	7.4	737.2	7.7	1.01	1.02	
	25-29	2,131	2.1	209.7	2.2	1.02	1.01	
	30-34	1,091	1.1	110.7	1.2	0.99	0.99	
	35-39	992	1.0	97.0	1.0	1.02	1.02	
	40-44	1,082	1.1	108.9	1.1	0.99	1.02	
	45-49	1,268	1.3	123.9	1.3	1.02	1.03	
	50-54	1,299	1.3	123.8	1.3	1.05	1.03	
	55-59	1,590	1.6	147.7	1.6	1.08	1.04	
	60-64	1,787	1.8	173.4	1.8	1.03	1.05	
	65+	5,814	5.8	570.6	6.0	1.02	1.05	
Total	99,493	100.0	9,513.1	100.0	1.05	1.05		
Married	16-19	1,516	1.2	140.4	1.1	1.08	1.01	
	20-24	11,531	8.8	1,107.2	8.9	1.04	1.03	
	25-29	13,719	10.5	1,337.6	10.7	1.03	1.04	
	30-34	12,989	9.9	1,259.1	10.1	1.03	1.04	
	35-39	12,922	9.8	1,231.6	9.9	1.05	1.04	
	40-44	13,383	10.2	1,293.2	10.4	1.03	1.04	
	45-49	14,465	11.0	1,355.1	10.9	1.07	1.05	
	50-54	12,905	9.8	1,210.3	9.7	1.07	1.07	
	55-59	12,542	9.6	1,151.3	9.2	1.09	1.07	
	60-64	10,231	7.8	982.1	7.9	1.04	1.06	
	65+	15,068	11.5	1,419.7	11.4	1.06	1.07	
	Total	131,271	100.0	12,487.6	100.0	1.05	1.05	
	Widowed	16-29	53	0.2	5.7	0.2	0.93	1.02
		30-39	245	0.9	23.0	0.8	1.07	1.00
40-44		382	1.3	32.8	1.2	1.16	1.01	
45-49		706	2.5	68.3	2.5	1.03	1.04	
50-54		1,189	4.1	118.5	4.3	1.00	1.04	
55-59		2,340	8.1	212.6	7.7	1.10	1.04	
60-64		3,443	12.0	330.2	11.9	1.04	1.04	
65+		20,409	70.9	1,981.9	71.5	1.03	1.04	
Total		28,767	100.0	2,773.0	100.0	1.04	1.04	
Divorced		16-29	330	11.2	37.1	12.7	0.89	0.95
	30-34	329	11.2	33.6	11.5	0.98	0.98	
	35-39	340	11.5	32.5	11.1	1.05	1.00	
	40-44	353	12.0	33.4	11.4	1.06	1.01	
	45-49	351	11.9	36.4	12.4	0.96	1.03	
	50-54	359	12.2	32.8	11.2	1.09	1.02	
	55-59	332	11.3	30.3	10.4	1.10	1.03	
	60-64	230	7.8	25.1	8.6	0.92	1.04	
	65+	322	10.9	31.8	10.8	1.01	1.04	
	Total	2,946	100.0	292.9	100.0	1.01	1.01	
	All females	262,477		25,066.6		1.05	1.05	

corresponding figures for females were 6.16 and 6.24 per cent. The observed sampling fractions showed wide variations, the highest being for males born in India (1.40) and Pakistan (1.49) and the lowest for males and females born in the USA (0.60 and 0.68 respectively). For persons born in the New Commonwealth, only those born in the American New Commonwealth (the West Indies and Caribbean) and the remainder of the New Commonwealth (the Far East) showed lower observed sampling fractions than the overall sampling fractions of 1.06 and 1.05. Expected sampling fractions were low for all those born outside the UK due to the high 'not traced' rates among these population subgroups.

Table 9.3b examines the New Commonwealth born population further, showing observed and expected sampling fractions by age and sex. (Figures given in brackets are based on extremely small numbers and therefore should be treated with caution). It is particularly noticeable that both males and females from the Indian subcontinent were over represented in the 1971 LS sample. Males born in India showed far higher observed sampling fractions in all age groups than expected, as did males from Pakistan in all age groups except the retired. Females from both India and Pakistan also showed high observed sampling fractions at the child-bearing ages (15–44).

**Tables 9.3a 1971 LS population and 1971 Census population by sex, country of birth, percentage distributions and sampling fractions**

Country of birth	LS population	% distribution	1971 Census population	% distribution	Sampling fractions	
					Observed	Expected
<b>Males</b>						
United Kingdom	233,598	93.2	22,083,995	93.25	1.06	1.07
Outside UK*	16,985	6.78	1,598,985†	6.75	1.06	0.93
Irish Republic	3,406	1.36	323,555	1.37	1.05	0.96
Old Commonwealth	583	0.23	59,525	0.25	0.98	0.98
New Commonwealth	7,617	3.04	616,660	2.60	1.24	0.90
African Commonwealth	923	0.37	86,975	0.37	1.06	0.93
American Commonwealth	1,576	0.63	151,495	0.64	1.04	0.94
India	2,372	0.95	169,330	0.71	1.40	0.92
Pakistan	1,470	0.59	98,520	0.42	1.49	0.82
Mediterranean Commonwealth	763	0.30	60,040	0.25	1.27	0.91
Remainder of New Commonwealth	513	0.20	50,300	0.21	1.02	0.93
Europe, excluding USSR	3,145	1.26	271,955	1.15	1.16	0.99
USA	321	0.13	53,970	0.23	0.60	0.88
Elsewhere and not stated	1,913	0.76	219,735	0.93	0.87	0.93
<b>Total</b>	<b>250,583</b>	<b>100.00</b>	<b>23,682,980†</b>	<b>100.00</b>	<b>1.06</b>	<b>1.06</b>
<b>Females</b>						
United Kingdom	246,298	93.84	23,501,200	93.76	1.05	1.05
Outside UK*	16,179	6.16	1,565,395†	6.24	1.03	0.94
Irish Republic	3,801	1.45	352,315	1.41	1.08	0.97
Old Commonwealth	684	0.26	69,350	0.28	0.98	0.98
New Commonwealth	5,633	2.15	504,780	2.01	1.12	0.91
African Commonwealth	755	0.29	71,280	0.28	1.06	0.95
American Commonwealth	1,500	0.57	150,990	0.60	0.99	0.92
India	1,819	0.69	143,515	0.57	1.27	0.91
Pakistan	452	0.17	37,630	0.15	1.20	0.79
Mediterranean Commonwealth	647	0.25	55,045	0.22	1.18	0.88
Remainder of New Commonwealth	460	0.18	46,325	0.18	0.99	0.96
Europe, excluding USSR	3,800	1.45	331,470	1.32	1.15	0.97
USA	317	0.12	46,490	0.19	0.68	0.89
Elsewhere and not stated	1,944	0.74	217,085	0.87	0.90	0.96
<b>Total</b>	<b>262,477</b>	<b>100.00</b>	<b>25,066,595†</b>	<b>100.0</b>	<b>1.05</b>	<b>1.05</b>

\* Includes not stated.

† Includes visitors to United Kingdom.

**Table 9.3b 1971 observed and expected sampling fractions by sex and age for selected countries of birth**

Sex and country of birth		Age group				
		0-14	15-29	30-44	45-retired	Retired+
<b>Males</b>						
New Commonwealth	Observed	1.05	1.19	1.36	1.24	1.12
	Expected	0.88	0.86	0.93	0.94	0.98
African Commonwealth	Observed	0.94	0.99	1.22	(1.44)	(1.31)
	Expected	0.90	0.91	0.96	(0.95)	(1.09)
American Commonwealth	Observed	0.85	0.99	1.04	1.20	1.16
	Expected	0.96	0.90	0.94	0.97	(0.94)
India	Observed	1.24	1.39	1.62	1.19	(1.11)
	Expected	0.86	0.87	0.95	0.95	(1.04)
Pakistan	Observed	1.23	1.57	1.66	1.16	(1.02)
	Expected	0.71	0.78	0.88	0.85	(0.78)
Other Asian Commonwealth	Observed	1.11	0.95	1.04	(0.92)	(1.04)
	Expected	1.02	0.87	0.88	(0.95)	(1.09)
Mediterranean Commonwealth	Observed	0.93	1.06	1.51	1.71	(1.16)
	Expected	0.99	0.84	0.92	0.91	(0.88)
<b>Females</b>						
New Commonwealth	Observed	0.99	1.13	1.17	1.16	1.07
	Expected	0.90	0.89	0.90	0.93	0.99
African Commonwealth	Observed	0.98	1.08	1.09	(1.23)	(1.41)
	Expected	0.94	0.95	0.97	(0.91)	(1.02)
American Commonwealth	Observed	0.85	0.96	1.02	1.17	(0.85)
	Expected	0.93	0.92	0.92	0.91	(0.98)
India	Observed	1.20	1.41	1.35	1.07	1.07
	Expected	0.83	0.88	0.90	0.99	1.03
Pakistan	Observed	(0.97)	1.35	1.30	(1.06)	(0.65)
	Expected	(0.66)	0.83	0.84	(0.74)	(1.09)
Other Asian Commonwealth	Observed	0.96	1.07	(0.97)	(1.03)	(0.53)
	Expected	1.07	0.91	(0.89)	(0.99)	(1.09)
Mediterranean Commonwealth	Observed	1.01	0.92	1.30	1.52	(1.61)
	Expected	0.98	0.84	0.84	0.88	(0.88)

Note: sampling fractions in brackets are calculated from sample numbers under 100.

### 9.2.3 Regional variation

Table 9.4 shows the 1971 LS sample, together with the observed and expected sampling fractions for each of the nine standard regions of England and Wales plus Greater London. There was very little difference between observed and expected sampling fractions at the regional level. Consequently the 1971 LS regional data should be representative of the full England and Wales regional data recorded as at the 1971 Census.

### 9.2.4 Household types

At the 1971 Census 97.3 per cent of the enumerated population of England and Wales lived in private households. Table 9.5 shows that the male and female sampling fractions for this section of the LS sample mirrored those for the whole 1971 Census population. In Chapter 8 (section 8.3.4) it was shown that in 1971 the 2.7 per cent of LS members who were enumerated in non-private households had higher 'not traced' rates than those LS members enumerated in private households. It is therefore not surprising that the sampling fractions for the different types of non-private establishments shown in Table 9.5 were very low.

**Table 9.4 1971 LS population and 1971 Census population by sex, region of usual residence and observed and expected sampling fractions**

Region	Males				Females			
	LS population	1971 Census population (000's)	Sampling fractions		LS population	1971 Census population (000's)	Sampling fractions	
			Observed	Expected			Observed	Expected
North	17,170	1,609.0	1.07	1.07	17,628	1,687.1	1.04	1.05
Yorkshire and Humberside	24,868	2,337.9	1.06	1.06	26,025	2,461.3	1.06	1.06
North West	34,761	3,256.0	1.07	1.07	37,013	3,486.5	1.06	1.06
East Midlands	17,680	1,671.6	1.06	1.07	17,972	1,718.7	1.05	1.06
West Midlands	27,065	2,527.8	1.07	1.05	26,767	2,581.8	1.04	1.04
East Anglia	8,512	822.5	1.04	1.07	8,888	847.0	1.05	1.06
South East	87,363	8,307.3	1.05	1.05	92,941	8,923.0	1.04	1.04
Greater London	37,546	3,578.2	1.05	1.04	40,372	3,874.1	1.04	1.03
Remainder	49,817	4,729.0	1.05	1.06	52,569	5,048.9	1.04	1.05
South West	19,068	1,823.4	1.05	1.07	20,607	1,957.5	1.05	1.06
Wales	14,096	1,327.5	1.06	1.07	14,636	1,403.7	1.04	1.05
Total	250,583	23,683.0	1.06	1.06	262,477	25,066.6	1.05	1.05

**Table 9.5 1971 LS population and 1971 Census population by sex, household type and observed and expected sampling fractions**

Household type	Males				Females			
	LS population	1971 Census population	Sampling fractions		LS population	1971 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
<b>Private households</b>	244,083	22,927,425	1.06	1.06	256,290	24,368,755	1.05	1.05
<b>Non-private households</b>								
Hotels, etc.	1,147	149,805	0.77	0.95	925	116,740	0.79	0.98
Psychiatric hospitals	731	85,530	0.85	0.96	762	95,510	0.80	0.95
Other hospitals	914	101,935	0.90	0.99	1,879	207,900	0.90	0.91
Educational establishments	1,168	134,780	0.87	1.03	755	83,790	0.90	1.05
Children's homes	183	21,195	0.86	1.00	216	21,005	1.03	1.01
Places of detention	448	45,795	0.98	0.98	18	2,530	0.71	0.89
Defence establishments	692	80,975	0.85	0.97	93	10,280	0.90	0.95
Other establishments	1,217	129,455	0.94	1.01	1,539	154,890	0.99	1.02
Total non-private households	6,500	749,465	0.87	0.99	6,187	692,650	0.89	1.00

## 9.2.5 Social class and socio-economic groupings

Table 9.6 shows the LS sample and the 1971 Census population in the working age groups (15–64) by sex and

social class, while Table 9.7 gives a more detailed socio-economic breakdown. Neither table shows any marked deviation from the overall sampling fraction, and what variation is seen tends to be in groups where the numbers are very small, such as the armed forces.

**Table 9.6 1971 LS population and 1971 Census population by sex, social class and observed and expected sampling fractions**

Social class	Males (aged 15-64)				Females (aged 15-64)			
	LS population	1971 Census population	Sampling fractions		LS population	1971 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
<b>Non-manual</b>	51,648	4,816,460	1.07	1.08	47,362	4,471,770	1.06	1.06
I Professional	7,820	715,450	1.09	1.07	807	78,670	1.02	1.04
II Intermediate	26,253	2,465,500	1.06	1.08	13,915	1,318,030	1.06	1.05
III(N) Skilled non-manual	17,575	1,635,510	1.07	1.08	32,640	3,075,070	1.06	1.06
<b>Manual</b>	94,677	8,751,870	1.08	1.07	36,103	3,387,400	1.07	1.05
III(M) Skilled manual	57,732	5,353,070	1.08	1.08	8,301	794,730	1.04	1.05
IV Partly skilled	25,750	2,351,550	1.09	1.06	21,775	2,033,400	1.07	1.05
V Unskilled	11,195	1,047,250	1.06	1.05	6,027	559,270	1.08	1.05
Armed forces and inadequately described	4,533	482,920	0.93	1.03	7,387	736,290	1.00	1.06
<b>Total</b>	<b>150,858</b>	<b>14,051,250</b>	<b>1.07</b>	<b>1.07</b>	<b>90,852</b>	<b>8,595,460</b>	<b>1.06</b>	<b>1.05</b>

**Table 9.7 1971 LS population and 1971 Census population by sex, socio-economic group and observed and expected sampling fractions**

Socio-economic group	Males (aged 15-64)				Females (aged 15-64)			
	LS population	1971 Census population	Sampling fractions		LS population	1971 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
Employers and managers in central/local government, etc.								
Large establishments	5,904	538,830	1.09	1.08	975	95,470	1.02	1.06
Small establishments	11,916	1,117,190	1.07	1.07	3,058	287,680	1.06	1.05
Professionals - self employed	1,292	115,420	1.12	1.08	106	9,660	1.10	1.06
Professionals - employees	6,528	600,030	1.08	1.07	701	69,010	1.02	1.05
Intermediate non-manual workers	8,444	807,190	1.05	1.07	9,729	917,500	1.06	1.06
Junior non-manual workers	17,816	1,658,260	1.07	1.08	32,871	3,094,510	1.06	1.07
Personal service workers	1,503	136,250	1.10	0.97	10,613	998,280	1.06	1.05
Foremen and supervisors - manual	5,515	510,610	1.08	1.08	509	50,930	1.00	1.06
Skilled manual workers	45,808	4,248,690	1.08	1.08	5,295	501,120	1.06	1.06
Semi-skilled manual workers	19,623	1,785,320	1.10	1.06	11,013	1,035,390	1.06	1.05
Unskilled manual workers	10,688	1,000,900	1.07	1.05	6,018	557,910	1.08	1.05
Own account workers	6,930	649,150	1.07	1.07	1,671	158,800	1.05	1.06
Farmers - employers and managers	1,094	97,940	1.12	1.08	146	12,220	1.19	1.05
Farmers - own account	1,151	109,250	1.05	1.09	207	18,100	1.14	1.07
Agricultural workers	2,113	193,300	1.09	1.07	553	52,590	1.05	1.06
Members of armed forces	1,948	222,840	0.87	0.97	102	11,600	0.88	0.98
Inadequately described occupation	2,585	260,080	0.99	1.03	7,285	724,690	1.00	1.05
<b>Total</b>	<b>150,858</b>	<b>14,051,250</b>	<b>1.07</b>	<b>1.07</b>	<b>90,852</b>	<b>8,595,460</b>	<b>1.06</b>	<b>1.05</b>

### 9.3 THE 1981 LS SAMPLE POPULATION

The LS sample population selected at the 1981 Census had observed and expected sampling fractions of 1.09 for both males and females as well as for the overall population.

Table 9.8 shows the percentage distributions by age and sex for the 1981 LS sample and the 1981 Census population, together with the observed and expected sampling fractions for the LS population. The patterns of the two distributions were similar, with no age group being either over- or under-represented in the LS sample. Sampling fractions also showed very little variation between observed and expected values. Slightly higher than expected sampling fractions were observed for males in most age groups while those for females showed more variability. The largest difference between observed and expected sampling fractions (0.04) was found among females aged 65–69.

#### 9.3.1 Age, sex and marital status

Table 9.9 shows sampling fractions and percentage distributions by age, sex and marital status in 1981. Very little variation was seen between the percentage distributions for the LS sample and the 1981 Census population. Generally only divorced females were under-represented and divorced males over-represented in the sample. Widowed males were over-represented in the sample at age 50 and over. An examination of the difference between observed and expected sampling fractions among these groups showed divorced females to have been undersampled by 2 per cent, divorced males oversampled by 1 per cent and widowed males to have been oversampled by 3 per cent.

#### 9.3.2 Country of birth

In the 1981 Census respondents were asked to indicate their country of birth by completing question 9 on the Census form.

Table 9.10 shows the LS population and the 1981 Census population by sex and country of birth. The distribution of the LS population by country of birth differs quite markedly from that of the census population. Only 92.06 per cent of LS males gave the UK as their birthplace compared with 93.25 per cent of males in the census. Among females the proportions were 92.53 per cent and 93.48 per cent respectively. The distribution of the LS population born outside the UK showed a great deal of variation. Individuals from the New Commonwealth and Pakistan were particularly over-represented in the LS sample. Although all countries in the New Commonwealth contributed to this, the largest contribution was from LS persons stating their country of birth as India.

The observed and expected sampling fractions for the 1981

LS sample were very variable. Among males the observed sampling fractions ranged from a low of 0.62 to a high of 1.89. The corresponding expected sampling fractions had a much more limited range, 0.60 to 1.11. For females the range of both observed and expected sampling fractions was more restricted, 0.70 to 1.60 for observed and 0.74 to 1.10 for expected. The highest observed sampling fractions were seen for males who gave their birthplace as Pakistan and for females who gave theirs as India.

#### 9.3.3 Regional variation

Table 9.11 shows the observed and expected sampling fractions in the 1981 LS sample for each of the nine standard regions of England and Wales. A small amount of variation was found between observed and expected sampling fractions, but the largest differences were only 0.02 per cent. The 1981 sample should therefore be considered broadly representative of the 1981 Census population at the regional level.

#### 9.3.4 Household types

Table 9.12 shows the 1981 LS sample and the 1981 Census population by household type. A total of 97.5 per cent of the England and Wales population were enumerated in private households at the 1981 Census.

No differences were seen between the observed and expected sampling fractions for males and females in private households and males and females in the whole LS sample (see Table 9.8). A slightly smaller proportion of LS members were enumerated in non-private households than in 1971 (2.5 per cent compared with 2.7 per cent). As in 1971 the observed sampling fractions for individuals enumerated in this type of household tended to be very variable and lower than expected. Only males enumerated in homes for the elderly had a higher than expected observed sampling fraction (1.13 observed compared with 1.06 expected).

#### 9.3.5 Social class and socio-economic groupings

Table 9.13 shows the 1981 LS sample and the 1981 Census population of working age (16–59/64) by sex and social class. Among males, Social Classes I, II and III N were undersampled while Classes IV, V and those in the armed forces and inadequately described category were over-represented. Females were oversampled in Class I and in the armed forces and inadequately described category. They were undersampled in all other classes. It should be noted that only small numbers of women are found in Social Class I and among the armed forces.

A further breakdown of the working population by socio-economic group is shown in Table 9.14. The observed sampling fractions for both males and females are highly variable with over-sampling more common among men.

**Table 9.8 1981 LS population and 1981 Census population by sex, age, percentage distributions and sampling fractions**

Age	LS population	% distribution	1981 Census population*	% distribution	Sampling fractions	
					Observed	Expected
<b>Males</b>						
0-4	16,398	3.09	1,492,426	3.08	1.10	1.08
5-9	17,979	3.39	1,647,040	3.39	1.09	1.08
10-14	21,071	3.97	1,971,754	4.06	1.07	1.08
15-19	22,224	4.19	2,053,606	4.23	1.08	1.08
20-24	19,926	3.76	1,804,691	3.72	1.10	1.07
25-29	18,291	3.45	1,647,665	3.40	1.11	1.07
30-34	19,886	3.75	1,834,564	3.78	1.08	1.08
35-39	17,204	3.24	1,554,411	3.20	1.11	1.08
40-44	15,631	2.95	1,405,282	2.90	1.11	1.08
45-49	14,978	2.82	1,351,065	2.78	1.11	1.08
50-54	15,261	2.88	1,380,575	2.85	1.11	1.08
55-59	15,089	2.85	1,403,432	2.89	1.08	1.08
60-64	13,047	2.46	1,195,789	2.46	1.09	1.08
65-69	12,113	2.28	1,099,900	2.27	1.10	1.08
70-74	9,350	1.76	870,876	1.79	1.07	1.09
75+	9,746	1.84	911,642	1.88	1.07	1.08
All ages	258,194	48.69	23,873,362	49.20	1.08	1.08
<b>Females</b>						
0-4	15,461	2.92	1,417,738	2.92	1.09	1.09
5-9	17,144	3.23	1,559,549	3.21	1.10	1.08
10-14	20,195	3.81	1,874,518	3.86	1.08	1.09
15-19	21,248	4.01	1,966,388	4.05	1.08	1.08
20-24	19,508	3.68	1,759,521	3.63	1.11	1.07
25-29	17,987	3.39	1,627,096	3.35	1.11	1.08
30-34	19,955	3.76	1,821,540	3.75	1.10	1.08
35-39	16,820	3.17	1,538,026	3.17	1.09	1.08
40-44	14,963	2.82	1,387,078	2.86	1.08	1.08
45-49	14,787	2.79	1,338,070	2.76	1.11	1.08
50-54	15,214	2.87	1,404,398	2.89	1.08	1.08
55-59	16,171	3.05	1,474,043	3.04	1.10	1.08
60-64	14,624	2.76	1,337,023	2.76	1.09	1.08
65-69	14,828	2.80	1,326,339	2.73	1.12	1.08
70-74	12,856	2.42	1,190,859	2.45	1.08	1.08
75+	20,273	3.82	1,874,692	3.86	1.08	1.08
All ages	272,034	51.31	25,281,325	52.10	1.08	1.08
Total	530,228	100.00	48,521,596	100.00	1.09	1.09

\* Including visitors to England and Wales.

**Table 9.9 1981 LS population and 1981 Census population by sex, age, marital status, percentage distributions and sampling fractions**

Age and marital status		LS population	% distribution	1981 Census population	% distribution	Sampling fractions	
						Observed	Expected
<b>Males</b>							
Single	0-15	59,924	53.35	5,525,642	53.32	1.08	1.10
	16-19	17,496	15.58	1,617,004	15.60	1.08	1.09
	20-24	14,725	13.11	1,350,089	13.03	1.09	1.08
	25-29	6,093	5.42	561,691	5.42	1.08	1.08
	30-34	3,252	2.89	304,542	2.94	1.07	1.08
	35-39	1,884	1.68	173,658	1.68	1.08	1.08
	40-44	1,387	1.23	130,369	1.26	1.06	1.08
	45-49	1,305	1.16	120,912	1.17	1.08	1.07
	50-64	3,871	3.45	355,487	3.43	1.09	1.08
	65+	2,395	2.13	223,190	2.15	1.07	1.07
Total	112,332	100.00	10,362,584	100.00	1.08	1.09	
Married	16-19	247	0.19	21,929	0.18	1.13	1.08
	20-24	5,080	3.84	443,146	3.68	1.15	1.08
	25-29	11,580	8.75	1,030,500	8.56	1.12	1.09
	30-34	15,603	11.79	1,438,710	11.95	1.08	1.09
	35-39	14,368	10.86	1,295,016	10.75	1.11	1.09
	40-44	13,314	10.06	1,192,174	9.90	1.12	1.09
	45-49	12,790	9.67	1,150,563	9.55	1.11	1.10
	50-64	36,572	27.64	3,354,894	27.86	1.09	1.10
	65+	22,740	17.19	2,115,113	17.56	1.08	1.10
	Total	132,294	100.00	12,042,045	100.00	1.10	1.10
Divorced	16-19	4	0.06	196	0.03	2.04	1.11
	20-24	117	1.88	10,986	1.95	1.06	1.07
	25-29	607	9.76	54,204	9.63	1.12	1.09
	30-34	998	16.05	88,538	15.74	1.13	1.09
	35-39	908	14.61	81,636	14.51	1.11	1.09
	40-44	867	13.95	75,583	13.43	1.15	1.08
	45-49	755	12.14	66,908	11.89	1.13	1.08
	50-64	1,453	23.37	136,759	24.31	1.06	1.09
	65+	508	8.17	47,820	8.50	1.06	1.09
	Total	6,217	100.00	562,630	100.00	1.10	1.09
Widowed	16-19	1	0.01	55	0.01	1.82	1.11
	20-24	4	0.05	470	0.07	0.85	0.74
	25-29	11	0.15	1,270	0.19	0.87	1.11
	30-34	33	0.45	2,774	0.42	1.19	1.11
	35-39	44	0.60	4,101	0.62	1.07	1.08
	40-44	63	0.86	7,156	1.09	0.88	1.09
	45-49	128	1.74	12,682	1.93	1.01	1.09
	50-64	1,501	20.42	132,656	20.18	1.13	1.09
	65+	5,566	75.72	496,295	75.49	1.12	1.09
	Total	7,351	100.00	657,459	100.00	1.12	1.09
All males		258,194		23,624,718		1.09	1.09

**Table 9.9 - continued**

Age and marital status	LS population	% distribution	1981 Census population*	% distribution	Sampling fractions			
					Observed	Expected		
<b>Females</b>								
Single	0-15	57,043	57.22	5,247,636	57.05	1.09	1.10	
	16-19	16,040	16.09	1,482,095	16.11	1.08	1.09	
	20-24	10,157	10.19	945,341	10.28	1.07	1.08	
	25-29	3,318	3.33	312,682	3.40	1.06	1.08	
	30-34	1,728	1.73	157,891	1.72	1.09	1.08	
	35-39	985	0.99	92,276	1.00	1.07	1.08	
	40-44	801	0.80	74,654	0.81	1.07	1.09	
	45-49	843	0.85	76,095	0.83	1.11	1.08	
	50-64	3,238	3.25	298,941	3.25	1.08	1.09	
	65+	5,537	5.55	511,333	5.56	1.08	1.09	
	Total	99,690	100.00	9,198,944	100.00	1.08	1.09	
	Married	16-19	957	0.72	87,767	0.73	1.09	1.08
		20-24	8,972	6.75	781,760	6.46	1.15	1.09
25-29		13,622	10.24	1,220,771	10.09	1.12	1.09	
30-34		16,837	12.66	1,531,978	12.67	1.10	1.09	
35-39		14,426	10.85	1,318,860	10.91	1.09	1.09	
40-44		12,777	9.61	1,186,132	9.81	1.08	1.09	
45-49		12,526	9.42	1,129,956	9.34	1.11	1.09	
50-64		34,729	26.11	3,180,833	26.30	1.09	1.10	
65+		18,161	13.65	1,655,319	13.69	1.10	1.09	
Total		133,007	100.00	12,093,376	100.00	1.10	1.09	
Divorced	16-19	7	0.08	487	0.06	1.44	1.10	
	20-24	359	4.19	30,625	3.84	1.17	1.09	
	25-29	990	11.56	89,356	11.22	1.11	1.09	
	30-34	1,298	15.16	122,898	15.43	1.06	1.09	
	35-39	1,222	14.27	112,366	14.10	1.09	1.08	
	40-44	1,081	12.62	99,876	12.54	1.08	1.09	
	45-49	902	10.53	82,277	10.33	1.10	1.09	
	50-64	1,869	21.82	175,876	22.07	1.06	1.08	
	65+	836	9.76	82,971	10.41	1.01	1.08	
	Total	8,564	100.00	796,732	100.00	1.07	1.09	
Widowed	16-19	1	0.00	208	0.01	0.48	1.10	
	20-24	20	0.06	1,795	0.06	1.11	1.05	
	25-29	57	0.19	4,287	0.15	1.33	1.08	
	30-34	92	0.30	8,773	0.31	1.05	1.06	
	35-39	187	0.61	14,524	0.52	1.29	1.08	
	40-44	304	0.99	26,416	0.94	1.15	1.08	
	45-49	516	1.68	49,742	1.77	1.04	1.08	
	50-64	6,173	20.06	559,814	19.94	1.10	1.09	
	65+	23,423	76.12	2,142,267	76.30	1.09	1.09	
	Total	30,773	100.00	2,807,826	100.00	1.10	1.09	
All females	241,261		22,089,052		1.09	1.09		

**Tables 9.10 1981 LS population and 1981 Census population by sex, country of birth, percentage distributions and sampling fractions**

Country of birth	LS population	% distribution	1981 Census population	% distribution	Sampling fraction	
					Observed	Expected
<b>Males</b>						
United Kingdom	237,691	92.06	22,028,903	93.25	1.08	1.10
Outside UK						
Irish Republic*	3,000	1.16	272,652	1.15	1.10	1.05
Old Commonwealth	670	0.26	63,433	0.27	1.06	1.03
New Commonwealth and Pakistan	10,923	4.23	769,955	3.26	1.42	1.03
India	3,262	1.26	194,448	0.82	1.68	1.05
Pakistan	1,949	0.75	103,311	0.44	1.89	1.03
African Commonwealth	1,632	0.63	137,379	0.58	1.19	1.03
Caribbean Commonwealth	1,570	0.61	143,709	0.61	1.09	1.03
Mediterranean Commonwealth	891	0.35	64,899	0.27	1.37	1.05
Remainder New Commonwealth	1,619	0.63	126,209	0.53	1.28	1.00
Europe	3,576	1.39	262,791	1.11	1.36	1.05
USA	347	0.13	56,050	0.24	0.62	0.60
Elsewhere and not stated	1,987	0.77	170,934	0.72	1.16	0.97
<b>Total</b>	<b>258,194</b>	<b>100.00</b>	<b>23,624,718</b>	<b>100.00</b>	<b>1.09</b>	<b>1.09</b>
<b>Females</b>						
United Kingdom	251,709	92.53	23,273,811	93.48	1.08	1.10
Outside UK						
Irish Republic*	3,448	1.27	307,181	1.23	1.12	1.06
Old Commonwealth	791	0.29	74,022	0.30	1.07	1.05
New Commonwealth and Pakistan	9,429	3.47	703,736	2.83	1.34	1.04
India	3,015	1.11	188,329	0.76	1.60	1.04
Pakistan	1,241	0.46	78,428	0.32	1.58	1.01
African Commonwealth	1,455	0.53	122,398	0.49	1.19	1.05
Caribbean Commonwealth	1,676	0.62	149,923	0.60	1.12	1.05
Mediterranean Commonwealth	775	0.28	61,594	0.25	1.26	1.02
Remainder New Commonwealth	1,267	0.47	103,064	0.41	1.23	1.02
Europe	4,239	1.56	331,450	1.33	1.28	1.05
USA	351	0.13	49,802	0.20	0.70	0.74
Elsewhere and not stated	2,067	0.76	156,876	0.63	1.32	1.00
<b>Total</b>	<b>272,034</b>	<b>100.00</b>	<b>24,896,878</b>	<b>100.00</b>	<b>1.09</b>	<b>1.09</b>

\* Including Ireland, part not stated

**Table 9.11 1981 LS population and 1981 Census population by sex, region of usual residence and observed and expected sampling fractions**

Region	Males				Females			
	LS population	1981 Census population	Sampling fractions		LS population	1981 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
North	16,225	1,509,157	1.08	1.08	17,002	1,595,196	1.07	1.08
Yorkshire and Humberside	25,634	2,363,679	1.08	1.08	26,678	2,496,805	1.07	1.08
East Midlands	20,043	1,876,170	1.07	1.08	20,838	1,943,017	1.07	1.08
East Anglia	9,524	917,569	1.04	1.06	10,073	954,066	1.06	1.07
South East*	87,587	8,126,374	1.08	1.07	93,074	8,669,382	1.07	1.06
South West	22,210	2,095,221	1.06	1.08	24,138	2,253,687	1.07	1.08
West Midlands	27,760	2,534,002	1.10	1.08	28,056	2,614,343	1.07	1.07
North West	33,557	3,098,551	1.08	1.08	35,777	3,315,617	1.08	1.08
Wales	14,474	1,352,639	1.07	1.08	15,262	1,439,212	1.06	1.07
<b>Total</b>	<b>257,014</b>	<b>23,873,362</b>	<b>1.08</b>	<b>1.08</b>	<b>270,898</b>	<b>25,281,325</b>	<b>1.07</b>	<b>1.07</b>

\* Includes Greater London.

**Table 9.12 1981 LS population and 1981 Census population by sex, household type and observed and expected sampling fractions**

Household type	Males				Females			
	LS population	1981 Census population	Sampling fractions		LS population	1981 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
<b>Private households</b>	252,468	23,271,797	1.08	1.08	266,273	24,675,960	1.08	1.08
<b>Non-private households</b>								
Hotels	991	120,455	0.82	1.04	788	89,091	0.88	1.04
Psychiatric hospitals	666	66,471	1.00	1.02	718	74,412	0.96	1.02
Other hospitals	872	87,632	1.00	1.04	1,802	185,376	0.97	1.06
Homes for the elderly	616	54,647	1.13	1.06	1,499	150,715	0.99	1.06
Childrens homes	130	15,106	0.86	1.05	121	12,728	0.95	1.05
Educational establishments	529	56,185	0.94	1.06	289	33,844	0.85	1.07
Places of detention	428	41,859	1.02	1.03	13	1,612	0.81	1.01
Defence establishments	771	87,027	0.89	0.97	97	9,622	1.01	1.03
Other establishments	723	128,350	0.56	1.03	434	81,791	0.53	1.02
Total communal	5,726	601,565	0.95	1.03	5,761	605,365	0.95	1.05
<b>Total</b>	<b>258,194</b>	<b>23,873,362</b>	<b>1.08</b>	<b>1.08</b>	<b>272,034</b>	<b>25,281,325</b>	<b>1.08</b>	<b>1.08</b>

**Table 9.13 1981 LS population and 1981 Census population by sex, social class and observed and expected sampling fractions**

Social class	Males (aged 16-64)				Females (aged 16-59)			
	LS population	1981 Census population	Sampling fractions		LS population	1981 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
I Professional	8,506	775,500	1.10	1.11	1,009	90,370	1.12	1.06
II Intermediate	33,399	3,059,030	1.09	1.12	18,984	1,802,280	1.05	1.07
IIIN Skilled non-manual	17,657	1,594,930	1.11	1.12	36,755	3,468,340	1.06	1.07
IIIM Skilled manual	54,011	4,848,140	1.11	1.11	7,561	718,130	1.05	1.07
IV Partly skilled	25,821	2,256,040	1.14	1.11	19,741	1,874,110	1.05	1.06
V Unskilled	9,302	837,810	1.11	1.10	5,681	590,180	0.96	1.07
Armed forces and inadequately described	7,636	707,310	1.08	1.06	4,160	382,070	1.09	1.02
<b>Total</b>	<b>156,332</b>	<b>14,078,760</b>	<b>1.11</b>	<b>1.11</b>	<b>93,891</b>	<b>8,925,480</b>	<b>1.05</b>	<b>1.05</b>

**Table 9.14 1981 LS population and 1981 Census population by sex, socio-economic group and observed and expected sampling fractions**

Socio-economic group	Males (aged 16-64)				Females (aged 16-59)			
	LS population	1981 Census population	Sampling fractions		LS population	1981 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
Employers and managers in large establishments	8,011	765,260	1.05	1.12	1,806	181,860	0.99	1.05
Employers and managers in small establishments	14,412	1,275,480	1.13	1.11	4,038	401,200	1.01	1.05
Professionals - self-employed	1,354	131,760	1.03	1.12	125	12,640	0.99	1.06
Professionals - employees	7,120	641,330	1.11	1.11	881	77,590	1.14	1.05
Intermediate non-manual workers	11,312	1,038,770	1.09	1.12	13,654	1,275,420	1.07	1.05
Junior non-manual workers	15,022	1,350,770	1.11	1.12	35,662	3,346,950	1.07	1.06
Personal service workers	1,855	158,430	1.17	1.07	10,792	1,074,110	1.00	1.05
Foremen and supervisors - manual	5,630	504,160	1.12	1.12	597	59,730	1.00	1.06
Skilled manual workers	41,150	3,667,860	1.12	1.12	3,837	351,960	1.09	1.05
Semi-skilled manual workers	21,937	1,905,260	1.15	1.11	10,260	932,870	1.10	1.05
Unskilled manual workers	8,906	799,510	1.11	1.10	5,658	587,620	0.96	1.05
Own account workers (not professional)	8,349	785,400	1.06	1.11	1,669	170,680	0.98	1.05
Farmers - employers and managers	895	91,320	0.98	1.12	94	10,920	0.86	1.05
Farmers - own account	915	91,520	1.00	1.12	126	12,250	1.03	1.06
Agricultural workers	1,828	164,620	1.11	1.11	532	47,610	1.12	1.06
Members of armed forces	2,244	222,230	1.01	0.99	158	16,700	0.95	0.89
Inadequately described occupations	5,392	485,080	1.11	1.09	4,002	365,370	1.10	1.03
<b>Total</b>	<b>156,332</b>	<b>14,078,760</b>	<b>1.11</b>	<b>1.11</b>	<b>93,891</b>	<b>8,925,480</b>	<b>1.05</b>	<b>1.05</b>

## 9.4 THE 1991 LS SAMPLE POPULATION

The 1991 LS sample population had observed and expected sampling fractions of 1.07 for both males and females as well as for the overall population.

Table 9.15 shows the percentage distributions by age and sex for the LS sample and the 1991 Census population, together with the observed and expected sampling fractions in the LS.

As in 1971 and 1981 the pattern of age distributions in the LS sample and the census population showed similar patterns with no age group being over- or under-represented in the sample. Only slight variation was noted in the observed sampling fractions, with a range of 1.04 to 1.10 for males and 1.05 to 1.09 for females. There was very little difference between observed and expected sampling fractions, the largest being found among males aged 50-54 (0.03).

**Table 9.15 1991 LS population and 1991 Census population by sex, age, percentage distributions and sampling fractions**

Age	LS population	% distribution	1991 Census population	% distribution	Sampling fractions	
					Observed	Expected
<b>Males</b>						
0- 4	18,000	3.37	1,696,098	3.40	1.06	1.07
5- 9	17,039	3.19	1,599,581	3.21	1.07	1.07
10- 14	16,429	3.07	1,532,019	3.07	1.07	1.07
15- 19	17,662	3.30	1,636,124	3.28	1.08	1.07
20- 24	19,133	3.58	1,844,532	3.70	1.04	1.06
25- 29	20,383	3.81	1,957,808	3.92	1.04	1.06
30- 34	19,450	3.64	1,800,696	3.61	1.08	1.06
35- 39	17,956	3.36	1,645,575	3.30	1.09	1.07
40- 44	19,377	3.62	1,824,168	3.66	1.06	1.07
45- 49	16,633	3.11	1,537,361	3.08	1.08	1.07
50- 54	14,919	2.79	1,360,870	2.73	1.10	1.07
55- 59	14,015	2.62	1,274,953	2.56	1.10	1.08
60- 64	13,448	2.52	1,235,649	2.48	1.09	1.08
65- 69	12,215	2.28	1,152,977	2.31	1.06	1.08
70- 74	9,268	1.73	870,015	1.74	1.07	1.08
75+	12,829	2.40	1,214,567	2.43	1.06	1.07
All ages	258,756	48.40	24,182,993	48.47	1.07	1.07
<b>Females</b>						
0- 4	17,444	3.26	1,620,130	3.25	1.08	1.08
5- 9	16,266	3.04	1,523,042	3.05	1.07	1.08
10- 14	15,624	2.92	1,455,517	2.92	1.07	1.08
15- 19	17,153	3.21	1,569,340	3.15	1.09	1.08
20- 24	19,861	3.71	1,886,843	3.78	1.05	1.06
25- 29	21,271	3.98	2,013,101	4.04	1.06	1.06
30- 34	19,613	3.67	1,822,012	3.65	1.08	1.07
35- 39	17,980	3.36	1,662,607	3.33	1.08	1.07
40- 44	19,900	3.72	1,837,947	3.68	1.08	1.08
45- 49	16,589	3.10	1,536,262	3.08	1.08	1.08
50- 54	14,542	2.72	1,358,987	2.72	1.07	1.07
55- 59	13,980	2.61	1,291,916	2.59	1.08	1.07
60- 64	14,178	2.65	1,323,056	2.65	1.07	1.08
65- 69	14,371	2.69	1,337,539	2.68	1.07	1.08
70- 74	12,231	2.29	1,144,379	2.29	1.07	1.08
75+	24,888	4.66	2,324,606	4.66	1.07	1.07
All ages	275,891	51.60	25,707,284	51.53	1.07	1.07
Total persons	534,647	100.00	49,890,277	100.00	1.07	1.07

### 9.4.1 Age, sex and marital status

A breakdown of the LS sample and the 1991 Census population by age, sex and marital status is shown in Table 9.16. Very little variation in percentage distributions was seen between the LS sample and the census population. Widowed males up to the age of 34 appeared to be over-represented in the sample but this was an artefact of the small numbers of widowers at low ages. The same pattern was observed for widowed females below the age of 55. Divorced females were also slightly over-represented in most age groups.

Among males, the overall observed sampling fractions ranged from 1.04 for divorced males to 1.09 for married males. For females, the overall observed sampling fractions showed a narrower range, from 1.06 for single females to 1.08 for both the married and widowed subgroups. Differences between observed and expected sampling fractions were quite marked where the numbers in the LS sample were very low (for married males aged 16–19, widowed males between 16 and 34, divorced males between 16 and 24, married females aged 16–19, widowed females between 16 and 24 and divorced females aged under 20).

### 9.4.2 Country of birth

In 1991 a question on ethnic group (question 11) was asked for the first time at the census. This did not replace the question on country of birth (question 10 on the 1991 schedule) but was supplementary to it. Before 1991 the only way to estimate the ethnicity of the population was to use the answers to the question on country of birth in the census schedule. Because country of birth data was only available in 1971 and 1981, it has been used throughout this volume to estimate the ethnicity of LS members. Answers to the 1991 ethnic question have not been used.

Table 9.17 shows the 1991 LS sample and Census population by sex and country of birth. A total of 92.05 per cent of males and 92.05 per cent of females in the LS gave their country of birth as the UK compared with 92.80 and 92.66 per cent of the census population. The distribution of the LS population who gave their country of birth as other than the UK showed a great deal of variability. The majority of LS members born outside the UK gave their area of origin as one of the New Commonwealth countries or Europe. Among New Commonwealth countries both India and Pakistan were over-sampled. India showed observed sampling fractions of 1.67 for males and 1.57 for females compared with expected sampling fractions of 1.03 and 1.01 respectively. The figures for Pakistan were even higher, with observed sampling fractions of 1.94 for males and 1.66 for females. These compare with expected sampling fractions of 1.02 for males and 0.99 for females. No real change has been seen in these sampling fractions since 1981.

### 9.4.3 Regional variation

The observed and expected sampling fractions by sex and standard regions of England and Wales for the 1991 LS sample are shown in Table 9.18. Very little variation in sampling was seen across any of the standard regions, though slight undersampling was seen among LS members in East Anglia and slight oversampling in the West Midlands. Even so, the 1991 LS sample appears to be representative of the 1991 Census regional population data.

### 9.4.4 Household types

A total of 97.6 per cent of traced LS members were enumerated in private households at the 1991 Census. The observed sampling fractions for both males and females in private households were slightly higher than expected (1.08 per cent compared with 1.07). The remaining 2.4 per cent of the traced 1991 LS population was enumerated in communal establishments. 'Not traced' rates for persons in these establishments tended to be high and as a result, with the exception of LS members sampled in homes for the elderly, observed sampling fractions tended to be very low.

### 9.4.5 Social class and socio-economic groupings

Table 9.20 shows the 1991 LS sample and Census population aged 16 to 59/64 by sex and social class. The overall observed sampling fractions for males, at 1.29, and females, at 1.45, were slightly lower than the expected sampling fractions of 1.31 and 1.47 respectively. Both males and females showed a large amount of variability across social classes. Males were undersampled in Class I and among the armed forces and inadequately described group, and oversampled in Social Classes IV and V. Females showed more oversampling than males, with oversampling being found in Classes IIIM, IV, V and among those in the armed forces or inadequately described. Undersampling was particularly noticeable for females in the professional class (Class I).

Table 9.21 shows the sampling fractions for the 1991 LS sample by sex and socio-economic group. Variability was high, with oversampling generally being more common among males. Females tended to be undersampled in the professional and managerial socio-economic groups and oversampled in the manual groups.

### References

- 1 Fox A J and Goldblatt P O. *Longitudinal study: socio-demographic mortality differentials*. OPCS Series LS no.1, HMSO (London 1982).

**Table 9.16 1991 LS population and 1991 Census population by sex, age, marital status, percentage distributions and sampling fractions**

Age and marital status	LS population	% distribution	1991 Census population	% distribution	Sampling fractions			
					Observed	Expected		
<b>Males</b>								
Single	0-15	54,565	47.85	5,128,982	47.37	1.06	1.06	
	16-19	14,455	12.68	1,326,324	12.25	1.09	1.06	
	20-24	16,865	14.79	1,628,987	15.05	1.04	1.05	
	25-29	10,749	9.43	1,060,650	9.80	1.01	1.04	
	30-34	5,252	4.61	506,547	4.68	1.04	1.04	
	35-39	2,837	2.49	275,695	2.55	1.03	1.04	
	40-44	2,127	1.87	209,217	1.93	1.02	1.05	
	45-49	1,453	1.27	141,150	1.30	1.03	1.05	
	50-54	1,140	1.00	111,778	1.03	1.02	1.04	
	55-59	1,069	0.94	102,347	0.95	1.04	1.05	
	60-64	1,095	0.96	105,237	0.97	1.04	1.04	
	65+	2,430	2.13	230,425	2.13	1.05	1.04	
	Total	114,037	100.00	10,827,339	100.00	1.05	1.05	
	Married	16-19	95	0.08	7,662	0.07	1.24	1.10
20-24		2,180	1.73	205,259	1.77	1.06	1.06	
25-29		8,930	7.08	829,971	7.16	1.08	1.08	
30-34		12,915	10.24	1,167,392	10.08	1.11	1.08	
35-39		13,532	10.73	1,219,001	10.52	1.11	1.08	
40-44		15,340	12.16	1,431,955	12.36	1.07	1.09	
45-49		13,551	10.74	1,238,517	10.69	1.09	1.09	
50-54		12,327	9.77	1,109,401	9.58	1.11	1.09	
55-59		11,557	9.16	1,045,408	9.02	1.11	1.09	
60-64		10,920	8.66	998,368	8.62	1.09	1.10	
65+		24,776	19.64	2,331,956	20.13	1.06	1.09	
Total		126,123	100.00	11,584,890	100.00	1.09	1.09	
Widowed		16-19	4	0.05	208	0.03	1.92	1.08
		20-24	2	0.03	428	0.06	0.47	0.72
	25-29	15	0.20	1,174	0.16	1.28	1.01	
	30-34	30	0.39	2,330	0.32	1.29	1.04	
	35-39	41	0.54	4,290	0.60	0.96	1.01	
	40-44	83	1.08	8,292	1.15	1.00	1.04	
	45-49	111	1.45	12,191	1.69	0.91	1.03	
	50-54	229	2.99	19,943	2.77	1.15	1.06	
	55-59	357	4.66	33,635	4.67	1.06	1.05	
	60-64	676	8.83	61,655	8.57	1.10	1.06	
	65+	6,107	79.78	575,539	79.97	1.06	1.07	
	Total	7,655	100.00	719,685	100.00	1.06	1.07	
	Divorced	16-19	11	0.10	646	0.06	1.70	1.07
		20-24	86	0.79	9,858	0.94	0.87	1.02
25-29		689	6.30	66,013	6.28	1.04	1.03	
30-34		1,253	11.45	124,427	11.84	1.01	1.04	
35-39		1,546	14.13	146,589	13.95	1.05	1.04	
40-44		1,827	16.70	174,704	16.62	1.05	1.03	
45-49		1,518	13.87	145,503	13.84	1.04	1.04	
50-54		1,223	11.18	119,748	11.39	1.02	1.03	
55-59		1,032	9.43	93,563	8.90	1.10	1.04	
60-64		757	6.92	70,389	6.70	1.08	1.04	
65+		999	9.13	99,639	9.48	1.00	1.03	
Total		10,941	100.00	1,051,079	100.00	1.04	1.03	
All males		258,756		24,182,993		1.07	1.07	

**Table 9.16- continued**

Age and marital status		LS population	% distribution	1991 Census population	% distribution	Sampling fractions		
						Observed	Expected	
<b>Females</b>								
Single	0-15	52,363	50.91	4,884,421	50.47	1.07	1.07	
	16-19	13,786	13.40	1,255,983	12.98	1.10	1.07	
	20-24	14,930	14.52	1,425,269	14.73	1.05	1.06	
	25-29	7,874	7.66	777,869	8.04	1.01	1.05	
	30-34	3,404	3.31	333,376	3.44	1.02	1.05	
	35-39	1,682	1.64	168,780	1.74	1.00	1.05	
	40-44	1,247	1.21	117,324	1.21	1.06	1.06	
	45-49	818	0.80	78,021	0.81	1.05	1.05	
	50-54	681	0.66	66,609	0.69	1.02	1.05	
	55-59	745	0.72	68,679	0.71	1.08	1.05	
	60-64	859	0.84	82,011	0.85	1.05	1.05	
	65+	4,456	4.33	419,068	4.33	1.06	1.06	
	Total	102,845	100.00	9,677,410	100.00	1.06	1.06	
	Married	16-19	327	0.26	26,094	0.23	1.25	1.05
		20-24	4,612	3.65	431,371	3.69	1.07	1.06
		25-29	12,009	9.50	1,108,568	9.48	1.08	1.07
30-34		14,137	11.18	1,299,369	11.11	1.09	1.08	
35-39		14,004	11.07	1,281,625	10.96	1.09	1.08	
40-44		16,002	12.65	1,467,343	12.55	1.09	1.09	
45-49		13,283	10.50	1,234,457	10.56	1.08	1.09	
50-54		11,494	9.09	1,077,543	9.22	1.07	1.08	
55-59		10,693	8.46	982,909	8.41	1.09	1.09	
60-64		9,795	7.75	912,274	7.80	1.07	1.09	
65+		20,109	15.90	1,868,957	15.99	1.08	1.09	
Total		126,465	100.00	11,690,510	100.00	1.08	1.08	
Widowed		16-19	4	0.01	521	0.02	0.77	0.88
		20-24	17	0.05	1,511	0.05	1.13	0.93
		25-29	49	0.16	4,364	0.15	1.12	1.03
		30-34	90	0.29	7,929	0.27	1.14	1.05
	35-39	159	0.51	13,796	0.47	1.15	1.05	
	40-44	299	0.95	27,088	0.93	1.10	1.06	
	45-49	500	1.59	43,123	1.48	1.16	1.06	
	50-54	849	2.70	74,416	2.55	1.14	1.06	
	55-59	1,447	4.61	133,556	4.58	1.08	1.07	
	60-64	2,596	8.27	244,576	8.38	1.06	1.07	
	65+	25,383	80.86	2,367,614	81.12	1.07	1.08	
	Total	31,393	100.00	2,918,494	100.00	1.08	1.08	
	Divorced	16-19	7	0.05	1,010	0.07	0.69	1.09
		20-24	302	1.99	28,692	2.02	1.05	1.04
		25-29	1,339	8.82	122,300	8.61	1.09	1.06
		30-34	1,982	13.05	181,338	12.76	1.09	1.07
35-39		2,135	14.06	198,406	13.96	1.08	1.07	
40-44		2,352	15.49	226,192	15.92	1.04	1.06	
45-49		1,988	13.09	180,661	12.71	1.10	1.07	
50-54		1,518	9.99	140,419	9.88	1.08	1.07	
55-59		1,095	7.21	106,772	7.51	1.03	1.07	
60-64		928	6.11	84,195	5.93	1.10	1.07	
65+		1,542	10.15	150,885	10.62	1.02	1.06	
Total		15,188	100.00	1,420,870	100.00	1.07	1.07	
All females		275,981		25,707,284		1.07	1.07	

**Tables 9.17 1991 LS population and 1991 Census population by sex, country of birth, percentage distributions and sampling fractions**

Country of birth	LS population	% distribution	1991 Census population	% distribution	Sampling fractions	
					Observed	Expected
<b>Males</b>						
United Kingdom	238,190	92.05	22,442,910	92.80	1.06	1.08
Outside UK						
Irish Republic*	2,729	1.05	264,395	1.09	1.03	1.01
Old Commonwealth	729	0.28	73,921	0.31	0.99	0.97
New Commonwealth and Pakistan	11,239	4.34	819,298	3.39	1.37	1.02
India	3,237	1.25	194,386	0.80	1.67	1.03
Pakistan	2,245	0.87	115,806	0.48	1.94	1.02
African Commonwealth	1,836	0.71	164,335	0.68	1.12	1.00
Caribbean Commonwealth	1,331	0.51	124,812	0.52	1.07	1.01
Mediterranean Commonwealth	752	0.29	63,646	0.26	1.18	1.02
Remainder New Commonwealth	1,838	0.71	156,313	0.65	1.18	1.01
Europe	3,436	1.33	306,076	1.27	1.12	0.99
USA	425	0.16	81,958	0.34	0.52	0.63
Elsewhere and not stated	2,008	0.78	194,435	0.80	1.03	0.91
<b>Total</b>	<b>258,756</b>	<b>100.00</b>	<b>24,182,993</b>	<b>100.00</b>	<b>1.07</b>	<b>1.07</b>
<b>Females</b>						
United Kingdom	253,955	92.05	23,821,558	92.66	1.07	1.08
Outside UK						
Irish Republic*	3,264	1.18	305,364	1.19	1.07	1.03
Old Commonwealth	878	0.32	88,074	0.34	1.00	1.02
New Commonwealth and Pakistan	10,894	3.95	825,324	3.21	1.32	1.01
India	3,224	1.17	205,630	0.80	1.57	1.01
Pakistan	1,805	0.65	108,890	0.42	1.66	0.99
African Commonwealth	1,802	0.65	159,684	0.62	1.13	1.01
Caribbean Commonwealth	1,491	0.54	138,149	0.54	1.08	1.02
Mediterranean Commonwealth	704	0.26	74,673	0.29	0.94	0.99
Remainder New Commonwealth	1,868	0.68	138,298	0.54	1.35	1.01
Europe	4,262	1.54	380,452	1.48	1.12	1.02
USA	475	0.17	88,410	0.34	0.54	0.74
Elsewhere and not stated	2,163	0.78	198,102	0.77	1.09	0.92
<b>Total</b>	<b>275,891</b>	<b>100.00</b>	<b>25,707,284</b>	<b>100.00</b>	<b>1.07</b>	<b>1.07</b>

\* Including Ireland part not stated.

**Table 9.18 1991 LS population and 1991 Census population by sex, region of usual residence and observed and expected sampling fractions**

Region	Males				Females			
	LS population	1991 Census population	Sampling fractions		LS population	1991 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
North	15,833	1,462,355	1.08	1.08	16,793	1,564,377	1.07	1.08
Yorkshire and Humberside	25,435	2,344,129	1.09	1.08	26,972	2,492,395	1.08	1.08
East Midlands	20,762	1,933,762	1.07	1.08	21,829	2,019,610	1.08	1.08
East Anglia	10,262	992,531	1.03	1.06	10,982	1,034,473	1.06	1.07
South East*	88,379	8,330,324	1.06	1.06	94,478	8,877,940	1.06	1.06
South West	23,843	2,225,411	1.07	1.08	25,774	2,384,013	1.08	1.08
West Midlands	27,349	2,516,643	1.09	1.08	28,706	2,633,544	1.09	1.08
North West	32,238	3,007,734	1.07	1.08	34,731	3,235,963	1.07	1.08
Wales	14,642	1,370,104	1.07	1.08	15,606	1,464,969	1.07	1.08
<b>Total</b>	<b>258,743</b>	<b>24,182,993</b>	<b>1.07</b>	<b>1.07</b>	<b>275,871</b>	<b>25,707,284</b>	<b>1.07</b>	<b>1.07</b>

\* Including Greater London.

**Table 9.19 1991 LS population and 1991 Census population by sex, household type and observed and expected sampling fractions**

Household type	Males				Females			
	LS population	1991 Census population	Sampling fractions		LS population	1991 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
<b>Private households</b>	253,025	23,535,089	1.08	1.07	268,893	24,982,524	1.08	1.07
<b>Non-private households</b>								
Hotels	1,129	134,068	0.84	1.02	866	101,268	0.86	1.03
Psychiatric hospitals	164	18,871	0.87	1.01	205	21,468	0.95	0.99
Other hospitals	787	84,693	0.93	1.05	1,269	133,311	0.95	1.06
Homes for the elderly	999	81,949	1.22	1.06	3,045	231,558	1.32	1.06
Childrens homes	52	6,447	0.81	1.07	54	5,298	1.02	1.05
Educational establishments	1,145	141,335	0.81	1.06	891	105,407	0.85	1.07
Places of detention	268	37,345	0.72	0.97	9	1,698	0.53	0.89
Defence establishments	463	52,783	0.88	0.95	76	7,744	0.98	0.96
Other establishments	724	90,413	0.80	1.02	583	117,008	0.50	1.04
<b>Total communal</b>	<b>5,731</b>	<b>647,904</b>	<b>0.88</b>	<b>1.07</b>	<b>6,998</b>	<b>724,760</b>	<b>0.97</b>	<b>1.07</b>
<b>Total</b>	<b>258,756</b>	<b>24,182,993</b>	<b>1.07</b>	<b>1.07</b>	<b>275,891</b>	<b>25,707,284</b>	<b>1.07</b>	<b>1.07</b>

**Table 9.20 1991 LS population and 1991 Census population by sex, social class and observed and expected sampling fractions**

Social class	Males (aged 16-64)				Females (aged 16-59)			
	LS population	1991 Census population	Sampling fractions		LS population	1991 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
I Professional	10,732	892,220	1.20	1.29	2,341	184,820	1.27	1.42
II Intermediate	45,399	3,624,940	1.25	1.29	35,827	2,722,340	1.32	1.45
IIIN Skilled non-manual	18,936	1,433,030	1.32	1.29	55,139	3,817,760	1.44	1.45
IIIM Skilled manual	54,110	4,177,870	1.30	1.29	10,722	697,270	1.54	1.45
IV Partly skilled	27,308	1,983,260	1.38	1.29	26,204	1,657,960	1.58	1.45
V Unskilled	9,244	688,950	1.34	1.29	10,979	687,250	1.60	1.45
Armed forces and inadequately described	3,253	333,970	0.97	1.16	1,451	104,750	1.39	1.36
<b>Total</b>	<b>168,982</b>	<b>13,134,240</b>	<b>1.29</b>	<b>1.31</b>	<b>142,663</b>	<b>9,872,150</b>	<b>1.45</b>	<b>1.47</b>

**Table 9.21 1991 LS population and 1991 Census population by sex, socio-economic group and observed and expected sampling fractions**

Socio-economic group	Males (aged 16-64)				Females (aged 16-59)			
	LS population	1991 Census population	Sampling fractions		LS population	1991 Census population	Sampling fractions	
			Observed	Expected			Observed	Expected
Employers and managers in large establishments	9,007	768,120	1.17	1.30	3,390	309,100	1.10	1.45
Employers and managers in small establishments	21,212	1,662,150	1.28	1.29	9,918	749,700	1.32	1.44
Professional - self-employed	2,035	183,910	1.11	1.29	350	27,510	1.27	1.45
Professional - employees	8,649	704,430	1.23	1.29	1,981	156,640	1.26	1.46
Intermediate non-manual workers	15,571	1,257,600	1.24	1.24	23,354	1,739,230	1.34	1.45
Junior non-manual workers	15,964	1,189,120	1.34	1.30	52,494	3,594,810	1.46	1.44
Personal service workers	2,813	202,830	1.39	1.30	12,864	842,820	1.53	1.46
Foremen/supervisors - manual	5,451	377,790	1.44	1.29	1,065	72,270	1.47	1.45
Skilled manual workers	36,641	2,768,930	1.32	1.28	4,414	268,720	1.64	1.45
Semi-skilled manual workers	22,011	1,579,650	1.39	1.29	15,635	968,630	1.61	1.44
Unskilled manual workers	8,290	604,330	1.37	1.30	10,854	678,620	1.60	1.45
Own account workers (not professional)	14,667	1,230,860	1.19	1.30	3,748	282,180	1.33	1.47
Farmers - employers and managers	838	72,380	1.16	1.30	159	12,360	1.29	1.45
Farmers - own account	980	80,170	1.22	1.10	190	12,800	1.48	1.07
Agricultural workers	1,600	118,000	1.36	1.25	796	52,010	1.53	1.41
Members of armed forces	1,750	175,980	0.99	1.27	169	14,410	1.17	1.44
Inadequately described occupations	1,503	157,990	0.95	1.29	1,282	90,340	1.42	1.44
<b>Total</b>	<b>168,982</b>	<b>13,134,240</b>	<b>1.29</b>	<b>1.31</b>	<b>142,663</b>	<b>9,872,150</b>	<b>1.45</b>	<b>1.47</b>

# Appendices

# Appendix I 1971 Census form (private households)



## 1971 CENSUS — ENGLAND

### H Form For Private Households

#### To the Head (or Acting Head) of the Household.

Please complete this form and have it ready for collection on Monday 26th April. If you need help, do not hesitate to ask the enumerator.

The enumerator may ask you any questions necessary to help him to complete or correct the form.

The information you give on the form will be treated as CONFIDENTIAL and used only for compiling statistics. No information about named individuals will be passed by the Census Office to any other Government Department or any other authority or person. If anyone in the census organisation improperly discloses information you provide, he will be liable to prosecution. Similarly you must not disclose information which anyone (for example, a visitor or boarder) gives you to enable you to complete the form.

The legal obligation to fill in the whole form rests on YOU, but each person who has to be included is required to give you the information you need. However, anyone who wishes can ask the enumerator or local Census Officer for a personal form which can be returned direct to the enumerator or local Census Officer and then you need answer only questions B1 and B5 for that person.

#### PLEASE TAKE NOTE

There are penalties of up to £50 for failing to comply with the requirements described above, or for giving false information.

When you have completed the form, please sign the declaration at the foot of the last page.

Office of Population Censuses and Surveys,  
Titchfield,  
Fareham, Hants.

MICHAEL REED  
Director and  
Registrar General

A household comprises **either** one person living alone **or** a group of persons (who may or may not be related) living at the same address with common housekeeping. Persons staying temporarily with the household are included.

To be completed by enumerator			
C.D. No.	E.D. No.	Form No.	Ref.
If sharing with another household:—			
Hall, staircase, passage, etc., shared <i>only/not only</i> * for entry to accommodation.			
*delete whichever is inapplicable.			
Number of rooms shared: .....			
Name and full postal address: .....			
.....			
.....			
.....			

**Answer questions A1—A5 about your household's accommodation and the answers to questions B1—B24 overleaf and, if appropriate, answer questions C1—C7.**

Where boxes are provided answer by putting a tick in the box against the answer which applies. For example, if the answer is 'YES':  YES  NO

**PART  
A**

PLEASE WRITE IN INK OR BALLPOINT PEN

<p><b>A1</b> How do you and your household occupy your accommodation?</p> <p>1 <input type="checkbox"/> As an owner occupier (including purchase by mortgage)</p> <p>2 <input type="checkbox"/> By renting it from a Council or New Town</p> <p>3 <input type="checkbox"/> As an unfurnished letting from a private landlord or company or Housing Association</p> <p>4 <input type="checkbox"/> As a furnished letting</p> <p>5 <input type="checkbox"/> In some other way (Please give details, including whether furnished or unfurnished)</p> <p>.....</p> <p><i>Note: If the accommodation is occupied by lease originally granted for, or since extended to, more than 21 years, tick 'owner occupier'.</i></p> <p><b>A2</b> Does your household share with anyone else the use of any room, or hall, passage, landing, or staircase?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>	<p><b>A3</b> How many rooms are there in your household's accommodation?</p> <p><i>Do not count:</i> <i>Small kitchens less than 6ft. wide, bathrooms and toilets, cupboards not used for cooking, closets, pantries and storerooms, landings, halls, lobbies or recesses, offices or shops used solely for business purposes.</i></p> <p><i>Note:</i> <i>A large room divided by a sliding or fixed partition should be counted as two rooms.</i> <i>A room divided by curtains or portable screens should be counted as one room.</i></p> <p><b>A4</b> How many cars and vans are normally available for use by you or members of your household (other than visitors)?</p> <p><i>Include any provided by employers if normally available for use by you or members of your household, but exclude vans used solely for the carriage of goods.</i></p> <p>If None, write 'NONE'.</p>	<p><b>A5</b> Has your household the use of the following amenities on these premises?</p> <p><b>a A cooker or cooking stove with an oven</b></p> <p>1 <input type="checkbox"/> YES — for use only by this household</p> <p>2 <input type="checkbox"/> YES — for use also by another household</p> <p>3 <input type="checkbox"/> NO</p> <hr/> <p><b>b A kitchen sink permanently connected to a water supply and a waste pipe</b></p> <p>1 <input type="checkbox"/> YES — for use only by this household</p> <p>2 <input type="checkbox"/> YES — for use also by another household</p> <p>3 <input type="checkbox"/> NO</p> <hr/> <p><b>c A fixed bath or shower permanently connected to a water supply and a waste pipe</b></p> <p>1 <input type="checkbox"/> YES — for use only by this household</p> <p>2 <input type="checkbox"/> YES — for use also by another household</p> <p>3 <input type="checkbox"/> NO</p> <hr/> <p><b>d A hot water supply (to a washbasin, or kitchen sink, or bath, or shower) from a heating appliance or boiler which is connected to a piped water supply</b></p> <p>1 <input type="checkbox"/> YES — for use only by this household</p> <p>2 <input type="checkbox"/> YES — for use also by another household</p> <p>3 <input type="checkbox"/> NO</p> <hr/> <p><b>e A flush toilet (W.C.) with entrance inside the building</b></p> <p>1 <input type="checkbox"/> YES — for use only by this household</p> <p>2 <input type="checkbox"/> YES — for use also by another household</p> <p>3 <input type="checkbox"/> NO</p> <hr/> <p><b>f A flush toilet (W.C.) with entrance outside the building</b></p> <p>1 <input type="checkbox"/> YES — for use only by this household</p> <p>2 <input type="checkbox"/> YES — for use also by another household</p> <p>3 <input type="checkbox"/> NO</p>
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1

PLEASE TURN OVER TO PART B →

**PART B**

Complete a line in Part B for every person present, that is every person who  
**a** spends Census night 25/26 April 1971 in this household  
**or b** joins this household on Monday 26 April and has not been included as present on a Census form elsewhere.  
 For any other person who usually lives in this household complete a line in Part C on the back page.

<b>B1</b> Fill in this column first for every person present. (see note above)  Write name and surname.  Begin with the head of the household (if present).  For a baby who has not yet been given a name write 'BABY' and the surname.	<b>B2</b> Write the date of birth of the person.			<b>B3</b> Write the sex of the person. (M for male, F for female).	<b>B4</b> If the person usually lives here, write 'HERE'. If not, write the person's usual address.  For boarders write 'HERE' only if they consider this their usual address. For students and children who are away from home during term time give their home address. For persons with no settled address write 'NONE'. BLOCK CAPITALS PLEASE	<b>B5</b> Write 'HEAD' for the head of the household and relationship to the head for each of the other persons; for example 'Wife', 'Son', 'Daughter-in-law', 'Visitor', 'Boarder', 'Paying Guest'.  If separated and not divorced write 'MARRIED'.	<b>B6</b> Write 'SINGLE', 'MARRIED', 'WIDOWED' or 'DIVORCED' as appropriate.  If separated and not divorced write 'MARRIED'.	<b>B7</b> Did the person have a job last week (the week ended 24th April 1971)? (see note B7)  Tick box 1 if the person had a job even if it was only part-time or if the person was temporarily away from work, on holiday, sick, on strike, or laid off.  If the person did not have a job tick whichever of boxes 2, 3, 4 or 5 is appropriate; if box 5 is ticked state the reason; for example 'Housewife', 'Student', 'Permanently sick'.  This question need not be answered for children under 15 years of age.
1st person	Day	Month	Year					1 <input type="checkbox"/> YES — in a job at some time during the week 2 <input type="checkbox"/> NO — seeking work or waiting to take up job 3 <input type="checkbox"/> NO — intending to seek work but sick 4 <input type="checkbox"/> NO — wholly retired 5 <input type="checkbox"/> NO — not seeking work for some other reason, namely .....
2nd person	Day	Month	Year					1 <input type="checkbox"/> YES — in a job at some time during the week 2 <input type="checkbox"/> NO — seeking work or waiting to take up job 3 <input type="checkbox"/> NO — intending to seek work but sick 4 <input type="checkbox"/> NO — wholly retired 5 <input type="checkbox"/> NO — not seeking work for some other reason, namely .....
3rd person	Day	Month	Year					1 <input type="checkbox"/> YES — in a job at some time during the week 2 <input type="checkbox"/> NO — seeking work or waiting to take up job 3 <input type="checkbox"/> NO — intending to seek work but sick 4 <input type="checkbox"/> NO — wholly retired 5 <input type="checkbox"/> NO — not seeking work for some other reason, namely .....
4th person	Day	Month	Year					1 <input type="checkbox"/> YES — in a job at some time during the week 2 <input type="checkbox"/> NO — seeking work or waiting to take up job 3 <input type="checkbox"/> NO — intending to seek work but sick 4 <input type="checkbox"/> NO — wholly retired 5 <input type="checkbox"/> NO — not seeking work for some other reason, namely .....
5th person	Day	Month	Year					1 <input type="checkbox"/> YES — in a job at some time during the week 2 <input type="checkbox"/> NO — seeking work or waiting to take up job 3 <input type="checkbox"/> NO — intending to seek work but sick 4 <input type="checkbox"/> NO — wholly retired 5 <input type="checkbox"/> NO — not seeking work for some other reason, namely .....
6th person	Day	Month	Year					1 <input type="checkbox"/> YES — in a job at some time during the week 2 <input type="checkbox"/> NO — seeking work or waiting to take up job 3 <input type="checkbox"/> NO — intending to seek work but sick 4 <input type="checkbox"/> NO — wholly retired 5 <input type="checkbox"/> NO — not seeking work for some other reason, namely .....

SPECIMEN

If there are more than six persons present continue on a new form.  
 (The enumerator will supply you with one if he has not already done so.)

1971 CENSUS FORM

NOTES

These notes are to help you answer some of the questions in Part B (for persons present). In cases where they also apply to Part C (absent persons) this is shown in Part C.

If you have any further difficulty with these, or any other questions, please ask the enumerator about them when he calls to collect your form.

**B7 Job last week**

- A job means any work for payment or profit. In particular it includes:
- (a) work on a person's own account
  - (b) part-time work, even if only for a few hours, such as jobbing gardening or paid domestic work
  - (c) casual or temporary work of any kind (for example seasonal work, week-end work and vacation work by students)
  - (d) unpaid work in a family business, for example a shop or farm.
- Unpaid work, other than in a family business, does not count as a job.

**B8 Students**

- Do not count as full-time students people who are:
- (a) on day release from work to attend school or college
  - (b) attending night school only
  - (c) attending an educational establishment provided by employers, such as an apprenticeship school.

**B9 Employer's name and business**

Describe the business fully and try to avoid abbreviations or initials. General terms such as 'manufacturer', 'merchant', 'agent', 'broker', 'factor', 'dealer', 'engineering', are not enough by themselves and further details should be given about the articles manufactured or dealt in.

For civil servants, local government officers and other public officials give the name of the Government department, local authority or public body and the branch in which they are employed.

For people employed solely in private domestic service write 'PRIVATE' in answer to this question.

For members of Armed Forces see special note overleaf.

**B16 Occupation**

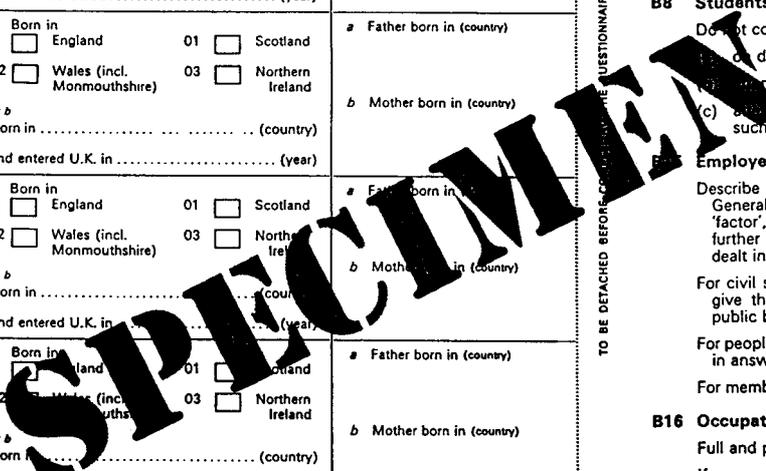
- Full and precise details of occupation are required. If a person's job is known in the trade or industry by a special name use that name.
- Terms such as 'scientist', 'technician', 'engineer', 'machinist', 'fitter', 'foreman', 'checker' should not be used by themselves. Greater detail is required as for example:—
- woodworking machinist, civil engineer, toolroom foreman.
- For civil servants, local government officers and other public officials give their rank or grade.

**B17 Self-employed**

'Self-employed, employing others' means having one or more employees other than 'family workers'. A 'family worker' is one who lives in the same household as the employer and is related to him. Although 'family workers' are not counted for the purpose of deciding whether an employer has employees, they should themselves be recorded as employees.

<p><b>B8</b> Will the person be a student attending full-time at an educational establishment during the term starting April/May 1971? (see note B8)</p> <p><i>This question need not be answered for children under 15 years of age.</i></p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p><b>B9</b></p> <p><i>a</i> If the person was born in England or Wales or Scotland or Northern Ireland tick the appropriate box.</p> <p><i>b</i> If the person was born in another country, write the name of the country (using the name by which it is known today) and the year in which the person first entered the United Kingdom (that is England, Wales, Scotland and Northern Ireland).</p>	<p><b>B10</b> Write the country of birth of:</p> <p><i>a</i> the person's father</p> <p><i>b</i> the person's mother</p> <p><i>This question should be answered even if the person's father or mother is no longer alive. (If country not known, write 'NOT KNOWN'.)</i> Give the name by which the country is known today.</p>
<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p><i>a</i> Born in</p> <p><input type="checkbox"/> England 01 <input type="checkbox"/> Scotland</p> <p>02 <input type="checkbox"/> Wales (incl. Monmouthshire) 03 <input type="checkbox"/> Northern Ireland</p> <p>or <i>b</i></p> <p>Born in ..... (country)</p> <p>and entered U.K. in ..... (year)</p>	<p><i>a</i> Father born in (country)</p> <p><i>b</i> Mother born in (country)</p>
<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p><i>a</i> Born in</p> <p><input type="checkbox"/> England 01 <input type="checkbox"/> Scotland</p> <p>02 <input type="checkbox"/> Wales (incl. Monmouthshire) 03 <input type="checkbox"/> Northern Ireland</p> <p>or <i>b</i></p> <p>Born in ..... (country)</p> <p>and entered U.K. in ..... (year)</p>	<p><i>a</i> Father born in (country)</p> <p><i>b</i> Mother born in (country)</p>
<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p><i>a</i> Born in</p> <p><input type="checkbox"/> England 01 <input type="checkbox"/> Scotland</p> <p>02 <input type="checkbox"/> Wales (incl. Monmouthshire) 03 <input type="checkbox"/> Northern Ireland</p> <p>or <i>b</i></p> <p>Born in ..... (country)</p> <p>and entered U.K. in ..... (year)</p>	<p><i>a</i> Father born in (country)</p> <p><i>b</i> Mother born in (country)</p>
<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p><i>a</i> Born in</p> <p><input type="checkbox"/> England 01 <input type="checkbox"/> Scotland</p> <p>02 <input type="checkbox"/> Wales (incl. Monmouthshire) 03 <input type="checkbox"/> Northern Ireland</p> <p>or <i>b</i></p> <p>Born in ..... (country)</p> <p>and entered U.K. in ..... (year)</p>	<p><i>a</i> Father born in (country)</p> <p><i>b</i> Mother born in (country)</p>
<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p><i>a</i> Born in</p> <p><input type="checkbox"/> England 01 <input type="checkbox"/> Scotland</p> <p>02 <input type="checkbox"/> Wales (incl. Monmouthshire) 03 <input type="checkbox"/> Northern Ireland</p> <p>or <i>b</i></p> <p>Born in ..... (country)</p> <p>and entered U.K. in ..... (year)</p>	<p><i>a</i> Father born in (country)</p> <p><i>b</i> Mother born in (country)</p>
<p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p>	<p><i>a</i> Born in</p> <p><input type="checkbox"/> England 01 <input type="checkbox"/> Scotland</p> <p>02 <input type="checkbox"/> Wales (incl. Monmouthshire) 03 <input type="checkbox"/> Northern Ireland</p> <p>or <i>b</i></p> <p>Born in ..... (country)</p> <p>and entered U.K. in ..... (year)</p>	<p><i>a</i> Father born in (country)</p> <p><i>b</i> Mother born in (country)</p>

TO BE DETACHED BEFORE COMPLETING THE QUESTIONNAIRE



**B18 Apprentices, etc.**

Answer this question only for a person who is undergoing training for a period fixed in advance and leading to recognition as a skilled worker or technician or to a recognised technical, commercial or professional qualification or managerial post.

Do not answer this question for a young person undergoing probationary training who has not yet entered into formal apprenticeship.

**B20 Place of work**

For people who do not work regularly at one place or who travel during the course of their work (for example, sales representatives, seamen and some building and transport workers):

- (a) if they report daily to a depot or other fixed address give that address;
- (b) if they do not report daily to a fixed address write 'NO FIXED PLACE'.

For people such as building workers employed on a site for a long period give the address of the site.

For dock workers give the name and address of the dock or wharf at which they are usually employed.

**B21 Means of transport**

If the person uses different means of transport on different days give the means used most often.

Do not use terms such as 'public transport' or 'private transport' but give the actual means used, for example, 'train', 'bus', 'car', 'bicycle'.

**SPECIAL NOTE FOR MEMBERS OF ARMED FORCES**

At B15 (or, if appropriate, C5) give arm and branch of service.

At B16 (or C6) give rank or rating only.

Questions B17 (or C7), B18, B19 and B22 need not be answered.

Answers should be written on the line on which the person's name appears in column B1

	<b>B11</b> Was the person's usual address one year ago (on 25th April 1970) the same as that shown by the answer to question B4?  Write 'YES' or 'NO'. If no, write also the usual address on 25th April 1970.  <i>For a child now under one year of age, write 'UNDER ONE'.</i>	<b>B12</b> Was the person's usual address five years ago (on 25th April 1966) the same as that shown by the answer to question B11?  Write 'YES' or 'NO'. If no, write also the usual address on 25th April 1966.  <i>For a child now under five years of age, write 'UNDER FIVE'.</i>	<b>B13</b> Has the person obtained any of the following?  G.C.E. 'A' level Higher School Certificate (HSC) Higher grade of Scottish Certificate of Education (SCE) Higher grade of Scottish Leaving Certificate (SLC) Ordinary National Certificate (ONC) Ordinary National Diploma (OND)  <i>This question need not be answered for children under 15 or retired persons over 70.</i>
1st person	BLOCK CAPITALS PLEASE	BLOCK CAPITALS PLEASE	1 <input type="checkbox"/> GCE 'A' level or HSC 2 <input type="checkbox"/> SCE higher or SLC higher 3 <input type="checkbox"/> ONC or OND 4 <input type="checkbox"/> None of these
2nd person			1 <input type="checkbox"/> GCE 'A' level or HSC 2 <input type="checkbox"/> SCE higher or SLC higher 3 <input type="checkbox"/> ONC or OND 4 <input type="checkbox"/> None of these
3rd person			1 <input type="checkbox"/> GCE 'A' level or HSC 2 <input type="checkbox"/> SCE higher or SLC higher 3 <input type="checkbox"/> ONC or OND 4 <input type="checkbox"/> None of these
4th person			1 <input type="checkbox"/> GCE 'A' level or HSC 2 <input type="checkbox"/> SCE higher or SLC higher 3 <input type="checkbox"/> ONC or OND 4 <input type="checkbox"/> None of these
5th person			1 <input type="checkbox"/> GCE 'A' level or HSC 2 <input type="checkbox"/> SCE higher or SLC higher 3 <input type="checkbox"/> ONC or OND 4 <input type="checkbox"/> None of these
6th person			1 <input type="checkbox"/> GCE 'A' level or HSC 2 <input type="checkbox"/> SCE higher or SLC higher 3 <input type="checkbox"/> ONC or OND 4 <input type="checkbox"/> None of these

SPECIMEN

**B14**

Has the person obtained any of the following qualifications since reaching the age of 18?

- a H.N.C. or H.N.D.
- b Nursing qualifications
- c Teaching qualifications
- d Degrees, diplomas or other educational qualifications
- e Graduate or corporate membership of professional institutions
- f Any other professional or vocational qualifications

If so, give full details of all such qualifications in the order in which they were obtained, even if not relevant to the present job or if the person is not working. If none, write 'NONE'.

Please check these details by asking each person about his qualifications.

*This question need not be answered for persons under 18 or retired persons over 70.*

Qualification	Major Subject or Subjects	Awarding Institution

SPECIMEN

The remaining questions in Part B do not apply to children under 15 years of age.

**Answer questions B15—B17 in respect of the main employment last week, or of the most recent job if retired or out of work.**  
 For persons who have never had a job and for a housewife who did not have a job last week write 'NONE' at B15.

B15 What was the name and business of the person's employer (if self-employed, the name and nature of the person's business)? (see note B15) <i>Give the trading name if one was used.</i>		B16 a What was the person's occupation? Give full details. (see note B16) b Describe the actual work done in that occupation.		B17 Was the person an employee, or self-employed employing others (see note B17), or self-employed without employees?		B18 If the person is an apprentice or trainee, write 'Apprentice', 'Articled clerk', 'Student apprentice', 'Graduate apprentice', 'Management trainee', 'Trainee technician', or 'Trainee craftsman' as appropriate. (see note B18)	
1st person	a Name of business	a Occupation		1 <input type="checkbox"/> An employee			
	b Nature of business	b Description of work		2 <input type="checkbox"/> Self-employed employing others (see note B17)			
2nd person	a Name of business	a Occupation		3 <input type="checkbox"/> Self-employed without employees			
	b Nature of business	b Description of work		1 <input type="checkbox"/> An employee			
3rd person	a Name of business	a Occupation		2 <input type="checkbox"/> Self-employed employing others (see note B17)			
	b Nature of business	b Description of work		3 <input type="checkbox"/> Self-employed without employees			
4th person	a Name of business	a Occupation		1 <input type="checkbox"/> An employee			
	b Nature of business	b Description of work		2 <input type="checkbox"/> Self-employed employing others (see note B17)			
5th person	a Name of business	a Occupation		3 <input type="checkbox"/> Self-employed without employees			
	b Nature of business	b Description of work		1 <input type="checkbox"/> An employee			
6th person	a Name of business	a Occupation		2 <input type="checkbox"/> Self-employed employing others (see note B17)			
	b Nature of business	b Description of work		3 <input type="checkbox"/> Self-employed without employees			

SPECIMEN

**For all persons with a job last week.**

*For persons with more than one job these questions apply to the main employment last week.*

**For women aged under 60 who are married, widowed or divorced.**

<b>B19</b> How many hours per week does the person usually work in this job?  <i>Exclude overtime and meal breaks.</i>	<b>B20</b> What is the full address of the person's place of work? (see note B20)  <i>If the work is carried on mainly at home write 'AT HOME'.</i>	<b>B21</b> What means of transport does the person normally use for the longest part, by distance, of the daily journey to work? (see note B21)  <i>If the person walks to work, or works mainly at home, write 'NONE'.</i>	<b>B22</b> Was the person's occupation one year ago the same as last week?  If so, write 'SAME'.  If not, give details of the occupation one year ago. (see note B16)  If none, write 'NONE'.	<b>B23</b> Enter the month and year of birth of each child born alive to her in marriage; include any who have since died.  If none, write 'NONE'.  <i>Enter the dates in order of birth, starting with the first born.</i>  <i>If she has been married more than once give the dates for the children of all her marriages.</i>		<b>B24</b> a Write the month and year of marriage (the first marriage if married more than once).  b If the first marriage has ended (by the husband's death or by divorce) write the month and year when it ended. If not ended, write 'NOT ENDED'.
	BLOCK CAPITALS PLEASE			Month Year	Month Year	a Date of (first) marriage Month Year  b Date (first) marriage ended Month Year
				Month Year	Month Year	a Date of (first) marriage Month Year  b Date (first) marriage ended Month Year
				Month Year	Month Year	a Date of (first) marriage Month Year  b Date (first) marriage ended Month Year
				Month Year	Month Year	a Date of (first) marriage Month Year  b Date (first) marriage ended Month Year
				Month Year	Month Year	a Date of (first) marriage Month Year  b Date (first) marriage ended Month Year
				Month Year	Month Year	a Date of (first) marriage Month Year  b Date (first) marriage ended Month Year

SPECIMEN

<b>FOR OFFICIAL USE</b>	
HCA .....	
GCE .....	
QM .....	
MIG 5 .....	
MIG 1 .....	
HCA .....	
GCE .....	
QM .....	
MIG 5 .....	
MIG 1 .....	
HCA .....	
GCE .....	
QM .....	
MIG 5 .....	
MIG 1 .....	
HCA .....	
GCE .....	
QM .....	
MIG 5 .....	
MIG 1 .....	



P Form continues on next page.

# 1971 CENSUS — ENGLAND

P Form For Making A Personal Return

Please complete this form and have it ready for collection as early as possible on the morning of Monday, 26th April.

If you wish, you may put the completed form in a sealed envelope for delivery to the enumerator. An envelope for this purpose can be obtained from the person who gave you this form.

The information you give on this form will be treated as CONFIDENTIAL and used only for compiling statistics. No information about named individuals will be passed by the Census Office to any other Government Department or any other authority or person. If anyone in the census organisation improperly discloses information you provide, he will be liable to prosecution. The person to whom you hand this form for delivery to the enumerator is also prohibited (under a penalty of up to £50) from improperly using or disclosing the information you provide.

**PLEASE TAKE NOTE**

You have a legal obligation to complete this form and there is a penalty of up to £50 for refusing to do so or for giving false information.

MICHAEL REED  
Director and Registrar General

Office of Population Censuses and Surveys,  
Titchfield,  
Fareham, Hants.

**NOTES ON QUESTIONS**

**7 Job last week**

A job means any work for payment or profit. In particular it includes:

- (a) work on your own account
- (b) part-time work, even if only for a few hours, such as jobbing gardening or paid domestic work
- (c) casual or temporary work of any kind (for example seasonal work, week-end work and vacation work by students)
- (d) unpaid work in a family business, for example, a shop or farm.

Unpaid work, other than in a family business, does not count as a job.

**8 Students**

You do not count as a full-time student if you are:

- (a) on day release from work to attend school or college
- (b) attending night school only
- (c) attending an educational establishment provided by employers, such as an apprenticeship school.

FOR ENUMERATOR'S USE			
C.D. No.	E.D. No.	Form.No.	Serial No.

TO BE COMPLETED BY THE MANAGER, OFFICER OR PERSON IN CHARGE OF THE PREMISES (OR VESSEL)
Name of premises (or vessel)

Where boxes are provided answer by putting a tick in the box against the answer which applies. For example, if the answer is 'YES':  YES  NO.

PLEASE WRITE IN INK OR BALLPOINT PEN

<b>1 Write your name and surname.</b>  <i>For a baby who has not yet been given a name write "BABY" and the surname.</i>	<b>2 Write your date of birth.</b>  Day Month Year	<b>3 Write your sex.</b>  (M for male, F for female).	<b>4 If you usually live here, write 'HERE'. If not, write your usual address.</b>  <i>If you are a boarder write 'HERE' only if you consider this your usual address. If you are a student or school child who is away from home during term time give your home address. If you have no settled address write 'NONE'. BLOCK CAPITALS PLEASE</i>	<b>5 What is your position in this establishment?</b>  For example write 'Guest', 'Patient', 'Staff', 'Student', 'Boarder', 'Crew', 'Passenger'.	<b>6 Write 'SINGLE', 'MARRIED', 'WIDOWED' or 'DIVORCED' as appropriate.</b>	<b>7 Did you have a job last week (the week ended 24th April 1971)?</b> (see note 7)  Tick box 1 if you had a job even if it was only part-time or if you were temporarily away from work, on holiday, sick, on strike, or laid off. If you did not have a job tick whichever of boxes 2, 3, 4 or 5 is appropriate; if box 5 is ticked state the reason: for example, 'Housewife', 'Student', 'Permanently sick'.  <i>This question need not be answered for children under 15 years of age.</i>	<b>8 Will you be a student attending full-time at an educational establishment during the term starting April/May 1971?</b> (see note 8)  <i>This question need not be answered for children under 15 years of age.</i>

SPECIMEN

<b>10 Write the country of birth of:</b>  a your father  b your mother  <i>This question should be answered even if your father or mother is no longer alive. (If country not known, write 'NOT KNOWN'.)</i>  Give the name by which the country is known today.	<b>11 Was your usual address one year ago (on 25th April 1970) the same as that shown by the answer to question 4?</b>  Write 'YES' or 'NO'.  If no, write also your usual address on 25th April 1970.  <i>For a child now under one year of age, write 'UNDER ONE'. BLOCK CAPITALS PLEASE</i>	<b>12 Was your usual address five years ago (on 25th April 1966) the same as that shown by the answer to question 11?</b>  Write 'YES' or 'NO'.  If no, write also your usual address on 25th April 1966.  <i>For a child now under five years of age, write 'UNDER FIVE'. BLOCK CAPITALS PLEASE</i>

PLEASE TURN OVER →

The remaining questions (13-24) do not apply to children under 15 years of age. If you are an overseas visitor (that is, if you normally reside overseas, are not working or seeking work in England, Scotland or Wales and are visiting this country for less than 1 month) you need not answer these questions. If you are over 70 see special note \* below.

<b>13</b> Have you obtained any of the following?  G.C.E. 'A' level Higher School Certificate (HSC)  Higher grade of Scottish Certificate of Education (SCE) Higher grade of Scottish Leaving Certificate (SLC)  Ordinary National Certificate (ONC) Ordinary National Diploma (OND)	<b>14</b> Have you obtained any of the following qualifications since reaching the age of 18? a H.N.C. or H.N.D. b Nursing qualifications c Teaching qualifications d Degrees, diplomas or other educational qualifications  e Graduate or corporate membership of professional institutions f Any other professional or vocational qualifications  If so, give full details of all such qualifications in the order in which they were obtained, even if not relevant to your present job or if you are not working. If none, write 'NONE'.	<b>Answer questions 15-17 in respect of your main employment last week, or of your most recent job if you are retired or out of work. If you have never had a job or if you are a housewife who did not have a job last week write 'NONE' at 15.</b>								
		1 <input type="checkbox"/> GCE 'A' level or HSC  2 <input type="checkbox"/> SCE higher or SLC higher  3 <input type="checkbox"/> ONC or OND  4 <input type="checkbox"/> None of these	<table border="1"> <thead> <tr> <th>Qualification</th> <th>Major Subject or Subjects</th> <th>Awarding Institution</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Qualification	Major Subject or Subjects	Awarding Institution				<b>15</b> What was the name and business of your employer (if self-employed, the name and nature of your business)? (see note 15)  Give the trading name if one was used.
Qualification	Major Subject or Subjects	Awarding Institution								
		a Name of business          b Nature of business	a Occupation          b Description of work	1 <input type="checkbox"/> An employee  2 <input type="checkbox"/> Self-employed employing others (see note 17)  3 <input type="checkbox"/> Self-employed without employees						

Questions 18-22 apply if you had a job last week. If you had more than one job these questions apply to your main employment last week.

<b>18</b> If you are an apprentice or trainee, write 'Apprentice', 'Articled clerk', 'Articled pupil', 'Student apprentice', 'Graduate apprentice', 'Management trainee', 'Trainee technician' or 'Trainee craftsman' as appropriate. (see note 18)	<b>19</b> How many hours per week do you usually work in this job?  Exclude overtime and meal breaks.	<b>20</b> What is the full address of your place of work? (see note 20)  If the work is carried on mainly at home write 'AT HOME'.  BLOCK CAPITALS PLEASE	<b>21</b> What means of transport do you normally use for the longest part, by distance, of your daily journey to work? (see note 21)  If you walk to work, or work mainly at home, write 'NONE'.	<b>22</b> Was your occupation one year ago the same as last week?  If so, write 'SAME'.  If not, give details of your occupation one year ago. (see note 16)	<b>Questions 23-24 apply if you are a woman aged under 60 who is married, widowed or divorced.</b>	
					a Date of (first) marriage Month Year	b Date (first) marriage ended Month Year
					Month Year	Month Year

**DECLARATION TO BE MADE BY THE PERSON COMPLETING THE FORM**

I declare that this form is correctly completed to the best of my knowledge and belief.

Signature .....

Date .....

**\*Persons over 70**

If you are over 70 and retired you need not answer any questions on this page except 15-17 (which refer to the last job you had).

But if you had a job last week all questions 13-22 should be answered.

**15 Employer's name and business**

Describe the business fully and try to avoid abbreviations or initials. General terms such as 'manufacturer', 'merchant', 'agent', 'broker', 'factor', 'dealer', 'engineering', are not enough by themselves and further details should be given about the articles manufactured or dealt in.

If you are a civil servant, local government officer or other public official give the name of the Government department, local authority or public body and the branch in which you are employed.

If you are employed solely in private domestic service write 'PRIVATE' in answer to this question.

If you are a member of Armed Forces see special note †.

**16 Occupation**

Full and precise details of occupation are required. If your job is known in your trade or industry by a special name use that name.

Terms such as 'scientist', 'technician', 'engineer', 'machinist', 'fitter', 'foreman', 'checker' should not be used by themselves. Greater detail is required as for example:—  
woodworking machinist, civil engineer, toolroom foreman.

If you are a civil servant, local government officer or other public official give your rank or grade.

**17 Self-employed**

'Self-employed, employing others' means that you have one or more employees other than family workers. A 'family worker' is one who lives in the same household as the employer and is related to him.

**18 Apprentices, etc.**

Answer this question only if you are undergoing training for a period fixed in advance and leading to recognition as a skilled worker or technician, or to a recognised technical, commercial or professional qualification or managerial post.

Do not answer this question if you are undergoing probationary training and have not yet entered into formal apprenticeship.

**20 Place of work**

If you do not work regularly at one place or if you travel during the course of your work (for example, sales representatives, seamen and some building and transport workers):

either (a) give the address at which you report daily (for example your depot):  
or (b) if you do not report daily to a fixed address write 'NO FIXED PLACE'.

If you are a building worker employed on a site for a long period give the address of the site.

If you are a dock worker give the name and address of the dock or wharf at which you are usually employed.

**21 Means of transport**

If you use different means of transport on different days give the means used most often.

Do not use terms such as 'public transport' or 'private transport' but give the actual means used, for example, 'train', 'bus', 'car', 'bicycle'.

**†Members of Armed Forces**

At 15 give arm and branch of service.

At 16 give rank or rating only.

You need not answer questions 17, 18, 19 or 22.

# Appendix II 1981 Census form (private households)



In strict confidence  
**1981 Census  
England**

**H Form for Private Households**

*A household comprises either one person living alone or a group of persons (who may or may not be related) living at the same address with common housekeeping. Persons staying temporarily with the household are included.*

**To the Head or Joint Heads or members of the Household**

Please complete this census form and have it ready to be collected by the census enumerator for your area. He or she will call for the form on **Monday 6 April 1981** or soon after. If you are not sure how to complete any of the entries on the form, the enumerator will be glad to help you when he calls. He will also need to check that you have filled in all the entries.

This census is being held in accordance with a decision made by Parliament. The leaflet headed 'Census 1981' describes why it is necessary and how the information will be used. Completion of this form is compulsory under the Census Act 1920. If you refuse to complete it, or if you give false information, you may have to pay a fine of up to £50.

Your replies will be treated in **STRICT CONFIDENCE**. They will be used to produce statistics but your name and address will **NOT** be fed into the census computer. After the census, the forms will be locked away for 100 years before they are passed to the Public Record Office.

If any member of the household who is age 16 or over does not wish you or other members of the household to see his or her personal information, then please ask the enumerator for an extra form and an envelope. The enumerator will then explain how to proceed.

When you have completed the form, please sign the declaration in Panel C on the last page.

**A R THATCHER**  
Registrar General

Office of Population Censuses and Surveys  
PO Box 200 Portsmouth PO2 8HH  
Telephone 0329-42511

**Please answer questions H1 - H5 about your household's accommodation, check the answer in Panel A, answer questions 1-16 overleaf and Panel B on the back page. Where boxes are provided please answer by putting a tick against the answer which applies. For example, if the answer to the marital status question is 'Single', tick box 1 thus:**

Please use ink or ballpoint pen 1  Single

**To be completed by the Enumerator**

Census District	Enumeration District	Form Number
Name .....		
Address .....		
Postcode		

**Panel A  
To be completed by the Enumerator and amended, if necessary, by the person(s) signing this form.**

- This household's accommodation is:
- In a caravan  20
  - In any other mobile or temporary structure  30
  - In a purpose-built block of flats or maisonettes  12
  - In any other permanent building in which the entrance from outside the building is:
    - NOT SHARED with another household  10
    - SHARED with another household  11

**H1 Rooms**

Please count the rooms in your household's accommodation. Do not count:

- small kitchens, that is those under 2 metres (6ft 6ins) wide, bathrooms, WCs.

Number of rooms .....

**Note**

Rooms divided by curtains or portable screens count as one; those divided by a fixed or sliding partition count as two. Rooms used solely for business, professional or trade purposes should be excluded.

**H2 Tenure**

How do you and your household occupy your accommodation? Please tick the appropriate box.

**As an owner occupier (including purchase by mortgage):**

- 1  of freehold property
- 2  of leasehold property

**By renting, rent free or by lease:**

- 3  from a local authority (council or New Town)
- 4  with a job, shop, farm or other business
- 5  from a housing association or charitable trust
- 6  furnished from private landlord, company or other organisation
- 7  unfurnished from private landlord, company or other organisation

**In some other way:**

- Please give details

**Note**

a If the accommodation is occupied by lease originally granted for, or since extended to, more than 21 years, tick box 2.  
b If a share in the property is being bought under an arrangement with a local authority, New Town corporation or housing association, for example, shared ownership (equity sharing), a co-ownership scheme, tick box 1 or 2 as appropriate.

**H3 Amenities**

Has your household the use of the following amenities on these premises? Please tick the appropriate boxes.

- A fixed bath or shower permanently connected to a water supply and a waste pipe
  - 1  YES - for use only by this household
  - 2  YES - for use also by another household
  - 3  NO fixed bath or shower
- A flush toilet (WC) with entrance inside the building
  - 1  YES - for use only by this household
  - 2  YES - for use also by another household
  - 3  NO inside flush toilet (WC)
- A flush toilet (WC) with entrance outside the building
  - 1  YES - for use only by this household
  - 2  YES - for use also by another household
  - 3  NO outside flush toilet (WC)

**H4** Please answer this question if box 11 in Panel A is ticked.

Are your rooms (not counting a bathroom or WC) enclosed behind your own front door inside the building?

- 1  YES      2  NO

If your household has only one room (not including a bathroom or WC) please answer 'YES'.

**H5 Cars and vans**

Please tick the appropriate box to indicate the number of cars and vans normally available for use by you or members of your household (other than visitors).

- 0  None
  - 1  One
  - 2  Two
  - 3  Three or more
- Include any car or van provided by employers if normally available for use by you or members of your household but exclude vans used solely for the carriage of goods.**

PLEASE TURN OVER →

Where boxes are provided please tick the appropriate box (Please use ink or ballpoint pen)

**1-3 Include on your census form:**

- all the persons who spend Census night 5-6 April 1981 in this household (including anyone visiting overnight and anyone who arrives here on the Monday and who has not been included as present on another census form).
- any persons who usually live with your household but who are absent on census night.  
For example, on holiday, in hospital, at school or college. Include them even if you know they are being put on another census form elsewhere.

Write the names in the top row, starting with the head or a joint head of household (BLOCK CAPITALS please)

Include any newly born baby even if still in hospital. If not yet given a name write 'BABY' and the surname.

**4 Marital status**

Please tick the box showing the present marital status.

If separated but not divorced please tick 'Married (1st marriage)' or 'Re-married' as appropriate.

**5 Relationship in household**

Please tick the box which indicates the relationship of each person to the person entered in the first column.

Please write in relationship of 'Other relative' - for example, father, daughter-in-law, brother-in-law, niece, uncle, cousin, grandchild.

Please write in position in household of 'Unrelated person' - for example, boarder, housekeeper, friend, flatmate, foster child.

**6 Whereabouts on night of 5-6 April 1981**

Please tick the appropriate box to indicate where the person was on the night of 5-6 April 1981.

**7 Usual address**

If the person usually lives here please tick 'This address'. If not tick 'Elsewhere' and write in the person's usual address.

The home address should be taken as the usual address for a head of household who lives away from home for part of the week.

For students and children away from home during term-time, the home address should be taken as the usual address.

Boarders should be asked what they consider to be their usual address.

**8 Usual address one year ago**

If the person's usual address one year ago, on 5 April 1980, was the same as that given in answer to question 7 please tick 'Same'. If not, please tick 'Different' and write in the usual address.

If everyone on the form has moved from the same address, please write the address in full for the first person and indicate with an arrow that this applies to the other people on the form.

For a child born since 5 April 1980 write 'UNDER ONE'.

**9 Country of birth**

Please tick the appropriate box.

If box 6 is ticked please write in the present name of the country in which the birthplace is now situated.

1st person	2nd person
Name and surname	Name and surname
Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	Sex <input type="checkbox"/> Male <input type="checkbox"/> Female
Date of birth Day    Month    Year	Date of birth Day    Month    Year
Marital status 1 <input type="checkbox"/> Single 2 <input type="checkbox"/> Married (1st marriage) 3 <input type="checkbox"/> Re-married 4 <input type="checkbox"/> Divorced 5 <input type="checkbox"/> Widowed	Marital status 1 <input type="checkbox"/> Single 2 <input type="checkbox"/> Married (1st marriage) 3 <input type="checkbox"/> Re-married 4 <input type="checkbox"/> Divorced 5 <input type="checkbox"/> Widowed
Relationship to 1st person 01 <input type="checkbox"/> Husband or wife 02 <input type="checkbox"/> Son or daughter <input type="checkbox"/> Other relative, please specify	Relationship to 1st person 01 <input type="checkbox"/> Husband or wife 02 <input type="checkbox"/> Son or daughter <input type="checkbox"/> Other relative, please specify
<input type="checkbox"/> Unrelated, please specify	<input type="checkbox"/> Unrelated, please specify
1 <input type="checkbox"/> At this address, out on night work or travelling to this address 2 <input type="checkbox"/> Elsewhere in England, Wales or Scotland 3 <input type="checkbox"/> Outside Great Britain	1 <input type="checkbox"/> At this address, out on night work or travelling to this address 2 <input type="checkbox"/> Elsewhere in England, Wales or Scotland 3 <input type="checkbox"/> Outside Great Britain
<input type="checkbox"/> This address <input type="checkbox"/> Elsewhere - write the person's usual address and postcode	<input type="checkbox"/> This address <input type="checkbox"/> Elsewhere - write the person's usual address and postcode
Address (BLOCK CAPITALS please)	Address (BLOCK CAPITALS please)
including Postcode	including Postcode
<input type="checkbox"/> Same as at Question 7 <input type="checkbox"/> Different - write the person's address and postcode on 5 April 1980	<input type="checkbox"/> Same as at Question 7 <input type="checkbox"/> Different - write the person's address and postcode on 5 April 1980
Address (BLOCK CAPITALS please)	Address (BLOCK CAPITALS please)
including Postcode	including Postcode
Country of birth 1 <input type="checkbox"/> England 2 <input type="checkbox"/> Wales 3 <input type="checkbox"/> Scotland 4 <input type="checkbox"/> Northern Ireland 5 <input type="checkbox"/> Irish Republic 6 <input type="checkbox"/> Elsewhere. Please write the present name of the country.	Country of birth 1 <input type="checkbox"/> England 2 <input type="checkbox"/> Wales 3 <input type="checkbox"/> Scotland 4 <input type="checkbox"/> Northern Ireland 5 <input type="checkbox"/> Irish Republic 6 <input type="checkbox"/> Elsewhere. Please write the present name of the country.

Where boxes are provided please tick the appropriate box (Please use ink or ballpoint pen)

**1-3 Include on your census form:**

- all the persons who spend Census night 5-6 April 1981 in this household (including anyone visiting overnight and anyone who arrives here on the Monday and who has not been included as present on another census form).
- any persons who usually live with your household but who are absent on census night.  
For example, on holiday, in hospital, at school or college. Include them even if you know they are being put on another census form elsewhere.

Write the names in the top row, starting with the head or a joint head of household (BLOCK CAPITALS please)

Include any newly born baby even if still in hospital. If not yet given a name write 'BABY' and the surname.

1st person			2nd person		
Name and surname			Name and surname		
Sex <input type="checkbox"/> Male <input type="checkbox"/> Female			Sex <input type="checkbox"/> Male <input type="checkbox"/> Female		
Date of birth Day    Month    Year			Date of birth Day    Month    Year		
.....			.....		

Answers to remaining questions are not required for persons under 16 years of age (born after 5 April 1965)

**10 Whether working, retired, housewife, etc last week**

Please tick all boxes appropriate to the person's activity last week.

A job (box 1 and box 2) means any type of work for pay or profit but not unpaid work. It includes:

- casual or temporary work
- work on a person's own account
- work in a family business
- part-time work even if only for a few hours

A part-time job (box 2) is a job in which the hours worked, excluding any overtime, are usually 30 hours or less per week.

Tick box 1 or box 2, as appropriate, if the person had a job but was not at work for all or part of the week because he or she was:

- on holiday
- temporarily laid off
- on strike
- sick

For a full-time student tick box 9 as well as any other appropriate boxes.

Do not count as a full-time student a person in a paid occupation in which training is also given, such as a student nurse, an apprentice or management trainee.

1 <input type="checkbox"/> In a full-time job at any time last week	1 <input type="checkbox"/> In a full-time job at any time last week
2 <input type="checkbox"/> In a part-time job at any time last week	2 <input type="checkbox"/> In a part-time job at any time last week
3 <input type="checkbox"/> Waiting to take up a job already accepted	3 <input type="checkbox"/> Waiting to take up a job already accepted
4 <input type="checkbox"/> Seeking work	4 <input type="checkbox"/> Seeking work
5 <input type="checkbox"/> Prevented by temporary sickness from seeking work	5 <input type="checkbox"/> Prevented by temporary sickness from seeking work
6 <input type="checkbox"/> Permanently sick or disabled	6 <input type="checkbox"/> Permanently sick or disabled
7 <input type="checkbox"/> Housewife	7 <input type="checkbox"/> Housewife
8 <input type="checkbox"/> Wholly retired from employment	8 <input type="checkbox"/> Wholly retired from employment
9 <input type="checkbox"/> At school or a full-time student at an educational establishment not provided by an employer	9 <input type="checkbox"/> At school or a full-time student at an educational establishment not provided by an employer
0 <input type="checkbox"/> Other, please specify	0 <input type="checkbox"/> Other, please specify
.....	.....

**Questions about present or previous employment**

For persons in a job last week

For persons wholly retired

For persons out of work last week

For persons prevented from working because of permanent sickness or disablement

For other persons including those with no previous job—please write 'Not applicable' at question 11 and leave questions 12-15 blank

— please answer questions 11-15 in respect of the main job during the week

— please answer questions 11-13 in respect of the most recent full-time job

**11 Name and business of employer (if self-employed the name and nature of the person's business)**

- Please give the name of the person's employer. Give the trading name if one is used and avoid using abbreviations or initials.

For members of the Armed Forces, civil servants and local government officers see notes on back page before answering questions 11-15.

- Please describe clearly what the employer (or the person if self-employed) makes or does.

For a person employed in private domestic service write 'Domestic Service'.

a Name of employer	a Name of employer
b Nature of business	b Nature of business
a Occupation	a Occupation
b Description of work	b Description of work

**12 Occupation**

- Please give full and precise details of the person's occupation.

If a person's job is known to the trade or industry by a special name, use that name. Precise terms should be used, for example, 'radio-mechanic', 'jig and tool fitter', 'tool room foreman' rather than general terms such as 'mechanic', 'fitter', 'foreman'.

- Please describe the actual work done.

Question 16 should be answered for all persons aged 18 or over

Where boxes are provided please tick the appropriate box (Please use ink or ballpoint pen)

**1-3 Include on your census form:**

- all the persons who spend Census night 5-6 April 1981 in this household (including anyone visiting overnight and anyone who arrives here on the Monday and who has not been included as present on another census form).
- any persons who usually live with your household but who are absent on census night.  
For example, on holiday, in hospital, at school or college. Include them even if you know they are being put on another census form elsewhere.

Write the names in the top row, starting with the head or a joint head of household (BLOCK CAPITALS please)

Include any newly born baby even if still in hospital. If not yet given a name write 'BABY' and the surname.

1st person	2nd person
Name and surname	Name and surname
Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	Sex <input type="checkbox"/> Male <input type="checkbox"/> Female
Date of birth Day    Month    Year	Date of birth Day    Month    Year

**13 Employment status**

Please tick the appropriate box.

Box 3 should be ticked for a person having management or supervisory responsibility for other employees. For a person employed as a quality control inspector and concerned only with the technical quality of a product tick box 2.

1 <input type="checkbox"/> Apprentice or articulated trainee	1 <input type="checkbox"/> Apprentice or articulated trainee
2 <input type="checkbox"/> Employee not supervising other employees	2 <input type="checkbox"/> Employee not supervising other employees
3 <input type="checkbox"/> Employee supervising other employees	3 <input type="checkbox"/> Employee supervising other employees
4 <input type="checkbox"/> Self-employed not employing others	4 <input type="checkbox"/> Self-employed not employing others
5 <input type="checkbox"/> Self-employed employing others	5 <input type="checkbox"/> Self-employed employing others

**14 Address of place of work**

Please give the full address of the person's place of work.

For a person employed on a site for a long period give the address of the site.

For a person not working regularly at one place who reports daily to a depot or other fixed address, give that address.

Full address and postcode of workplace Address (BLOCK CAPITALS please)	Full address and postcode of workplace Address (BLOCK CAPITALS please)
including Postcode	including Postcode

For a person not reporting daily to a fixed address tick box 1.  
For a person working mainly at home tick box 2.

1 <input type="checkbox"/> No fixed place	1 <input type="checkbox"/> No fixed place
2 <input type="checkbox"/> Mainly at home	2 <input type="checkbox"/> Mainly at home

**15 Daily journey to work**

Please tick the appropriate box to show how the longest part, by distance, of the person's daily journey to work is normally made.

For a person using different means of transport on different days show the means most often used.

Car or van includes three-wheeled cars and motor caravans.

1 <input type="checkbox"/> British Rail train	1 <input type="checkbox"/> British Rail train
2 <input type="checkbox"/> Underground, tube, metro, etc	2 <input type="checkbox"/> Underground, tube, metro, etc
3 <input type="checkbox"/> Bus, minibus or coach (public or private)	3 <input type="checkbox"/> Bus, minibus or coach (public or private)
4 <input type="checkbox"/> Motor cycle, scooter, moped	4 <input type="checkbox"/> Motor cycle, scooter, moped
5 <input type="checkbox"/> Car or van — pool, sharing driving	5 <input type="checkbox"/> Car or van — pool, sharing driving
6 <input type="checkbox"/> Car or van — driver	6 <input type="checkbox"/> Car or van — driver
7 <input type="checkbox"/> Car or van — passenger	7 <input type="checkbox"/> Car or van — passenger
8 <input type="checkbox"/> Pedal cycle	8 <input type="checkbox"/> Pedal cycle
9 <input type="checkbox"/> On foot	9 <input type="checkbox"/> On foot
0 <input type="checkbox"/> Other (please specify)	0 <input type="checkbox"/> Other (please specify)
0 <input type="checkbox"/> Works mainly at home	0 <input type="checkbox"/> Works mainly at home

**16 Degrees, professional and vocational qualifications**

Has the person obtained any qualifications after the age of 16 such as: Degrees, Diplomas, HNC, HND, Nursing qualifications, Teaching qualifications, Graduate or corporate membership of professional institutions, Other professional, educational or vocational qualifications?

Exclude qualifications normally obtained at school such as GCE, CSE and School Certificates.

If box 2 is ticked write in all qualifications even if they are not relevant to the person's present job (if the person is not working).

Please list the qualifications in the order in which they were obtained.

Write for each qualification:

- the title
- the major subject or subjects
- the year obtained and
- the awarding institution

If more than three, please enter in a spare column and link with an arrow.

1 <input type="checkbox"/> NO — none of these	1 <input type="checkbox"/> NO — none of these
2 <input type="checkbox"/> YES — give details	2 <input type="checkbox"/> YES — give details
Title .....	Title .....
Subject(s) .....	Subject(s) .....
Year .....	Year .....
Institution .....	Institution .....
Title .....	Title .....
Subject(s) .....	Subject(s) .....
Year .....	Year .....
Institution .....	Institution .....
Title .....	Title .....
Subject(s) .....	Subject(s) .....
Year .....	Year .....
Institution .....	Institution .....

**Notes**

**Armed Forces**

For members of the Armed Forces – write 'ARMED FORCES' at 11a; for a member of the Armed Forces of a country other than the UK – add the name of the country.

At 12a give the rank or rating only.

Questions 11b, 12b and 13 should not be answered.

**Civil servants**

For civil servants – give the name of their Department at 11a, write 'GOVERNMENT DEPARTMENT' at 11b and 'CIVIL SERVANT' at 12a.

At 12b for a non-industrial civil servant – give the rank or grade only.

At 12b for an industrial civil servant – give the job title only, which should be in precise terms, for example, 'radio mechanic', 'jig and tool fitter', 'tool room foreman' rather than general terms such as 'mechanic', 'fitter', 'foreman'.

**Local government officers**

For local government officers and other public officials – give the name of the local authority or public body at 11a and the branch in which they are employed at 11b.

At 12a give rank or grade and complete 12b.

**PLEASE COMPLETE PANELS BELOW**

**Panel B**

Is there anyone else you have not included (such as a visitor) because there was no room on the form?

YES       NO

Please ask the Enumerator for another form.

Have you left anyone out because you were not sure whether they should be included? If so, please give their name(s) and reason why you were not sure about including them.

Name \_\_\_\_\_

Reason \_\_\_\_\_

Name \_\_\_\_\_

Reason \_\_\_\_\_

Name \_\_\_\_\_

Reason \_\_\_\_\_

Name \_\_\_\_\_

Reason \_\_\_\_\_

May the Enumerator telephone you if we have a query on your form? If so, please write your telephone number here.

**Before you sign the form will you please check:**

- that all relevant questions have been answered
- that you have included everyone who spent the night 5-6 April in your household
- that you have included anyone who usually lives here but was away from home on the night of 5-6 April
- that new visitors, boarders or children including newly born infants, have been missed.

**Panel C**

**Declaration**

This form is correctly completed to the best of my knowledge and belief.

Signature(s) \_\_\_\_\_

Date \_\_\_\_\_ April 1981

REVIEW

# Appendix IIa 1981 Census form (communal establishments)



In strict confidence

## 1981 Census England

I Form for making an Individual Return

Please complete this census form and have it ready for collection as early as possible on the morning of **Monday 6 April 1981**.

This census is being held in accordance with a decision made by Parliament. Completion of this form is compulsory under the Census Act 1920. If you refuse to complete it, or if you give false information, you may have to pay a fine of up to £50.

Your replies will be treated in **STRICT CONFIDENCE**. They will be used to produce statistics but your name and address will **NOT** be fed into the census computer. After the census, the forms will be locked away for 100 years before they are passed to the Public Record Office.

When you have completed the form please sign the declaration on the last page.

**A R THATCHER**  
Registrar General

Office of Population Censuses and Surveys  
PO Box 200 Portsmouth PO2 8HH  
Telephone: 0329-42511

To be completed by the Enumerator			
Census District	Enumeration District	Form Number	Serial Number

To be completed by the Manager, Chief Resident Officer, Commanding Officer or other person in charge of the Establishment or Vessel	
Name of establishment or vessel	
Address	
including Postcode	

PLEASE TURN OVER →

Where boxes are provided please answer by putting a tick against the answer which applies. For example, if the answer to the marital status question is 'Single', tick box 1 thus:

1  Single

Please use ink or ballpoint pen.

**Overseas visitor**

If you are an overseas visitor, that is;

- if you normally reside overseas,
- are not working or seeking work in England, Scotland or Wales and
- are visiting this country for less than 1 month,

**you need only answer questions 1 to 13.**

**1 Name**

Write surname and forename(s) (BLOCK CAPITALS please)  
For a baby who has not yet been given a name write 'BABY' and the surname.

**2 Sex**

Please tick the appropriate box.

**3 Date of birth**

Write the day, month and year of birth.

**4 Marital status**

Please tick the box showing the present marital status.  
If separated but not divorced please tick 'Married (1st marriage)' or 'Re-married' as appropriate.

**5 Position in establishment**

Please write in your position in this establishment.  
For example write 'Guest', 'Patient', 'Inmate', 'Staff', 'Student', 'Boarder', 'Crew', 'Passenger'.  
If you are completing the form in a private household, your relationship to the person making the return for the rest of the household should be stated.

**6 Whereabouts on night of 5-6 April 1981**

**7 Usual address**

If you usually live here please tick 'This address'. If not, tick 'Elsewhere' and write in your usual address.  
If you are a student or a schoolchild away from home during term time your home address should be taken as your usual address.

**8 Usual address one year ago**

If your usual address one year ago, on 5 April 1980, was the same as that given in answer to question 7 please tick 'Same'. If not, please tick 'Different' and write in your usual address.  
For a child born since 5 April 1980 write 'UNDER ONE'.

**9 Country of birth**

Please tick the appropriate box.

If box 6 is ticked please write in the present name of the country in which the birthplace is now situated.

Name and surname	
<p><b>Sex</b></p> <p><input type="checkbox"/> Male      <input type="checkbox"/> Female</p>	
<p><b>Date of birth</b></p> <p>Day      Month      Year</p> <p>.....</p>	
<p><b>Marital status</b></p> <p>1 <input type="checkbox"/> Single</p> <p>2 <input type="checkbox"/> Married (1st marriage)</p> <p>3 <input type="checkbox"/> Re-married</p> <p>4 <input type="checkbox"/> Divorced</p> <p>5 <input type="checkbox"/> Widowed</p>	
Not applicable to this form.	
<p><input type="checkbox"/> This address</p> <p><input type="checkbox"/> Elsewhere – write your usual address and postcode</p> <p>Address (BLOCK CAPITALS please)</p> <p>.....</p> <p>.....</p> <p>including Postcode <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p>	
<p><input type="checkbox"/> Same as at Question 7</p> <p><input type="checkbox"/> Different – write your address and postcode on 5 April 1980</p> <p>Address (BLOCK CAPITALS please)</p> <p>.....</p> <p>.....</p> <p>including Postcode <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p>	
<p><b>Country of birth</b></p> <p>1 <input type="checkbox"/> England</p> <p>2 <input type="checkbox"/> Wales</p> <p>3 <input type="checkbox"/> Scotland</p> <p>4 <input type="checkbox"/> Northern Ireland</p> <p>5 <input type="checkbox"/> Irish Republic</p> <p>6 <input type="checkbox"/> Elsewhere. Please write the present name of the country.</p>	

**Answers to remaining questions are not required for persons under 16 years of age (born after 5 April 1965)**

**10 Whether working, retired, housewife, etc last week**

Please tick all boxes appropriate to your activity last week.

A **job** (box 1 and box 2) means any type of work for pay or profit but not unpaid work. It includes:

- casual or temporary work
- work on your own account
- work in a family business
- part-time work even if only for a few hours

A **part-time job** (box 2) is a job in which the hours worked, excluding any overtime, are usually 30 hours or less per week.

Tick box 1 or box 2, as appropriate, if you had a job but were not at work for all or part of the week because you were:

- on holiday
- temporarily laid off
- on strike
- sick

If you are a full-time student tick box 9 as well as any other appropriate boxes.

Do not count yourself as a full-time student, if you are in a paid occupation in which training is also given, such as a student nurse, an apprentice or a management trainee.

- 1  In a full-time job at any time last week
- 2  In a part-time job at any time last week
- 3  Waiting to take up a job already accepted
- 4  Seeking work
- 5  Prevented by temporary sickness from seeking work
- 6  Permanently sick or disabled
- 7  Housewife
- 8  Wholly retired from employment
- 9  At school or a full-time student at an educational establishment not provided by an employer
- 0  Other, please specify

**Questions about present or previous employment**

If you were in a job last week } please answer questions 11-15 in respect of the main job during the week.

If you were wholly retired }  
 If you were out of work last week } please answer questions 11-13 in respect of the most recent full-time job, if any. Leave questions 14 and 15 blank.  
 If you were prevented from working because of permanent sickness or disablement }

If you are not in any of the categories above or have not had a previous job } please write 'Not applicable' at question 11 and leave questions 12-15 blank.

**Notes for Armed Forces, civil servants and local government officers**

**Armed Forces**

If you are a member of the Armed Forces – write 'ARMED FORCES' at 11a; if you are a member of the Armed Forces of a country other than the UK – add the name of the country.

At 12a give your rank or rating only.

Questions 11b, 12b and 13 should not be answered.

**Civil servants**

If you are a civil servant – give the name of your Department at 11a, write 'GOVERNMENT DEPARTMENT' at 11b and 'CIVIL SERVANT' at 12a.

At 12b for a non-industrial civil servant – give your rank or grade only.

At 12b for an industrial civil servant – give your job title only.

**Local government officers**

If you are a local government officer or other public official – give the name of the local authority or public body at 11a and the branch in which you are employed at 11b.

At 12a give your rank or grade and complete 12b.

**11 Name and business of employer (if self-employed the name and nature of the person's business)**

- a Please give the name of your employer. Give the trading name if one is used and avoid using abbreviations or initials.  
If you are a member of the Armed Forces, a civil servant or a local government officer see notes alongside before answering questions 11-15.
- b Please describe clearly what your employer (or you if self-employed) makes or does.  
If you are employed in private domestic service write 'Domestic Service'.

- a Name of employer
- b Nature of business

**12 Occupation**

- a Please give full and precise details of your occupation.  
If your job is known in the trade or industry by a special name use that name.  
Precise terms should be used, for example, 'radio-mechanic', 'jig and tool fitter', 'tool room foreman' rather than general terms such as 'mechanic', 'fitter', 'foreman'.
- b Please describe the actual work done.

- a Occupation
- b Description of work

Question 16 should be answered if you are aged 18 or over

PLEASE TURN OVER →

**13 Employment status**

Please tick the appropriate box.

Box 3 should be ticked if you have management or supervisory responsibility for other employees.

Box 2 should be ticked if you are employed as a quality control inspector and concerned only with the technical quality of a product.

- 1  Apprentice or articed trainee
- 2  Employee not supervising other employees
- 3  Employee supervising other employees
- 4  Self-employed not employing others
- 5  Self-employed employing others

**14 Address of place of work**

Please give the full address of your place of work.

If you are employed on a site for a long period give the address of the site.

If you do not work regularly at one place and report daily to a depot or other fixed address, give that address.

Full address and postcode of workplace  
Address (BLOCK CAPITALS please)

.....  
.....  
.....

including Postcode 

--	--	--	--	--	--	--	--

If you do not report daily to a fixed address tick box 1.

If you work mainly at home tick box 2.

- 1  No fixed place
- 2  Mainly at home

**15 Daily journey to work**

Please tick the appropriate box to show how the longest part, by distance, of your daily journey to work is normally made.

If you use different means of transport on different days show the means most often used.

Car or van includes three-wheeled cars and motor caravans.

- 1  British Rail train
- 2  Underground, tube, metro, etc
- 3  Bus, minibus or coach (public or private)
- 4  Motor cycle, scooter, moped
- 5  Car or van — pool, sharing driving
- 6  Car or van — driver
- 7  Car or van — passenger
- 8  Pedal cycle
- 9  On foot
- 0  Other (please specify)

.....  
0  Works mainly at home

**16 Degrees, professional and vocational qualifications**

Have you obtained any qualifications after the age of 18 such as:

- Degrees, Diplomas, HNC, HND,
- Nursing qualifications, Teaching qualifications,
- Graduate or corporate membership of professional institutions,
- Other professional, educational or vocational qualifications?

Exclude qualifications normally obtained at school, such as GCE, CSE and School Certificates.

If box 2 is ticked write in all qualifications even if they are not relevant to your present job or if you are not working.

Please list the qualifications in the order in which they were obtained.

Write for each qualification:

- the title
- the major subject or subjects
- the year obtained and
- the awarding institution

If more than four, please enter in the space top right.

- 1  NO — none of these
- 2  YES — give details

Title .....

Subject(s) .....

.....

Year .....

Institution .....

.....

Title .....

Subject(s) .....

.....

Year .....

Institution .....

.....

Title .....	Title .....
Subject(s) .....	Subject(s) .....
.....	.....
Year .....	Year .....
Institution .....	Institution .....
.....	.....
Title .....	Title .....
Subject(s) .....	Subject(s) .....
.....	.....
Year .....	Year .....
Institution .....	Institution .....
.....	.....

**Declaration**

This form is correctly completed to the best of my knowledge and belief.

Signature

.....

Date ..... April 1981

# Appendix III 1991 Census form (private households)



## 1991 Census England

**H form for Private Households**

For office use

<input type="checkbox"/>	1
<input type="checkbox"/>	2
<input type="checkbox"/>	3

**To the Head or Joint Heads or members of the Household aged 16 or over**

Please complete this form for all members of the household, including children, and have it ready for collection on Monday 22nd April. Your census enumerator will call to collect it then or soon afterwards and will help you with the form if you have any difficulties. The enclosed leaflet explains why the Census is necessary and how the information is used.

Completion of the form is compulsory under the Census Act 1920. If you refuse to complete it, or give false information, you may have to pay a fine of up to £400.

Your answers will be treated in strict confidence and used only to produce statistics. Names and addresses will not be put into the computer; only the postcode will be entered. The forms will be kept securely within my Office and treated as confidential for 100 years.

Anyone using or disclosing Census information improperly will be liable to prosecution. For example, it would be improper for you to pass on to someone else information which you had been given in confidence by a visitor to enable you to complete the Census form.

If any member of the household aged 16 or over does not wish you, or another member of the household, to see their information, please ask the enumerator for an individual form with an envelope.

After completing the form, please sign the declaration on the last page.

Thank you for your co-operation.

*P. J. Wormald*

P J Wormald  
Registrar General

Office of Population Censuses and Surveys  
PO Box 100 Fareham PO16 0AL

Telephone: 0329 844444

**Please read these instructions before filling in this form**

**A Household:**

A household comprises either one person living alone or a group of people (not necessarily related) living at the same address with common housekeeping — that is, sharing at least one meal a day or sharing a living room or sitting room.

People staying temporarily with the household are included.

- ▶ If there is more than one household in this building, answer for your household only.
- ▶ First answer questions H1 and H2 on this page and H3 to H5 on the back page about your household and the rooms which it occupies.
- ▶ When you have answered the household questions, answer the questions on the inside pages about each member of your household.
- ▶ If a member of the household is completing an Individual form please still enter their name and answer questions 5 and 6 on this form.
- ▶ Then complete Panel B and Panel C on the back page.
- ▶ Answer each question by ticking the appropriate box or boxes  where they are provided.
- ▶ Please use ink or ballpoint pen.

**To be completed by the Enumerator**

Census District	Enumeration District	Form Number
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Name <input style="width: 95%;" type="text"/>		
Address <input style="width: 95%;" type="text"/>		
Postcode <input style="width: 15%;" type="text"/>		
		ABS <input type="checkbox"/>

**H1 Rooms**

Please count the number of rooms your household has for its own use.

**Do not count:** small kitchens, under 2 metres (6 feet 6 inches) wide  
bathrooms  
toilets

**Do count:** living rooms  
bedrooms  
kitchens at least 2 metres (6 feet 6 inches) wide  
all other rooms in your accommodation

The total number of rooms is

**Panel A**

To be completed by the Enumerator and amended, if necessary, by the person(s) signing this form.

Tick one box to show the type of accommodation which this household occupies.

- A caravan or other mobile or temporary structure  1
- A whole house or bungalow that is
  - detached  2
  - semi-detached  3
  - terraced (include end of terrace)  4
- The whole of a purpose built flat or maisonette
  - in a commercial building (for example in an office building or hotel or over a shop)  5
  - in a block of flats or tenement  6
- Part of a converted or shared house, bungalow or flat
  - separate entrance into the building  7
  - shared entrance into the building  8

**H2 Accommodation**

If box 7 or box 8 in Panel A is ticked, tick one box below to show the type of accommodation which your household occupies.

- A one roomed flatlet with private bath or shower, WC and kitchen facilities.  1
  - One room or bedsit, not self-contained (to move from your room to bathroom, WC or kitchen facilities you have to use a hall, landing or stairway open to other household(s)).  2
  - A self-contained flat or accommodation with 2 or more rooms, having bath or shower, WC and kitchen facilities all behind its own private door.  3
  - 2 or more rooms, not self-contained (to move between rooms or to bathroom, WC or kitchen facilities you have to use a hall, landing or stairway open to other household(s)).  4

Please turn to the back page and answer questions H3 to H5 ▶

**1-3 Name, sex and date of birth of people to be included**

**Important:** please read the notes before answering the questions.  
 In answering the rest of the questions please include:

- ▶ every person who spends census night (21-22 April) in this household, including anyone staying temporarily.
- ▶ any other people who are usually members of the household but on census night are absent on holiday, at school or college, or for any other reason, even if they are being included on another census form elsewhere.
- ▶ anyone who arrives here on Monday 22nd April who was in Great Britain on the Sunday and who has not been included as present on another census form.
- ▶ any newly born baby born before the 22nd April, even if still in hospital. If not yet given a name, write BABY and the surname.

Write the names in **BLOCK CAPITALS** starting with the head or a joint head of household.

**Person No. 1**

Name and surname

Sex Male  1  
 Female  2

Date of birth  
 Day  Month  Year

Single (never married)  1  
 Married (first marriage)  2  
 Re-married  3  
 Divorced (decree absolute)  4  
 Widowed  5

**Person No. 2**

Name and surname

Sex Male  1  
 Female  2

Date of birth  
 Day  Month  Year

Single (never married)  1  
 Married (first marriage)  2  
 Re-married  3  
 Divorced (decree absolute)  4  
 Widowed  5

**4 Marital status**

On the 21st April what is the person's marital status?  
 If separated but not divorced, please tick 'Married (first marriage)' or 'Re-married' as appropriate.  
 Please tick one box.

**5 Relationship in household**

Please tick the box which indicates the relationship of each person to the person in the first column.  
 A step child or adopted child should be included as the son or daughter of the step or adoptive parent.  
 Write in relationship of 'Other relative' — for example, father, daughter-in-law, niece, uncle, cousin.

Write in position in household of an 'Unrelated' person for example, boarder, housekeeper, friend, flatmate, foster child.

**Relationship to Person No.1**

Husband or wife  1  
 Living together as a couple  2  
 Son or daughter  3  
 Other relative   
*please specify*  
  
  
 Unrelated   
*please specify*

**6 Whereabouts on night of 21-22 April 1991**

Please tick the appropriate box to indicate where the person was on the night of 21-22 April 1991.

At this address, out on night work or travelling to this address  0  
 Elsewhere in England, Scotland or Wales  1  
 Outside Great Britain  2

At this address, out on night work or travelling to this address  0  
 Elsewhere in England, Scotland or Wales  1  
 Outside Great Britain  2

**7 Usual address**

If the person usually lives here, please tick 'This address'. If not, tick 'Elsewhere' and write in the person's usual address.  
 For students and children away from home during term time, the home address should be taken as the usual address.  
 For any person who lives away from home for part of the week, the home address should be taken as the usual address.  
 Any person who is not a permanent member of the household should be asked what he or she considers to be his or her usual address.

This address  1  
 Elsewhere   
 If elsewhere, please write the person's usual address and postcode below in **BLOCK CAPITALS**  
  
  
  
 Post-code

This address  1  
 Elsewhere   
 If elsewhere, please write the person's usual address and postcode below in **BLOCK CAPITALS**  
  
  
  
 Post-code

**8 Term time address of students and schoolchildren**

If not a student or schoolchild, please tick first box.  
 For a student or schoolchild who lives here during term time, tick 'This address'.  
 If he or she does not live here during term time, tick 'Elsewhere' and write in the current or most recent term time address.

Not a student or schoolchild   
 This address  1  
 Elsewhere   
 If elsewhere, please write the term time address and postcode below in **BLOCK CAPITALS**  
  
  
  
 Post-code

Not a student or schoolchild   
 This address  1  
 Elsewhere   
 If elsewhere, please write the term time address and postcode below in **BLOCK CAPITALS**  
  
  
  
 Post-code

**1-3 Name, sex and date of birth of people to be included**

**Important:** please read the notes before answering the questions.

In answering the rest of the questions please include:

- ▶ every person who spends census night (21-22 April) in this household, including anyone staying temporarily.
- ▶ any other people who are usually members of the household but on census night are absent on holiday, at school or college, or for any other reason, even if they are being included on another census form elsewhere.
- ▶ anyone who arrives here on Monday 22nd April who was in Great Britain on the Sunday and who has not been included as present on another census form.
- ▶ any newly born baby born before the 22nd April, even if still in hospital. If not yet given a name, write BABY and the surname.

Write the names in **BLOCK CAPITALS** starting with the head or a joint head of household.

Person No. 1		
Name and surname		
<input type="text"/>		
Sex	Male	<input type="checkbox"/> 1
	Female	<input type="checkbox"/> 2
Date of birth		
Day	Month	Year
<input type="text"/>	<input type="text"/>	<input type="text"/>

Person No. 2		
Name and surname		
<input type="text"/>		
Sex	Male	<input type="checkbox"/> 1
	Female	<input type="checkbox"/> 2
Date of birth		
Day	Month	Year
<input type="text"/>	<input type="text"/>	<input type="text"/>

**9 Usual address one year ago**

If the person's usual address one year ago (on the 21st April 1990) was the same as his or her current usual address (given in answer to question 7), please tick 'Same'. If not, tick 'Different' and write in the usual address one year ago.

If everyone on the form has moved from the same address, please write the address in full for the first person and indicate with an arrow that this applies to the other people on the form.

For a child born since the 21st April 1990, tick the 'Child under one' box.

Same as question 7	<input type="checkbox"/> 1
Different	<input type="checkbox"/>
Child under one	<input type="checkbox"/> 3
If different, please write the person's address and postcode on the 21st April 1990 below in <b>BLOCK CAPITALS</b>	
<input type="text"/>	
<input type="text"/>	
<input type="text"/>	
Post-code	<input type="text"/>

Same as question 7	<input type="checkbox"/> 1
Different	<input type="checkbox"/>
Child under one	<input type="checkbox"/> 3
If different, please write the person's address and postcode on the 21st April 1990 below in <b>BLOCK CAPITALS</b>	
<input type="text"/>	
<input type="text"/>	
<input type="text"/>	
Post-code	<input type="text"/>

**10 Country of birth**

Please tick the appropriate box.

If the 'Elsewhere' box is ticked, please write in the present name of the country in which the birthplace is now situated.

England	<input type="checkbox"/> 1
Scotland	<input type="checkbox"/> 2
Wales	<input type="checkbox"/> 3
Northern Ireland	<input type="checkbox"/> 4
Irish Republic	<input type="checkbox"/> 5
Elsewhere	<input type="checkbox"/>
If elsewhere, please write in the present name of the country	
<input type="text"/>	

England	<input type="checkbox"/> 1
Scotland	<input type="checkbox"/> 2
Wales	<input type="checkbox"/> 3
Northern Ireland	<input type="checkbox"/> 4
Irish Republic	<input type="checkbox"/> 5
Elsewhere	<input type="checkbox"/>
If elsewhere, please write in the present name of the country	
<input type="text"/>	

**11 Ethnic group**

Please tick the appropriate box.

If the person is descended from more than one ethnic or racial group, please tick the group to which the person considers he/she belongs, or tick the 'Any other ethnic group' box and describe the person's ancestry in the space provided.

White	<input type="checkbox"/> 0
Black-Caribbean	<input type="checkbox"/> 1
Black-African	<input type="checkbox"/> 2
Black-Other	<input type="checkbox"/>
	<i>please describe</i>
<input type="text"/>	
Indian	<input type="checkbox"/> 3
Pakistani	<input type="checkbox"/> 4
Bangladeshi	<input type="checkbox"/> 5
Chinese	<input type="checkbox"/> 6
Any other ethnic group	<input type="checkbox"/>
	<i>please describe</i>
<input type="text"/>	

White	<input type="checkbox"/> 0
Black-Caribbean	<input type="checkbox"/> 1
Black-African	<input type="checkbox"/> 2
Black-Other	<input type="checkbox"/>
	<i>please describe</i>
<input type="text"/>	
Indian	<input type="checkbox"/> 3
Pakistani	<input type="checkbox"/> 4
Bangladeshi	<input type="checkbox"/> 5
Chinese	<input type="checkbox"/> 6
Any other ethnic group	<input type="checkbox"/>
	<i>please describe</i>
<input type="text"/>	

**12 Long-term illness**

Does the person have any long-term illness, health problem or handicap which limits his/her daily activities or the work he/she can do?

Include problems which are due to old age.

Yes, has a health problem which limits activities	<input type="checkbox"/> 1
Has no such health problem	<input type="checkbox"/> 2

Yes, has a health problem which limits activities	<input type="checkbox"/> 1
Has no such health problem	<input type="checkbox"/> 2

**1-3 Name, sex and date of birth of people to be included**

**Important:** please read the notes before answering the questions.

In answering the rest of the questions please include:

- ▶ every person who spends census night (21-22 April) in this household, including anyone staying temporarily.
- ▶ any other people who are usually members of the household but on census night are absent on holiday, at school or college, or for any other reason, even if they are being included on another census form elsewhere.
- ▶ anyone who arrives here on Monday 22nd April who was in Great Britain on the Sunday and who has not been included as present on another census form.
- ▶ any newly born baby born before the 22nd April, even if still in hospital. If not yet given a name, write BABY and the surname.

Write the names in **BLOCK CAPITALS** starting with the head or a joint head of household.

**Person No. 1**

Name and surname

Sex Male  1  
Female  2

Date of birth

Day  Month  Year

**Person No. 2**

Name and surname

Sex Male  1  
Female  2

Date of birth

Day  Month  Year

**Answers to the remaining questions are not required for any person under 16 years of age (born after 21st April 1975)**

**13 Whether working, retired, looking after the home etc last week**

Which of these things was the person doing last week?

Please read carefully right through the list and tick all the descriptions that apply.

Casual or temporary work should be counted at boxes 1, 2, 3 or 4. Also tick boxes 1, 2, 3 or 4 if the person had a job last week but was off sick, on holiday, temporarily laid off or on strike.

Boxes 1, 2, 3 and 4 refer to work for pay or profit but not to unpaid work except in a family business.

Working for an employer is **part time** (box 2) if the hours worked, excluding any overtime and mealbreaks, are usually 30 hours or less per week.

Include any person wanting a job but prevented from looking by holiday or temporary sickness.

Do not count training given or paid for by an employer.

Was working for an employer full time (more than 30 hours a week)  1

Was working for an employer part time (one hour or more a week)  2

Was self-employed, employing other people  3

Was self-employed, not employing other people  4

Was on a government employment or training scheme  5

Was waiting to start a job he/she had already accepted  6

Was unemployed and looking for a job  7

Was at school or in other full time education  8

Was unable to work because of long term sickness or disability  9

Was retired from paid work  10

Was looking after the home or family  11

Other   
please specify


Was working for an employer full time (more than 30 hours a week)  1

Was working for an employer part time (one hour or more a week)  2

Was self-employed, employing other people  3

Was self-employed, not employing other people  4

Was on a government employment or training scheme  5

Was waiting to start a job he/she had already accepted  6

Was unemployed and looking for a job  7

Was at school or in other full time education  8

Was unable to work because of long term sickness or disability  9

Was retired from paid work  10

Was looking after the home or family  11

Other   
please specify

**1-3 Name, sex and date of birth of people to be included**

**Important:** please read the notes before answering the questions.

In answering the rest of the questions please include:

- ▶ every person who spends census night (21-22 April) in this household, including anyone staying temporarily.
- ▶ any other people who are usually members of the household but on census night are absent on holiday, at school or college, or for any other reason, even if they are being included on another census form elsewhere.
- ▶ anyone who arrives here on Monday 22nd April who was in Great Britain on the Sunday and who has not been included as present on another census form.
- ▶ any newly born baby born before the 22nd April, even if still in hospital. If not yet given a name, write BABY and the surname.

Write the names in **BLOCK CAPITALS** starting with the head or a joint head of household.

Person No. 1	Person No. 2
<b>Name and surname</b> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<b>Name and surname</b> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
<b>Sex</b> Male <input type="checkbox"/> 1 Female <input type="checkbox"/> 2	<b>Sex</b> Male <input type="checkbox"/> 1 Female <input type="checkbox"/> 2
<b>Date of birth</b> Day    Month    Year <div style="display: flex; justify-content: space-between; width: 100%;"> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> </div>	<b>Date of birth</b> Day    Month    Year <div style="display: flex; justify-content: space-between; width: 100%;"> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> </div>

**Please read A below, tick the box that applies and follow the instruction by the box ticked.**

<p><b>A</b> Did the person have a paid job last week (any of the boxes 1, 2, 3 or 4 ticked at question 13)?</p>	<p>YES <input type="checkbox"/> Answer questions 14, 15, 16, 17 and 18 about the main job last week, then go on to question 19</p> <p>NO <input type="checkbox"/> Answer B</p>	<p>YES <input type="checkbox"/> Answer questions 14, 15, 16, 17 and 18 about the main job last week, then go on to question 19</p> <p>NO <input type="checkbox"/> Answer B</p>
<p><b>B</b> Has the person had a paid job within the last 10 years?</p>	<p>YES <input type="checkbox"/> Answer questions 14, 15 and 16 about the most recent job, then go on to question 19</p> <p>NO <input type="checkbox"/> Go on to question 19</p>	<p>YES <input type="checkbox"/> Answer questions 14, 15 and 16 about the most recent job, then go on to question 19</p> <p>NO <input type="checkbox"/> Go on to question 19</p>
<p><b>14 Hours worked per week</b></p> <p>How many hours per week does or did the person usually work in his or her main job? Do not count overtime or meal breaks.</p>	<p>Number of hours worked per week <input style="width: 40px;" type="text"/></p>	<p>Number of hours worked per week <input style="width: 40px;" type="text"/></p>
<p><b>15 Occupation</b></p> <p>Please give the full title of the person's present or last job and describe the main things he/she does or did in the job.</p> <p>At a, give the full title by which the job is known, for example: 'packing machinist'; 'poultry processor'; 'jig and tool fitter'; 'supervisor of typists'; 'accounts clerk'; rather than general titles like 'machinist'; 'process worker'; 'supervisor' or 'clerk'. Give rank or grade if the person has one.</p> <p>At b, write down the main things the person actually does or did in the job. If possible ask him/her to say what these things are and write them down.</p> <p><b>Armed Forces</b> — enter 'commissioned officer' or 'other rank' as appropriate at a, and leave b blank.</p> <p><b>Civil Servants</b> — give grade at a and discipline or specialism, for example: 'electrical engineer'; 'accountant'; 'chemist'; 'administrator' at b.</p>	<p><b>a Full job title</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div> <p><b>b Main things done in job</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<p><b>a Full job title</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div> <p><b>b Main things done in job</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
<p><b>16 Name and business of employer (if self-employed give the name and nature of the person's business)</b></p> <p>At a, please give the name of the employer. Give the trading name if one is used. Do not use abbreviations.</p> <p>At b, describe clearly what the employer (or the person if self-employed) makes or does (or did).</p> <p><b>Armed Forces</b> — write 'Armed Forces' at a and leave b blank. For a member of the Armed Forces of a country other than the UK — add the name of the country.</p> <p><b>Civil Servants</b> — give name of Department at a and write 'Government Department' at b.</p> <p><b>Local Government Officers</b> — give name of employing authority at a and department in which employed at b.</p>	<p><b>a Name of employer</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div> <p><b>b Description of employer's business</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<p><b>a Name of employer</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div> <p><b>b Description of employer's business</b></p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>

**1-3 Name, sex and date of birth of people to be included**

- Important:** please read the notes before answering the questions.  
In answering the rest of the questions please include:
- ▶ every person who spends census night (21-22 April) in this household, including anyone staying temporarily.
  - ▶ any other people who are usually members of the household but on census night are absent on holiday, at school or college, or for any other reason, even if they are being included on another census form elsewhere.
  - ▶ anyone who arrives here on Monday 22nd April who was in Great Britain on the Sunday and who has not been included as present on another census form.
  - ▶ any newly born baby born before the 22nd April, even if still in hospital. If not yet given a name, write BABY and the surname.

**17 Address of place of work**

Please give the full address of the person's place of work.  
For a person employed on a site for a long period, give the address of the site.  
For a person not working regularly at one place who reports daily to a depot or other fixed address, give that address.  
For a person not reporting daily to a fixed address, tick box 1.  
For a person working mainly at home, tick box 2.  
**Armed Forces — leave blank.**

**18 Daily journey to work**

Please tick the appropriate box to show how the longest part, by distance, of the person's daily journey to work is normally made.  
For a person using different means of transport on different days, show the means most often used.  
Car or van includes three-wheeled cars and motor caravans.

**19 Degrees, professional and vocational qualifications**

Has the person obtained any qualifications after reaching the age of 18 such as:

- degrees, diplomas, HNC, HND,
- nursing qualifications,
- teaching qualifications (see \* below),
- graduate or corporate membership of professional institutions,
- other professional, educational or vocational qualifications?

Do not count qualifications normally obtained at school such as GCE, CSE, GCSE, SCE and school certificates.

If box 2 is ticked, write in all qualifications even if they are not relevant to the person's present job or if the person is not working.

Please list the qualifications in the order in which they were obtained.

If more than three, please enter in a spare column and link with an arrow.

\*For a person with school teaching qualifications, give the full title of the qualification, such as 'Certificate of Education' and the subject(s) which the person is qualified to teach. The subject 'education' should then only be shown if the course had no other subject specialisation.

**Person No. 1**

Name and surname

Sex Male  1  
 Female  2

Date of birth  
 Day  Month  Year

Please write full address and postcode of workplace below in BLOCK CAPITALS

Post-code

No fixed place  1  
 Mainly at home  2

British Rail train  1  
 Underground, tube, metro  2  
 Bus, minibus or coach (public or private)  3  
 Motor cycle, scooter, moped  4  
 Driving a car or van  5  
 Passenger in car or van  6  
 Pedal cycle  7  
 On foot  8  
 Other  9  
*please specify*

Works mainly at home  0

NO — no such qualifications  1  
 YES — give details  2

1 Title   
 Subject(s)   
 Year   
 Institution

2 Title   
 Subject(s)   
 Year   
 Institution

3 Title   
 Subject(s)   
 Year   
 Institution

**Person No. 2**

Name and surname

Sex Male  1  
 Female  2

Date of birth  
 Day  Month  Year

Please write full address and postcode of workplace below in BLOCK CAPITALS

Post-code

No fixed place  1  
 Mainly at home  2

British Rail train  1  
 Underground, tube, metro  2  
 Bus, minibus or coach (public or private)  3  
 Motor cycle, scooter, moped  4  
 Driving a car or van  5  
 Passenger in car or van  6  
 Pedal cycle  7  
 On foot  8  
 Other  9  
*please specify*

Works mainly at home  0

NO — no such qualifications  1  
 YES — give details  2

1 Title   
 Subject(s)   
 Year   
 Institution

2 Title   
 Subject(s)   
 Year   
 Institution

3 Title   
 Subject(s)   
 Year   
 Institution

### H3 Tenure

Please tick the box which best describes how you and your household occupy your accommodation.

If buying by stages from a Council, Housing Association or New Town (under shared ownership, co-ownership or equity sharing scheme), answer as an owner-occupier at box 1.

**As an owner-occupier:**

- buying the property through mortgage or loan  1
- owning the property outright (no loan)  2

**By renting, rent free or by lease:**

- with a job, farm, shop or other business  3
- from a local authority (Council)  4
- from a New Town Development Corporation (or Commission) or from a Housing Action Trust  5

If your accommodation is occupied by lease originally granted for, or extended to, more than 21 years, answer as an owner-occupier.

- from a housing association or charitable trust  6
- from a private landlord, furnished  7
- from a private landlord, unfurnished  8

A private landlord may be a person or a company or another organisation not mentioned at 3, 4, 5 or 6 above.

**In some other way:**  
-please give details below

### Panel B

Was there anyone else (such as a visitor) here on the night of 21-22 April whom you have not included because there was no room on the form? No   
Yes

If yes ticked, please ask the Enumerator for another form.

Have you left anyone out because you were not sure whether they should be included on the form? No   
Yes

If yes ticked, please give their names and the reason why you were not sure about including them.

Name
Reason

Name
Reason

Name
Reason

### H4 Amenities

Does your household — that is, you and any people who usually live here with you — have the use of:

- a A bath or shower? Yes — for use only by this household  1  
Yes — for use also by another household  2  
No — no bath or shower available  3

- b A flush toilet (WC) with entrance inside the building? Yes — for use only by this household  0  
Yes — for use also by another household  1  
No — flush toilet with outside entrance only  2  
No — no flush toilet indoors or outdoors  3

- c Central heating in living rooms and bedrooms (including night storage heaters, warm air or under-floor heating), whether actually used or not? Yes — all living rooms and bedrooms centrally heated  1  
Yes — some (not all) living rooms and bedrooms centrally heated  2  
No — no living rooms or bedrooms centrally heated  3

### H5 Cars and vans

Please tick the appropriate box to indicate the number of cars and vans normally available for use by you or members of your household (other than visitors).

- Include any car or van provided by employers if normally available for use by you or members of your household, but exclude vans used only for carrying goods.
- None  0
  - One  1
  - Two  2
  - Three or more  3

### Panel C

Before you sign the form, will you please check:

- ▶ that all questions which should have been answered have been answered for every member of your household
- ▶ that you have included everyone who spent the night of 21-22 April in your household
- ▶ that you have included everyone who usually lives here but was away from home on the night of 21-22 April
- ▶ that no visitors, boarders or newly born children, even if still in hospital, have been missed

It would help the Enumerator to be able to telephone you if there is a query on, or an omission from, your form.

If you have no objection, please write your telephone number here.

#### Declaration

This form is correctly completed to the best of my knowledge and belief.

Signature(s)

Date April 1991

◀ Please turn to the first inside page

# Appendix IIIa 1991 Census form (communal establishments)



## 1991 Census England

### I form for making an individual return

Please complete this form and have it ready for collection on Monday 22nd April.

Completion of the form is compulsory under the Census Act 1920. If you refuse to complete it, or give false information, you may have to pay a fine of up to 400.

Your answers will be treated in strict confidence and used only to produce statistics. Names and addresses will not be put into the computer; only the postcode will be entered. The forms will be kept securely within my Office and treated as confidential for 100 years.

Anyone using or disclosing Census information improperly will be liable to prosecution.

After completing the form, please sign the declaration on the last page.

Thank you for your co-operation.

P J Wormald  
Registrar General

Office of Population  
Censuses and Surveys  
PO Box 100  
Fareham PO16 0AL

Telephone 0329 844444

### To be completed by the Enumerator

Census District

Enumeration District

Form Number

Serial Number

### To be completed by the Manager, Commanding Officer, Chief Resident Officer, or other person in charge of the establishment or vessel.

Name of Establishment

Address

Postcode

### To be completed by or for the Individual

Please answer question by ticking the appropriate box or boxes  where they are provided. Please use ink or ballpoint pen.

1 **Name**

Please write in your name and surname (BLOCK CAPITALS). For a baby who has not yet been given a name, write BABY and the surname.

2 **Sex**

Please tick the appropriate box.

3 **Date of birth**

Please write in the day, month and year of birth.

4 **Marital status**

On the 21st April what is your marital status?

If separated but not divorced, please tick 'Married (first marriage)' or 'Re-married' as appropriate.

Please tick one box.

5 **Position in establishment**

Please write in your position in this establishment. For example, write 'Guest'; 'Patient'; 'Inmate'; 'Staff'; 'Student'; 'Boarder'.

If you are completing the form in a private household, your relationship to the person making the return for the rest of the household should be stated.

6 **Whereabouts on night of 21-22 April 1991**

7 **Usual address**

If you usually live here, please tick 'This address'. If not, tick 'Elsewhere' and write in your usual address.

If you are a student or a schoolchild away from home during term time, your home address should be taken as your usual address.

If you live away from home for part of the week, your home address should be taken as your usual address.

Male  1

Female  2

Day Month Year




Single (never married)  1

Married (first marriage)  2

Re-married  3

Divorced (decree absolute)  4

Widowed  5

Not applicable to this form

This address  1

Elsewhere

If elsewhere, please write your usual address and postcode below in BLOCK CAPITALS

Post-code

Please turn over ▶

**8 Term time address of students and schoolchildren**

If not a student or schoolchild, please tick first box.  
 If you are a student or schoolchild and you live here during term time, tick 'This address'.  
 If you do not live here during term time, tick 'Elsewhere' and write in the current or most recent term time address.

**9 Usual address one year ago**

If your usual address one year ago (on the 21st April 1990) was the same as your current usual address (given in answer to question 7), please tick 'Same'. If not, tick 'Different' and write in your usual address one year ago.  
 For a child born since the 21st April 1990, tick the 'Child under one' box.

**10 Country of birth**

Please tick the appropriate box.  
 If the 'Elsewhere' box is ticked, please write in the present name of the country in which your birthplace is now situated.

**11 Ethnic group**

Please tick the appropriate box.  
 If you are descended from more than one ethnic or racial group, please tick the group to which you consider you belong, or tick the 'Any other ethnic group' box and describe your ancestry in the space provided.

**12 Long-term illness**

Do you have any long-term illness, health problem or handicap which limits your daily activities or the work you can do?  
 Include problems which are due to old age.

Not a student or schoolchild  1  
 This address  1  
 Elsewhere  1  
 If elsewhere, please write your term time address and postcode below in **BLOCK CAPITALS**

Postcode

Same as Question 7  1  
 Different  1  
 Child under one  3  
 If different, please write your address and postcode on the 21st April 1990 below in **BLOCK CAPITALS**

Postcode

England  1  
 Scotland  2  
 Wales  3  
 Northern Ireland  4  
 Irish Republic  5  
 Elsewhere  5  
 If elsewhere, please write in the present name of the country

White  0  
 Black-Caribbean  1  
 Black-African  2  
 Black-Other  2  
 please describe

Indian  3  
 Pakistani  4  
 Bangladeshi  5  
 Chinese  6  
 Any other ethnic group  6  
 please describe

Yes, I have a health problem which limits activities  1  
 I have no such health problem  2

**Answers to the remaining questions are not required for anyone under 16 years of age (born after 21st April 1975)**

**13 Whether working, retired, looking after the home etc last week**

Which of these things were you doing last week?

Please read carefully right through the list and tick all the descriptions that apply.

\* Casual or temporary work should be counted at boxes 1, 2, 3 or 4. Also tick boxes 1, 2, 3 or 4 if you had a job last week but were off sick, on holiday, temporarily laid off or on strike.

Boxes 1, 2, 3 and 4 refer to work for pay or profit but not to unpaid work except in a family business.

Working for an employer is **part time** (box 2) if the hours worked, excluding any overtime and mealbreaks, are usually 30 hours or less per week.

† Includes wanting a job but prevented from looking by holiday or temporary sickness.

§ Do not count training given or paid for by an employer.

\* Was working for an employer full time (more than 30 hours a week)  1

\* Was working for an employer part time (one hour or more a week)  2

\* Was self employed, employing other people  3

\* Was self employed, not employing other people  4

Was on a government employment or training scheme  5

Was waiting to start a job already accepted  6

† Was unemployed and looking for a job  7

§ Was at school or in other full time education  8

Was unable to work because of long term sickness or disability  9

Was retired from paid work  10

Was looking after the home or family  11

Other   
please specify

**Please read A below, tick the box that applies and follow the instruction by the box ticked. This will tell you which questions to answer.**

- A** Did you have a paid job last week (any of the boxes 1, 2, 3 or 4 ticked at question 13)? Yes  No  If yes ticked, answer questions 14, 15, 16, 17 and 18 about the main job last week, then go on to question 19. If no ticked, answer B.
- B** Have you had a paid job within the last 10 years? Yes  No  If yes ticked, answer questions 14, 15 and 16 about the most recent job, then go on to question 19. If no ticked, go on to question 19.

**14 Hours worked per week**

How many hours per week do or did you usually work in your main job?

Do not count overtime or meal breaks.

Number of hours worked per week

**15 Occupation**

Please give the full title of your present or last job and describe the main things you do or did in the job.

At a, give the full title by which the job is known, for example: 'packing machinist'; 'poultry processor'; 'jig and tool fitter'; 'supervisor of typists'; 'accounts clerk'; rather than general titles like 'machinist'; 'process worker'; 'supervisor' or 'clerk'. Give rank or grade if you have one.

At b, write down the main things you actually do or did in the job.

Armed Forces - enter 'commissioned officer' or 'other rank' as appropriate at a and leave b blank.

Civil Servants - give grade at a and discipline or specialism, for example: 'electrical engineer'; 'accountant'; 'chemist'; 'administrator' at b.

**a Full job title**

**b Main things done in job**

Please turn over ►

**16 Name and business of employer (if self-employed give the name and nature of business)**

At a, please give the name of your employer. Give the trading name if one is used. Do not use abbreviations.

At b, describe clearly what your employer (or yourself if self-employed) makes or does (or did).

**Armed Forces** - write 'Armed Forces' at a and leave b blank. For a member of the Armed Forces of a country other than the UK - add the name of the country.

**Civil Servants** - give name of Department at a and write 'Government Department' at b.

**Local Government Officers** - give name of employing authority at a and department in which employed at b.

**17 Address of place of work**

Please give the full address of your place of work.

If employed on a site for a long period, give the address of the site.

If not working regularly at one place but reporting daily to a depot or other fixed address, give that address.

If not reporting daily to a fixed address, tick box 1.

If working mainly at home, tick box 2.

**Armed Forces** - leave blank.

**18 Daily journey to work**

Please tick the appropriate box to show how the longest part, by distance, of your daily journey to work is normally made.

If using different means of transport on different days, show the means most often used.

Car or van includes three-wheeled cars and motor caravans.

**19 Degrees, professional and vocational qualifications**

Have you obtained any qualifications after reaching the age of 18 such as:

- degrees, diplomas, HNC, HND,
- nursing qualifications,
- teaching qualifications (see \* below),
- graduate or corporate membership of professional institutions,
- other professional, educational or vocational qualifications?

Do not count qualifications normally obtained at school such as GCE, CSE, GCSE, SCE and school certificates.

If box 2 is ticked, write in all qualifications even if they are not relevant to your present job or if you are not working.

Please list the qualifications in the order in which they were obtained.

\* If you have **school teaching qualifications**, give the full title of the qualification, such as 'Certificate of Education' and the subject(s) which you are qualified to teach. The subject 'education' should then only be shown if the course had no other subject specialisation.

<b>a Name of employer</b>											
<b>b Description of employer's business</b>											
Please write full address and postcode of workplace below in <b>BLOCK CAPITALS</b>											
	Postcode										
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>										
No fixed place <input type="checkbox"/> 1 Mainly at home <input type="checkbox"/> 2											
British Rail train <input type="checkbox"/> 1 Underground, tube, metro <input type="checkbox"/> 2 Bus, minibus or coach (public or private) <input type="checkbox"/> 3 Motor cycle, scooter, moped <input type="checkbox"/> 4 Driving a car or van <input type="checkbox"/> 5 Passenger in car or van <input type="checkbox"/> 6 Pedal cycle <input type="checkbox"/> 7 On foot <input type="checkbox"/> 8 Other <input type="checkbox"/> 9 <i>please specify</i>											
Work mainly at home <input type="checkbox"/> 0											
NO - no such qualifications <input type="checkbox"/> 1 YES - give details <input type="checkbox"/> 2											
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Year											
Institution											
<b>Declaration</b>											
<b>This form is correctly completed to the best of my knowledge and belief.</b>											
Signature	Date										
April 1991											

## Appendix IV 1971 Census: definitions and concepts

(reproduced from *Census 1971, England and Wales, General Report Part 1, Definitions*)

### 2.1 Population and households

#### The enumerated population

The **enumerated population** of an area is the total of persons alive at midnight on 25/26 April 1971 who spent that night with a *household*, in a *non-private establishment*, on board a vessel or elsewhere in the area of enumeration. In particular the enumerated population includes people who usually lived elsewhere, including abroad, but who were temporarily staying in the area on census night. Persons away from their *usual residence* on night work and persons who had travelled overnight were enumerated at the address of the *household* or *non-private establishment* which they joined on 26 April provided they had not been recorded as present on a census form elsewhere. Members of the armed forces and mercantile marine outside Great Britain on census night were excluded. Members of foreign or Commonwealth armed forces were included if present in the country on census night, but foreign and Commonwealth naval vessels, and the people on board them, were not enumerated.

Shipping: persons on board vessels (with the exception of foreign or Commonwealth naval vessels) which were at mooring or anchorage in Great Britain on census night were counted as part of the enumerated population of the area in which the vessels were moored. Persons on board vessels that were engaged on coastwise or fishing voyages, from or between ports in Great Britain, on census night were counted as part of the enumerated population of their first port of call after census night. In order to enumerate as many fishing vessels as possible details were collected from such arrivals until the 17 May 1971.

Persons enumerated elsewhere in the area of enumeration: in addition to campers and vagrants, these persons include those enumerated in caravans which were not the *usual residences* of any of the persons present in them on census night.

Persons counted in the enumerated population are sometimes referred to as enumerated persons to distinguish them from persons normally resident in the area.

Absent persons: with the exceptions of the night workers and overnight travellers mentioned above, persons normally resident in the area who were absent on census night were not counted in the enumerated population. The information about such persons, entered on a separate part (part C) of the census form, was used only in the tables on *Household Composition* (see definition of *usually resident household* given below and in 2.5).

#### The usual residence concept and the resident population

The **usual residence** of enumerated persons was obtained from the answers to question B4 on the household form, or question 4 on the personal form, which asked for the usual address of persons present on census night. If this was the same as the address of enumeration, the instruction was to write 'Here'; otherwise to give the usual address. Boarders were to be counted usually resident at the address of enumeration if they considered this was their usual address. For students and children away from home during term time the home address was to be given as their usual address. The usual address for persons for whom no answer was given, or for whom the answer was 'None', was taken as the place of enumeration.

In communal establishments for the sick or disabled, such as hospitals, homes for the aged and nursing homes a leaflet (E 14) was left with the person responsible at the establishment for distributing the personal forms, advising how patients should answer the question about usual address. A copy of leaflet E 14 is shown in Figure 1 (p 7).



1 9 7 1

C E N S U S

## DEFINITION OF 'USUAL ADDRESS'

ISSUED FOR USE IN HOSPITALS AND CERTAIN OTHER TYPES OF COMMUNAL ESTABLISHMENT

The purpose of this leaflet is to give advice on how question 4 on the Census form should be answered.

The definition of 'usual address' for patients in your establishment is given below.

Please be good enough to pass on this advice to the patients concerned before they fill in their form.

<p><b>A Patients in :-</b></p> <p>Communal Establishments providing Part III or Part IV accommodation Homes for epileptics Homes for incurables Homes for the blind Homes for the deaf and dumb Homes for mentally defective children Almshouses</p>	<p><b>B Patients in :-</b></p> <p>Convalescent homes General, Maternity or Special Hospitals (not psychiatric) Homes for unmarried mothers Maternity homes General nursing homes Sanatoria</p>	<p><b>C Patients in :-</b></p> <p>Chronic sick hospitals Psychiatric hospitals</p>	<p><b>D</b> If the establishment is a combination of any of those in groups A, B or C, give the advice appropriate to the group.</p> <hr/>
<p><b>ANSWER</b></p> <p>"Here"</p>	<p><b>ANSWER</b></p> <p>Give the home address.</p>	<p><b>ANSWER</b></p> <p>"Here"—If the patient has been in hospital for six months or more.</p> <p>Otherwise give the home address.</p>	

For inmates of prisons, remand centres, borstals and detention centres the following procedure was carried out. If a prisoner had served six months or more of a sentence in custody (not necessarily in the same prison or establishment) immediately prior to 25 April 1971, the answer to question 4 was 'Here'. If he had served less than six months, his usual address before admission (or 'None' if he had no fixed address) was given. A similar procedure was followed for children in approved schools and remand homes.

The concept of usual residence is capable of more than one interpretation and has varied between censuses (see 3.1).

The **estimated resident population (census definition)** of an area is obtained from the information on the *usual residence* of enumerated persons described above. Persons *usually resident* outside Great Britain were counted in the resident population of the area where they were enumerated. Thus the estimated resident population of an area is derived according to the following identity (the figures shown in brackets are for England and Wales):

$$\begin{aligned} & \text{Estimated resident population of an area (48,754,815)} \\ = & \text{Enumerated population (48,749,575)} \\ - & \text{Population enumerated in area but returned as resident elsewhere in Great Britain} \\ & \text{(26,170)} \\ + & \text{Population resident in area but enumerated elsewhere in Great Britain (31,410)} \end{aligned}$$

The census definition of resident population differs from the definition used in the Registrar General's annual population estimates. The annual estimate of the population of an area includes forces stationed in the area (wherever their homes) and excludes forces whose homes are in the area but who are stationed elsewhere. Similarly students and school children who spend term time away from home are included in the annual estimate of the population of the area containing their college, school or lodgings and not in that for the area of their home address.

**Visitors to an area** are those persons enumerated in the area whose usual address lies outside the area. (An entry of 'Visitor' in answer to question B5 on the household form, asking for relationship of each person to the head of the household, is not used to distinguish between visitors and residents.)

For country (area) of usual residence the following definitions apply:

**Irish Republic** includes Ireland *part not stated* unless the latter is separately identified;

**Old Commonwealth** consists of Australia, Canada and New Zealand;

**New Commonwealth** consists of Commonwealth countries other than the *United Kingdom* and the *Old Commonwealth*, as at 1971 (the term New Commonwealth in the tables therefore includes Pakistan);

**Foreign countries** are all countries outside the *United Kingdom, Irish Republic, Old Commonwealth* and *New Commonwealth*

#### General demographic terms

**Age** is the completed years of age at the census date and was calculated from the date of birth given in reply to question B2 on the household form or question 2 on the personal form. The question (B2) was

B2  
Write the date of  
birth of the  
person.  
Day    Month    Year

**Year of birth:** to facilitate coding, the *Advance Analysis* tabulations were produced according to year of birth. These analyses cannot be directly compared with those using *age* at census date in the main series of tabulations.

**Pensionable age** is the minimum age at which a person may receive a National Insurance Retirement Pension – 60 for women and 65 for men.

**Marital condition** was obtained from the answers to question B6 on the household form or question 6 on the personal form. The question (B6) was

B6  
Write 'single',  
'married',  
'widowed' or  
'divorced' as  
appropriate.  
If separated and  
not divorced  
write 'married'.

It gives the marital condition at census day. **Single** persons are persons who have never married (that is spinsters and bachelors). **Married** persons include those who were separated but not *divorced*. **Widowed** persons are those who have not remarried since their spouse died. **Divorced** persons are those who have not remarried after divorce.

**Average annual rate of change of population** is defined for an intercensal period as the annual percentage rate of change assuming a constant proportional annual increase (or decrease) in population over the period.

#### Households

A **household** (equivalent to the term private household used in recent censuses) is either one person living alone, or a group of persons (who may or may not be related) living at the same address with common housekeeping. Persons staying temporarily with the household are included. A boarder having at least one meal a day with the household counts as a member of the household (breakfast counts as a meal for this purpose); but a lodger taking no meals with the main household counts as a separate one-person household, even if he shares kitchen and bathroom. A group of unrelated persons sharing a house or flat would count as one or as several households according to whether they maintained common housekeeping or provided their own meals separately. It was the enumerator's responsibility to ascertain how many households were present at a given address and to obtain a completed household form from each: his conclusions were not amended in the Census Offices except that in the case of more than one household sharing a single room or sharing a caravan such households were amalgamated to form a single household.

An **enumerated household** is a *household* containing at least one enumerated person, that is with at least one person present on census night, irrespective of whether that person usually lives at the address of enumeration.

An **absent household** is a *household usually resident* at an address at which there was no person present on census night. Information about absent households was obtained by the enumerators for addresses for which no return was made and from census forms of which only part A or parts A and C were completed.

For the *Household Composition* tables (see 3.5) a different concept of household is used, namely the *usually resident* or *de jure household*. **Usually resident (de jure) households** are

- (a) **enumerated households** with at least one person normally resident at the address of enumeration (note: the *usually resident* person(s) need not have been present on census night) and
- (b) **absent households** who returned forms with only parts A and C completed.

Persons enumerated at an address other than their usual address are excluded from the usually resident household at the address of enumeration. **Resident domestic servants** are also excluded.

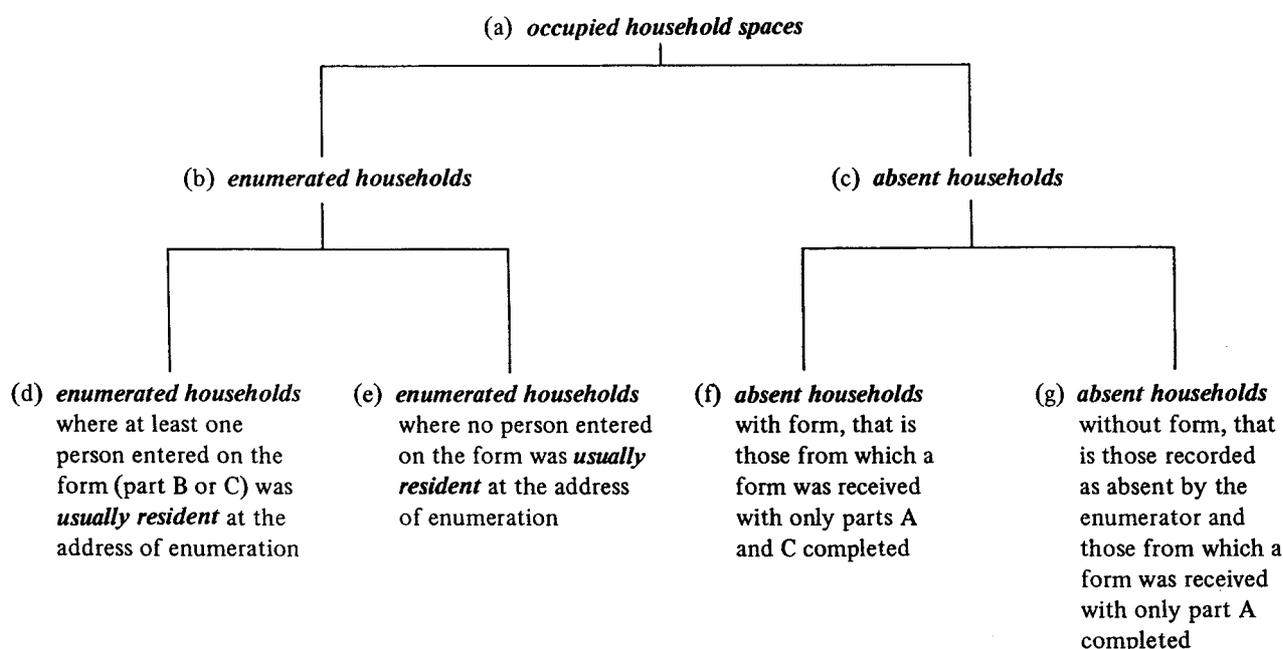
The population covered by the *Household Composition* tables should not be confused with that covered by the *Usual Residence* tables which give analyses of all enumerated persons according to their usual address as given in the census form for their place of enumeration.

Figure 2 and the table below show how *enumerated* and *usually resident households* are interrelated. *Usually resident households* are those in parts (d) and (f) in Figure 2.

Thus *usually resident households equal enumerated households minus (e) plus (f)*. Quantifying this identity gives the following ten per cent sample figures<sup>1</sup> for England and Wales:

	Total <i>enumerated households</i>		1,650,989
<i>minus</i>	<i>Enumerated households with no known usual residents other than domestic servants</i>	box (e)	4,526
<i>equals</i>		box (d)	1,646,463
<i>plus</i>	<i>Households from which all usually resident members were absent and no non-residents were present</i>	box (f)	15,425
<i>equals</i>	Total <i>usually resident households</i>		1,661,888

Figure 2 *Enumerated and usually resident households*



## 2.2 Non-private establishments

### Population covered

In addition to the persons in *households* people were enumerated in a variety of *non-private establishments* (equivalent to non-private *households*) such as hotels, boarding houses, hospitals, mental homes, homes for old people, children's homes, boarding schools, prisons, armed forces establishments, ships, hostels, religious communities and the like. Generally the distinguishing characteristic is some form of communal catering and *households* enumerated on H forms with whom there were five or more boarders (or patients, foster children, lodgers or non-domestic employees) on census night were not counted as *households* but counted under the appropriate class of non-private establishments.

Caravan dwellers who were part of a larger establishment but who provided their own catering arrangements (for example fairground or circus families) were counted as *households* as were persons occupying married quarters within the perimeter of a defence establishment. Likewise persons occupying private residences in the grounds of hospitals, schools, and other non-private establishments were treated as *households* but households

<sup>1</sup> Source: *Census 1971, England and Wales, Household Composition Tables, Part I (10% Sample)* HMSO (London 1975)

occupying flats or suites of rooms within the main building of an establishment were not required to be identified separately from the establishment. (This is a change of procedure from the 1961 and 1966 censuses which was made because of the difficulty of determining catering arrangements and the extent of the accommodation occupied – see 3.2). Annexes to non-private establishments were treated as separate establishments if they provided meals (breakfast counts as a meal) but were treated as part of the main establishment if they did not provide meals. In previous censuses hotels which were closed with only the manager's *household* in residence at the time of the census were not counted as hotels and only the manager's accommodation counted as a *household space*. In the 1971 Census tables, however, these are included as hotels as the *household spaces* occupied by the managers were not identified separately.

Classification of non-private establishments.

Some notes on the classification of *non-private establishments* follow.

**Hotels, etc:** these are hotels, boarding houses, apartment houses, inns, holiday camps and other similar establishments providing board and accommodation for visitors. Also included are *households* containing five or more boarders or paying guests and hydro-pathic hotels, nature cure camps and similar establishments. (Establishments which, although described as hotels or inns, have no accommodation for guests are excluded. Hostels, Rowton Houses, common lodging houses and residential clubs are excluded and treated as *miscellaneous communal establishments*.)

**National health service hospitals and homes:** these are hospitals and homes administered by a Hospital Management Committee or Board of Governors or directly by the Department of Health and Social Security. Nurses, etc homes or hostels administered by a Hospital Management Committee or Board of Governors are included in this category whether part of the hospital premises or not. (Separate accommodation which is occupied by a *household*, for example a house occupied by the medical superintendent and his *family*, is excluded and treated as a private *dwelling*.)

**Psychiatric:** these are hospitals classified by the Department of Health and Social Security as psychiatric including Broadmoor, Rampton and Moss Side special hospitals.

**Other:** these are all other National Health Service hospitals and homes.

**Non-national health service hospitals and homes:** these are hospitals, convalescent homes and nursing homes not administered under the National Health Service. Christian Science Homes are included. Also included are nurses, etc homes or hostels attached to such hospitals or nursing homes.

**Psychiatric:** these are mental hospitals or homes administered as above and include homes and hostels for the mentally disordered maintained by Local Authorities and mental after-care units.

**Other:** these are all other *non-National Health Service hospitals* and homes including households containing five or more patients.

**Homes for the old and for the disabled:** these are homes for old and/or disabled persons registered with the Local Authority, that is Part III Accommodation, and residential accommodation for the old and/or disabled including accommodation made available in premises maintained by voluntary organisations. Almshouses are included provided they are not occupied by *households*.

**Children's homes:** these are children's homes and hostels including those provided or maintained by voluntary organisations. *Households* with five or more foster-children are included. (Residential schools and homes for handicapped, educationally subnormal and maladjusted children maintained or assisted by education authorities are excluded and classified as *educational establishments*.)

**Educational establishments:** these are residential schools, training colleges, theological colleges and university halls of residence and students' hostels administered by schools, colleges and universities. Residential schools and homes for handicapped, educationally subnormal and maladjusted children maintained or assisted by education authorities are included here and not as children's homes. Also included are religious institutions which are boarding schools or which have living accommodation for teachers. (Training schools

provided exclusively for a single employer or for a trade association or government department, for example Miners' Training Centre, Foresters' Training School and Civil Defence School, are excluded and classified as *miscellaneous communal establishments*.)

**Places of detention:** these are prisons, borstals, approved schools, remand homes, detention centres and police stations containing a lock-up where someone might be detained overnight. (Probation homes and hostels are excluded and classified as *miscellaneous communal establishments*.)

**Defence establishments, including naval vessels and services hospitals:** these are Army and Air Force camps or establishments, Naval Shore Stations and vessels manned by service personnel, Fleet Auxiliary vessels, services hospitals and establishments enumerated under security arrangements. Hostels for NAAFI etc personnel even if outside the grounds of a camp are included. Civilians in services establishments including NAAFI staff are included in the population of defence establishments. (Service personnel or civilians living in separate married quarters and residential caretakers or NCOs in Territorial Army Drill Halls are excluded and treated as *households*.)

**Civilian ships, boats and barges:** these include all civilian ships, boats and barges. (Lightships are excluded and classified as *miscellaneous communal establishments*. Houseboats are excluded and treated as being occupied by private *households*.)

**Miscellaneous communal establishments:** these are residential clubs; common lodging houses; Rowton Houses and similar working men's hostels; hostels attached to vocational training establishments (ie those excluded from *educational establishments*); homes, hostels and residential clubs for district nurses and private nursing associations; homes for unmarried mothers (provided they are not maternity homes); probation homes and hostels; youth hostels, YMCA, YWCA, Church Army and Salvation Army hostels; missions and settlements for example Missions to Seamen, Oxford House (Bethnal Green); temporary accommodation for homeless and evicted persons, accommodation for persons with no settled way of life and re-establishment centres; fire stations; lighthouses and lightships; households containing five or more non-domestic employees; religious institutions not elsewhere classified. (Religious institutions which are in whole or part assignable to one of the other categories are included in those categories. If assignable to more than one category the religious, other staff and inmates are assigned to the separate categories but if no division of the religious or other staff is possible they are assigned to miscellaneous communal establishments with the inmates in their separate categories. All other religious institutions are assigned to miscellaneous communal establishments.)

Other terms used

**Status in establishment:** for *non-private establishments* other than *defence establishments*, *civilian ships* and *miscellaneous communal establishments* a distinction is made between staff and other persons. In *hotels, etc* persons not classified as staff are grouped into a further three categories giving the following classification:

- (a) **Manager and staff** – the manager or employers and all employed staff;
- (b) **Relatives of manager and staff** – all relatives who are not staff members;
- (c) **Visiting guests** – guests whose usual address given in answer to question 4 of the personal form, was not that of the establishment in which they were enumerated;
- (d) **Resident guests** – guests whose usual address, given in answer to question 4 of the personal form, was 'Here', that is the address of enumeration.

In *non-private establishments* other than *hotels*, *defence establishments*, *civilian ships* and *miscellaneous communal establishments* persons not classified as staff have been identified as **inmates**. These are persons within the establishment for treatment, care, schooling or detention.

**The number of rooms in hotels and boarding houses** is the number of rooms used by guests or staff and their families for living, eating or sleeping but does not include store-rooms, offices, kitchens, bathrooms or closets.

## 2.3 Housing

### Population covered

The statistics in the *Housing* tables concern the characteristics of the housing of *households*. The information was derived from the answers to questions A1, A2, A3 and A5 on the household form and, for the identification of *dwellings*, extra data collected by the enumerators. Most of the tables cover *enumerated households* but some relate specifically to *dwellings*. Many of the tables are restricted to *enumerated households* in *permanent buildings*. At the 1971 Census there were 16,509,905 *enumerated households* in England and Wales 16,434,075 of which were in *permanent buildings*. The statistics in the *Availability of Cars* tables were derived from the answers to question A4 on the household form and refer to all *enumerated households*.

### Household space and dwelling

In the test census carried out in 1968 as preparation for the 1971 Census the concept of a dwelling as used in previous censuses was used again and the procedures by which it was hoped enumerators would identify dwellings followed the same principles as earlier.

However, observation of the problems presented to the enumerators in doing this revealed that the work could not be done efficiently. The doubt consequently cast on the validity of the figures obtained in this way led to the decision not to repeat the procedures used in the past. The old concept of a dwelling was replaced by a new one which required the enumerator to obtain only simple information which could be gathered with less difficulty. Chapter 3 gives details of the dwelling concepts used in previous censuses.

The term *dwelling* used in the tables produced from the 1971 Census has therefore a different meaning from the one it carried in previous censuses. In all previous censuses the meaning of the word *dwelling*, in the context of the census, has been defined and explained in the instructions given to enumerators who were told to identify individual dwellings and indicate in the records the *households* occupying each dwelling so identified. In 1971, the term *dwelling* was not used in the printed instructions given to enumerators or in the training they received from Census Officers.

The new concept depended on classifying households according to the degree of privacy they enjoyed and then grouping together *households* whose living accommodation lacked certain degrees of privacy. The new concept of a dwelling starts from the idea of household spaces.

The term *household space* is used to describe the totality of all the rooms used by the *household* for living purposes, together with the areas such as halls, landings, passages and stairs which are necessary for movement between such rooms and for, but not only for, access to that household's living accommodation. Rooms used for living purposes exclude bathrooms, toilets, sculleries not used for cooking, closets, pantries and store rooms, lobbies, recesses, offices or shops used for business purposes and small kitchens less than six feet wide; none of these rooms are of general use and are not therefore counted as space the *household* has available for living purposes. Any circulation areas (such as stairs or landings) used by a *household* to get to such rooms as small kitchens, toilets and bathrooms will only be counted as part of the household space if the *household* also uses it to move between rooms counted in its household space.

The answer to question A2 on the census household form served to alert the enumerator to the possibility of a *household* sharing some accommodation with another *household*, and in these circumstances the enumerator had to decide on the nature of the sharing, record it on the form and in his record book. The question was

A2

Does your household share with anyone else the use of any room, or hall, passage, landing, or staircase?

Yes

No

The final record prepared by the enumerator shows, by means of brackets and symbols in columns, those *households* who shared household space and the extent of the sharing. The brackets inserted by enumerators are used to define the extent of dwellings for the purpose of producing statistics – all *households* within a bracket being considered as sharing one dwelling.

Two or more *households* can share space in all or some of a number of ways. They can share rooms (other than bathrooms and toilets) used for living and a dwelling should be so defined to ensure that any such *households* are included within the same dwelling. Thus, for example, the spaces of two *households* living in one house and sharing one room should be grouped together to count as one dwelling. *Households* can share the areas (such as halls, passages, landings, stairs, sometimes referred to as access space) which they use to get to their own accommodation but (assuming that no rooms are shared) such *households* will encroach on one another's privacy only if such access space has to be used also by one or more of the *households* for moving between the rooms of their living accommodation. Where this is the case it seems reasonable for the *household spaces* of such *households* to be grouped together to count as one dwelling. Thus, the spaces of *households* who each occupy a separate floor of a two or three storeyed house, not properly converted into flats, so that movement between the rooms on the lower floors involves crossing a hall or landing used for access to the upper floors, should be grouped together to count as a dwelling. However, where *households* share access areas with one another and such areas are used by all these *households* only for access purposes, such *households* do not encroach on one another's privacy and the *household spaces* of each such *household* could reasonably be treated as a separate dwelling. So that in purpose-built flats and in houses properly converted into flats each flat should count as a separate dwelling. Clearly households who share neither rooms nor any access spaces with any other household should be considered as occupying a single dwelling and the whole of their space should count as a dwelling. The total of the *household spaces* as defined above of households who share household space also constitutes a single dwelling.

Thus, as used in these tables, the term *dwelling* means either:

- (a) the total *household space* occupied by a *household* which shares none of its household or access space of any kind with any other *household*;
- (b) the *household space* of a *household* which shares its access space with other *households* but
  - (i) itself uses this space only for access, and
  - (ii) this space is used by other *households* for access only;
- (c) the total of the *household spaces* of those *households* who share
  - (i) rooms (other than toilets or bathrooms) and/or
  - (ii) access space, part or the whole of which is used by at least one of the *households* to move between the rooms in their *household space*.

An *unshared dwelling* is any *household space* defined by either (a) or (b) above, while a *shared dwelling* is one defined by (c) above.

The situation could arise in which a house was shared by a number of *households*, each of whose *household space* was completely self-contained; that is to say none of them used the access areas for moving between their rooms. However, because of the exclusion of small kitchens from the *household spaces*, such *households* might be sharing a small kitchen and have access to it only by means of the common access areas. In such exceptional circumstances the limitations of the definition of the *household space* would mean that each *household space* would be considered as a separate *dwelling*. An indication of the extent of these circumstances is given in the footnotes to the tables showing the number of *households* in *unshared dwellings* who nevertheless share sinks and stoves.

An *occupied dwelling* is either a *dwelling* in which at least one *household* was enumerated on census night or a *dwelling* in which at least one *household* usually, or occasionally, lived, although absent on census night.

A *vacant dwelling* is a *dwelling* which the enumerator recorded as having no *household* enumerated there on census night, and is neither the *usual residence* of any *absent household*, nor is it a *dwelling* which while not being the *usual residence* of any *household* is occupied occasionally by a *household*.

A *vacant household space* (other than a *vacant dwelling*) is the vacant accommodation in a *shared occupied dwelling*. A *shared dwelling* can consist of *occupied household space* (in the same sense as when applied to *dwelling*) and *vacant household space*.

Type of building and type of household space

*Household spaces* are classified by type according to the type of building and the degree of sharing within the *dwelling*. The following categories are identified:

- (a) *households in unshared dwellings in permanent buildings;*
- (b) *households in self-contained accommodation within shared dwellings in permanent buildings;*
- (c) *households in self-contained accommodation within shared dwellings in permanent buildings* with exclusive use of both stove and sink;
- (d) *households not in self-contained accommodation;*
- (e) *households not in self-contained accommodation* with exclusive use of both stove and sink;
- (f) *households in caravans and other non-permanent buildings;*
- (g) *households in caravans.*

A **permanent building** is a building which satisfies at least one of the following criteria;

- (a) the walls are of brick, stone and mortar, concrete, breeze block or similar material; or
- (b) the roof is of ceramic tiles, slate, thatch, shingle or concrete; or
- (c) the length of the shortest wall is at least 15 feet.

A **non-permanent building** is a structure that does not satisfy any of the above conditions. Non-permanent buildings are sub-classified as caravans or **other non-permanent buildings**. Note that non-permanent buildings were not recorded unless they were occupied on census night or they were someone's *usual residence*. Thus vacant non-permanent buildings were not recorded. As all occupants of a non-permanent building were treated as one *household* there are no shared non-permanent buildings.

A **permanent dwelling** is a *dwelling in a permanent building*.

A **household in self-contained accommodation within a shared dwelling** is a *household* which uses the space it shares in the *dwelling* for access to its own space and not for moving between its rooms.

A **household not in self-contained accommodation** is one which shares with one or more other *households* either room(s) in its own *household space* and/or space for moving between the rooms in its *household space*.

In classifying by *type of household space* the last two categories defined above are sub-divided according to whether or not the household has exclusive use of stove and sink (see amenities).

Rooms and density of occupation

The **size of a dwelling or household space** is the number of rooms in a *dwelling or household space* and is derived from the answers given to question A3 on the household forms. The question was

A3

How many rooms are there in your household's accommodation? . . . . .

Do not count

Small kitchens less than 6 ft wide, bathrooms and toilets, sculleries not used for cooking, closets, pantries and storerooms, landings, halls, lobbies or recesses, offices or shops used solely for business purposes.

Note

A large room divided by a sliding or fixed partition should be counted as two rooms.

A room divided by curtains or portable screens should be counted as one room.

A **vacant room** is a room in a *vacant household space*.

Notes on the rooms counted in previous censuses are given in 3.3. These show that the rooms counted in 1971 included the same types as in the 1966 Sample Census with the

exclusion only of small kitchens, but in 1961 kitchens were counted only if they were used regularly for meals, or as living rooms or bedrooms.

The enumerators recorded on the household form the rooms shared between *households* as the appropriate fraction of a room (that is the number of shared rooms divided by the number of sharing households) for each of the sharing households; this ensured that the count of the total number of rooms in a *shared dwelling* could be correctly decided. However, in tabulating the number of rooms in *household spaces*, fractions of a room could not be used easily and the shared rooms were re-allocated to household spaces in the following manner. The number of shared rooms was subtracted from the answer to question A3 and the fractions of the shared rooms added on to give the actual number of rooms occupied by the *households*; this number could contain a fraction, but the sum of the number of rooms in every *household* in a *dwelling* still remained equal to the correct total of rooms in that dwelling. The fractional counts of rooms were then adjusted by rounding some numbers up and others down so as to maintain the correct total of rooms in the *dwelling*. Whether a number was rounded up or down depended on its position in the list of sharing *households* recorded in the enumerator's record book, those at the beginning of the list being rounded up and those at the end being rounded down.

The *density of occupation* is the ratio of the number of persons in a *household* to the number of rooms in that household's accommodation. (For the *Housing* tables the number of persons in a *household* is the number of enumerated persons. However in the *Household Composition* tables the number of persons in the *usually resident household* is used to define the *density of occupation*.) The following classification of density is used:

- Over 1½ persons per room
- Over 1 and up to 1½ persons per room
- Over ¾ and up to 1 person per room
- ½ and over and up to ¾ person per room
- Less than ½ person per room.

#### Tenure

The *tenure of a household* was obtained from the answers to question A1 on the household form. The question was

A1

How do you and your household occupy your accommodation?

- 1  As an owner occupier (including purchase by mortgage)
- 2  By renting it from the Council, New Town, or SSHA
- 3  As an unfurnished letting from a private landlord or company
- 4  As a furnished letting
- 5  In some other way (Please give details, including whether furnished or unfurnished)

.....  
Note: if the accommodation is occupied by lease originally granted for more than 31 years, tick 'owner occupier'.

The five categories of tenure given in the tables are:

- (i) Owner occupier;
- (ii) Rented from a Council or New Town;
- (iii) Rented furnished;
- (iv) Rented unfurnished from a private landlord;
- (v) Not stated;

and the first four of these correspond to the first four boxes of the question. Where the fifth box was ticked and the householder answered by giving details of his tenure, the information was classified into one of these four categories. Tenure from a housing association was treated as renting unfurnished from a private landlord. Renting with a farm, shop or other business premises, and tenure by virtue of employment were both classified as renting unfurnished from a private landlord unless furnished tenure was specified when the tenure was treated as rented furnished. Statements of 'rent-free'

tenure from a relative, employer, previous employer, charitable organisation or from the Crown were similarly coded as rented unfurnished from a private landlord unless stated to be furnished. Leasehold tenure was counted as owner occupation if the lease was originally granted for, or since extended to, more than 21 years; otherwise it was treated as unfurnished tenancy.

The **tenure of a dwelling** was taken to be that of the lowest numerical code (see above list) allocated to any of the *households* in that *dwelling*.

#### Amenities

**Household amenities** are cookers or cooking stoves, kitchen sinks, fixed baths or showers, hot water supplies and flush toilets. Information about the possession of these and the extent to which they were shared by other *households*, and whether toilets were available inside or outside was obtained from answers to question A5. The question was:

#### A5

Has your household the use of the following amenities on these premises?

- |  |  |
|--|--|
| a A cooker or cooking stove with an oven   | 1 <input type="checkbox"/> YES – for use only by this household    |
|  | 2 <input type="checkbox"/> YES – for use also by another household |
|  | 3 <input type="checkbox"/> NO                                      |
| b A kitchen sink permanently connected to a water supply and a waste pipe  | 1 <input type="checkbox"/> YES – for use only by this household    |
|  | 2 <input type="checkbox"/> YES – for use also by another household |
|  | 3 <input type="checkbox"/> NO                                      |
| c A fixed bath or shower permanently connected to a water supply and a waste pipe  | 1 <input type="checkbox"/> YES – for use only by this household    |
|  | 2 <input type="checkbox"/> YES – for use also by another household |
|  | 3 <input type="checkbox"/> NO                                      |
| d A hot water supply (to a washbasin, or kitchen sink, or bath, or shower) from a heating appliance or boiler which is connected to a piped water supply | 1 <input type="checkbox"/> YES – for use only by this household    |
|  | 2 <input type="checkbox"/> YES – for use also by another household |
|  | 3 <input type="checkbox"/> NO                                      |
| e A flush toilet (WC) with entrance inside the dwelling  | 1 <input type="checkbox"/> YES – for use only by this household    |
|  | 2 <input type="checkbox"/> YES – for use also by another household |
|  | 3 <input type="checkbox"/> NO                                      |
| f A flush toilet (WC) with entrance outside the dwelling   | 1 <input type="checkbox"/> YES – for use only by this household    |
|  | 2 <input type="checkbox"/> YES – for use also by another household |
|  | 3 <input type="checkbox"/> NO                                      |

The answers to questions A5a and A5b on the sharing of cookers, or cooking stoves, and sinks, were used in the classification of *type of household space*.

Some additional notes on the amenities questions were provided to the enumerator in 1971 to assist him when asked for advice. These were briefly:

- b kitchen sink: a wash hand basin should not be counted
- d hot water supply: geyser over a sink etc counts but not a copper from which water has to be transferred by hand to the sink, bath etc.
- e/f flush toilet: any toilet which can be flushed into a sewer, cesspit etc should be counted, even if the cistern is temporarily broken.

Householders who omitted part e (inside flush toilet) or part f (outside flush toilet) while answering 'Yes' to the other part, were assumed not to have the omitted amenity. If more than one answer was given to any part of the question, the lowest-numbered answer was accepted, that is exclusive use before shared was used for classification and shared use before no use.

Chapter 3 includes a summary table of the amenity questions asked at post-war censuses.

### Availability of cars

Tables were produced analysing *households* by the number of cars and vans available for use by household members from the answers given to question A4. The question was

A4

How many cars and vans are normally available for use by you or members of your household (other than visitors)? .....

Include any provided by employers if normally available for use by you or members of your household, but exclude vans used solely for the carriage of goods.

If None, write 'NONE'.

## 2.4 Country of birth

### Population covered

A person's **country of birth** was obtained from the answer given to question B9 on the household form, or question 9 on the personal form. The question was asked in respect of all enumerated persons. The question (B9) was

B9

a If the person was born in England or Wales or Scotland or Northern Ireland tick the appropriate box.

or

b If the person was born in another country, write the name of the country (using the name by which it is known today) and the year in which the person first entered the United Kingdom (that is England, Wales, Scotland and Northern Ireland).

a Born in

<input type="checkbox"/>	England	01	<input type="checkbox"/>	Scotland	
02	<input type="checkbox"/>	Wales (including Monmouthshire)	03	<input type="checkbox"/>	Northern Ireland

or b Born in ..... (country)  
and entered UK in ..... (year)

### Classification of country of birth

For the classification of country of birth the United Kingdom has been taken to include Jersey, *Guernsey* and the Isle of Man as well as England, Scotland, Wales and Northern Ireland; *Guernsey* has been taken to include all the Channel Islands other than Jersey.

Persons born outside the *United Kingdom* as defined above, are divided into *visitors to the United Kingdom* and *residents in the United Kingdom*.

*Visitors to the United Kingdom* are persons whose usual address is outside the *United Kingdom*, as defined above.

Note: an entry of 'Visitor' in answer to question B5 on the household form (asking for relationship of each person to the *head of the household*) is not used to distinguish between visitors and residents.

*Residents in the United Kingdom* are persons whose usual address is in the *United Kingdom*, as defined above.

*Irish Republic* includes cases in which the country of birth was returned as 'Ireland', except in tables where these cases are shown separately as Ireland (part not stated).

The *Old Commonwealth* consists of Australia, Canada and New Zealand.

The *New Commonwealth* is the Commonwealth outside the *United Kingdom* and *Old Commonwealth* as at 1971; the term *New Commonwealth* in the tables therefore includes Pakistan.

The *New Commonwealth* is subdivided into:

**Africa** – Ghana, Kenya, Malawi, Nigeria, Rhodesia, Sierra Leone, Tanzania, Uganda, Zambia and other African Commonwealth (including Ascension Island, Botswana, British Indian Ocean Territories, Gambia, Lesotho, Mauritius, Seychelles, St Helena, Swaziland and Tristan da Cunha);

**America** – Barbados, Guyana, Jamaica, Trinidad and Tobago and other and unspecified countries in America (including Bahama Islands, Barbuda, Bermuda, British Honduras, Cayman Islands, Falkland Islands, Leeward Islands, Redonda, Turks and Caicos Islands, Windward Islands and West Indies (so stated));

**Asia and Oceania** – Ceylon, Cyprus (see note after **Europe** below), Hong Kong, India, Malaysia, Pakistan (as constituted in 1971), Singapore and other countries in Asia and Oceania (including Brunei and all Commonwealth islands in the Pacific, not elsewhere mentioned);

**Europe** – Gibraltar, Malta and Gozo. (in the *Household Composition* tables Cyprus was included in *Europe New Commonwealth*.)

The following terms are also used to describe sub-divisions of the **New Commonwealth**:

**Far East** – Hong Kong, Malaysia, Singapore, Brunei and all Commonwealth Islands in the Pacific not elsewhere classified;

**West Indies** – Barbados, Guyana, Jamaica, Trinidad and Tobago. Note that Commonwealth birthplaces in unspecified parts of the Caribbean (including West Indies (so stated)) have been included under other and unspecified New Commonwealth countries in America. (In the *Advance Analysis* the term West Indies included all *New Commonwealth* countries in the Americas.)

**Foreign countries** are all countries outside the *United Kingdom* (as defined above), *Irish Republic* (including Ireland (part not stated)), *Old Commonwealth* and *New Commonwealth*.

**European Economic Community**: it was not possible to distinguish between the German Federal Republic and the German Democratic Republic. The term EEC or European Economic Community is therefore used for the Community as at census date but including the whole of Germany, (that is Belgium, France, Germany (GFR and GDR), Italy, Luxembourg and The Netherlands).

#### Year of entry into the United Kingdom

The **year of entry into the United Kingdom** is the year in which a person born outside the United Kingdom (England, Scotland, Wales and Northern Ireland) first came to the United Kingdom and was obtained from the answer to question B9b on the household form or question 9b on the personal form. This is not necessarily the year in which a person now permanently resident in the UK first settled in the UK.

#### Parents' countries of birth

A person's **parents' countries of birth** were obtained from the answers given to question B10 on the household form, or question 10 on the personal form.

B10

Write the country of birth of:

- a the person's father
- b the person's mother

This question should be answered even if the person's father or mother is no longer alive. (If country not known, write 'not known')

Give the name by which the country is known today.

- a Father born in (country)
- b Mother born in (country)

The countries of birth of the person's father and mother were classified into broader categories than those used for classifying the person's own birthplace, since it was likely that the answers would be less accurate. The twelve areas used in the classification of father's (and mother's) country of birth were:

*United Kingdom* (including Jersey, Guernsey and Isle of Man)

*Irish Republic* (including Ireland part not stated)

*Old Commonwealth*

*New Commonwealth – Africa*

*New Commonwealth – America*

Cyprus, Gibraltar, Malta and Gozo  
 India  
 Pakistan  
 Other countries in *Asia and Oceania New Commonwealth*  
 Other countries in *Europe*  
 Elsewhere  
 Not stated

The above classification was also condensed to give only five groups, the British Isles (that is the *UK* and *Irish Republic* as previously defined), the *Old* and *New Commonwealth* separately, elsewhere in the world and country not stated. In some tables persons are classified into 11 groups according to the countries of birth of their parents in particular combinations of these five groups.

## 2.5 Household composition

### Population covered

The statistics in the *Household Composition* tables are based on the ten per cent sample and refer to the characteristics of *households* and of *persons usually resident* in those *households* at the time of the census. Most of the tables cover *usually resident households* (see also 2.1 (p 6)). These are:

- (a) *enumerated households* with at least one person normally resident at the address of enumeration (note: the *usually resident* person(s) need not have been present on census night) and
- (b) *absent households* who returned forms with parts A and C only completed.

Chapter 2.1 (p 10) gives details of the relationship between *de jure* and *enumerated households*. Note that the population covered by the *Household Composition* tables should not be confused with that covered by the *Usual Residence* tables which give analyses of all enumerated persons according to their usual address as given on the census form for their place of enumeration.

The (*de jure*) size of a household used in the tables analysing household composition is the number of persons in the household whose usual address was given as the household address in reply to question B4 on the household form (or question 4 on the personal returns from private households), together with persons who usually lived with the household but who were absent on census night (and who were thus entered in part C of the household form). *Resident domestic servants* and members of resident domestic servants' families are excluded from the count of persons in a *usually resident household*.

**Households with no known residents** are *households* in which either (a) every person listed on the census form was stated to be *usually resident* at an address different from the address of enumeration, or (b) all persons usually resident were *resident domestic servants* or members of their families. An example of the former type is a *household* which was enumerated while on holiday in temporarily rented accommodation.

A **resident domestic servant** is a person *usually resident* at the address of enumeration whose *occupation* was private domestic servant and whose *place of work* was the address of enumeration.

Note: for the remaining definitions in this section the term *households* should be taken to mean *usually resident household*.

### Type of household and household composition coding

**Household type:** *households* are classified by type according to the answers given for individual members to question B5 on the household form (question 5 on the personal form), or to the corresponding question C1b for absent persons who were usually resident at the address.

#### B5

Write 'HEAD' for the head of the household and relationship to the head for each of the other persons: for example 'wife', 'son', 'daughter-in-law', 'visitor', 'boarder', 'paying guest'.

Each person in the *household* was given a two-digit code. The first digit of the code gave the relationship to the head of the household either of that person or of the head of that person's *family* and the second digit identified each *family* in the household separately.

In coding relationships, in-law, step and adopted relationships were treated as blood relationships but foster relationships were not. Thus 'son-in-law', 'adopted son' and 'step-son' were treated as equivalent to 'son', but 'foster-son' was treated as 'unrelated'. This practice can result in apparent contradictions; for instance a 'child' can be recorded as older than one of its parents.

The following classification by type of household was derived using the codes described above. A shortened form omitting the third level of classification (roman numerals) is used in some tables.

0 No *family*

(a) One person

(b) Two or more persons

- (i) All related in *direct descent* no other(s)
- (ii) Some related in *direct descent* with other relative(s) only
- (iii) Some related in *direct descent* with other relative(s) and unrelated person(s)
- (iv) Some related in *direct descent* with unrelated person(s) only
- (v) All related but none in *direct descent*
- (vi) Some related, (none in *direct descent*) with unrelated person(s)
- (vii) All unrelated persons

1 One *family*

(a) Married couple, no *child(ren)*, no other(s)

(b) Married couple, no *child(ren)*, with other(s)

- (i) With *lone ancestor(s)*, no other(s)
- (ii) With *lone ancestor(s)*, and other relative(s) only
- (iii) With *lone ancestor(s)*, other relative(s) and unrelated person(s)
- (iv) With *lone ancestor(s)* and unrelated person(s) only
- (v) With other relative(s) only (ie no *lone ancestor(s)*)
- (vi) With other relative(s) and unrelated person(s)
- (vii) With unrelated person(s) only

(c) Married couple with *child(ren)*, no other(s)

(d) Married couple with *child(ren)*, with other(s)

- (i)–(vii) as for 1(b) above

(e) Lone parent with *child(ren)*, no other(s)

(f) Lone parent with *child(ren)*, with other(s)

- (i)–(vii) as for 1(b) above

2 Two *families*

(a) *Direct descent*

- (i) No *child(ren)* of second generation, no other(s)
- (ii) No *child(ren)* of second generation, *lone ancestor(s)* with or without other(s)
- (iii) No *child(ren)* of second generation, with other(s) but no *lone ancestor(s)*
- (iv) With *child(ren)* of second generation, no other(s)
- (v) With *child(ren)* of second generation, with *lone ancestor(s)*, with or without other(s)
- (vi) With *child(ren)* of second generation, with other(s) but no *lone ancestor(s)*

(b) Not *direct descent*

- (i) No *child(ren)*, no other(s)
- (ii) No *child(ren)*, *lone ancestor(s)* with or without other(s)
- (iii) No *child(ren)*, with other(s) but no *lone ancestor(s)*
- (iv) With *child(ren)*, no other(s)
- (v) With *child(ren)*, with *lone ancestor(s)* with or without other(s)
- (vi) With *child(ren)*, with other(s) but no *lone ancestor(s)*

3 Three or more *families*

(a) All *direct descent*

- (i) No *child(ren)* of second or younger generation, no other(s)
- (ii) No *child(ren)* of second or younger generation, *lone ancestor(s)* with or without other(s)
- (iii) No *child(ren)* of second or younger generation, with other(s) but no *lone ancestor(s)*
- (iv) With *child(ren)*, no other(s)
- (v) With *child(ren)*, with *lone ancestor(s)* with or without other(s)
- (vi) With *child(ren)*, with *lone ancestor(s)* with or without other(s)

(b) Not all *direct descent*

- (i) With *lone ancestor(s)* with or without other(s)
- (ii) No *lone ancestor(s)* with or without other(s)

Terms used

**Head of household** was taken to be the person reported in answer to either question B5 or C1b on the H form as 'Head' unless this person was:

- (a) under 15 years of age;
- (b) not *usually resident* at the address of enumeration, or;
- (c) a *resident domestic servant* of the household, or a member of such a domestic servant's family;

in which case the first stated resident member over 15 years of age who was not a *domestic servant* was taken to be head. In the last resort, a resident under 15 years of age was taken as head. No head was identified for *households* with no persons *usually resident* at the address or *households* consisting entirely of *domestic servants*.

**A family** consists of

- (a) a married couple with or without their never-married *child(ren)*,  
or
- (b) a father or mother together with his or her never-married *child(ren)*,  
or
- (c) grandparents (or a lone grandparent) with their grandchild(ren) if there are no parents *usually resident* in the household.

A *family* of type (a) is a **married couple family** and a *family* of type (b) is a **lone parent family**. *Families* of type (c) are classified as appropriate.

The head of a *family* was taken to be the husband in a *married couple family* or the lone mother or lone father in a *lone parent family*.

**Persons not in a family** are those persons in the *household* who could not be allocated to a *family* on the above definition.

A **visitor** is a person enumerated as a member of the *household* but who was not *usually resident* at the address of enumeration (including people with 'no fixed' *usual residence*).

Note: *visitors* and their *families* and *resident domestic servants* and their *families* are excluded from the count of *persons in a household*. Details of persons in these categories are given in Tables 13, 14 and 15 of the *Household Composition Report*. A family code

was assigned to domestic servants only if the eldest employed member or spouse in a *family* was a *resident domestic servant*.

**Direct descent:** A group of related *persons not in a family* were regarded as in direct descent if for every possible pair of persons in the group.

either (a) one was the ancestor or descendant of the other by blood, marriage or adoption or (b) one could be linked to the other by a sequence of such ancestor/descendant relationships involving other members of the group.

Similarly, in *households* consisting of more than one *family*, any two *families* were described as two families, direct descent, if one *family* contained a descendant (that is child, grandchild or great grandchild by blood, adoption or marriage) of a member of the other *family*. This ancestor descendant link could span more than one generation, and other *families* or individuals could lie on the line of descent between the two *families* so linked.

**Lone ancestor:** this was a *person not in a family* who was an ancestor of the *head of the household* or of his or her spouse, or of the direct descendants of the *head of the household*. The latter case includes those *households* where the lone ancestor was himself the *head of the household*. In *households* with two or more *families* in direct descent, the lone ancestor had to be an ancestor of a first generation *family*.

**Children:** in classifying households by type any never-married child of a *family head* counts as a child in that *family*. Grandchildren allocated to their grandparents also count as children.

**Other relatives:** any related persons, no matter how distant the relationship, is included in this category.

**Dependent children:** are *children* in *families* who are either:

- (a) under 15 years of age, or
- (b) under 25 years of age and classified as student (that is, if present at address of enumeration on census night answering 'Yes' to question B8 on the household form, or if absent having 'Student' entered in reply to question C4 which asked for particulars of the job held in the week before Census for absent persons).

The **size of a family** is the number of persons belonging to a *family*, as defined above, formed from persons given as *usually resident* in the *household*. The classification of *households* into *families* is such that any one person cannot belong to more than one *family*.

A **husband** is the male of a married couple.

A **wife** is the female of a married couple (not to be confused with *housewife* – see below).

A **mother** is the lone parent in a female *lone parent family* (in *Household Composition Analysis* only).

The **chief economic supporter** of a *household* (CES for short) was selected from those members of the *household* who were 15 years of age and over and were either the *head of the household* or related to the *head*, by applying the following rules.

- (a) **Employment status** is considered first. Those in full-time employment (that is who worked more than 30 hours in the week before the census) or *out of employment* were selected before those in part-time employment, who in turn were selected before those *retired*, who in turn were selected before any others.
- (b) Among those selected by rule (a) above, position in *family* was considered next, *married* men or *widowed* or *divorced* persons in *families* being considered before other members of *families* or *persons not in families*.

- (c) Among those selected by rules (a) and (b), sex was considered next, males being selected before females.
- (d) Among those selected by rules (a), (b) and (c), *age* was considered next, older persons being selected before younger.

If these rules finally select two or more persons, the person whose name appears first on the form was selected as CES. In the rare cases where the *head of household* and all related persons were aged under 15 the *head* was selected as CES.

The *housewife* is defined as that member of the *household*, male or female, who is mainly responsible for the household shopping. There was no question on this subject in the census but the following rules were developed for selecting the housewife for each *household*.

- (a) If the *head of the household* is female she is the housewife.
- (b) If the *head of the household* is a *married* man, his wife is the housewife.
- (c) If the *head of the household* is a *single, widowed or divorced* man, or a *married* man whose *wife* is not shown as a member of the *household* then
  - (i) if there are no females aged 20 or over in the *household* the *head* himself is the housewife or
  - (ii) if there are females aged 20 or over in the *household* the eldest related member is housewife and if none are related then the eldest female is housewife.

These rules were developed in consultation with interested Government Departments, the Royal Statistical Society, the Market Research Society and the Institute of Practitioners in Advertising.

The number of earners in a *household* or *family* is the number of *economically active* persons in the *household* or *family*.

Density of occupation: this is as defined in 2.3 (p 16) except that for the *Household Composition* tables the *de jure size of household* was used as the numerator of the ratio.

## 2.6 Migration

Population covered

The statistics in the *Migration* tables are based on the ten per cent sample of census forms and refer only to those persons classified as *migrants*.

The census concept of a *migrant* is based on the statements made in answer to questions B4, B11 and B12 on the household form and 4, 11 and 12 on the personal form concerning the person's usual address at the time of the 1971 Census, on 25 April 1970 and 25 April 1966.

Questions B4 asked if the address of enumeration was the same as the person's usual address and, if it was not, for the latter to be stated.

B4

If the person usually lives here write 'HERE'.

If not, write the person's usual address.

For boarders write 'HERE' only if they consider this their usual address.

For students and children who are away from home during term time give their home address.

For persons with no settled address write 'NONE'.

Note: more details about the concept of usual address (*usual residence*) are given in 2.1 (p 6).

Question B11 asked for the person's usual address one year before the census if it was different from the usual address on census day.

B11

Was the person's usual address one year ago (on 25 April 1970) the same as that shown by the answer to question B4?

Write 'YES' or 'NO'.

If 'NO', write also the usual address on 25 April 1970.

For a child now under one year of age, write 'UNDER ONE'.

Question B12 asked for the person's usual address five years before the census if it was different to the address one year before the census.

B12

Was the person's usual address five years ago (on 25 April 1966) the same as that shown by the answer to question B11?

Write 'YES' or 'NO'.

If 'NO', write also the usual address on 25 April 1966.

For a child now under five years of age, write 'UNDER FIVE'.

These questions or their equivalents on the personal form, were asked in respect of all enumerated persons but not in respect of persons *usually resident* at an address but absent on census night. Persons giving a usual address at census date outside Great Britain are excluded from the analysis of migration. It should be noted that the form of the definition entails that the following categories of persons moving residence in the year or five years preceding the census are excluded from the count of migrants:

- (a) children born after 25 April 1970 (see definition of *wholly moving family*, p 26)
- (b) children born after 25 April 1966 but before 25 April 1970 in tables showing five year migrants (see definition of *wholly moving family*, p 26)
- (c) persons who had emigrated overseas or had died before the census
- (d) persons who were absent from home on census night and were not enumerated elsewhere in Great Britain.

In addition the intermediate moves of persons making several successive moves have not been counted. A person's move has been tabulated as a migration from his usual address one or five years ago direct to his usual address at census date.

#### Area coding of addresses

The addresses given in reply to questions B4, B11 and B12 or their equivalents on the personal form were coded to the local authority area within Great Britain, or to an overseas country. If question B4 was answered 'Here' or 'No fixed place' or was left unanswered it was coded to the address of enumeration. A distinction was made between an answer to B11 or B12 indicating the same former address as current usual address (a non-migrant), and an answer indicating another address within the same local authority area. Persons who indicated in B11 and B12 that they had moved but who gave no former address or an address that could not be located by the coders were put in the category 'migration not stated'.

#### Terms used

**A migrant within one year preceding census** is a person whose usual address on 25 April 1970 was different to his usual address at the date of the census.

**A migrant within five years preceding census** is a person whose usual address on 25 April 1966 was different to his usual address at the date of the census.

**A migrant within a defined area** is a person whose former usual address differed from his usual address at the time of the census but was in the same defined area.

**An immigrant to a defined area** is a person with a usual address in the area at the time of the census whose former usual address was not in the area. **An immigrant from overseas** is a person with a usual address in the area whose former usual address was outside Great Britain. This term carries no implication regarding the birthplace or nationality of the immigrant.

**An emigrant from a defined area** is a person whose former *usual residence* was in the area but whose usual address at the time of the census was outside the area and in Great Britain.

**Migrants resident in a defined area** is the sum of migrants within the area and migrants into the area.

**A wholly moving family is a *family***

- (a) with at least one person aged one year or over (five years or over) present at the address of *usual residence* on census night and
- (b) all of whose members present on census night aged one year and over (five years and over) are migrants with the same area code of *usual residence* one year ago (five years ago).

Any children under one (or five) are included in the tabulations as members of wholly moving families even though they are not normally classed as *migrants*. Any *family* all of whose members are absent from their *usual residence* on census night is excluded from the analysis of wholly moving families even though the family members, as individuals, may be included in the count of *migrants*.

## 2.7 Economic activity

### Population covered

All the tables relating to economic activity except table 18 in the *County Reports* and table 1 in Part I of the *Economic Activity Volume* are based on an analysis of the ten per cent sample of census returns. The two exceptions, which cover the *enumerated population* aged 15 and over, are based on 100 per cent of the census returns.

The statistics in the tables based on the ten per cent sample refer to people aged 15 and over enumerated in Great Britain who either:

- (a) were usually resident in Great Britain, or
- (b) had a place of work in Great Britain although usually resident in another country.

Further details concerning the population covered in the census and the concept of *usual residence* are given in 2.1.

In these tables the following classifications, relating to economic activity, are used:

- (a) *economic position*
- (b) *occupation*
- (c) *industry*
- (d) *employment status*
- (e) *type of earner, salary or wage*
- (f) *social classes*
- (g) *socio-economic groups and socio-economic classes*
- (h) *hours worked*
- (i) *workplace*

In general, tabulations relating to *economic position* include the whole population aged 15 and over, those relating to *social class* or *socio-economic group* and *class* include the *economically active* and *retired*, and those relating to *occupation* include the *economically active*, where a geographical breakdown is given it refers to areas of *usual residence*. Tabulations relating to *industry* and *hours worked* normally include *persons in employment* and where a geographical breakdown is given it refers to areas of *workplace*. In cross tabulations of *industry* and *hours worked* by *occupation*, by *social class* or by *socio-economic class* only *persons in employment* are included and areas of *workplace* are used. In certain tables only sub-sets of these populations are included and where this is so it is made clear in the table headings.

The following tables do not conform to these general rules:

- (a) Table 22 (*Economic Activity Volume, Part III*): *Occupation one year before census by occupation at census*, and sex, includes only *persons in employment*.
- (b) Table 34 (*Economic Activity Volume, Part IV*): *Industry by salary/wage earner groups* and sex, includes all *persons in employment* except the armed forces and the *self employed*.
- (c) Table 37 (*Economic Activity Volume, Part V*) and table 4 (*Economic Activity County Leaflets, New Towns Volume and Sub-Regional Volume*): Males by area of *usual residence* and *socio-economic class*, include only *economically active* males.

- (d) Table 2 (*Economic Activity County Leaflets, New Towns Volume and Sub-Regional Volume*) includes only persons in employment, who are analysed by area of *work-place*.
- (e) Table 1 (*Economic Activity Volume, Part I*), table 18 (*County Reports*) and tables 1 and 2 (*Advance Analysis*) are analyses by areas of enumeration.

In some published tables thresholds have been applied, that is details are only tabulated for groups above a certain size; whenever this has been done details are given below the table heading and unthresholded unpublished versions of the table are available showing all groups.

#### Economic position

This classifies the population into those *economically active* and those *economically inactive* and provides data on the numbers of *persons in* and *out of employment*. All people aged 15 or over were classified on the basis of the replies to questions B7 and B8 on the household form, and questions 7 and 8 on the personal return.

The questions were

##### B7

Did the person have a job last week (the week ended 24 April 1971)? (See note B7)

Tick box 1 if the person had a job even if it was only part-time or if the person was temporarily away from work, on holiday, sick, on strike, or laid off.

If the person did not have a job tick whichever of the boxes 2, 3, 4 or 5 is appropriate: if box 5 is ticked state the reason: for example 'Housewife', 'Student', 'Permanently sick'.

This question need not be answered for children under 15 years of age.

- 1  YES – in a job at some time during the week.
- 2  NO – seeking work or waiting to take up job.
- 3  NO – intending to seek work but sick.
- 4  NO – wholly retired.
- 5  NO – not seeking work for some other reason, namely .....

##### B8

Will the person be a student attending full-time at an educational establishment during the term starting April/May 1971? (See note B8)

This question need not be answered for children under 15 years of age.

- YES
- NO

These questions were supplemented by the following notes:

##### B7

###### Job Last Week

A job means any work for payment or profit. In particular it includes:

- (a) work on a person's own account
- (b) part-time work, even if only for a few hours, such as jobbing gardening or paid domestic work
- (c) casual or temporary work of any kind (for example seasonal work, week-end work and vacation work by students)
- (d) unpaid work in a family business, for example a shop or farm.

Unpaid work, other than in a family business does not count as a job.

##### B8

###### Students

Do not count as full-time students people who are:

- (a) on day release from work to attend school or college
- (b) attending night school only

- (c) attending an educational establishment provided by employers, such as an apprenticeship school.

The following categories are distinguished, and are defined as follows:

Economically inactive persons are those who are either:

- (a) **Retired:** that is formerly in employment but no longer seeking it. Housewives and persons engaged on home duties are classified as retired or housewife according to how they were described in the census form;
- (b) **Students in educational establishments:** that is persons who either answered 'Yes' to question B8 on the census form or gave 'Studying' as a reason for not seeking work in question B7. A person was counted as a student if he would be attending full-time at an educational establishment during the term starting in April or May 1971. (Establishments provided by employers for training workers, such as apprenticeship schools, did not count as educational establishments.) Persons answering 'Yes' to question B8 were treated as students even if they had a job in the week before census, but persons with a job on day release did not count as students;
- (c) **Permanently sick:** that is those who stated in reply to question B7 that they were not seeking work because of permanent sickness or disability;
- (d) **Others economically inactive:** that is those persons never in employment or not seeking it. This group includes persons of independent means, housewives and others engaged on unpaid domestic duties, and by convention, trainees in Government training centres and au pair girls. Persons who failed to answer the economic activity questions, and those usually resident at their address of enumeration who gave 'Inmate', or a similar term as a reason for not seeking work in answer to question B7, are also included.

People aged 55 and over who were described on the census forms as 'Students' were re-classified as *others economically inactive*; so were people under the age of 35 who were described as 'Retired'.

All people aged 15 and over not in the inactive category are in the category of **economically active persons**; they are sub-divided between those who are *in employment* and those who are *out of employment*.

**Persons in employment during the week ended 24 April 1971** are those who had a job or worked for pay or profit at any time during the week, including work on own account, part-time work, casual or temporary work and unpaid work in a family business (other unpaid work does not count as employment). Persons temporarily away from work during the week because of holiday, sickness or injury, industrial dispute or temporary lay-off count as in employment if their job is waiting for them on their return. Thus in employment is intended to cover those who had 'a job' in the contractual sense irrespective of whether they were actually at work in the week before census, and all others who did work for pay or profit in that week.

**Economically active persons out of employment throughout the week ended 24 April 1971** comprise two categories:

- (i) **Out of employment – sick**, that is those persons who were out of work throughout the week and were prevented by temporary sickness or injury from seeking work, and
- (ii) **Out of employment – other**, that is those persons who throughout the week were seeking work or waiting to take up a job already obtained. Persons giving 'Inmate', or a similar term, as a reason for not seeking work in answer to question B7 are also included, if they were not usually resident at the address at which they were enumerated (see 2.1 (p 6) for concept of usual residence of inmates).

#### Occupation

The **occupation** of a person is the kind of work which he or she performs, regard being paid to the conditions under which it is performed. This alone determines the occupational group to which the person is assigned. The nature of the factory, business, or service in which the person is employed has no bearing upon the classification of his occupation, except to the extent that it enables the nature of his duties to be more clearly defined. Thus, a crane driver may be employed in a shipyard, an engineering works or in building

and construction, but this has no bearing upon his occupation and all crane drivers are classified to the same occupational group.

A person's **former occupation** is the most recent occupation of the *retired* or those *out of employment* as stated in answer to question B16.

The questions on occupation were B16 and B18 on the household form (16 and 18 on the personal return). These had to be answered for the main employment for all persons who had a job in the week before the census or for their most recent job if they were retired or out of work. The questions were

B16

a What was the person's occupation? Give full details. (See note B16)

b Describe the actual work done in that occupation.

B18

If the person is an apprentice or trainee, write 'Apprentice', 'Articled clerk', 'Articled pupil', 'Student apprentice', 'Graduate apprentice', 'Management trainee', 'Trainee technician' or 'Trainee craftsman' as appropriate. (See note B18).

These were supplemented by the following notes:

B16

Occupation

Full and precise details of occupation are required.

If a person's job is known in the trade or industry by a special name use that name.

Terms such as 'scientist', 'technician', 'engineer', 'machinist', 'fitter', 'foreman', 'checker' should not be used by themselves, greater detail is required as for example: wood working machinist, civil engineer, toolroom foreman. For civil servants, local government officers and other public officials, give their rank or grade.

B18

Apprentices, etc

Answer this question only for a person who is undergoing training for a period fixed in advance and leading to recognition as a skilled worker or technician or to a recognised technical, commercial or professional qualification or managerial post.

Do not answer this question for a young person undergoing probationary training who has not yet entered into formal apprenticeship.

The coding of the answers to questions B16 and B18 was done by reference to the index of occupation titles published in the *Classification of Occupations 1970*, (HMSO 1970) which contains detailed notes on how to use the index. If the title was not indexed a code was allocated in accordance with the principles of the classification.

Persons were classified according to their stated main occupation in the week before census. This may have been quite different from their usual occupation or from the occupation for which they had been trained.

Certain combinations of occupation codes and *employment status* codes and certain combinations of occupation codes and *industry* codes were regarded as invalid and were corrected during computer editing.

*The Classification of Occupations* used in the 1971 Census is closely comparable with those employed in 1961 and 1966. However, within certain unit groups important occupational sub-groups have been identified by sub-dividing the original groups.

The following groups have been abolished:

Boiler scalers

Chimney sweeps

Company directors

Coopers, hoopmakers and benders

In addition as a result of more accurate answers resulting from improvements in the formulation of the census questions it has been possible to abolish some groups qualified by the phrase 'so described'. Details of the changes are given in the *Classification of Occupations 1970*.

The resulting classification is broadly comparable with the 2 digit level of the *International Standard Classification of Occupations*<sup>1</sup>. A short description of the contents of the individual groups is given in Appendix A.

The main purpose of the *Classification of Occupations* is to provide groups with at least one common characteristic. The basic common factor of all groups is the kind of work done and the nature of the operation performed. But if, by reason of the material worked in, the degree of skill involved, the physical energy required, the environmental conditions, the social and economic status associated with the occupation, or any combination of these factors, unit groups based solely on the kind of work done seemed too comprehensive, they were further broken down on the basis of these other factors in order to identify what are substantially separate occupations.

A separate unit group has been included only if it covered a sufficiently large number of persons in a ten per cent sample of the population, if it was likely to be tolerably complete when based on the limited information obtained in a census, if there was sufficient potential interest in it to justify separate identification and if it could not be obtained as a result of the cross-classification of occupation by *employment status* or by *industry*.

Certain groups of *persons in employment* in particular the *self-employed* and the *managers*, give rise to difficult conceptual problems.

**Self-employed:** (for definitions see paragraphs below on *employment status*). Even within the same field of economic activity self-employed persons range from the working craftsman to the owner and manager of a large industrial concern, extremes for which a single occupational code is not appropriate. But no general rule can be formulated about the size of the undertaking that requires the owner to be occupied mainly on managerial work (see also the remarks that follow under *Managers*), and, moreover, the available census data give no indication of the size of undertaking involved.

As most self-employed persons control or operate only small enterprises, all persons in the self-employed category are excluded from Occupational Order XXIV (Administrators and Managers) and assigned to appropriate groups elsewhere. Where self-employed persons form an important group whose occupational assignment is not self-evident, a specific mention has been made in the occupational unit group concerned. Owners of services, such as typewriting, office cleaning, and car hire services, about whom there is no evidence that they perform the actual work associated with such services, are classified in group 150 unless specifically mentioned elsewhere.

**Managers:** the growing recognition of management as an occupation in itself, which is to a certain extent independent of the particular field in which it is exercised, has led to all managers being included in Order XXIV, except for a few stated exceptions. These exceptions arise in some fields, mainly services, when the title of manager is given to persons with comparatively limited responsibilities; and in some cases where the main activity is that of an occupation other than management. In the first category would come the shop manager and in the second the ship's captain. These persons are given the *employment status* code of *manager* but excluded from Occupation Order XXIV. A full list of such persons is given in the *Classification of Occupations 1970*.

Most employed professional workers in industry are commonly regarded as closely associated with management. The criteria for allocating them between Orders XXIV and XXV are set out in a note to Order XXIV in the *Classification of Occupations 1970*. The principle is that professionally and technically qualified persons should be classified as managers if in actual charge, at a level above works foreman, of the execution of a task either directly or through subordinate managers unless the task so supervised is a professional or technical service.

**Foremen:** foremen, other than road and rail transport operating foremen who are classified in group 123, are classified with the workers they control and distinguished in the status coding. Where a foreman controls a variety of workers or is identifiable only by the branch of industry, he is classified in the group of workers not elsewhere classified (n e c) most appropriate to the branch of industry. Thus a pottery works foreman is classified in 017, a clothing factory foreman in 077, and a food factory foreman in 081. Such foremen in the engineering industries are, however, coded in 031.

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<sup>1</sup>International Labour Office, *International Standard Classification of Occupations*, Geneva 1968.

**Labourers:** the groups 107–114 assigned to labourers are limited to persons performing occupations requiring little or no training or experience, and for this reason certain groups who have some degree of skill but are returned as labourers, eg fitter's labourers, are excluded.

Allocation of labourers other than in groups 107–114, is on a strictly industrial basis, thus departing from the general basis of classification elsewhere; the industry concerned is that of the 'establishment' taken as a whole. (For definition of an establishment see the extract from the *Standard Industrial Classification* quoted on pages 32–33). This sub-division of the occupation of labourer is purely for convenience and, except that foundry labourers are separated into group 109, could also be obtained from a cross classification by industry.

(Although the allocation of *managers* to groups 175–177, 180, refers to the *Industrial Classification*, the allocation refers to the industrial activity of which the person is in charge, not that of the establishment as a whole.)

**Apprentices, artiled pupils and learners** are classified to the group appropriate to those whose training is completed. Graduate and student apprentices are classified to the professional occupation for which they are training or, if this is unknown, to group 201 (Engineers n e c).

**Armed Forces:** for the purposes of economic activity and social classification all uniformed members of the Services are assigned to Order XXVI; medical personnel and chaplains are accordingly assigned to that Order.

**Occupation one year before the census** was determined from the answers to question B22. This question was asked of all persons with a job in the week before the census; it was as follows:

B22

Was the person's occupation one year ago the same as last week?

If so, write 'SAME'

If not, give details of the occupation one year ago. (See note B16)

If none write 'NONE'

This was supplemented by note B16 which is quoted at the beginning of this section (p 29).

The following categories for a person's occupation one year before the census compared with his *occupation* at the census are recognised in table 22, *Economic Activity Volume, Part III*.

- (a) Same occupation. The answer to question B22 was 'SAME'.
- (b) Same unit group, different occupation. The person gave details of a different occupation one year before the census but this occupation was classified to the same occupation unit group as the *occupation* at the census.
- (c) Same order, different unit group
- (d) Different order
- (e) Not stated
- (f) None

**Office occupations:** Appendix B gives the Occupation Unit Groups included in the standard definition of office occupations.

#### Industry

The allocation of an employed person to an industry is based on the answer to question B15 on the census form. The question, to be answered in respect of the main employment for persons who had a job in the week before the Census or for their most recent job if they were retired or out of work, was as follows:

B15

What was the name and business of the person's employer (if self-employed, the name and nature of the person's business)? (See note B15) Give the trading name if one was used.

The following note was given with this question.

B15

Employer's name and business

Describe the business fully and try to avoid abbreviations or initials. General terms such as 'manufacturer', 'merchant', 'agent', 'broker', 'factor', 'dealer', 'engineering', are not enough by themselves and further details should be given about the articles manufactured or dealt in.

For civil servants, local government officers and other public officials give the name of the Government department, local authority or public body and the branch in which they are employed.

For people employed solely in private domestic service write 'PRIVATE' in answer to this question.

For members of Armed Forces give arm and branch of service.

Industry codes were assigned as far as possible by reference to lists of names and addresses of employers with more than 25 employees on which was shown the industry code allocated by the local office of the Department of Employment. Information about establishments, that is name, address, number of employees and type of business is collected by the Department of Health and Social Security and sent to the Department of Employment in June of each year. The appropriate industry code for each establishment is added by the Department of Employment. The forms were passed to the Census Officers, who compiled both a Central Register of Establishments and local lists of establishments with more than 25 employees (lists of *large establishments*) for each area in the country. These were the basic coding documents.

In the tables industries are classified according to the revised *Standard Industrial Classification* (HMSO 1968). The following extract from this publication explains the basis of the classification and its application to establishments.

"The basis of classification

3. The Classification is based on industries and not on occupations. All persons (including administrative, technical, clerical and ancillary staffs) employed in a 'unit' of industry are included, irrespective of their occupations, in the figures of employment for the industry to which the 'unit' is classified. The classification is also based on industries without regard to who owns or operates them. Thus manufacturing 'units' owned or operated by the Central Government are classified in the same way as those in private hands are not included under 'National Government Service'. Similarly the transport services operated by local authorities are included under 'Transport' and not under 'Local Government Service'.
4. The Classification has been prepared to conform with the organisation and structure of industry and trade as it exists within the United Kingdom. All relevant factors such as the commodity produced or service given, the raw materials used and the nature of the process of the work done, have been taken into consideration.
5. The Classification is arranged in a list of industry headings which show the minimum detail in which statistics by industry will normally be provided, and which are therefore called Minimum List Headings. The Headings of related industries are grouped into Orders.

Classification of establishments

6. For the purpose of this classification the unit taken is the 'establishment'. An establishment is the smallest unit which can provide the information normally required for an economic census, for example, employment, expenses, turnover, capital formation. Usually the principal activities carried on in an establishment fall within a single heading of the Classification (eg steel making or sugar refining). Typically the establishment embraces all the activities carried on at a single address, eg a farm, a mine or a factory, including those which are ancillary to the principal activities.
7. Frequently, distinct activities characteristic of different industries are carried on at one address eg cotton weaving and the making up of household textiles, but normally these are not classified separately, and the whole establishment is classified according to the main activity. If, however, the required range of data can be provided for each activity, each is taken to constitute a separate establishment.
8. Sometimes activities which are conducted as a single business are carried on at a number of addresses. Where this is so businesses are asked to provide the full range of separate information in respect of each address, whether or not the activities are different. Their activities may however be integrated to such an extent that they constitute a single establishment. In that case the establishment is defined to cover the combined activities at these addresses, which in the case of manufacturing establishments would normally be in close proximity. For some subjects, however, eg employment, separate data will be available for each address.  
In such circumstances each address will be identified as a 'local unit' and can be classified in either of the following ways according to the purpose for which statistical data are needed, viz (a) to the classification of the establishment of which it is part or (b) to the classification appropriate to its own major activity. As appropriate, statistics will be prepared on either or both bases of classification.

9. Activities which are ancillary to the main activities of a business are most frequently transport, wholesale or retail distribution, construction, power generation, and research and development. The classification of these ancillary units, other than separate offices, is determined according to the circumstances, as follows:
- (a) If a full range of information can be provided they are counted as separate establishments and classified according to their own activities;
  - (b) Where a full range of information cannot be provided the establishment within which they are integrated is defined to include them. Where they are carried on at a separate address, they are, however, separately identified as local units classified in accordance with the principle outlined in paragraph 8. Separately obtainable particulars for them, eg of employment, may be required for purposes of geographical analysis.

10. A number of businesses have Head Offices or other Central Offices at separate locations from those of the establishments at which the main activities of the business are carried out. These separate offices present a special problem, since they do not have any measurable output of their own but contribute to that of the establishment(s) which they serve. The treatment of these offices is described below.

Central offices of businesses operating in the United Kingdom are classified, as follows:

- (1) If all or most of the activities of the establishments served by the office are appropriate to a single Heading, the office is treated as a local unit of an establishment classified in that Heading.
- (2) If all or most of the activities of the establishment served by the office are appropriate to a single Order the office is treated as a local unit of an establishment classified in that Heading within that Order appropriate to the largest part of these activities.
- (3) If neither (1) nor (2) above applies, the office is treated as an independent establishment and classified in Heading 866.

Any activities of branches or subsidiary companies operating overseas, with which part of the business of a central office is concerned, are regarded as falling outside the Order(s) appropriate to the home activities of the business but are taken into account in applying the foregoing rules to the office.

The United Kingdom offices of business operating mainly abroad are classified in Heading 866.

11. Some special points should be mentioned:

- (a) **Merchanting activities.** Establishments mainly engaged in merchanting, broking, importing and exporting are classified in the distributive trades, and not in the industry or trade producing the goods in which they deal.
- (b) **Repair work.** Most kinds of repair work are associated with activities which are classified either to manufacturing or to distribution and in these cases the underlying principle of classification is that where the bulk of the repair work on goods of any particular type is carried out by manufacturers, any establishments specialising in the repair of these goods are classified to manufacturing. Where, however, most of the repairs are carried out at establishments whose main business is distribution the specialist repair establishments are also classified to distribution.

Thus establishments repairing radio and television sets, watches and clocks, furniture, etc are classified to the distributive trades. Establishments engaged in the repair of ships, locomotives, aircraft, and most kinds of plant and machinery are classified to manufacturing industry.

In a few cases repair work is not classified to either manufacturing or distribution. Establishments engaged in the repair and maintenance of buildings are included in Construction. The activities of motor repairing and boot and shoe repairing, which are regarded as services, are sufficiently extensive and distinct to be treated as industries in themselves although particular establishments may engage to some extent in manufacturing or distributive activities. Provision is made for these two kinds of repair work in Miscellaneous Services.

- (c) **Installation work.** The installation of machinery equipment, etc is an activity which is normally carried out by an establishment having a different major activity, which decides its industrial classification.

Where, however, installation is the only, or major, activity of a separate establishment or department for which the full range of data can be provided, it should be classified to an appropriate Heading in the following Orders, according to the kind of service provided:

Construction	The installation of items or equipment which can be regarded as forming an integral part of the building eg an electrical wiring system, heating and ventilating equipment.
Distribution	The installation of items which require little more than the connection of the equipment to the mains eg domestic washing machines, television sets.
Manufacturing	The installation of plant and machinery eg a computer, a telephone exchange system."

Tables showing industry use a basic or minimum list of industrial headings (including the category industry inadequately described).

In allocating an individual to an industry, the first stage was to see if the employer's name and address, given in question B15, was on the list of *large establishments* for that area. If so, the listed code was taken. If not, the employer's business stated in question B15 was looked up in an alphabetical list of industries and the code then taken from that list. If the description on the census form was inadequate, the establishment was looked up in the central register and the code allocated from that. If the establishment did not appear in the central register and the industry code could not be discovered from other sources, it was classified as industry inadequately described. In cases where a person's *workplace*

was returned as outside the United Kingdom this procedure was not followed and an industry code indicating *workplace* outside UK was allocated.

The allocation of industry codes is therefore based partly on information from the Department of Employment, which was about nine months out of date on census day, and partly on individuals' replies on census forms about the nature of their employer's business. The industry statistics provided by the census are not, therefore, on exactly the same basis as those of the Department of Employment.

#### Employment status

**Employment status** is allocated on the basis of the answers to questions B17 (to distinguish the categories of self-employment), B16 on *occupation* (because some occupations have a pre-determined conventional status eg *managers, foremen*) and B18, apprenticeship. Questions B16 and B18 are given in the section on occupation (page 29), the additional question B17 was as follows:

B17

Was the person an employee or self-employed employing others (see note B17), or self-employed without employees?

- 1  An employee
- 2  Self-employed employing others (see note B17)
- 3  Self-employed without employees

This question was supplemented by the following note.

B17

Self-employed

'Self-employed, employing others' means having one or more employees other than 'family workers'. A 'family worker' is one who lives in the same household as the employer and is related to him. Although 'family workers' are not counted for the purpose of deciding whether an employer has employees, they should themselves be recorded as employees.

The following categories are distinguished and are defined as follows.

**Self-employed** persons are those working on their own account with or without employees. As far as possible all Class II insured persons were included eg proprietors of businesses, members of partnerships, parochial clergy and medical practitioners who are principles in the National Health Service and in private practice. The self-employed were mainly identified from replies to question B17. **Self-employed without employees** includes parochial clergy even if they employ curates. It also includes outworkers ie people who work at home but give the name of an employer other than themselves. Domestic servants and *family workers* do not count as employees when determining whether or not a self-employed person has employees. All other self-employed persons are classed as **self-employed with employees**.

Employees are all those in employment not classified as self-employed.

**Managers** are all those *employees* coded as follows: administrators and managers (occupation groups 173–180); farmers, farm managers, market gardeners (002); deck, engineering officers and pilots, ship (115); office managers nec (138); proprietors and managers, sales (143); finance, insurance brokers, financial agents (149); publicans, inn-keepers (154); proprietors and managers, boarding houses and hotels (156); restaurateurs (159); proprietors and managers, service, sport and recreation nec (171); all persons described on the census form as managers and all persons whose *occupation* code is preceded by an M in the index of occupations.

**Large establishments** are those shown on the Department of Employment lists as having more than 25 employees. Managers were classified as working in large establishments if their establishments came into this category, except that those coded as fishermen (occupation group 001), farmers, farm managers, market gardeners (002), and foresters and woodmen (006) were classified as managing small establishments. All persons of managerial status employed in the civil service or local government or coded as deck, engineering officers and pilots, ship (115), aircraft pilots, navigators and flight engineers (117) and teachers nec (194) were classified as working in large establishments.

**Small establishments** are those with not more than 25 employees. Managers assigned to occupation order 223 (inadequately described occupations) or whose industry was inadequately described were taken as working in small establishments.

**Foremen and supervisors** are *employees* described on the census form as foreman, supervisor, boss, chargehand, gaffer, ganger, headman, overlooker, overseer, overman (but not assistant foreman, assistant supervisor, etc) and other persons with supervisory functions not equivalent to management who were coded as foremen (engineering and allied trades) (031) and civil service executive officers (142) or whose occupation code number is preceded by F in the index of occupations.

A list discriminating between **manual** and **non-manual** occupations is given in Appendix B1 to the *Classification of Occupations 1970*.

**Apprentices, articulated clerks and formal trainees** form a separate category and were identified from the answers to question B18. Statements such as 'articled clerk', 'articled pupil', 'student apprentice', 'graduate apprentice', 'management trainee', 'trainee technician' and 'trainee craftsman' are considered to be synonymous with 'apprentice' and, where present, are taken in preference to any other statement concerning employment status except 'self-employed'. The 'apprentice' status is edited against certain *occupation* groups and only applied to *economically active* persons *in employment*.

**Professional employees** are *employees* for whom it is impossible to determine from their occupation titles the extent to which they have managerial functions, namely, employees coded as medical practitioners (qualified) (occupation group 181), dental practitioners (182), pharmacists (184), ophthalmic and dispensing opticians (186), university teachers (192), civil, structural, municipal engineers (195), mechanical engineers (196), electrical engineers (197), electronic engineers (198), planning production engineers (200), engineers nec (201), metallurgists (202), technologists nec (203), chemists (204), physical and biological scientists (205), accountants, professional (209), company secretaries and registrars (210), surveyors (211), architects, town planners (212), clergy, ministers, members of religious orders (213), judges, barristers, advocates, solicitors (214) and professional workers nec (217). They are separately tabulated in some tables.

**Family workers** are persons employed by and living in the same *household* as a relative. Family workers who are *managers*, *foremen* and *apprentices* are coded as such, and not as family workers. The status of family worker can only be given to persons who are enumerated in the same *household* as their employer, and are shown as a relative.

#### Salary/wage earner classification

Persons *in employment*, excluding the *self-employed* and members of the Armed Forces, are classified as either **salary earners** or **wage earners**. These are further sub-divided into six categories as follows:

Salary earners:	managerial technical and professional clerical
Wage earners:	industrial non-industrial agricultural

These groups are designed to distinguish, as far as possible, between employed persons who typically earn salaries and those who typically earn wages. To accomplish this, employed persons are allocated to these categories on the basis of their *occupation* and *employment status*. Each such occupational group is assigned as a whole and no account is taken of individual differences within the group. A full definition of each salary and wage earner category is given in Appendix C.

#### Social classes

*Economically active* and *retired* persons are assigned to one of the following **social classes** by reference to their present or former *occupation* and *employment status* in such a way as to bring together, so far as possible, people with similar levels of occupational skill.

- I Professional, etc, occupations
- II Intermediate occupations

- III (N) Skilled occupations – non-manual
- III (M) Skilled occupations – manual
- IV Partly skilled occupations
- V Unskilled occupations

In general each occupational group is assigned as a whole to one or another social class and no account is taken of differences between individuals in the same *occupation group*, eg differences of education or level of remuneration. However, persons of *foreman* status in occupations normally assigned to Social Class IV or V are placed in Social Class III. Similarly persons of *manager* status in occupations which would normally be assigned to Social Class IV or V, and excepting those in occupation unit groups 003, 004 and 006, are placed in Social Class III. All others of *manager* status are placed in Social Class II.

#### Socio-economic groups and socio-economic classes

*Economically active* and *retired* persons are also assigned by reference to their present or former occupation and *employment status* to 17 **socio-economic groups** (SEG's) and, by further sub-dividing some of these, into 39 **socio-economic classes**. The classifications aim to bring together people with jobs of similar social and economic status. The five **social classes** (of which Social Class III is sub-divided into two parts) described above are coterminous with certain groupings of the 39 socio-economic classes, with one very small qualification.

A list of these socio-economic groups and socio-economic classes is as follows:

#### SEG 1.1 Employers in industry, commerce, etc, – large establishments

- (a) Social Class II intermediate occupations
- (b) Social Class III(N) skilled occupations – non-manual
- (c) Social Class III(M) skilled occupations – manual

(SEG 1.1 (c) Social Class III(M) includes very small numbers of persons in Social Classes IV and V)

#### SEG 1.2 Managers in central and local government, industry, commerce, etc, – large establishments

- (d) Social Class II intermediate occupations
- (e) Social Class III(N) skilled occupations – non-manual
- (f) Social Class III(M) skilled occupations – manual

#### SEG 2.1 Employers in industry, commerce, etc, – small establishments

- (g) Social Class II intermediate occupations
- (h) Social Class III(N) skilled occupations – non-manual
- (j) Social Class III(M) skilled occupations – manual
- (k) Social Class IV partly skilled occupations
- (l) Social Class V unskilled occupations

#### SEG 2.2 Managers in industry, commerce, etc, – small establishments

- (m) Social Class II intermediate occupations
- (n) Social Class III(N) skilled occupations – non-manual
- (o) Social Class III(M) skilled occupations – manual

#### SEG 3 Professional workers – self-employed

- (p) Social Class I professional, etc, occupations

#### SEG 4 Professional workers – employees

- (q) Social Class I professional, etc, occupations

#### SEG 5.1 Ancillary workers and artists

- (r) Social Class II intermediate occupations

#### SEG 5.2 Foremen and supervisors non-manual

- (s) Social Class III(N) skilled occupations – non-manual

**SEG 6 Junior non-manual workers**

- (t) Social Class III(N) skilled occupations – non-manual
- (u) Social Class IV partly skilled occupations

**SEG 7 Personal service workers**

- (v) Social Class II intermediate occupations
- (w) Social Class III(N) skilled occupations – non-manual
- (x) Social Class III(M) skilled occupations – manual
- (y) Social Class IV partly skilled occupations

**SEG 8 Foremen and Supervisors – manual**

- (z) Social Class III(M) skilled occupations – manual

**SEG 9 Skilled manual workers**

- (aa) Social Class III(M) skilled occupations – manual

**SEG 10 Semi-skilled manual workers**

- (ab) Social Class IV partly skilled occupations

**SEG 11 Unskilled manual workers**

- (ac) Social Class V unskilled occupations

**SEG 12 Own account workers (other than professional)**

- (ad) Social Class II intermediate occupations
- (ae) Social Class III (N) skilled occupations – non-manual
- (af) Social Class III(M) skilled occupations – manual
- (ag) Social Class IV partly skilled occupations
- (ah) Social Class V unskilled occupations

**SEG 13 Farmers – employers and managers**

- (aj) Social Class II intermediate occupations

**SEG 14 Farmers – own account**

- (ak) Social Class II intermediate occupations

**SEG 15 Agricultural workers**

- (al) Social Class III(M) skilled occupations – manual
- (am) Social Class IV partly skilled occupations

**SEG 16 Members of armed forces**

**SEG 17 Inadequately described occupations**

Full details of the allocation of occupations and employment status to **social class, socio-economic group and socio-economic class** are given in the appendices to the *Classification of Occupations 1970*.

**Hours worked**

These are derived from the answers to question B19 on the household form, and question 19 on the personal return form, asked in respect of persons who had a job in the week before the census. Question B19 was

- B19  
How many hours per week does the person usually work in this job? Exclude overtime and meal breaks.

The hours worked of members of the armed forces were not asked for in the census, and appear as not stated in all relevant tables.

### *Workplace*

Persons whose *workplace* was returned as outside the United Kingdom are included in the analyses of workplace in the *Economic Activity* tables by treating their usual residence as their *workplace*. This was also done for persons whose workplace was returned as Northern Ireland although these are not specifically identified in the tables.

## 2.8 Workplace and transport to work

### Population covered

The statistics in the *Workplace and Transport to Work* tables are based on the ten per cent sample and refer to people aged 15 and over enumerated in Great Britain who were either:

- (a) usually resident in England and Wales and employed at a *workplace* in Great Britain (that is including those with a workplace in Scotland) or
- (b) usually resident in Scotland but employed at a *workplace* in England and Wales or
- (c) usually resident in England and Wales and *in employment* but with no fixed workplace or with workplace not stated.

Persons usually resident in England and Wales with a *workplace* outside Great Britain are excluded from these tables. This group was, however, included in the *Economic Activity* tables by treating the area of *usual residence* as an area of *workplace*. Persons usually resident outside Great Britain with a *workplace* in England and Wales are also excluded from these tables. This group was included in the *Economic Activity* tables by treating the area of enumeration as an area of *usual residence*.

Table 10 in the *Workplace and Transport to Work* tables refers only to a subset of those persons defined above, namely those who were enumerated in private *households*.

Details of the *usual residence* concept are given in 2.1 (pp 6–8). Some people give an address for *usual residence* which is different from the address from which they go to their place of work. As a result, the cross tabulation of address of usual residence by address of place of work produces some apparently unlikely combinations, even more so when *means of transport to work* is added as an extra axis of classification as in these tables, though a few of the more unlikely combinations may be due to processing errors.

### Workplace

**Workplace** was asked in respect of all person who had a job in the week before the census.

The question (B20) was:

B20

What is the full address of the person's place of work? (see note B20). If the work is carried on mainly at home write 'AT HOME'.

This was supplemented by the note:

B20

Place of work

For people who do not work regularly at one place or who travel during the course of their work (for example, sales representatives, seamen and some building and transport workers):

- (a) if they report daily to a depot or other fixed address give that address:
- (b) if they do not report daily to a fixed address write 'NO FIXED PLACE'.

For people such as building workers employed on a site for a long period give the address of the site.

For dock workers give the name and address of the dock or wharf at which they are usually employed.

In *Workplace and Transport* table 1 persons *in employment* with no fixed workplace or workplace not stated are shown separately. In all other tables they are, by convention, regarded as employed in their area of *usual residence*. This is consistent with the treatment in the censuses of 1951, 1961 and 1966.

Tables of the *means of transport, occupations, industries* and other economic characteristics of people with no fixed workplace or workplace not stated are available unpublished.

## Means of transport to work

The **means of transport to work** were obtained from the answers given in response to question B21 on the household form and question 21 on the personal form. The question was asked of all persons in a job during the week prior to census day and was as follows:

B21

What means of transport does the person normally use for the longest part, by distance, of the daily journey to work.

If the person walks to work, or works mainly at home, write 'NONE'.

This was supplemented by the following notes:

B21

Means of Transport

- (i) If the person uses different means of transport on different days give the means most often used.
- (ii) Do not use terms such as 'public transport' or 'private transport' but give the actual means used, for example, 'train', 'bus', 'car', 'bicycle'.

The following classification of means of transport was used:

Train (including LT Tube);

Bus (private as well as public);

Car (including van);

Motor Cycle (including motor cycle combination);

Pedal Cycle;

On foot and none (including people stating 'None' but whose usual address was different from address of workplace);

Other (including people who lived and worked at same address);

Public transport (so described);

Not stated.

When more than one means of transport was given on the census form the one highest on the above list was taken, for example car and train – train taken.

Despite the instruction not to use general terms such as 'public transport' this answer was in fact given in many cases and consequently a separate category has been included to cover these persons.

There was also a considerable number of persons for whom *workplace* was shown as 'at home' and yet a means of transport to work other than 'none' was given. It was possible to recognise a number of major categories of such persons. These include vehicle drivers, shop keepers, itinerant salesmen (eg commercial travellers), tradesmen (eg plumbers), professionals (eg doctors), and police. On the basis of these *occupations* the *workplace* was either accepted as at home – as in the case of shop keepers, itinerant salesmen, self-employed tradesmen, professionals, and police, or amended to no fixed – as in the case of vehicle drivers, and tradesmen who are employees. Those whose *workplace* was accepted as at home have been included in the other category for means of transport to work. Those whose workplace was amended to no fixed workplace have been included in whichever means of transport category corresponds to their answer to question B21.

The distinction between **households with or without cars** was made from the answers given to question A4 on the household census form (see 2.3 p 18). This question asked each householder to give the **number of cars and vans normally available for use by members of the household** (other than visitors). Cars and vans provided by employers and normally available for use by the householder or members of the *household* were to be included, but vans used only for carriage of goods were to be excluded.

## 2.9 Fertility

### Population covered

The statistics in the *Fertility* tables refer to women enumerated in England and Wales who were *married, widowed or divorced*, aged 16–59 (ie born between 26 April 1911 to 25 April 1955 inclusive) with a stated *number of children*, stated *date of marriage* and (if *widowed or divorced*) with a *stated date of termination of marriage* on their census form.

These tables therefore exclude women for whom any of these last three items of information was missing from the census form. The population in question derived from the answers to census questions on sex, marital condition, age (date of birth) and the following fertility questions:

For women aged under 60 who are married, widowed or divorced

B23

Enter the month and year of birth of each child born alive to her in marriage; include any who have since died.

If none, write 'NONE'.

Enter the dates in order of birth starting with the first born.

If she has been married more than once give the dates for the children of all her marriages.

Month	Year	Month	Year
-------	------	-------	------

B24

(a) Write the month and year of marriage (the first marriage if married more than once).

(b) If the first marriage has ended (by the husband's death or by divorce) write the month and year when it ended. If not ended, write 'NOT ENDED'.

(a) Date of (first) marriage

Month	Year
-------	------

(b) Date (first) marriage ended

Month	Year
-------	------

Equivalent questions (23 and 24) were asked on the personal forms. Some of the fertility tables are based on 100 per cent of the census returns whilst others are based on the 10 per cent sample. The dates of birth given in answer to question B23 were coded for the 10 per cent sample whereas only the number of children was noted for the 100 per cent analysis

#### Terms used

**Married, widowed, and divorced women** are defined in terms of the answers to the marital condition question (B6 on the household form or 6 on the personal form). The question asked for marital condition at census day. **Married women** include those who were separated but not divorced. **Widowed women** are those who had not remarried since their spouse died. **Divorced women** are those who had not remarried after divorce.

**Remarried women** are *married women* (so stated from the marital condition question) for whom a date of termination of first marriage was recorded at question B24b (or question 24b).

**Married women married once only** are *married women* (so stated from the marital condition question) and for whom, in answer to question B24b (or question 24b), either 'not stated' was given or no date of termination was recorded.

**Women with uninterrupted first marriage** are women who were first married at age under 45 and for whom

(a) no date of termination of first marriage was recorded at question B24b (or question 24b), or

(b) a date of termination was recorded at question B24b (or question 24b) and this date corresponded to termination of first marriage at an age of 45 or over.

**Age last birthday** is the completed years of age at the census date and is calculated from the date of birth given in reply to question B2 on the household form or question 2 on the personal form.

**Age at first or only marriage** is calculated from the year and month of marriage (obtained from the answer to question B24a on the household form or question 24a on the personal form) and from the year and month of birth (obtained from the answer to question B2 on the household form or question 2 on the personal form). The day of the month on which the birth of the women concerned occurred, is ignored in the calculation because the day of the month on which the marriage occurred was not asked for.

**Duration of (first) marriage** is the interval from the date of first marriage to date of termination of first marriage where the latter date was stated, or for *married women* whose first marriage had not terminated, the interval from date of first marriage to April 1971. It is derived from the answers to the questions on marital condition (B6 or 6), date of first marriage (B24a or 24a) and date first marriage ended (B24b or 24b).

**Time since first marriage started** is the number of completed years from the date of a woman's first marriage to April 1971. It is derived from the answer to the question on date of marriage (B24a or 24a).

**Year of marriage** is the year recorded by *married, widowed or divorced women*, in answer to the question on date of first marriage (question B24a on the household form and question 24a on the personal form). In some tables the year of marriage is given in groups of five years and is known as the **period of first marriage**.

**The number of children born live in (all) marriage(s)** is the number of children born to a woman as returned in answer to question B23 (question 23 on the personal form).

**The number of children born live in first marriage** is the number of children born in the first marriage to a *remarried woman* and equals the *number of children born live in all marriages* minus any children whose dates of birth are stated to be more than nine months after the given date of termination of the first marriage.

**Intervals between live births:** these are the intervals (in months) between the date of marriage and the date of first birth, the date of first birth and the date of second birth, etc, of children born live in marriage.

**Social class** is assigned as described in 2.7 except for tables with the **social class of husband and wife in combination** where only *economically active* persons were assigned to a social class.

Social class of husband and social class of husband and wife in combination are given only for *married women* whose husbands were either present, or absent but usually resident, at the address of enumeration.

**The academic level of husband and wife in combination** is given only for *married women* enumerated with their husband (no information was obtained about the qualifications held by absent persons). The academic levels used in the *Fertility* tables are as follows (shown in brackets are the equivalent *levels* as used in the *Qualified Manpower* tables):

level 1 (levels a, b and c)	higher university degree or other degrees or equivalent or other qualifications higher than GCE 'A' level
level 2 (level d)	GCE 'A' level and equivalent
level 3 (level e)	none of the above

#### Treatment of not stated answers

As previously mentioned, certain categories of women who failed to complete answers to Questions B23 and B24 (23 and 24 on the personal form) are excluded from the *Fertility* tables. In detail the women excluded from these tables are

- (a) married, widowed or divorced women who failed to state the dates of births, and hence number, of their live born children at question B23;
- (b) married, widowed or divorced women who failed to state the date of their first marriage at question B24a;
- (c) widowed or divorced women who failed to state the date of termination of their first marriage at question B24b: married women (ie women shown as married at the marital status question) who only failed to state whether their first marriage was ended have had this marriage regarded as 'not ended' and are consequently included in the tables.

The exclusion of these categories may lead to bias in the tables, this being the case if women omitting certain fertility items are unrepresentative of women who did state the

information and are therefore included in the tables. For example, it appears probable that the high proportion of women aged under 20 with not stated number of children are in fact women with no children. If this is so, then distributing the not stated cases over the known distribution of children for those women who have completed the question would give biased fertility measures.

Consequently it was decided to produce an additional set of tables covering the various 'not stated' categories only. These tables are given as an appendix to the 100 per cent *Fertility Volume* where a short commentary describing the problem can also be found.

## 2.10 Qualified manpower

### Population covered

The *Qualified Manpower* tables are based on the enumerated population of Great Britain and are derived from the ten per cent sample of the census forms. Although all the tables are produced for Great Britain many are also available for England and Wales.

The tables are based on information provided by the enumerated population about qualifications they have obtained since reaching the age of 18; and about any GCE 'A' levels or equivalent qualifications (including Ordinary National Certificate, Ordinary National Diploma and the Higher Grade of the Scottish Certificate of Education) they have obtained.

This information is used to classify the population into five different *educational attainment* categories. These categories, together with a classification of the subject of the person's main qualification, are the main attributes analysed in the tables.

The tables are restricted to a sub-set of the enumerated population, usually those aged 18–69 (that is 18 and over but under 70) but sometimes more specifically to those possessing qualification(s) of an accepted standard. Tables concerned with the occupations of *economically active* persons or the *industries* of persons *in employment* cover persons of all ages (15 and over) although, in the ten per cent sample, there were only 25,843 persons aged 70 and over who were *economically active*. This figure differs slightly from that given in the *Economic Activity Volume* because that volume is based on enumerated population usually resident in Great Britain. In the 100 per cent analyses the enumerated population numbered 53,978,538. Of these 34,315,085 were aged 18–69. The 10 per cent sample contained 3,431,665 persons aged 18–69.

### Questions concerning qualifications and students

Full time students: information was derived from answers to question B8 on the household form and question 8 on the personal form. The question was

B8

Will the person be a student attending full-time at an educational establishment during the term starting April/May 1971? (see note B8)

This question need not be answered for children under 15 years of age.

YES

NO

The question was supplemented by the following note

B8

Students

Do not count as full-time students people who are:

- (a) on day release from work to attend school or college
- (b) attending night school only
- (c) attending an educational establishment provided by employers, such as an apprenticeship school.

GCE 'A' levels and equivalent qualifications: information was obtained from answers to question B13 on the household form and question 13 on the personal form. The question was

B13

Has the person obtained any of the following?

GCE 'A' level

Higher School Certificate (HSC)



level c qualifications that generally satisfy the three requirements of: obtained at age 18 or over; above GCE 'A' level; below first degree level: this level includes most nursing and teaching qualifications.

A **qualified person** is one holding at least one qualification at *level a, b or c*.

**Level of highest qualification:** *qualified persons* are classified to *a, b or c level* according to the level of the highest qualification that they hold; the term 'level' is sometimes used to represent the level of highest qualification. The last stated qualification at the highest level (which is assumed to be the most recent qualification at the highest level because the question asked for the qualifications to be entered in chronological order) is the one used in analyses by subject unless otherwise stated in the table.

**Educational attainment:** this is a categorisation of the population aged 18 and over into five groups. Groups a, b and c are the levels of the highest qualification of **qualified persons**. **Non-qualified persons** have been assigned to groups d and e on the basis of their responses to the GCE 'A' level question (B13):

**group d** – persons not qualified at either a or b or c levels but holding a GCE 'A' level or equivalent qualification;

**group e** – persons not qualified at either a or b or c levels and not holding a GCE 'A' level or equivalent qualification.

The five groups are mutually exclusive. Amongst the 3,431,665 persons in the ten per cent sample of the enumerated population aged 18–69 the numbers in the five categories are as follows:

group a	9,577	} 261,205
group b	103,473	
group c	148,155	
group d	213,285	
group e	2,957,175	

Persons in group d are occasionally sub-categorised by the **type of qualifications held**. The types are (i) **ONC/OND** – Ordinary National Certificate or Diploma, (ii) **SCE (higher)/SLC (higher)** – the higher level of the Scottish Certificate of Education or Scottish Leaving Certificate, (iii) **GCE 'A' level/HSC** – the General Certificate of Education Advanced level or Higher School Certificate. Persons holding more than one of the three types are allocated to category (i) if held, but otherwise to category (ii).

**Basic state** is the classification of persons qualified at *level a, b or c* by the **type of qualification**, if any, held at GCE 'A' level or equivalent standard. There are four basic states:

- (i) **ONC/OND** – Ordinary National Certificate or Diploma;
- (ii) **SCE (higher)/SLC (higher)** – the higher level of the Scottish Certificate of Education or Scottish Leaving Certificate;
- (iii) **GCE 'A' level/HSC** – the General Certificate of Education Advanced level or Higher School Certificate;
- (iv) **Others** – persons not holding at least one of the categories (i), (ii) or (iii).

Persons holding more than one of (i), (ii) or (iii) are allocated to category (i), if held but otherwise to category (ii).

**Qualification types at the a and b levels:** qualifications at the a and b level are considered as three types:

**with degree qualification** – persons who hold a degree with or without a professional qualification.

**with professional qualifications** – persons who hold a professional qualification with no degree;

**other a or b level** – persons who hold neither a degree nor a professional qualification.

**Graduate/non-graduate:** graduates are defined as persons possessing a degree qualification.

**Awarding institution groups:** the awarding institution of degree qualifications are considered in 13 groups. The constituent institutions of each group are specified in Appendix D.

**Subject groups and primary subjects:** the major subject or subjects of each qualification were classified according to the Department of Education and Science's standard subject classification. This classification consists of ten main subject groups and 145 primary subjects within the main groups. It is detailed in Appendix E.

**Student status:** a full time student is a person assigned to the category 'student in an educational establishment' in the classification of economic position.

## 2.11 Welsh language

The questions relating to the Welsh language were as follows:

W

a Does the person speak Welsh? Tick the appropriate box.

b If so does the person:

Speak English?

Read Welsh?

Write Welsh?

a Speaks Welsh

Yes  No

b If YES

Speaks English

Reads Welsh

Writes Welsh

These questions were included in form W, the household form, and form PW, the personal form, issued in Wales (including Monmouthshire) and their Welsh language equivalents. They were not included in the census forms used in the remainder of the United Kingdom.

As the questions were asked only of persons who were enumerated in Wales the statistics include persons enumerated but not usually resident in Wales and exclude persons usually resident in Wales who were elsewhere on census night.

No information was tabulated in respect of children aged under three.

# Appendix V 1981 Census: definitions and concepts

(reproduced from *Census 1981, Definitions, Great Britain*)

## II Population bases

14. Census results are presented as cross tabulations, each counting a particular population, for example, people, households, families or people in communal establishments. It is important to know exactly what is being counted, ie. the population base, especially when comparing tables from the 1981 Census with those from earlier censuses or from non-census sources.

15. The form used in the 1981 Census contains two changes from the form used in the 1971 Census that affect the population bases, namely:

- a. all questions relating to the individual on the H form were addressed to absent residents (see paragraph 16 for the description of an absent resident). However, as in 1971, in communal establishments only the population present on census night was enumerated.
- b. the *whereabouts* question on the H form identified those absent residents who were elsewhere in Great Britain on census night and those who were outside GB.

*Absent households*, ie. households which were wholly absent from their place of usual residence were not included in the enumeration if no one else was present in that accommodation on census night. (In 1971 the absent residents in such households were included in the Household Composition Tables to the extent that it had been possible to enumerate them).

16. The form-filler was instructed to include on the census form:

"all the persons who spend census night 5-6 April 1981 in this household (including anyone visiting overnight and anyone who arrives here on the Monday and who has not been included as present on another census form)."

"any persons who usually live with your household but who are absent on census night. For example, on holiday, in hospital, at school or college. Include them even if you know that they are being put on another census form elsewhere."

An identical instruction but in a different format was included on the form H in Scotland. (see Appendix 4).

The group of people included on the census form under the second category of the instruction are called *absent residents*.

17. Information on whereabouts and usual address, given for each person listed at the top of the form, can be used to derive a variety of population bases. The questions were:

**6 Whereabouts on night of 5-6 April 1981**  
Please tick the appropriate box to indicate where the person was on the night of 5-6 April 1981.

1  At this address, out on night work or travelling to this address

2  Elsewhere in England, Wales or Scotland

3  Outside Great Britain

---

**7 Usual address**  
If the person usually lives here please tick 'This address'. If not, tick 'Elsewhere' and write in the person's usual address.  
The home address should be taken as the usual address for a head of household who lives away from home for part of the week.  
For students and children away from home during term time, the home address should be taken as the usual address.  
Boarders should be asked what they consider to be their usual address.

This address

Elsewhere - write the person's usual address and postcode

Address (BLOCK CAPITALS please)

.....

.....

.....

including Postcode

--	--	--	--	--	--	--	--	--	--

*Note:* **Usual Address question.** If the box *This address* had been ticked, the input into the computer was the code of the enumeration district; if an address elsewhere in the United Kingdom had been given, the input was the postcode; if an address outside the United Kingdom had been given, the input was the country of usual residence (using the codes for the country of birth classification - see para 74). Special procedures were adopted if the answer was missing or was entered as "none" or "no fixed address" (see para 27).

### Construction of bases (counting people)

18. Combinations of the answers to the questions on whereabouts and usual address are as follows:

*Whereabouts recorded as:*                      *Usual address recorded as:*

- |                      |                 |
|----------------------|-----------------|
| (i) This address     | This address    |
| (ii) This address    | Elsewhere in GB |
| (iii) This address   | Outside GB      |
| (iv) Elsewhere in GB | This address    |
| (v) Outside GB       | This address    |

*Note:* Only persons present were entered on the form for communal establishments, ie. Categories (i) to (iii)

19. The *population present on census night (present population)* in an area is the count of all people recorded as spending census night in the area regardless of whether or not this was where they usually lived; that is all persons recorded on H forms for whom the whereabouts on census night was given as "this address" plus all persons recorded on forms for communal establishments  
ie. (i) + (ii) + (iii).

20. The two main ways of counting the *usually resident population* in a specified area are:

- a. The *present/absent* method, in which a count is made of those people recorded on the forms for the area as usually living "at this address" whether or not present on census night  
ie. (i) + (iv) + (v).

- b. The *transfer* method, in which a count is made of persons returned on forms for the area as both usually living "at this address" and present "at this address" on census night [(i)]; plus persons returned on forms for the area as usually living "at this address" but present outside Great Britain on census night [(v)]; plus persons returned on forms throughout Great Britain as present "at this address" on census night but usually living "elsewhere in GB" at an address within the specified area. This last component is obtained by sorting, according to area of usual residence, persons in category (ii) returned on forms collected anywhere in Great Britain and transferring people back to their area of usual residence.
- ie. (i) + (ii) [transfers] + (v).

The 1981 transfer base differs from 1971 by including category (v) but excluding visitors from outside Great Britain who spent census night in the country. For a more detailed description of 1971 see Appendix 1.

The difference between the two methods of counting the usually resident population lies in the treatment of residents of Great Britain absent from their usual address on census night. Take for example a person whose usual residence was in Bath but who was in York on census night. In the present/absent base this person is included in the count of usual residents in Bath from the information supplied by the person filling in the census form for the address in Bath, provided someone was present to complete a form. In the transfer base this person is included in the count of the usual residents of Bath using the information supplied by the household in York in which the resident of Bath was present on census night; in effect a record is transferred from the area in which the person was present to the area of usual residence, wherever these are different. If the whole household of which the person was a member was in York on census night then that household would be included as residents of Bath in the transfer base but not in the present/absent base; if the whole household was outside Great Britain on census night then the members of that household would not be counted in either base. Furthermore if the resident of Bath lived in a communal establishment and was absent on census night, then he or she would not be included in the present/absent base.

21. The Registrar General's annual estimates of the population usually resident in each district are based on the census figures compiled by method (b) in para 20; but they adopt a different convention from the census in defining the usual address of students, members of the Armed Services and some other categories. Thus, a student's usual address is taken, for the purposes of the Registrar General's estimates, as his term-time address but, for census purposes as his home address because this is how

most of the public respond best to the census questionnaire. Statistics derived from the census are not, therefore, directly comparable with the Registrar General's Annual estimates.

22. The main advantage of the transfer base over the present/absent base is that it includes those members of wholly absent households who were enumerated elsewhere in Great Britain, for example, those staying with relatives or on holiday.

The main advantage of the present/absent base (referred to in the tables as the *usually resident population* or *residents*) is that it can be produced for a reference area from the forms returned for that area; the transfer base requires the processing of the returns for the whole country.

23. As the *full range* of census information is given on the H forms for absent residents in private households and because the present/absent can be produced area by area with the processing sequence, this usually resident population has been incorporated in the small area statistics and county reports. For consistency the same base has been carried forward into all the published national topic volumes; though volumes on specific topics, such as Workplace, contain slight variations (described under the topic section) and selected tables, for example in the small area statistics, use a different base to allow intercensal comparisons.

Appendix 2 describes the main type of base used for tables in 1971. (For a fuller description see Census 1971. England and Wales. *General Report, Part 1. Definitions*. HMSO, 1979).

### Construction of bases (counting households)

24. For 1981 the base for the housing tables is the usually resident population in private households (described in the tables as *private households with usual residents*), thus giving housing the same base as household composition and the other published national topic volumes, though the latter include the population resident in communal establishments if present there on census night. Private households with residents are not counted on a transfer base, that is, they are not recreated by transferring back to that household a member (or members) who was absent on census night but enumerated elsewhere in Great Britain. For a description of the 1971 base see Appendix 1.

### III Population and household definitions

#### Present population in an area

25. The present population of an area is the number of persons alive at midnight on 5-6 April who spent that night with a household, in a communal (non-private) establishment, on board a vessel or elsewhere in the area.

**Shipping:** Apart from houseboats (enumerated as private households), vessels were treated in a similar way to communal establishments with a listing form and individual return forms for each person on the ship. Persons on naval vessels in British waters or ports on census night were included as present in the home base port of the ship. Generally persons on other vessels were counted as present in the area the forms were collected. However, for shipping moving between a port in England or Wales and a port in Scotland, Northern Ireland, Isle of Man or the Channel Isles arrangements were made for the return of forms to the issuing country and persons in such vessels were counted as present in the area of issue. The area of issue also applied to persons in vessels on voyages to and from ports within England and Wales that did not make a first port of call before 27 April 1981 and to vessels moving between a port in England and a port in Wales.

**Campers, vagrants, persons sleeping rough etc:** The present population also includes persons not enumerated in private households or communal establishments, for example, vagrants, persons sleeping rough, and persons enumerated in caravans or other non-permanent structures which were not the usual residence of any persons present on census night. This heterogeneous group of persons is included in the *present population not in private households* (see para 31), for example in Table 1 and Table 2 of the SAS, and in some instances this group appears as a separate category described as *Campers, vagrants etc* with other specified communal establishments. Where an H form was completed for persons in non-permanent accommodation with no usual residents (present or absent), those persons were allocated by the processing system to *Campers, vagrants, etc*. If a usual address elsewhere was given, the person would be included in the usually resident transfer base population at the remote address.

#### Usual residence

26. For most persons the answer to the question on usual address is straightforward. For some, however, it is not so, particularly when a person lives at more than one address throughout the year. Guidance by the Census Offices took three forms. They were:-

- a. The inclusion of specific notes with the usual address question on the H and I forms (see para 17 for the H form notes). The note for the I form read, "If you are a student or a schoolchild away from home during term time your home address should be taken as your usual address."

- b. Limited guidance to the enumerator on whom to treat as usually living *at this address* for the purposes of completing an H form. This guidance was given at Appendix A of the Field Manual in England and Wales (not issued in Scotland). A copy of the Appendix is shown on page 7.

- c. Leaflets (UA in England and Wales and UR in Scotland) distributed in communal establishments for the sick and disabled advising patients how to answer the question on usual address. A copy of UA is shown on page 8.

The following rules were laid down for inmates of prisons, borstals and detention centres. If a prisoner had served six months or more of a sentence in custody (not necessarily in the same prison or establishment) immediately prior to 5 April 1981, the usual address was taken to be *this address*. If the prisoner had served less than six months, the usual address before admission was to be given. A similar procedure was followed for children in community homes.

27. Where the question on usual address was not answered the auto-edit imputed a code of *this address* or *elsewhere not stated*. A reponse of "none" or "no fixed address" was coded to *this address*; but the record for such a person would be included in the processing only if the answer to the question on whereabouts was "here".

Persons who failed to answer the question or who stated "none" or "no fixed address" appear as part of the usually resident population (on either basis of measurement) in the area in which they were enumerated; but they are included as part of a *private household with usual residents* only if assigned a code of *this address*.

28. *Visitors* are those persons present "at this address" on census night whose usual address is not "this address", that is categories (ii) and (iii) of para 18. A *visitor to a specified area* is a person present in that area with a usual address located outside that area. Thus a *visitor to York* is a person who was present on census night in York but with a usual address outside York. A visitor to the United Kingdom is a person with a usual address outside the United Kingdom.

#### Household

29. A *household* is either one person living alone or a group of people (who may or may not be related) living, or staying temporarily, at the same address with common housekeeping. Enumerators were told to treat a group of people as a household if there was any regular arrangement to share at least one meal a day, breakfast counting as a meal, or if the occupants shared a common living or sitting room.

# WHOM TO INCLUDE/EXCLUDE IN A PRIVATE HOUSEHOLD

## Appendix A

In addition to people present on Census night the form-filler is asked to include "any people who usually live with your household but who are absent on Census night". You may be asked questions where the form-filler is not sure whether or not to include somebody, or where names have been entered in Panel B of the H form. A list of all possible circumstances would be too long, but the following guidelines will help.

### EVERYONE PRESENT ON CENSUS NIGHT MUST BE INCLUDED

For anyone NOT PRESENT who is a:

- **Au pair**
  - on long-term engagement of a year or more **INCLUDE**
- **Boarder**
  - returns to another address at week-ends **EXCLUDE**
- **Child (parent completing form)**
  - at boarding school, university, college, etc, if not married **INCLUDE**
  - adopted or foster-child (however temporary) **INCLUDE**
  - in the forces or working abroad **EXCLUDE**
- **Merchant Seaman** **INCLUDE**
- **Person in Institution**
  - has been in the institution for less than 6 months **INCLUDE**
  - has been in the institution for 6 months or more **EXCLUDE**

This sort of case can cause distress, so only offer it as a guide. For example, "We have a general rule that if he/she has been in hospital for 6 months or more he/she is regarded as living at the hospital, but it is really for you to decide. We will accept what you do".
- **Regular Visitor (eg elderly relative living here part of the year)**
  - if living here most of the year (6 months or more) **INCLUDE**
  - if less than 6 months, or less than 4 nights a week **EXCLUDE**
- **Shift or Night Worker** **INCLUDE**
- **Spouse**
  - separated but occasionally visits (or never visits) **EXCLUDE**
  - works away from home, abroad, in forces, etc **INCLUDE**



# 1981 CENSUS - ENGLAND & WALES

## DEFINITION OF USUAL ADDRESS

### FOR USE IN HOSPITALS AND CERTAIN OTHER TYPES OF COMMUNAL ESTABLISHMENT

This leaflet gives advice on how the question about 'Usual Address' (Q7) on the Individual Return (I form) should be answered. Please pass on this advice to the patients concerned before they fill in their form. The definition of 'Usual Address' for patients in your establishment is given below.

Patients in:	Usual Address:
<b>A</b> Communal establishments providing Part III or Part IV accommodation Homes for epileptics Homes for incurables Homes for the blind Homes for the deaf and dumb Homes for mentally defective children Almshouses	Answer 'Here'
<b>B</b> Convalescent homes General, maternity or special hospitals (not psychiatric) Homes for unmarried mothers Maternity homes General nursing homes Sanatoria	Answer Give the home address
<b>C</b> Chronic sick hospitals Psychiatric hospitals	Answer If 6 months or more in hospital – 'Here' If less than 6 months – home address
<b>N.B.</b> If the establishment is a combination of any of those in groups A, B or C	Answer Give the advice appropriate to each group of patients

For the 1981 Census, the criteria for identifying households were changed from those that applied in 1971 to include the sharing of a common living or sitting room. This change had been introduced as a result of tests prior to the census which had shown that, without the prompting of the enumerator, some households had identified themselves on the sole criteria that the persons within the household shared a common living or sitting room.

As in 1971 the occupants of one room accommodation or of a caravan were treated as one household.

30. It should also be noted that in 1981 the H form was addressed to the *Head or Joint Heads or members of the Household* (thus allowing for households with no head). Furthermore the question on relationship in household asked for the relationship, if applicable, of the 2nd person, 3rd person, etc to the person entered in the first column. For *statistical* purposes, however, the head of household has usually been taken to be the person found in the first column. For the rules for selecting a head of household see paras 85-88.

## IV Communal establishments: definitions and classifications

31. People were enumerated in a variety of communal establishments (also referred to as non-private establishments) such as hotels, boarding houses, hospitals, homes for old people, boarding schools, prisons, armed forces establishments, ships, hostels, religious communities and so on. In general the distinguishing feature of a communal establishment is some form of communal catering. Households enumerated on H forms but found to contain five or more boarders, patients, foster children, lodgers or non-domestic employees on census night were reclassified at the processing stage to the appropriate class of communal (or non-private) establishment. The population enumerated in communal establishments plus vagrants and campers (see para 25) is referred to as the *population not in private households*.

32. Enumerators were instructed to contact the person in charge, for example the proprietor or manager, and he had the responsibility of listing on an L form all those present in the establishment on census night and all who arrived on the Monday, 6 April 1981 and who had not been included as present on a census form elsewhere; the names of any non-resident staff/personnel who happened to be on duty in the premises on census night were not to be listed. The person in charge had the responsibility of issuing I forms to persons present at the establishment on census night and of collecting the completed forms, and also of completing the I forms where necessary, i.e. where a person to whom the form referred was incapable of completing the form for himself.

### Instructions for special types

33. *Small hotels, guest houses* containing ten rooms or more were treated as communal establishments. Where they contained less than ten rooms they were classified as communal establishments if there were present on census night any resident staff other than the proprietor and his family or five or more guests.

*Sheltered housing*, i.e. accommodation provided for the elderly, handicapped etc, often fell between a communal establishment and a private household in that a main meal could be taken communally though each person had his or her own separate accommodation with facilities for cooking. If at least half the people within the sheltered housing complex possessed facilities for cooking their own meals, they were treated as members of private households and, if less than half, as members of a communal establishment.

*Itinerant caravan dwellers*, for example, with circuses or fairs, were treated as private households.

*Private residences in the grounds of an establishment*, for example, a doctor's house, a caretaker's cottage or porter's lodge, were treated as private households but families occupying flats or suites of rooms within the main building of an establishment were treated as part of the main establishment, i.e. the persons living in this

type of accommodation were listed on the L form and enumerated on I forms.

*Service families or civilians living in married quarters* of the Armed Services were enumerated as private households whether the quarters were located within or outside the boundaries of the service establishment.

*Annexes to communal establishments* were treated as part of the main establishment if located in the same enumeration district or if meals were taken at the main establishment though the annexe was in a different enumeration district. The annexe was treated as a separate establishment if located in a different ED and meals were provided at the annexe (breakfast counting as a meal) or there were facilities for self catering; but if there was no one in charge of the annexe to complete the L form and issue and collect I forms the annexe had to be treated as accommodation occupied by private households.

### Classification of communal (non-private) establishments

34. The 1981 categories of communal establishment comprise the following:-

(a) *Hotels*: Hotels, boarding houses, apartment houses, inns, holiday camps and other similar establishments providing board and accommodation for visitors.

*Note*: Establishments described as hotels or inns but with no sleeping accommodation for guests are excluded.

(b)\* *National Health Service (NHS) hospitals and homes*

(i) *Psychiatric*<sup>+</sup>: Hospitals classified as such by the DHSS and the three Special Hospitals (Broadmoor, Rampton and Moss Side).

(ii) *Other*: All other NHS hospitals and homes.

(c)\* *Non-NHS hospitals and homes*

(i) *Psychiatric*<sup>+</sup>: Mental hospitals or homes not administered under NHS; homes and hostels for the mentally disordered maintained by local authorities; mental after care units.

(ii) *Other*: All other non-NHS hospitals and homes including 'households' containing five or more patients.

(d) *Homes for the old and the disabled*: Residential accommodation for the old and/or disabled including accommodation made available in premises maintained by voluntary organisations, eg Cheshire Homes; homes for

\*Including staff homes and hostels, for example, for nurses, provided by the establishment, whether sited with the establishment or sited away from it.

+The 1971 term *Psychiatric* has been retained in the table layouts, though this category consists of homes and hospitals for the mentally handicapped as well as the mentally ill.

old and/or disabled persons, blind, deaf, etc, registered with local authority. Almshouses are included unless classified as private households.

- (e) *Children's homes*: Children's homes and hostels including those provided by or maintained by voluntary organisations; List D schools in Scotland; 'households' with five or more foster children.

*Note*: Residential schools and homes for handicapped, educationally sub-normal and maladjusted children, maintained or assisted by education authorities, are included in *educational establishments*.

- (f) *Educational establishments*: Residential schools, training colleges, theological colleges and university halls of residence and students' hostels administered by schools, colleges and universities; residential schools and homes for handicapped, educationally sub-normal and maladjusted children maintained or assisted by education authorities; religious institutions which are boarding schools or which have living accommodation for teachers.

*Note*: Training schools provided exclusively for a single employer or for a trade association or government department are classified as *miscellaneous communal establishments*.

- (g) *Prison department establishments*: Prisons, detention centres and borstals.
- (h) *Defence establishments, including naval vessels and service hospitals*: Army and Air Force camps or establishments, naval shore stations and vessels manned by services personnel, Fleet Auxiliary vessels, Service hospitals; hostels for NAAFI etc, personnel are included, even if located outside the grounds of a camp. Civilians in services establishments including NAAFI staff are included in the population of defence establishments.

*Note*: Married quarters for service personnel or civilians are excluded.

- (i) *Civilian Ships, Boats and Barges*: As defined.

*Note*: Lightships come under *miscellaneous* and houseboats are treated as private households in non-permanent accommodation.

- (j) *Hostels and common lodging houses*: Hostels, common lodging houses, reception centres with resident staff used by people as their main or only residence whether run by a statutory authority (eg local authority hostels) or religious institutions or other voluntary organisations (eg Church Army, Salvation Army, YMCA, YWCA) or private individuals or commercial organisations (eg Rowton Houses).

- (k) *Miscellaneous communal establishments*: A heterogeneous group containing Youth Hostels, working men's hostels, contractor camps, police section houses, homes for single women and their children, community homes, fire stations, lighthouses and lightships, training centres and religious institutions not classified elsewhere.

35. The two major changes made to the 1971 Census classification are:

- a. Hostels and common lodging houses form a separate category (previously included under *Miscellaneous communal establishments*).
- b. Places of detention are restricted to prison department establishments ie. prisons, remand and detention centres and borstals. Community homes, remand homes and police stations containing a lock-up are now classified as *Miscellaneous communal establishments*.

### **Residence classification and status in communal establishments**

36. *Residence classification*: Persons enumerated in communal establishment groups (a) to (g) and (j) to (k) above, that is hotels, hospitals and homes, educational establishments, prison department establishments, hostels and common lodging houses and miscellaneous communal establishments, were given one of three residence classification codes from answers to the question on position in establishment and, for managers and staff, from answers to the question on usual address. The need to use answers to the question on usual address arose from a late decision related to the small area statistics. The classification comprises:

- (i) Resident managers and staff  
(ii) Guests or inmates  
(iii) Relatives of managers and staff and other persons (including managers and staff not usually resident at the establishment).

All persons in defence establishments and on civilian ships are classed together and, when necessary, are included with category (ii).

37. *Status in establishment*: This classification cross analyses the codes in the residence classification against answers to the question on usual address, as follows:

- (i) Resident managers and staff  
(ii) Resident guests or inmates  
(iii) Visiting guests  
(iv) Resident relatives of managers and staff and other persons  
(v) Visiting relatives of managers and staff and other persons (including managers and staff not usually resident at the establishment).

*Note*: Categories (i) in the two classifications are the same.

## V Topics

### Housing (England and Wales)

38. Statistics on housing come from the answers to Panel A and to questions H1, H2, H3 and H4 on the H form, and from information collected by enumerators where the accommodation for a household (defined as a *household space*) was not occupied on census night. A count of dwellings was not included in the 1981 Census, but estimates of the number of dwellings can be made from data on household spaces (see Appendix 3).

#### Household space classification

39. The basic household space classification for permanent buildings, used in the SAS, county reports and housing volumes, is based on the following information on the nature of the accommodation (Panel A) and sharing (H4), rooms (H1) and amenities (H3).

#### 40. Panel A

Panel A To be completed by the Enumerator and amended, if necessary, by the person(s) signing this form.	
This household's accommodation is:	
• In a caravan	<input type="checkbox"/> 20
• In any other mobile or temporary structure	<input type="checkbox"/> 30
• In a purpose-built block of flats or maisonettes	<input type="checkbox"/> 12
• In any other permanent building in which the entrance from <b>outside</b> the building is:	
NOT SHARED with another household	<input type="checkbox"/> 10
SHARED with another household	<input type="checkbox"/> 11

41. Enumerators were given guidance on identifying caravans and other mobile or temporary (non-permanent) structures. While towable caravans, mobile homes, converted railway carriages and houseboats are treated as non-permanent structures, other structures such as huts and holiday chalets may be more difficult to classify between permanent and non-permanent. Thus enumerators were instructed to use the following rule:-

"A *permanent building* is one which satisfies at least one of the following criteria:

- the walls are of brick, stone and mortar, concrete, breeze block or similar material.
- the roof is of tiles, slate, thatch, shingle or concrete.
- the length of the shortest wall is at least 15 feet."

Enumerators were told to regard a structure as non-permanent if none of the qualifications were met. Furthermore, enumerators were instructed to record non-permanent structures (boxes 20 and 30 in Panel A) only if the accommodation was occupied on census night or, if it was not occupied, only if it was the usual residence of a household.

#### 42. Question H4

**H4** Please answer this question if box 11 in Panel A is ticked.

Are your rooms (not counting a bathroom or WC) enclosed behind your own front door **inside** the building?

1  YES      2  NO

If your household has only one room (not including a bathroom or WC) please answer 'YES'.

H4 was a new census question in 1981 giving a measure of 'self-containment' of household spaces of two rooms or more in multi-occupied buildings as described in para 45. It replaced the earlier type of census question on the sharing of 'circulation' space (ie hall, passage, landing or staircase). In particular, census tests had shown that many households occupying the top floor(s) of multi-occupied buildings answered that they did not share the circulation space with another household, though there had been no structural alteration to provide self-contained accommodation; errors in answering the question for such households tended to over-estimate the amount of self-contained accommodation. The 1981 question was devised specifically to overcome this problem.

43. **Question H1, Rooms:** the number of rooms in the accommodation of a household was obtained from the following:

#### H1 Rooms

Please count the rooms in your household's accommodation.

Do not count:

small kitchens, that is those under 2 metres (6ft 6ins) wide, bathrooms, WCs.

Number of rooms .....

#### Note

Rooms divided by curtains or portable screens count as one; those divided by a fixed or sliding partition count as two.

Rooms used solely for business, professional or trade purposes should be excluded.

44. **Question H3, Amenities:** the exclusive use or otherwise of an inside flush toilet (WC) and a fixed bath or shower (referred to as "a bath" in the classification in para 45). The question took the following form:

#### H3 Amenities

Has your household the use of the following amenities on these premises? Please tick the appropriate boxes.

- A fixed bath or shower permanently connected to a water supply and a waste pipe

1  YES - for use only by this household  
 2  YES - for use also by another household  
 3  NO fixed bath or shower

- A flush toilet (WC) with entrance inside the building

1  YES - for use only by this household  
 2  YES - for use also by another household  
 3  NO inside flush toilet (WC)

- A flush toilet (WC) with entrance outside the building

1  YES - for use only by this household  
 2  YES - for use also by another household  
 3  NO outside flush toilet (WC)

45. The classification of household spaces in permanent buildings is then given by Table 1.

Table 1 Household space classification

		Derivation			
		Panel A (Box)	H4	H1	H3
(i)	Purpose-built flats and maisonettes	12	—	—	—
(ii)	Household spaces with separate entrance from outside the building	10	—	—	—
(iii)	Household spaces with shared access from outside the building, self-contained accommodation comprising:				
(a)	Two or more rooms and with the exclusive use of a bath and inside WC	11	Yes	2 or more	Box 1 (Yes) at first two parts
(b)	One room and with the exclusive use of a bath and inside WC (flatlet)	11	Yes*	1	Box 1 (Yes) at first two parts
(c)	Two or more rooms but without the exclusive use of a bath and/or inside WC.	11	Yes	2 or more	Box 2 or 3 at either or both of the first two parts
(iv)	Accommodation not self-contained but comprising:				
(a)	One room without the exclusive use of a bath and/or inside WC (bedsit)	11	Yes*	1	Box 2 or 3 at either or both of the first two parts
(b)	Two or more rooms	11	No	2 or more	—

\* Answers to question H4 were not used in determining 'self-containment' for household spaces of one room: tests prior to the census had shown that form-fillers in such accommodation had difficulty in selecting a box and the note to the question was included for guidance. A household space consisting of one room and with shared access from outside the building was taken to be self-contained if the household had the exclusive use of a bath and inside WC and not self-contained if the household shared, or did not have, either or both of these amenities.

46. Where the household space was not occupied on census night, the enumerator supplied the answer to H4 (if box 11 was ticked at Panel A) and estimated the number of rooms (answer to H1). No information was available on the use of amenities (question H3) and it was not possible, therefore, to separate category (iii)(a) from (iii)(c) or (iii)(b) from (iv)(a) for household spaces not occupied on census night. This is reflected in the tables. Such household spaces consisting of one room were classified as not self-contained.

#### Rooms and density of occupation

47. The number of rooms in a household space was derived from answers to question H1 (see para 43). Caravans and other non-permanent accommodation recorded as having six or more rooms had the number of rooms re-set by the 'auto-edit'.

Measurements of under occupancy or overcrowding are given by *density of occupation* ie. the ratio of the number of persons in a private household with usual residents to the number of rooms in the accommodation of that household.

Various distributions of households by density of occupation are available. The full distribution is:

- Over 1 ½ persons per room
- 1 ½ persons per room
- Over 1 but less than 1 ½ persons per room
- 1 person per room
- Over ¾ but less than 1 person per room
- ¾ person per room
- Over ½ but less than ¾ person per room
- ½ person per room
- Less than ½ person per room

**Tenure**

48. The tenure of a household was obtained from the answers to question H2:

**H2 Tenure**

How do you and your household occupy your accommodation? Please tick the appropriate box.

**As an owner occupier (including purchase by mortgage):**

- of freehold property
- of leasehold property

**By renting, rent free or by lease:**

- from a local authority (council or New Town)
- with a job, shop, farm or other business
- from a housing association or charitable trust
- furnished from a private landlord, company or other organisation
- unfurnished from a private landlord, company or other organisation

**In some other way:**

- Please give details

.....

**Note**

- a If the accommodation is occupied by lease originally granted for, or since extended to, more than 21 years, tick box 2.
- b If a share in the property is being bought under an arrangement with a local authority, New Town corporation or housing association, for example, *shared ownership (equity sharing)*, a *co-ownership scheme*, tick box 1 or 2 as appropriate.

49. The division of owner occupiers into freehold and leasehold, and the categories of renting etc. with a job, shop, farm or other business and renting etc. from a housing association or charitable trust were extensions to the tenure question included in the 1971 Census.
50. The highest box (lowest code number) was coded if more than one box was ticked. A set of coding instructions was drawn up, in consultation with the Department of Environment, for coding answers specified under *In some other way*. For example, "relative's property" or "squatting" were assigned to renting etc. furnished or unfurnished, as appropriate. A copy of the coding instructions is available from Customer Services, Office of

Population Censuses and Surveys, Titchfield, Fareham, Hants, PO15 5RR.

51. The household tenure for renting etc with a job, shop, farm or other business was divided in processing by reference to the employment status (see para 99) of the first person on the form, as follows:

<i>Tenure</i>	<i>Employment status of first person</i>
Renting with a business	Self employed
Renting by virtue of employment	Employee or apprentice or trainee

If the first person had no employment status, ie. not applicable (again see para 99), the household tenure was allocated to renting unfurnished.

**Amenities**

52. Questions about three amenities were included in the 1981 Census compared with six in 1971 (see para 44). Cooker or cooking stove with an oven, kitchen sink and hot water supply were excluded in 1981.

**Occupancy type**

53. The list of occupancy types in the order they appear in the tables is as follows:
- a. Private households with residents (ie enumerated households with one or more usual residents, whether present or absent)
  - b. Absent households (ie private households with one or more usual residents, all absent on census night and no other person present on census night)
  - c. Enumerated households with no usual residents (ie all visitors) Tenure recorded as "owner occupier"
  - d. Enumerated households with no usual residents (ie all visitors) Tenure recorded as anything other than owner occupier
  - e. Second residences not occupied on census night
  - f. Holiday accommodation not occupied on census night
  - g. Vacant (New, never occupied)
  - h. Vacant (Under improvement)
  - i. Vacant (Other)

Households (in permanent buildings) which consisted entirely of visitors were sub-divided by type of tenure into *owner occupied* and *not owner occupied* (c and d above) to give an approximate measure of second homes (ie. category c) and holiday accommodation (ie. category d) that was occupied on census night.

54. Household spaces occupied on census night comprised the three categories a, c and d above. Enumerators classified household spaces not occupied on census night into the remaining six categories (ie b, e, f, g, h and i).

55. *Vacant:*

Enumerators were given the following instructions:

"Treat as vacant any residential accommodation where:

- The property is new and ready for occupation but not yet occupied: *V(New)*
- the accommodation is in the course of conversion or improvement (renovation or decoration) and is not yet occupied: *V(Imp)*
- the property is clearly without furniture or you obtain reliable information that the property is not occupied eg. awaiting new tenants, occupier deceased: *V(OTH)*"

Vacant (Under improvement) covers a wide range of types of improvement from major structural alteration to inside decoration. It would not have been practicable to obtain a finer distinction of types because reliable information on the improvement may not have been obvious or easy to obtain. Tests prior to the census indicated some mis-classification between Vacant (Under improvement) and Vacant (Other). Nevertheless this division of previously occupied but vacant accommodation should provide reasonable measures of accommodation either ready - Vacant (Other) - or not ready - Vacant (Imp) - for occupation at census time.

56. Enumerators were instructed to treat any vacant premises previously used as a small hotel or boarding house as a private residence. This instruction was included because such accommodation, particularly small boarding houses, tends to move in and out of the private housing market.

57. Enumerators were instructed to treat a building as derelict, "if the roof is partly or completely missing, if floors or staircases are missing, or if the doors are missing and there is no sign that the building is being converted or renovated. Property which has doors and windows bricked or boarded up is not necessarily derelict as this may be a precaution against vandalism or squatters during temporary vacancy. Neighbours will often know, or you can gauge from the neighbourhood."

Enumerators were told to treat cases where there were difficulties in distinguishing between vacant and derelict as Vacant (Other). This ruling was made because of concern after the 1971 Census that some vacant properties had been treated as derelict. Derelict buildings were not recorded unless occupied on census night, in which case they were treated in a similar way to other accommodation occupied by private households.

58. In interpreting the statistics it is important to remember that the census gives a snap-shot at a point in time. Thus, unoccupied accommodation was classified as at census time. Future plans, for example to demolish a building, should not have been taken into account. Furthermore not all accommodation classified as Vacant (Other) was necessarily in the housing market at census time, since some could have been purchased but awaiting occupation by the new tenants (see definition - para 55).

59. An *Absent Household* was defined as "accommodation from which all the occupants who usually live there are away on census night, (eg on holiday, in hospital) and no other person is present." However, where an H form was returned by a visitor at an address from which all the usually resident members were absent on census night, this would have constituted a private household with usual residents, albeit that all the residents were absent ie box 2 or 3 ticked in the whereabouts question.

60. *Second Residences* were defined as "premises such as company flats, holiday houses, 'weekend' cottages, in permanent buildings known to be the second residences of people who have a more permanent address elsewhere: this classification applies even if the premises are occasionally let to others".

Student accommodation in private residences not occupied on census night should usually have been classified as second residences since the home address of students should have been taken as the usual address; this would not apply if it was established that the term time address was also the usual address.

61. *Holiday Accommodation* was defined as "accommodation in permanent buildings let to different occupiers for holidays, eg self-catering holiday flats".

62. In the 1971 Census two codes only were used for accommodation not occupied on census night, namely *vacant* or an *absent household*; second residences and holiday accommodation were included within the term absent households. Enumerators were instructed to deliver a form to all absent households, entering the address and name (or "The Occupier"), together with an explanatory leaflet and an envelope (for posting the completed return to the Census Office). It was estimated that about one half (154,000 out of 329,000 of the absent households) returned a form. This information was only used in the household composition tables (for more details see Part I of the 1971 Census Household Composition Tables). In the 1981 Census absent households were not required to return a form. Some information on the characteristics of such households will be available from the small voluntary follow-up survey on quality and coverage conducted by the Social Survey Division of OPCS.

## Housing (Scotland)

63. There are some differences between the housing information collected in Scotland and in England and Wales; the main *difference relates to the information recorded on the type of accommodation*. These reflect the differences in data requirements from the census of the main central government user departments in the two countries.

Statistics on housing come from the answers recorded by the enumerator at (d), (e) and (f) in the panel on the front of form H and from the responses to questions 16-20 on that form (see Appendix 4). Information collected by enumerators where the accommodation for a household (defined as *household space*) was not occupied on census night is also used.

Definitions and classifications peculiar only to Scotland are given in this section. The census questions on tenure and amenities were similar to those included on the H form for England and Wales, except that the question in Scotland did not separate the tenure category of occupied into leasehold and freehold and the question on amenities referred to a flush toilet (WC) with entrance inside (outside) the dwelling. The identical occupancy type classification is available for Scotland.

### Household accommodation

64. Information about the type of accommodation occupied by a household was noted by the enumerator in a panel on the front of the household form while the householder was asked to record, at question 19, information about the sharing of access to the accommodation with other households. Enumerators were given a programmed learning booklet to cover the main aspects of the classification of the building in which the household's accommodation was situated.

### Type of building

65. Section (d) of the enumerator's panel was used to record type of building:

(d) Type of building in which household's accommodation is situated - tick only one box

House that is:

- 1  Detached  
2  Semi-detached  
3  Terraced (including end of terrace)

Flat or rooms in a building with:

- 4  2 storeys  
5  3 or 4 storeys  
6  5 storeys or over  
7  A single flat with a shop, office or other business

Non-permanent structure:

- 8  Caravan  
9  Other non-permanent structure

The enumerators also had the following notes:

House - separated from neighbouring accommodation only by a vertical division, or standing on its own. Codes 1, 2 or 3.

Flat - separated from neighbouring accommodation by a horizontal division. Codes 4, 5, 6 or 7.

#### Categories

Houses - Code houses according to their relationship with any neighbouring buildings.

1. Detached  
House standing on its own.
2. Semi-detached  
Usually one of a pair of houses with a common internal dividing wall. A single house with one wall joined to a block of flats or non-residential premises is included in this category.
3. Terraced (including end of terrace)  
One of a row of 3 or more houses usually of similar design with 2 (one in the case of an end of terrace house) common internal dividing walls.

#### Flats or rooms

With the exception of category 7, code flats or rooms according to the number of storeys in the building which contains them.

A single flat with shop, office or other business

This category applies to a single flat in an otherwise non-residential building. If there is more than one flat in the building, code according to the number of storeys.

#### General notes on categories

Maisonette In a maisonette, household accommodation is on more than one level and there is other accommodation (usually flats or maisonettes) above and/or below.

Change in adjoining accommodation If there has been a change of use (eg to hotel or non-residential, or conversion to flats) treat adjoining (unchanged) accommodation in the context of the original building. Thus, if one of a pair of semi-detached houses has been divided into flats, code the flats according to the number of storeys; the code applicable to the unaltered house would remain unchanged as 2 (semi-detached).

Houses linked by garage or garden wall Disregard any such links in deciding building type.

#### Counting storeys

Count each level whether residential or not, including:

- basements
- attic conversions
- each level within a maisonette

but excluding:

- cellars

### Level of household's accommodation

- 66.(a) The enumerator was asked to code at section (e) the location of the household's accommodation within the building in relation to ground level:

(e) Level of household's accommodation - tick only one box

- a  All on ground or on ground and other floors  
b  All in basement  
c  All on first or higher floor

State actual floor of entry to household's accommodation if box c is ticked

The following advice was given to enumerators:

"In completing this section you are concerned with the floor on which the entry to the household's living accommodation is situated. Do not confuse floors with storeys, eg ground floor is usually the first storey and the first floor, the second storey. Remember too that each level within a maisonette is included in determining floor number."

### Means of access to household's accommodation

66.(b) Means of access relates to the main entrance to the living accommodation. Alternative entrances, eg via basement or back door, were not coded:

(f) Means of access to household's accommodation – either tick box 1 or any of boxes 2–4 that apply

- 1  No lift; no external or internal stair (with 6 or more steps) for access
- 2  External stair or outside steps (with 6 or more steps) for access
- 3  Internal stair (with 6 or more steps) for access
- 4  Lift

Enumerators were asked to:

"Code the way in which members of a household get to their accommodation from ground or street level.

Where there is no living accommodation on the same level as the main entrance door to a dwelling, include a stair etc (provided there are at least 6 steps) which must be negotiated in order to reach the living accommodation. The upper flat in a block of 4 flats often has this arrangement: immediately the front door is opened, you are confronted with a flight of steps to the living area.

An external stair is one that is open to the elements.

Where there is a path as an alternative to a flight of garden steps, disregard the steps (since members of the household can use the path instead of the steps).

Include a lift even if it is not working.

Where a lift is available, there will also be a stair; in such cases therefore box 2 and/or 3 should also be ticked.

Disregard a stair (or steps) which it is not necessary to negotiate in order to gain access to a particular household's accommodation, eg in the ground floor flats in a tenement, the internal stair would not be included."

Where the household space was not occupied on census night, the enumerator noted the information for the accommodation, (recorded in the enumerator's panel for private households) on a form D together with an estimate of the number of rooms. This form was also used to record the status of the property on census night (vacant etc).

### Rooms

57. The number of rooms in a household space was derived from answers to question 17 on form H:

### 17 Rooms

a How many rooms in your household's accommodation are dining rooms, living rooms or bedrooms? Count spare rooms if they could be used for these purposes. \_\_\_\_\_ room(s)

b Is cooking generally done in one of the rooms entered in 'a' above?  Yes  No

c Have you any room used for cooking but not included in 'a' above? 1  Yes 2  No

*Rooms divided by curtains or portable screens count as one, those divided by a fixed or sliding partition count as two.*

*Rooms used solely for business, professional or trade purposes should be excluded.*

This is a new form of wording for a question that has been asked in previous censuses. Tests have shown that the previous wording was unstable mainly because of the varying allocation of kitchens in Scotland. The term is frequently applied to living rooms with some cooking facilities. The question now allows for the separate identification of ancillary kitchens. Tables appear in regional reports and small area statistics showing the number of rooms including and excluding ancillary kitchens.

### Density of occupation

68. Two measures for under occupancy or overcrowding have been used. The first is the ratio of the number of persons in a private household with residents to the number of rooms (excluding ancillary kitchens) in that household's accommodation. Various distributions of persons per room are available.

The second measure equates the rooms available with an assessment of the rooms required by the population resident in the household. This measure has been labelled the *occupancy norm*. It is a rough measure developed along the lines of the 'bedroom standard' used in survey work. Bedrooms are not counted separately from other rooms in the census. It has been argued that the use to which a particular room is put is often determined by the household occupying the accommodation. The total rooms required are calculated as outlined below and this figure is compared with the number of rooms (excluding ancillary kitchens) available.

The room requirement is calculated as follows:

1. A one person household is assumed to require only 1 room.
2. Where there are 2 or more residents it is assumed that they require a minimum of one public room plus 1 bedroom for: each married couple, any other person aged 21 or over, each pair aged 10-20 of the same sex, each pair of children aged 10-20 remaining formed with children aged under 10 of the same sex, each pair of children under 10 remaining and for each child unable to form a pair.

**Sharing of access to a household's accommodation**

69. The following question was addressed to the person in the household making the return:

**19 Shared access**

Does your household share the use of any hall, passage, landing or staircase with any other household?

- 1  Does not share
- 2  Shares only for entry to own household's accommodation
- 3  Shares for movement between the rooms of the household's accommodation, that is dining rooms, living rooms and bedrooms shown at question 17a.

**Cars and vans**

70. Statistics analysing households by the number of cars and vans available for use by household members were obtained from the answers to question H5:

**H5 Cars and vans**

Please tick the appropriate box to indicate the number of cars and vans normally available for use by you or members of your household (other than visitors).

- 0  None
- 1  One
- 2  Two
- 3  Three or more

Include any car or van provided by employers if normally available for use by you or members of your household but exclude vans used solely for the carriage of goods.

Counts of total numbers of cars assume exactly 3 for each entry in box 3, this assumption is unlikely to have led to a significant undercount of cars (probably less than 1 per cent).

**Age, sex, marital status**

71. This information comes from the following questions:

<b>Sex</b>		
<input type="checkbox"/> Male	<input type="checkbox"/> Female	
<b>Date of birth</b>		
Day	Month	Year
.....	.....	.....

**4 Marital status**

Please tick the box showing the present marital status.

If separated but not divorced please tick 'Married (1st marriage)' or 'Re-married' as appropriate.

- Marital status**
- 1  Single
  - 2  Married (1st marriage)
  - 3  Re-married
  - 4  Divorced
  - 5  Widowed

*Note:* In Scotland the re-married category (3) was not included and separated people were instructed to tick "married".

72. Age has been derived from date of birth and is the completed years of age at census date, unless specified otherwise in a table. Pensionable age is the minimum age at which a person may receive a national insurance retirement pension - 60 for women and 65 for men.

The marital status of a person was taken from the tick-box selected. That is, *single* persons are persons who have never married (spinsters and bachelors). *Married (first marriage)* persons are those whose first marriage had not ended by divorce or death of the husband/wife, including persons who were separated but not divorced from their spouse. *Re-married* persons are those who married again after their first or subsequent marriage(s) ended in divorce or death of spouse and who were still married at the time of the census. *Married (first marriage) plus re-married* gives the *married* population. *Widowed* persons are those whose latest marriage ended because of the death of their spouse and *divorced* persons are those whose latest marriage ended in divorce.

**Country of birth**

73. The question asked was:

**9 Country of birth**  
Please tick the appropriate box.

- Country of birth**
- 1  England
  - 2  Wales
  - 3  Scotland
  - 4  Northern Ireland
  - 5  Irish Republic
  - 6  Elsewhere. Please write the present name of the country.

If box 6 is ticked please write in the present name of the country in which the birthplace is now situated.

**Classification of country of birth**

74. The *British Isles* consists of the *United Kingdom* (England, Wales, Scotland, Northern Ireland and United Kingdom - part not stated), Channel Isles, Isle of Man, Irish Republic and Ireland (part not stated); each of these areas can be separately identified. In some tables, for example, in the small area statistics, the *United Kingdom* is taken to include the Channel Isles and the Isle of Man, though these areas are not formally part of the *United Kingdom*. *Irish Republic* has been taken to include responses written in under box 6 as 'Ireland', except in tables where Ireland (part not stated) is shown separately.

The *Old Commonwealth* consists of Australia, Canada and New Zealand while the *New Commonwealth* is sub-divided into:

**Africa**

*Eastern Africa*

- Kenya
- Malawi
- Tanzania
- Uganda
- Zambia

*Southern Africa*

- Botswana, Lesotho and Swaziland
- Zimbabwe

*Western Africa*

- Gambia
- Ghana
- Nigeria
- Sierra Leone

**Caribbean**

Barbados  
 Jamaica  
 Trinidad and Tobago  
 West Indies Associated States (Antigua, St. Kitts - Nevis - Anguilla)  
 West Indies (so stated)

Other Caribbean Commonwealth<sup>1</sup>  
 Belize  
 Guyana

**Asia***South Asia*

Bangladesh  
 India  
 Sri Lanka

*South East Asia*

Hong Kong  
 Malaysia  
 Singapore

**Mediterranean**

Cyprus  
 Gibraltar  
 Malta (including Gozo)

**Remainder of the New Commonwealth**

Mauritius  
 Seychelles  
 Other New Commonwealth<sup>2</sup>

Other *Foreign* countries are grouped as follows:

**Africa**

Algeria  
 Egypt  
 Libya  
 Morocco  
 Tunisia

South Africa, Republic of  
 Other Africa (Foreign)<sup>3</sup>

**America**

USA  
 Caribbean<sup>4</sup>  
 Central America (Mainland)<sup>5</sup>  
 South America<sup>6</sup>

**Asia**

Pakistan  
 Burma  
 China, People's Republic of (including Taiwan)  
 Japan  
 Philippines  
 Vietnam  
 Other Asia (Foreign)<sup>7</sup>

*Middle East*

Iran  
 Israel  
 Other Middle Eastern Countries<sup>8</sup>

**Europe***European Community*

Belgium  
 Denmark (including Greenland)  
 France (including Monaco)  
 Italy (including San Marino and Vatican City)  
 Luxembourg  
 Netherlands  
 Germany, Federal Republic of  
 Germany (part not stated)  
 Greece

*Remainder of Europe*

Portugal (including Azores, Madeira)  
 Spain (including Balearic and Canary Islands)  
 Albania  
 Austria  
 Bulgaria  
 Czechoslovakia  
 Finland  
 German Democratic Republic  
 Hungary  
 Norway  
 Poland  
 Romania  
 Sweden  
 Switzerland (including Liechtenstein)  
 Yugoslavia  
 Other Europe (includes Andorra, Faeroe Islands, Iceland, Lapland)

Turkey  
 USSR

Rest of the World<sup>9</sup> and at sea/in the air.

**Footnotes**

1 Bahama Islands, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Grenada, Leeward Islands, Montserrat, St. Lucia, St. Vincent, Turks and Caicos Islands, Windward Islands.

2 British Antarctic Territory, British Indian Ocean Territory, British Solomon Islands, Christmas Island, Cocos (Keeling) Islands, Cook Islands, Falkland Islands and dependencies, Fiji, Kiribati, Nauru, Niue Island, Norfolk Island, Papua New Guinea, Pitcairn Islands, St. Helena and dependencies (St. Helena, Ascension Island, Tristan da Cunha), Tokelau Islands, Tonga, Tuvalu, Vanuatu, Western Samoa.

3 Angola (including Cabinda), Benin, Burundi,

- Cameroon-United Republic of, Cape Verde-Republic of, Central African Republic, Ceuta and Melilla, Chad, Comoros, Congo, Djibouti, Equatorial Guinea, Ethiopia, Gabon, Guinea-Bissau, Ivory Coast, Liberia, Madagascar, Mali, Mauritania, Mayotte, Mozambique, Niger, Reunion, Rwanda, Sao Tome and Principe, Senegal, Somalia, South West Africa (Namibia), Sudan, Togo, Upper Volta, Zaire.
- 4 Cuba, Dominican Republic, Guadeloupe, Haiti, Martinique, Netherlands Antilles, Puerto Rico, Virgin Islands of the United States.
- 5 Canal Zone (Panama), Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama.
- 6 Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Paraguay, Peru, Surinam, Uruguay, Venezuela.
- 7 Afghanistan, Bhutan, Democratic Kampuchea, Indonesia (including Portuguese Timor), Korea-Democratic People's Republic of, Korea-Republic of, Laos, Macao, Maldives-Republic of, Mongolia, Nepal, Thailand.
- 8 Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, Yemen Arab Republic (North), Yemen-People's Democratic Republic of (South).
- 9 American Oceania, American Samoa, Canton and Enderbury Islands, French Polynesia, French Southern and Antarctic Territories, Guam, Johnston Island, Midway Island, New Caledonia and dependencies, St. Pierre and Miquelon, Wake Island, Wallis and Futuna Islands.

**Migration**

- 15. The identification of a migrant is based on answers to the questions on usual address and usual address one year ago on the H and I forms. The migration question from the H form for England and Wales is shown below (only the question numbers differ in Scotland).

**8 Usual address one year ago**  
 If the person's usual address one year ago, on 5 April 1980, was the same as that given in answer to question 7 please tick 'Same'. If not, please tick 'Different' and write in the usual address.  
 If everyone on the form has moved from the same address, please write the address in full for the first person and indicate with an arrow that this applies to the other people on the form.  
 For a child born since 5 April 1980 write 'UNDER ONE'.

Same as at Question 7  
 Different - write the person's address and postcode on 5 April 1980

Address (BLOCK CAPITALS please)  
 .....  
 .....  
 .....  
 including Postcode 

--	--	--	--	--	--	--	--	--	--

*Note:* For a description of the usual address question see para 17.

- 76. A *migrant within one year preceding census* (often referred to simply as a *migrant*) is defined as a person who gave, or was assigned an answer (see para 27), of *this address* at the question on usual address and an answer of *different* at the question on usual address one year ago. The usual address at census date gives the *area of destination* and usual address one year ago gives the *area of origin*, or *origin unknown*, in those instances where the *different* box was ticked but no address was given. Statistics on migrants are compiled only on the usually resident population (present/absent) base and not on the other two population bases, namely, the usual resident population (transfer) base and the base for the population present on census night.
- 77. Certain categories of change of usual address during the reference period are excluded from the statistics for various reasons given in brackets below.
  - a. Children aged under one at census date (instruction on form to enter "Under one") - but see para 79 on wholly moving households.
  - b. Persons who died before census date (not enumerated).
  - c. Migrants in absent households and migrants usually resident in institutions but absent on census night (usually resident population base).
  - d. Persons who emigrated overseas (not enumerated: the census does however give information on immigrants, that is persons with a previous address overseas).

In cases in which a person moved more than once during the year preceding census date, only the net result of all those moves, by comparison of the address one year ago with the address on census date, is recorded.

- 78. A *migrant within a defined area*, for example, a migrant within a local authority district, is one whose former usual address (area of origin) and usual address at census date (area of destination) are within the same defined area.

An *immigrant to a defined area* is a migrant whose usual address at census date was inside the defined area but whose former usual address was outside that area.

An *immigrant from overseas to a defined area* is a migrant whose usual address at census date was inside the defined area but whose former usual address was outside Great Britain (this term carries no implication regarding the birthplace or nationality of the immigrant).

An *emigrant from a defined area* is a migrant whose former usual address was inside the defined area but whose usual address at census date was outside the area but inside Great Britain.

*Migrants resident in a defined area* is the sum of migrants within the area and migrants into the area.

79. A *wholly moving household* is a household all of whose usually resident (present/absent) members aged one year and over are migrants with the same postcode of usual residence one year ago.

Any children under one are included in the tabulations as members of wholly moving households even though they are not normally classed as *migrants* (see para 77a). Absent households are excluded from the analysis of *wholly moving households*.

#### Coding a migrant's address by area

80. The usual address at census night (which, for a migrant, was by definition the address of enumeration on the front of the H form) was coded to enumeration district level in England and Wales and to the postcode unit in Scotland (for example, EH12 7TF). The question on usual address one year ago was coded to postcode unit for addresses in Great Britain, or to an overseas country\* using the classification given in para 74. Non-responses to the question on usual address one year ago were assigned either a non-migrant code or a migrant (origin not stated) code by the 'auto-edit' (see para 13).

81. When coded to postcode unit, areas of origin and of destination in England and Wales have been translated into wards (district polling wards) and to the areas used in the published tables by the use of a centralised postcode directory that links postcodes to wards.

In England and Wales the use of postcodes to define areas of previous usual residence, but not areas of current usual residence, results in some asymmetry, that is wards are exact aggregates of enumeration districts (for data on current usual residence) but only approximate aggregates of postcodes (for data on previous residence).

#### Household composition

82. The 1981 Census adopts two approaches to the analysis of household composition, both referring to private households with usual residents as the base, that is, restricted to persons whose usual addresses were entered as *this address*. The first uses only the answers to the questions on age, sex and marital status of each person in the household. The second method also uses the answers to the question on relationship in household.

\*Addresses in Northern Ireland were coded to district council level if given in sufficient detail.

Addresses in the Republic of Ireland were coded to county level if given in sufficient detail.

#### Household composition from age, sex and marital status

83. Greater use than hitherto is being made of the analysis of household composition in terms of the age, sex and marital status of household members. All three variables are included in the full processing whereas the relationship question is included only in the ten per cent sample. Consequently, the statistics from the 'demographic' approach are available earlier; but estimates of certain household-family types, for example, households containing lone parent families, are likely to be less accurate and less detailed than the counts that also make use of the answers to the relationship question.
84. In general, the classifications used in tables are self-explanatory. For example, one of the more detailed classifications comprises:

#### *Households with one usual resident aged 16 or over with or without usually resident persons aged under 16*

- (i) One male aged 65 or over, no children
- (ii) One female aged 60 or over, no children
- (iii) One adult under pensionable age, no children
- (iv) One adult, one child
- (v) One adult, two or more children

#### *Households with two usually resident persons aged 16 and over with or without usually resident persons aged under 16*

- (vi) One married male, one married female, both under pensionable age, no children
- (vii) One married male, one married female, at least one over pensionable age, no children
- (viii) One married male, one married female, one child
- (ix) One married male, one married female, two children
- (x) One married male, one married female, three or more children
- (xi) Other, two adults, both under pensionable age, no children
- (xii) Other, two adults, at least one over pensionable age, no children
- (xiii) Other, two adults, one or more children

#### *Households with three or more usually resident persons aged 16 or over with or without usually resident persons aged under 16*

- (xiv) Three or more adults (at least one married male and one married female), no children
- (xv) Three or more adults (at least one married male and one married female), one or two children
- (xvi) Three or more adults (at least one married male and one married female), three or more children
- (xvii) Other, three or more adults, no children
- (xviii) Other, three or more adults, one or more children
- (xix) Households containing no adults, with one or more children\*

\*This category, which is likely to contain only a very small number of households, is included in the 'Total households' category in published tables but is not separately listed.

This extensive classification is also collapsed to:

- Small adult households (i, ii, iii, vi, vii, xi and xii)
- Large adult households (xiv, xvii)
- Simple family households (iv, v, viii, ix, x, xiii)
- Complex households (xv, xvi, xviii)

Note: Category (xix) is included only in the total.

85. *Head of household, dependent child and housewife* appear in tables based on the full processing. They are defined as follows:

*Head of household* (full processing) has been regarded as the person entered in the first column of the form provided that person was:

- a. aged 16 years or over; and
- b. usually resident at *This address*

If one of these conditions was not met, the first person aged 16 years or over to be entered on the form and recorded as usually resident at "This address" was classified as the head. In the last resort the oldest resident under 16 years of age would be taken as head. No head was identified in households consisting entirely of visitors.

*Dependent child* (full processing) is defined as a person:

- a. under 16 years of age, or
- b. under 25 years of age, never married and classified from the question on economic activity last week as a student. (This definition appears in only one table in SAS and county reports).

*Housewife* is generally considered to be the member of household who is likely to be mainly responsible for the household shopping. The term *housewife* in the analysis of household composition should not be confused with the answer category of the same name in the question on economic activity last week. The rules for selecting a *housewife* were developed in consultation with the Market Research Society. They are:

- a. If the head of household was aged 16 years or over and female, then the head of household is the housewife.
- b. If the head of household was male, then the first usually resident female aged 16 years or over is the housewife.
- c. If there was no usually resident female aged 16 years or over in the household, the head of household (male) is the housewife.

The definitions of *head of household* and *dependent child* given above differ in some respects from the definitions of these terms used in the analysis of household composition from answers to the relationship question (ten per cent item).

86. **Household composition from the relationship question**

The 1981 Census continues to analyse household composition in terms of relationships within the household, as introduced into the 1961 Census and expanded in the 1966 Sample Census and the 1971 Census. While the information collected has remained the same, the question layout has changed:

**5 Relationship in household**

Please tick the box which indicates the relationship of each person to the person entered in the first column.

Please write in relationship of 'Other relative' - for example, father, daughter-in-law, brother-in-law, niece, uncle, cousin, grandchild.

Please write in position in household of 'Unrelated person' - for example, boarder, housekeeper, friend, flatmate, foster child.

Relationship to 1st person

01  Husband or wife

02  Son or daughter

Other relative, please specify

Unrelated, please specify

.....

87. Each answer was coded to one of the following:

- 0 Person in first column
- 1 Husband or wife
- 2 Son or daughter
- 3 Son-in-law or daughter-in-law
- 4 Parent
- 5 Parent-in-law
- 6 Brother or sister
- 7 Brother-in-law or sister-in-law
- 8 Grandchild
- 9 Nephew or niece
- 10 Other related
- 11 Domestic servant
- 12 Boarder, lodger
- 13 De facto spouse
- 14 Joint head
- 15 Other unrelated

- Notes:(i) Step and adopted relationships, when specified as such, were not distinguished from blood relationships. Thus, "adopted son" or "stepson" would have been coded in the same way as "son"; but "foster son" was treated as unrelated.
- (ii) Resident domestic servants and members of their families have been excluded from the count of persons in private households with residents in the ten per cent processing.
- (iii) Answers that indicated co-habitation, such as "common-law spouse" or "co-habitee" were coded as *de facto spouse*. This code was also allocated to cases where the relationship and marital status answers were not compatible; that is, where the second person was recorded as a spouse (box 1 ticked) but at least one of the first or second persons was recorded as other than married in answer to the marital status question. Some information on *de facto unions* is available from the 1981 Census but such unions are not included with married couples in the classification of family types.

88. Definitions of terms used in the 10 per cent sample analysis of household composition from the answers to the relationship question are:

*Head of household* (sample processing) has been regarded as the person entered in the first column of the census form provided that person was:

- a. aged 16 years or over, and
- b. usually resident at *This address*.

If one of these conditions was not met, the first person aged 16 years or over to be entered on the form and recorded as usually resident at "This address", who was not a domestic servant was classified as the head. In the last resort the oldest resident under 16 years of age would be taken as head. No head was identified in those households consisting entirely of visitors or domestic servants. This definition differs from the corresponding definition in para 85 because of the additional ruling concerning domestic servants.

89. A *family* consists of:

- a. a married couple with or without their never married child(ren),  
or
- b. a father or mother together with his or her never married child(ren),  
or
- c. grandparent(s) with grandchild(ren) if there are no apparent parents of the grandchild(ren) usually resident in the household.

In this definition there is no age limit to the term *child*. For example, a parent (or parents) with a never married child, say aged 40 years, would be classified as a family consisting of a lone parent (or married couple) with children. Type (a) is a *married couple family* and type (b) a *lone parent family*. Families of type (c) would be classified as a married couple family or lone parent family, as appropriate.

The *head of a family* was taken to be the husband in a married couple family, or lone mother, or lone father or lone grandparent in a lone parent family. (Note: the *head of family* is not necessarily the *head of household*).

*Persons not in a family* are those persons in the household who could not be allocated to a family on the above definitions. In terms of the definition given, a household consisting of related persons may be classified as containing no family, or as one or more families with others. For example, a household consisting of a brother and sister would be classified as 'No family, two or more persons'; a household containing a divorced daughter living in the same household as her parents would be classified as 'One family, married couple, no children, with others'.

For the full classification of household type see para 91.

*Dependent children* (sample processing) are children in families who are

- a. under 16 years of age, or
- b. under 19 years of age, never-married and classified from the question on economic activity last week as a student.

This definition differs from the corresponding definition on paragraph 85 because the child must be part of a family and aged under 19 at b. (as opposed to under 25 in the definition used for the full processing).

*Non-dependent children* (sample processing) are children in families who are never-married, aged 16 years or over and not classified as a student from the question on economic activity last week.

The *size of a family* is the number of persons in a family, as defined above. The classification of households into families is such that one person cannot belong to more than one family.

A *husband* is the male of a married couple and the *wife* is the female of a married couple.

The *number of earners* in a household or family is the number of economically active persons in the household or family.

90. A computer algorithm identified families (as defined in para 89) using the answers to the questions on relationship, sex and marital status. Each person usually resident in the household (excluding domestic servants) was given a two-part code; the first part of the code gave the relationship of the head of that person's family to the first person in the household, or, for the persons not in a family, the person's own relationship to the first person in the household. The second part of the code identified each family within the household; persons not in a family were given a value of zero. Thus, all members of a family were allocated the same two-part code and could therefore be identified as a family unit.

Consider an example where a household consists of a husband, wife and a child (one family), the parents of the head (second family), together with the head of household's nephew (person not in a family). Such a case would be coded thus:

	Relationship question (coded as in para. 87)	Marital status M - Married S - Single	Household composition code	
			1st part Relationship of family head to first person	2nd part Family number
Head	0	M	0	1
Spouse	1	M	0	1
Child	2	S	0	1
Parent of head	4	M	4	2
Parent of head	4	M	4	2
Nephew	9	S	9	0

Where the person in the first column was either under 16 years of age or not usually resident in the household or where the relationships given by the primary codes could not be dealt with by the algorithm, the form was scrutinised clerically and coded manually into families.

91. The classification of household type is:
- 0 No family
    - One person
    - Two or more persons
  - 1 One family
    - Married couple no children, no others
    - Married couple no children, with others
    - Married couple with children, no others -
      - All non-dependent children
      - All dependent children
      - Both dependent and non-dependent children
    - Married couple with children, with others -
      - All non-dependent children
      - All dependent children
      - Both dependent and non-dependent children
    - Lone parent with children, no others -
      - All non-dependent children
      - All dependent children
      - Both dependent and non-dependent children
    - Lone parent with children, with others -
      - All non-dependent children
      - All dependent children
      - Both dependent and non-dependent children
  - 2 Two or more families\*
    - All dependent children in the household
    - All non-dependent children in the household
    - Both dependent and non-dependent children in the household
    - No children in the household

\*The combinations of type of family contained within the two or more families category will be listed in the household composition volume.

### Economic activity

92. The economic activity tables describe the economic characteristics of the population. The characteristics include both those obtained directly from census questions - *economic position, employment status, occupation, industry and workplace* - and others derived from combining answers to these questions - *social class and socio-economic group* (from occupation and employment status) and *socio-economic class* (from social class and socio-economic group).

Economic position and employment status are included in the full processing while occupation, industry and workplace are part of the ten per cent sample.

93. The usually *resident population* forms the *base* in those tables using the 100 per cent items, that is, economic position and employment status. Tables from the ten per cent sample, such as those included in the economic activity volumes and economic activity county leaflets use a slightly different base in that it also includes any person with a usual address outside Great Britain but with a place of work in Great Britain.

94. Only specified groups were required to answer each of the economic activity questions and this is reflected in the populations to which tables refer. Thus:

- a. Tables relating to economic position include only people aged 16 years and over.
- b. Tables relating to social class or socio-economic group or socio-economic class cover the economically active, retired from employment and permanently sick.
- c. Tables relating to occupation cover the economically active.
- d. Tables relating to employment status, industry and workplace cover persons in employment.

*Note:* For a, b and c most of the sub-national area tables relate to the area of usual address of the person and for d to the area of workplace.

95. For persons with a workplace in Great Britain, but with usual address outside Great Britain, the area of usual residence has been taken for the purposes of the tables to be the area where present on census night. In tables based on area of workplace, persons with no fixed or no stated workplace have been assumed to work in their area of usual residence.

96. Because of the variety of topics within *Economic Activity*, the population counted in a table is often described in the table heading. Thresholds have been applied in some published tables; where statistics have only been given for industry or occupation groups above a certain size, unpublished tables for *all* categories are available from the Census Offices.

### Economic position

97. The classification of economic position comes from answers to the following question, addressed to persons aged 16 or over:

10 Whether working, retired, housewife, etc last week  
Please tick all boxes appropriate to the person's activity last week.

A job (box 1 and box 2) means any type of work for pay or profit but not unpaid work. It includes:

casual or temporary work  
work on a person's own account  
work in a family business  
part-time work even if only for a few hours  
A part-time job (box 2) is a job in which the hours worked, excluding any overtime, are usually 30 hours or less per week.

Tick box 1 or box 2, as appropriate, if the person had a job but was not at work for all or part of the week because he or she was:

on holiday  
temporarily laid off  
on strike  
sick.

For a full-time student tick box 9 as well as any other appropriate boxes.

Do not count as a full-time student a person in a paid occupation in which training is also given, such as a student nurse, an apprentice or a management trainee.

- 1  In a full-time job at any time last week.
- 2  In a part-time job at any time last week.
- 3  Waiting to take up a job already accepted.
- 4  Seeking work.
- 5  Prevented by temporary sickness from seeking work.
- 6  Permanently sick or disabled.
- 7  Housewife.
- 8  Wholly retired from employment.
- 9  At school or a full-time student at an educational establishment not provided by an employer.
- 0  Other, please specify

Written answers at box 0 ('Other, please specify') were re-coded where possible, to one of the other nine categories listed in the question. For example, "au pair" was coded 2; "Government Training Course" was coded 9; "Job Creation Scheme" was coded 1; "Handicapped" was coded 6. In cases of multiple ticking two codes only were entered on the computer file. The two lowest numbered boxes ticked were given priority except for box 9 (student) which always took preference over all other boxes, and box 0 which was treated with least priority. For example, entries in boxes 3, 7 and 9 would be coded as 9 (primary code) and 3 (secondary code); 2, 3 and 7 would be coded as 2 and 3. Copies of the coding instructions are available from Customer Services, Office of Population Censuses and Surveys, Titchfield, Fareham, Hants. PO15 5RR.

98. The *economically active population* comprises:
- persons in employment (primary codes 1 and 2)
  - persons out of employment (primary codes 3, 4 and 5) - code 5 giving out of employment (sick) and codes 3 and 4, out of employment (other).

The *economically inactive population* comprises all persons whose primary code was 6 to 9 - permanently sick or disabled, housewives, retired, students or any person for whom the last box (0) was ticked but who could not be reallocated to another category. The *others economically inactive* includes persons of independent means.

#### Employment status

99. The questions on employment status (Q 13), occupation (Q 12) and industry (Q 11) were required to be answered in respect of the main employment for persons who had a job in the week before the census (codes 1 or 2 in economic position) or in respect of the most recent full-time job, if any, for persons out of employment (codes 3, 4 and 5), permanently sick (code 6) or wholly retired from employment (code 8). The question on employment status was:

#### 13 Employment status

Please tick the appropriate box.

Box 3 should be ticked for a person having management or supervisory responsibility for other employees. For a person employed as a quality control inspector and concerned only with the technical quality of a product tick box 2.

- 1 Apprentices or articed trainees
- 2 Employee not supervising other employees
- 3 Employee supervising other employees
- 4 Self-employed not employing others
- 5 Self-employed employing others

Additional notes instructed members of the armed forces not to answer this question.

100. The five basic categories are used in the tables based on full processing. In the tables based on the ten per cent sample an extended classification of employment status is used.

- A Self-employed
- (1) Without employees
  - (2) With employees
    - (a) Large establishments
    - (b) Small establishments

- B Employees
- (1) Managers
    - (a) Large establishments
    - (b) Small establishments
  - (2) Foremen and Supervisors
    - (a) Manual
    - (b) Non-manual
  - (3) Professional employees
  - (4) Apprentices, articed pupils, formal trainees
  - (5) Employees (not elsewhere classified)

Information on occupation is used to distinguish the various types of employees and information on name and business of employer (the industry question) to distinguish the size of the establishment. *Large establishments* are those classified by the Department of Employment as having 25 or more employees and *small establishments* as those with fewer than 25.

Allocation to a category was subject to an edit check to eliminate inconsistencies. For example, apprentices and articed trainees were confined to specific occupations and where there was an inconsistency the employment status code was amended; a code of self-employed was inconsistent with being a director of a limited company (named at the industry question), as directors of such companies are employees, and in this case the employment status would have been amended to B(1). The edit check may have led to a person being allocated an employment status code in the sample processing different from the code recorded at the answer to the question (as used in full processing). [A detailed account of the definitions of the employment status codes is given at pages vii-ix of the *Classifications of occupations, 1980* (HMSO)].

#### Occupation

101. The occupation of a person is the kind of work performed; this alone determines the assignment of the person to an occupation group. The nature of the factory, business or service in which the person is employed has no bearing on the classification of the occupation, except to the extent that such information may clarify the nature of the duties. Thus, for example, a crane driver may be employed in a shipyard, an engineering works or in building and construction, but this has no bearing upon his occupation and all crane drivers are classified to the same occupation group.
102. Occupation codes were allocated from the answers to the following question:

#### 12 Occupation

- a Please give full and precise details of the person's occupation.

If a person's job is known in the trade or industry by a special name, use that name. Precise terms should be used, for example, 'radio-mechanic', 'jig and tool fitter', 'tool room foreman' rather than general terms such as 'mechanic', 'fitter', 'foreman'.

- b Please describe the actual work done.

a Occupation

b Description of work

Additional notes for this question were given in respect of members of the armed forces, civil servants and local government officers. Members of the armed forces were asked to give their rank or rating at 12a and to leave 12b unanswered. Civil servants were instructed to enter 'Civil servant' at 12a and to give their rank or grade at 12b if they were non-industrial civil servants, or their precise title (eg 'radio mechanic') at 12b, if they were industrial civil servants. Local government officers were asked to give their rank or grade at 12a and to complete 12b as appropriate.

103. The OPCS *Classification of occupations, 1980* is based on the Classification of Occupations and Directory of Occupational Titles (CODOT) published by the Department of Employment. The groups in the *Key Occupations for Statistical Purposes (KOS), CODOT, Vol 1, pp 89-103 (HMSO, 1972)* have been aggregated and form the OPCS classification; but the OPCS occupation orders differ from the KOS major groups. A high degree of comparability with the OPCS *Classification of occupations, 1970* has been maintained. A tabulation showing the relationship between the 1970 and 1980 classifications is available free of charge (from OPCS).
104. The publication *Classification of occupations, 1980* gives an account of the relationship between KOS and aggregated or condensed KOS and contains a summary of the 1980 OPCS occupation orders, groups and units - see example below - and the extensive list of occupations by code number.

*Example:*

Order 1 Professional and related supporting management; senior national and local government managers.

Group  
002 Accountants, valuers, finance specialists

Unit  
1 Chartered and Certified accountants  
2 Cost and works accountants  
3 Estimators  
:  
:  
7 Taxation experts

105. The main purpose of the classification has been to identify groups with at least one common characteristic. The basic common factor of all groups is, as explained above, the type of work and the nature of the operation. If, however, unit groups based solely on kind of work undertaken seemed too comprehensive, in terms of the material worked in or the degree of skill involved or the physical energy required or the environmental conditions or the social and economic status associated with the occupation, they were subdivided on the basis of these factors to give substantially separate occupations.

In general, in order to merit separate identification each occupation unit should satisfy certain conditions, for example, that there is sufficient potential interest in the occupation; that the number of individuals is sufficiently large on a ten per cent sample basis; that the identification of the unit is likely to be tolerably complete and accurate from the limited information obtained from a census; and that the statistics from a proposed occupational unit could not be obtained by a cross classification of a more general occupation title by industry. The *Classification of occupations, 1980* also describes the treatment of certain occupations which presented conceptual difficulties, for example the self employed, managers and labourers.

**Industry**

106. The industry in which a person is engaged is determined by the business or economic activity in which his or her occupation is followed. A single business may employ people of varying occupations to provide a particular service or to make a particular product. While the occupational classification takes account only of the nature of the work performed, the industrial classification has regard only to the nature of the service or product to which the labour contributes. For example, a carpenter would be classified industrially to building, if employed by a builder, but to brewing, if employed by a brewery firm.
107. The allocation of an employed person (codes 1 and 2 in the economic position question) to an industry was based on the answers to the following question:

**11 Name and business of employer (if self-employed the name and nature of the person's business)**

- a Please give the name of the person's employer. Give the trading name if one is used and avoid using abbreviations or initials.

For members of the Armed Forces, civil servants and local government officers see notes on back page before answering questions 11-15.

- b Please describe clearly what the employer (or the person if self-employed) makes or does.

For a person employed in private domestic service write 'Domestic Service'.

a Name of employer

b Nature of business

Additional notes for this question were given in respect of members of the armed forces, civil servants and local government officers. Members of the armed forces were asked to write 'Armed Forces' at 11a, and where a member of the armed forces of a country other than the UK, to add the name of the country. They were asked to leave 11b unanswered. Civil servants were asked to give the name of their department at 11a and to write 'Government department' at 11b. Local government officers and other public officials were asked to give the name of the local authority or public body at 11a and the branch in which they were employed at 11b.

*Note:* While the question was addressed to the same 'population' as the question on employment status and occupation, the information on industry for those without a job was used solely in connection with occupational coding.

108. Industry codes were assigned, as far as possible, by reference to lists from the Department of Employment which gave names and addresses of employers by industry code. Where the employer's name at 'a' of the question was not listed, a code was allocated from the information given at 'a' and 'b' of the question.

109. In the tables, industries are classified according to the *Standard Industrial Classification, Revised 1980* (HMSO, 1979). The classification comprises the full range of activities divided into broad divisions each denoted by a single digit. The divisions are divided into classes each denoted by the addition of a second digit. The classes are split into groups (3 digits) and the groups into activity headings (by the addition of one digit to the group number). For example:

**Division 4 Other manufacturing industries**

**Class (G) Group Activity\***

48 Processing of rubber and plastics

(481)1 Rubber tyres and inner tubes

(481)2 Other rubber products

(482)0<sup>1</sup> Retreading and specialist repairing of rubber tyres

\*Activity is given by four digits ie 4811 = Rubber tyres and inner tubes.

The classification is made up of 10 divisions, 60 classes, 222 groups and 334 activity headings. In general the activity headings have been used in the coding. A summary of the classification used in the census is given at Appendix D of *Classification of occupations, 1980*.

110. The classification of some activities presents conceptual problems, for example, head offices which are located at a different location from the place where the main activities are carried out, or repair work carried out by the manufacturers or distributors of the goods concerned. Methods for dealing with such problems are set out in the introduction to the *Standard Industrial Classification, Revised 1980*.

**Social class**

111. Since the 1911 Census it has been customary, for certain analytical purposes, to arrange the large number of groups in the classification of occupations into a small number of broad categories called social classes.

Economically active, retired and permanently sick persons are assigned to one of the following social classes by reference to their present or former occupation:

- I Professional etc., occupations
- II Intermediate occupations
- III(N) Skilled occupations - non-manual
- III(M) Skilled occupations - manual
- IV Partly skilled occupations
- V Unskilled occupations
- VI Armed Forces and inadequately described

112. The occupation groups included in each of these categories have been selected in such a way as to bring together, as far as possible, people with similar levels of occupational skill. In general, each occupation group is assigned as a whole to one or other social class and no account is taken of differences between individuals in the same occupation group eg differences of education or levels of remuneration. However, for persons having the employment status of foreman or manager, the following additional rules apply:

- (a) each occupation is given a basic social class
- (b) persons of foreman status whose basic social class is IV or V are allocated to Social Class III
- (c) persons of manager status are allocated to Social Class II except for the following:
  - Social Class I for group 007.1
  - Social Class III for groups 039.4 and 057.3 and if the basic class is IV or V.

**Socio-economic groups**

113. Classification by socio-economic groups was introduced in 1951 and extensively amended in 1961. The classification aims to bring together people with jobs of similar social and economic status. The classification is applied to the economically active, retired and permanently sick by considering their employment status and occupation.

**(1) Employers and managers in central and local government, industry, commerce etc — large establishments**

- 1.1 Employers in industry, commerce etc. Persons who employ others in non-agricultural enterprises employing 25 or more persons.
- 1.2 Managers in central and local government, industry, commerce, etc. Persons who generally plan and supervise in non-agricultural enterprises employing 25 or more persons.

**(2) Employers and managers in industry, commerce etc. — small establishments**

- 2.1 Employers in industry, commerce etc. — small establishments. As in 1.1 but in establishments employing fewer than 25 persons.
- 2.2 Managers in industry, commerce etc. — small establishments. As in 1.2 but in establishments employing fewer than 25 persons.

**(3) Professional workers — self-employed**  
Self-employed persons engaged in work normally requiring qualifications of university degree standard.

**(4) Professional workers — employees**  
Employees engaged in work normally requiring qualifications of university degree standard.

- (5) **Intermediate non-manual workers**
- 5.1 **Ancillary workers and artists**  
Employees engaged in non-manual occupations ancillary to the professions, not normally requiring qualifications of university degree standard; persons engaged in artistic work and not employing others therein. Self-employed nurses, medical auxiliaries, teachers, work study engineers and technicians are included.
- 5.2 **Foremen and supervisors non-manual**  
Employees (other than managers) engaged in occupations included in group 6, who formally and immediately supervise others engaged in such occupations.
- (6) **Junior non-manual workers**  
Employees, not exercising general planning or supervisory powers, engaged in clerical, sales and non-manual communications occupations, excluding those who have additional and formal supervisory functions (these are included in group 5.2).
- (7) **Personal service workers**  
Employees engaged in service occupations caring for food, drink, clothing and other personal needs.
- (8) **Foremen and supervisors — manual**  
Employees (other than managers) who formally and immediately supervise others engaged in manual occupations, whether or not themselves engaged in such occupations.
- (9) **Skilled manual workers**  
Employees engaged in manual occupations which require considerable and specific skills.
- (10) **Semi-skilled manual workers**  
Employees engaged in manual occupations which require slight but specific skills.
- (11) **Unskilled manual workers**  
Other employees engaged in manual occupations.
- (12) **Own account workers (other than professional)**  
Self-employed persons engaged in any trade, personal service or manual occupation not normally requiring training of university degree standard and having no employees other than family workers.
- (13) **Farmers — employers and managers**  
Persons who own, rent or manage farms, market gardens or forests, employing people other than family workers in the work of the enterprise.
- (14) **Farmers — own account**  
Persons who own or rent farms, market gardens or forests and having no employees other than family workers.
- (15) **Agricultural workers**  
Persons engaged in tending crops, animals, game or forests, or operating agricultural or forestry machinery.
- (16) **Members of the Armed Forces.**
- (17) **Inadequately described and not stated occupations.**
114. It is not practicable to obtain from a census the degree of responsibility exercised by employers and managers. An indirect, and necessarily rather crude, distinction between greater and lesser responsibility is therefore provided by classifying employers and managers by the size of the establishment in which they work (see SEG (1) and (2) at para 113). All civil servants, local authority officials and ships' officers coded as managers and aircraft captains, are conventionally regarded as managers in large establishments. Farmers, trawler, skippers and foresters are conventionally regarded as working in small establishments. The detailed allocation of the occupation / employment status groups to the social classes and socio-economic groups is given at Appendix B of the *Classification of occupations, 1980*.
- Socio-economic class**
115. Social classes cannot be formed by amalgamating socio-economic groups. The socio-economic classes are formed by a complete cross-classification of socio-economic group by social class as follows:
- SEG 1.1 Employers in industry, commerce, etc — large establishments**
- (a) Social Class II Intermediate occupations
- (b) Social Class III (N) Skilled occupations  
—  
Non-manual
- (c) Social Class III (M) Skilled occupations  
—  
Manual (including very small numbers of persons in Social Classes IV and V).
- SEG 1.2 Managers in central and local government, industry, commerce, etc — large establishments**
- (d) Social Class I Professional, etc occupations
- (e) Social Class II Intermediate occupations
- (f) Social Class III(N) Skilled occupations — Non-manual
- (g) Social Class III(M) Skilled occupations — Manual
- SEG 2.1 Employers in industry, commerce, etc — small establishments**
- (h) Social Class II Intermediate occupations
- (j) Social Class III(N) Skilled occupations — Non-manual

(k)	Social Class III(M)	Skilled occupations — Manual	SEG 11	<b>Unskilled manual workers</b>	Social Class V	Unskilled occupations
(l)	Social Class IV	Partly skilled occupations	SEG 12	<b>Own account workers (other than professional)</b>	Social Class II	Intermediate occupations
(m)	Social Class V	Unskilled occupations	(ad)			
SEG 2.2	<b>Managers in industry, commerce, etc — small establishments</b>		(ae)	Social Class III(N)	Skilled occupations — Non-manual	
(n)	Social Class II	Intermediate occupations	(af)	Social Class III(M)	Skilled occupations — Manual	
(o)	Social Class III(N)	Skilled occupations — Non-manual	(ag)	Social Class IV	Partly skilled occupations	
(p)	Social Class III(M)	Skilled occupations — Manual	(ah)	Social Class V	Unskilled occupations	
SEG 3	<b>Professional workers — self-employed</b>		SEG 13	<b>Farmers — employers and managers</b>	Social Class II	Intermediate occupations
(q)	Social Class I	Professional, etc occupations	(aj)			
SEG 4	<b>Professional workers — employees</b>		SEG 14	<b>Farmers — own account</b>	Social Class II	Intermediate occupations
(r)	Social Class I	Professional, etc occupations	(ak)			
SEG 5.1	<b>Ancillary workers and artists</b>		SEG 15	<b>Agricultural workers</b>	Social Class III(M)	Skilled occupations — Manual
(s)	Social Class II	Intermediate occupations	(al)			
SEG 5.2	<b>Foremen and supervisors — Non-manual</b>		(am)	Social Class IV	Partly skilled occupations	
(t)	Social Class III(N)	Skilled occupations — Non-manual	SEG 16	<b>Members of Armed Forces</b>		
SEG 6	<b>Junior non-manual workers</b>		SEG 17	<b>Inadequately described and not stated occupations</b>		
(u)	Social Class III(N)	Skilled occupations — Non-manual				
(v)	Social Class IV	Partly skilled occupations				
SEG 7	<b>Personal service workers</b>					
(w)	Social Class II	Intermediate occupations				
(x)	Social Class III(M)	Skilled occupations — Manual				
(y)	Social Class IV	Partly skilled occupations				
SEG 8	<b>Foremen and supervisors — Manual</b>					
(z)	Social Class III(M)	Skilled occupations — Manual				
SEG 9	<b>Skilled manual workers</b>					
(aa)	Social Class III(M)	Skilled occupations — Manual				
SEG 10	<b>Semi-skilled manual workers</b>					
(ab)	Social Class IV	Partly skilled occupations				

### Workplace and transport to work

116. The tables on workplace and means of transport to work are published separately for England and Wales and Scotland. The *population base* for England and Wales comprises all persons usually resident in England and Wales (see para 20a) who were in employment (the workplace and daily journey to work questions having been addressed to those with a full or part-time job), together with all persons usually resident outside England and Wales, but with a workplace in England and Wales. (Persons usually resident in England and Wales with a workplace outside Great Britain were excluded from the base in the 1971 Census). Similar considerations apply to the population base used for tables in Scotland.

117. For some people the usual address differs from the address from which they go to work; a note to the usual address question states that "The home address should be taken as the usual address for a head of household who lives away from home for part of the week". Consequently, the cross-tabulation of usual address and address of place of work can produce some unlikely combinations, particularly when means of transport to work is added as an extra axis of classification. Persons with no fixed workplace or workplace not stated are

assumed to work in their area of usual residence, though in some tables they form a separate category.

118. The questions on workplace and means of transport to work are:

**14 Address of place of work**  
Please give the full address of the person's place of work.  
For a person employed on a site for a long period give the address of the site.  
For a person not working regularly at one place who reports daily to a depot or other fixed address, give that address.

Full address and postcode of workplace  
Address (BLOCK CAPITALS please)

including Postcode

For a person not reporting daily to a fixed address tick box 1.  
For a person working mainly at home tick box 2.

**15 Daily journey to work**  
Please tick the appropriate box to show how the longest part, by distance, of the person's daily journey to work is normally made.  
For a person using different means of transport on different days show the means most often used.  
Car or van includes three-wheeled cars and motor caravans.

1  No fixed place  
2  Mainly at home

1  British Rail train  
2  Underground, tube, metro, etc.  
3  Bus, minibus or coach (public or private)  
4  Motor cycle, scooter, moped  
5  Car or van — pool, sharing driving  
6  Car or van — driver  
7  Car or van — passenger  
8  Pedal cycle  
9  On foot  
0  Other (please specify)

0  Works mainly at home

119. Where more than one box was ticked in the question on daily journey to work the lowest number was coded - for example, if box 1 and 6 were ticked then code 1 was taken (British Rail train). If workplace was given as "mainly at home" and any box 1 to 9 was ticked in the question on daily journey to work then the occupation of the person was examined in order to decide how to correct the inconsistency. For persons such as shopkeepers, itinerant salesmen, doctors etc, the workplace was accepted as "mainly at home" and the daily journey to work coded accordingly, ie a code 1 to 9 was disregarded. For persons such as vehicle drivers and tradesmen(plumbers, decorators etc), the workplace was amended to *No fixed place* and the daily journey to work was coded as entered on the form (subject to the constraint on multiple codes). The tables show an *other or not stated* category of daily journey to work; the category consists of those persons who failed to answer the question on daily journey to work or who selected the "other" box but could not be assigned to another code or who selected the box "works mainly at home" but gave an address of place of work other than "mainly at home".

### Qualified manpower

120. The qualified manpower tables cover the usually resident population aged 18 years or over and people whose usual address was outside Great Britain but whose place of work was in Great Britain. The 1971 Census base comprised persons aged 18-69 years present on census night in Great Britain. The upper age limit of 70 years has been removed to meet a need for information about qualifications held by the elderly, some of whom may have been in employment at census date.
121. Some of the tables are confined to subsets of the population defined above, for example, persons possessing qualifications of an accepted standard, economically active persons or persons in

employment. Table headings described such restrictions.

122. The question asked was:

**16 Degrees, professional and vocational qualifications**  
Has the person obtained any qualifications after the age of 18 such as:  
Degrees, Diplomas, HNC, HND,  
Nursing qualifications, Teaching qualifications,  
Graduate or corporate membership of professional institutions,  
Other professional, educational or vocational qualifications?  
Exclude qualifications normally obtained at school such as GCE, CSE and School Certificates.

If box 2 is ticked write in all qualifications even if they are not relevant to the person's present job or if the person is not working.

Please list the qualifications in the order in which they were obtained.

Write for each qualification:  
the title  
the major subject or subjects  
the year obtained and  
the awarding institution

If more than three, please enter in a spare column and link with an arrow.

NO — none of these  
 YES — give details

Title .....

Subject(s) .....

Year .....

Institution .....

Title .....

Subject(s) .....

Year .....

Institution .....

Title .....

Subject(s) .....

Year .....

Institution .....

Note: The "year obtained" was not entered into the computer. It was used to order the qualifications and in some instances to assist in their coding.

123. Two concepts relating to qualifications appear in the Qualified Manpower tables:

- a. Educational attainment (level)
- b. Subject group

a. *Educational attainment.* Each qualification entered in answer to the question was checked against a list of higher level qualifications prepared by the Census Offices in collaboration with the Department of Education and Science and the Scottish Education Department. Higher level qualifications are those normally obtained at age 18 or over by study at a level above General Certificate of Education (Advanced level). They are categorised into three levels, a, b, and c:

- level a — higher university degrees
- level b — first degrees and all qualifications of first degree standard and all qualifications of higher degree standard (other than such degrees themselves which appear in level a).
- level c — qualifications that in general satisfy the three requirements of: obtained at age 18 years or over; above GCE(A) level; below first degree level. Level c includes most nursing and teaching qualifications (though persons who have taken a degree in education appear in level b).

A *qualified person* holds at least one qualification at level a, b or c.

A qualified person is classified to a, b or c according to the level of the highest qualification which that person holds; the most recently obtained qualification at the highest level is used in analyses by subject; unless otherwise stated in the table heading.

b. *Subject Group*. The major subject or subjects of each qualification a person holds has been coded using the standard Subject Classification for Educational Statistics of Department of Education and Science. (Details of the full subject index are given in *Education Statistics for the United Kingdom 1975, (HMSO)*). The classification contains 10 main subject groups and 108 primary subjects with the main groups as follows:

- 1 **Education**
  - 1.1 Education (nes) +
    - 1.2.1 Education with teacher training and other subjects
    - 1.2.2 Education without teacher training but including other subjects.
- 2 **Health, medicine and dentistry**
  - 2.3.1 Pre-clinical studies
  - 2.3.2 Clinical medicine
  - 2.4.1 Pre-clinical Dentistry
  - 2.4.2 Dentistry (nes)
  - 2.5 Pharmacy
  - 2.6 Pharmacology
    - 2.7.1 Nursing
    - 2.7.2 Ophthalmic optics
    - 2.7.3 Other studies allied to medicine and health
    - 2.7.4 Combinations of health with subject groups 3-10
- 3 **Technology and engineering**
  - 3.8 Aeronautical engineering
    - 3.9.1 Chemical engineering (nes)
    - 3.9.2 Chemical technology
    - 3.9.3 Fuel technology
    - 3.10.1 Civil engineering (nes)
    - 3.10.2 Building
    - 3.11(a)\* Electrical engineering
    - 3.11(b)\* Electronics and electronic engineering
      - 3.12.1 Mechanical engineering (nes)
      - 3.12.2 Agricultural engineering
      - 3.12.3 Automobile engineering
      - 3.12.4 Marine engineering
      - 3.12.5 Naval architecture
    - 3.13 Production and control engineering (including manufacturing technology)
    - 3.14 Mining
    - 3.15 Metallurgy
    - 3.16 General and other engineering subjects (including combinations of engineering subjects)
    - 3.17 Surveying
      - 3.18.1 General technology and manufacture (nes)
      - 3.18.2 Clothing and footwear
      - 3.18.3 Food technology and manufacture
      - 3.18.4 Printing and book production
      - 3.18.5 Textile technology and manufacture
    - 3.19 Combinations of technology with subject groups 4-10
  - 4 **Agriculture, forestry and veterinary studies**
    - 4.20 Agriculture
      - 4.21 Agricultural biology
      - 4.22 Agricultural chemistry
        - 4.23 Forestry
          - 4.24.1 Veterinary studies (nes)
          - 4.24.2 Combinations of agricultural subjects with subject groups 5-10
    - 5 **Science (including mathematics and applied sciences)**
      - 5.25 Biology
        - 5.26 Botany
        - 5.27 Zoology
          - 5.28 Physiology and anatomy
          - 5.29 Biochemistry
        - 5.30 Combinations of biological sciences
          - 5.31.1 Mathematics (nes)
          - 5.31.2 Dynamics, applied dynamics, thermodynamics
          - 5.31.3 Computer science
          - 5.31.4 Statistics
        - 5.32 Mathematics/physics
          - 5.33 Physics
          - 5.34 Chemistry
          - 5.35 Geology
          - 5.36 Environmental sciences (other than geology)
            - 5.37 Combinations of physical sciences (other than mathematics/physics)
            - 5.38 Biological with physical sciences
            - 5.39 Combinations of science with subject groups 6-10 (except the philosophy / physiology / psychology - PPP - degrees)
      - 6 **Social, administrative and business studies**
        - 6.40.1 Management studies (nes)
        - 6.40.2 Business and commerce
        - 6.40.3 Secretarial studies
        - 6.41 Economics
        - 6.42 Geography
        - 6.43 Accountancy (including banking and insurance)
        - 6.44 Government and public administration
        - 6.45 Law
        - 6.46 Psychology (including PPP degrees)
        - 6.47 Sociology
        - 6.48 Social anthropology
        - 6.49 Combinations of social studies
        - 6.50 Combinations of social studies with subject groups 7-10 (excluding archaeology/anthropology)
      - 7 **Vocational (including architecture and other professional studies)**
        - 7.51 Architecture
          - 7.52 Town and country planning
            - 7.53.1 Catering and institutional management (nes)
              - 7.53.1 Home economics
              - 7.54.1 Vocational studies (nes)
              - 7.54.2 Librarianship and information science
              - 7.54.3 Nautical subjects
              - 7.54.4 Transport
              - 7.54.5 Wholesale and retail trades
              - 7.54.6 Combinations of vocational subjects within this group
              - 7.54.7 Combinations of vocational subjects with subject groups 8-10

- 8 Language (literature and area) studies**
- 8.55 English
- 8.56 Celtic (Welsh and other)
- 8.57 French (language and studies)
- 8.58 French/German
- 8.59 German (language and studies)
- 8.60 Hispanic languages and studies
- 8.61 Other West European languages and studies (including combinations of West European languages other than French/German)
- 8.62 Russian (language and studies)
- 8.63 Slavonic and East European languages and studies other than Russian (including combinations of these languages)
- 8.64 Chinese (language and area studies)
- 8.65 Oriental, Asian and African languages and studies other than Chinese (including combinations of these languages)
- 8.66 Classical studies (including combinations of classics with philosophy)
- 8.67 Other language studies and combinations of subjects within the group (excluding those such as French/German, separately allowed for)
- 8.68 Languages with arts (excluding classics / philosophy and archaeology / ancient history)
- 9 Arts (other than languages and performing arts)**
- 9.69 History
- 9.70 Archaeology
- 9.71 Philosophy
- 9.72 Theology
- 9.76 Arts General (where subject content is not specified and combinations within groups 9 and 10)
- 10 Music, drama and visual arts**
- 10.73 Art and design
- 10.74 Drama
- 10.75.1 Music (nes)
- 10.75.2 Combinations with art and design, drama and music
- + (nes = not elsewhere specified)
- \* OPCS sub-division

## Welsh language

124. The Welsh language question was as follows:

**W Welsh language**  
For all persons aged 3 or over (born before 6 April 1978).

a Does the person speak Welsh? Please tick the appropriate box.

b If the person speaks Welsh, does he or she also:

Speak English?  
Read Welsh?  
Write Welsh?

a Speaks Welsh  
1  YES } 0  NO  
b If YES  
1  Speaks English  
2  Reads Welsh  
4  Writes Welsh

This question was included only in forms issued in Wales: in the W form for private households and the Iw form for an individual.

## Scottish gaelic

125. The question on the Gaelic language was as follows:

**8 Scottish Gaelic**

Can the person speak, read or write Scottish Gaelic?  
Please tick the appropriate boxes.

1  Can speak Gaelic  
2  Can read Gaelic  
3  Can write Gaelic  
4  Does not know Gaelic

The question was included on all household and individual forms fielded in Scotland and was asked of all persons aged 3 or over.

A new form of the question has been asked that concentrates on the ability to speak, read or write Scottish Gaelic. The section of the 1971 question that asked Gaelic speakers if they could also speak English was dropped, because the small numbers involved who did not speak English could not be accurately measured from a census.

# Appendix VI 1991 Census: definitions and concepts

(reproduced from *1991 Census, Definitions, Great Britain*)

## Population bases in tables

2.1 Census results are generally presented as cross-tabulations of two or more variables, each table counting a particular population (such as *Residents in households, Students and schoolchildren aged 5 and over, or Persons aged 60 and over with limiting long-term illness*). It is important to know exactly what is being counted - the *population base* - especially when comparing tables from the 1991 Census with those from 1981 or earlier censuses or from non-census sources.

2.2 As in 1981, the form-filler was instructed to include on the Census form:

- (a) "every person who spends Census night (21-22 April) in this household, including anyone staying temporarily";
- (b) "any other people who are usually members of the household but on Census night are absent on holiday, at school or college, or for any other reason, even if they are being included on another census form elsewhere";
- (c) "anyone who arrives here on Monday 22 April who was in Great Britain on the Sunday and who has not been included as present on another census form"; and
- (d) "any newly born baby born before 22 April, even if still in hospital".

2.3 The group of people included under (b) are termed *absent residents*.

2.4 Information on *whereabouts* and *usual address*, given for each person included on the Census form, can be used to derive the several population bases used in tabulations.

<p>6 <b>Whereabouts on night of 21-22 April 1991</b></p> <p>Please tick the appropriate box to indicate where the person was on the night of 21-22 April 1991.</p>	<p>At this address, out on night work or travelling to this address <input type="checkbox"/> 0</p> <p>Elsewhere in England, Scotland or Wales <input type="checkbox"/> 1</p> <p>Outside Great Britain <input type="checkbox"/> 2</p>
<p>7 <b>Usual address</b></p> <p>If the person usually lives here, please tick 'This address'. If not, tick 'Elsewhere' and write in the person's usual address.</p> <p>For students and children away from home during term time, the home address should be taken as the usual address.</p> <p>For any person who lives away from home for part of the week, the home address should be taken as the usual address.</p> <p>Any person who is not a permanent member of the household should be asked what he or she considers to be his or her usual address.</p>	<p>This address <input type="checkbox"/> 1</p> <p>Elsewhere <input type="checkbox"/></p> <p>If elsewhere, please write the person's usual address and postcode below in BLOCK CAPITALS</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Post-code <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p>

2.5 If, in Question 7, the box 'Elsewhere' had been ticked and an address elsewhere in Great Britain had been given, then the input is the postcode of that address; if an address outside GB had been given, then the input is the country of usual residence (using the same codes as the country of birth classification (see Annex A)). Special procedures are adopted if the answer was missing or entered as "none" or "no fixed address" (see paragraph 3.9).

## Construction of bases: counting people

2.6 Combinations of the answers to Questions 6 and 7 form the building bricks for the various population bases as follows:

Whereabouts	Usual Address	Population group
(a) This address	This address	Present residents
(b) This address	Elsewhere in GB	Visitors from within GB
(c) This address	Outside GB	Visitors from outside GB
(d) Elsewhere in GB	This address	Absent residents absent within GB
(e) Outside GB	This address	Absent residents absent outside GB

Categories (d) and (e) are not enumerated in communal establishments. Persons in category (d) should also be in category (b) on the form completed where they are present on Census night.

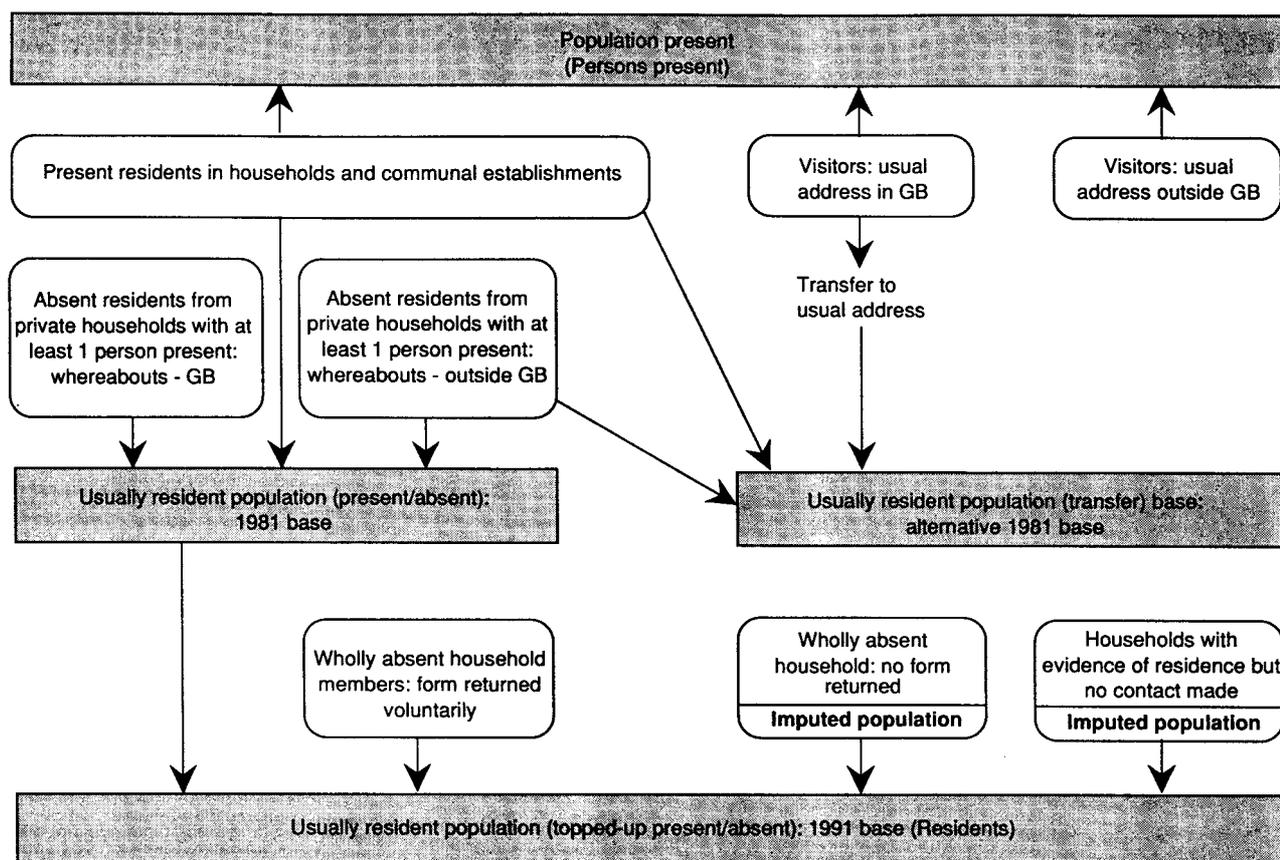
2.7 *Wholly absent households* (those households where all residents of the household were absent on Census night and no other person was present) were asked to complete, voluntarily, a census form on their return home (see paragraph 1.49). Those which did so are termed *Enumerated wholly absent households*, and households for which no return was received are termed *Imputed wholly absent households*. For convenience, the imputed population of households where no contact was made but where there was *prima facie* evidence that someone lived there, are grouped together with imputed wholly absent households and included under that term in Tables 1 and 18 of the LBS.

2.8 Figure 1 overleaf summarises how the various population bases are constructed from the building blocks identified in paragraphs 2.6 and 2.7.

2.9 The *population present* in an area (referred to, in output, as *Persons present*) is a count of all the persons recorded as spending Census night in the area regardless of whether this was where they usually lived (categories (a)-(c) in paragraph 2.6 above).

2.10 The *usually resident population (topped-up present/absent): 1991 base* (referred to, in output, as *Residents*) is a count of all persons recorded as resident in households in an area, even if they were present elsewhere on Census night, plus residents in communal establishments who were present in the establishment on Census night (categories (a), (d) and (e) in paragraph 2.6). This population is 'topped-up' with persons from enumerated wholly absent households and imputed wholly absent households.

**Fig 1 Inter-relationship of population bases**



**2.11** The *usually resident population (present/absent): 1981 base* did not include any residents in wholly absent households (see paragraph 1.48) and so was an incomplete count of the resident population in the 1981 Census.

**2.12** The *usually resident population (transfer): 1981 base* was also compiled in 1981 by counting present residents in an area, plus a 'transfer' count of visitors elsewhere in GB back to the area of residence, plus absent residents in enumerated households who were outside GB on Census night (categories (a), (b) and (e)). In 1981 this population base gave a better count of the resident population than the present/absent base then used, but was of limited use because 'transferred' persons could not be allocated to households and the base could not be counted until all areas had been processed.

**2.13** As the full range of census information is given on the H forms for absent residents in households and because the present/absent base can be produced area by area with the processing sequence, this usually resident population is the base that is most commonly used in the Small Area Statistics, Local Base Statistics and *County/Region Reports*, where it is more often referred to as the *resident population* or, more simply, *residents*. Some tables, however, use a different base to allow intercensal comparisons. Additionally, in Table 1 of the LBS/SAS and *County/Region Reports*, *Visitors* are subdivided into 'Resident in UK' and 'Resident outside UK' to allow a direct comparison with the equivalent 1981 table.

**2.14** For consistency, the same base will generally be carried forward into all the published *Topic Report* volumes, though volumes on specific topics, such as *Workplace and Transport to Work*, will contain slight variations (see Chapter 7).

### ***Term-time address and the Registrars General's annual estimates of population***

**2.15** The Registrars General's annual estimates of the population usually resident in each district during the 1980s were based on 1981 Census figures compiled by the 'transfer' method (paragraph 2.12), but they adopt a different convention in defining the usual address of the armed forces and some other categories. Thus, a student's usual address is taken, for annual estimates purposes, as the term-time address, but in the 1981 Census this was considered to be the student's home address. Statistics derived from the 1981 Census were therefore not directly comparable with the Registrars General's annual estimates.

**2.16** The date of the 1991 Census (21 April) fell in term-time for some educational establishments, but in vacation-time in others. The Census, however, included a new question on *term-time address of students and schoolchildren*.

**2.17** Answers to this question (see opposite page) allow the compilation of the term-time population for an area, by omitting resident students with a term-time address outside

**8 Term time address of students and schoolchildren**

If not a student or schoolchild, please tick first box.  
For a student or schoolchild who lives here during term time, tick 'This address'.  
If he or she does not live here during term time, tick 'Elsewhere' and write in the current or most recent term time address.

Not a student or schoolchild	<input type="checkbox"/>
This address	<input type="checkbox"/> 1
Elsewhere	<input type="checkbox"/>
If elsewhere, please write the term time address and postcode below in BLOCK CAPITALS	
<input type="text"/>	
Post-code	<input type="text"/>

the area and including any students resident outside the area but living in the area in term-time. This will provide information for re-calibrating the Registrars General's annual estimates using the 1991 Census as a base.

### Construction of bases: counting people in households

**2.18** For the 1991 Census the base for the *Housing and Household Composition* tables is, as in the 1981 Census, the (usually) resident population in (private) households, referred to, in the tables, as *Residents in households*. In other reports a table that counts *Residents* includes those persons resident in communal establishments (if present there on Census night) as well as those in households.

### 3 Population and household definitions

#### Population present

3.1 The number of *persons present* in an area is the count of persons alive at midnight on 21/22 April 1991 who spent that night with a household, in a communal establishment, on board a vessel or elsewhere in the area.

#### Shipping

3.2 Apart from houseboats (which are enumerated as households), vessels were treated in a similar way to communal establishments (see Chapter 4) with a listing form (L) and individual return form (I) for each person on the ship. Persons on naval vessels in British waters or ports on Census night are included as present in the home base port of the ship. Generally, persons on other vessels are counted as present in the area where the forms were collected.

3.3 For the 1991 Census there were some minor changes made to the enumeration of shipping. Vessels on coastal trips, fishing voyages and voyages between Great Britain and Northern Ireland, Isle of Man and the Channel Isles were not enumerated. However, foreign-registered ships in British ports, excluded in 1981, were enumerated in 1991.

#### Persons sleeping rough and campers

3.4 The population present also includes persons not enumerated in households, communal establishments or on board vessels. An example is persons who were sleeping rough on Census night. This group should not be confused with the 'homeless', of which it may be part, since homeless persons or families could have spent Census night in a hostel or some other accommodation.

3.5 A further example is persons who spent Census night in a non-permanent structure which was not their usual residence; for example, persons camping or staying in caravans while on holiday.

3.6 Where people were present in non-permanent accommodation with no residents (either present or absent) and with communal catering, they are included in the category for campers. Where caravans or other non-permanent structures with no residents had individual catering, persons present were enumerated on H forms and are included in the household population. This is a change from the 1981 Census when all non-permanent accommodation with no residents was included in the communal establishments category for campers. The number of households affected by this change can be seen, for example, in Table 56 in the LBS and *County/Region Reports*.

3.7 In many tables 'persons sleeping rough' and 'campers' are shown as separate categories within the communal establishments classification, as part of the population not enumerated in households. However, in some tables the two categories are included in a residual group in the classification (for example, in Table 3 of the SAS).

#### Residents

3.8 For most persons the answer to the question on usual address is straightforward. For some, however, it is not so, particularly when a person lives at more than one address throughout the year. Guidance issued by the Census Office took a number of forms:

##### *To students*

Question 7 (see paragraph 2.4) on the H and I forms included the instruction that, for students or (school)children away from home during term-time, their home address should be taken as their usual address.

##### *To enumerators*

Guidance to enumerators on whom to treat as usually living at an address for the purposes of completing an H form was provided in the Field Manual. A copy of the relevant extract is shown at Appendix 2.

##### *To patients in communal establishments*

Leaflets distributed in communal establishments for the sick and disabled advised patients how to answer the question on usual address. A copy of the leaflet is shown at Appendix 3.

##### *For persons in prisons and community homes*

The governors of prisons were advised that, if a prisoner had served six months or more of a sentence in custody (though not necessarily at the same establishment) immediately prior to Census night, the usual address should be taken to be the address of the prison. If less than six months had been served, the usual address before admission should be given. A similar procedure was followed for children in community homes.

3.9 Where there was no answer to the question on usual address, or where the answer was "none" or "no fixed address", the imputation procedure provides a code of either 'this address' or 'elsewhere not stated'.

3.10 *Visitors* are those persons present 'at this address' on Census night whose usual address was not 'this address' (that is, categories (b) and (c) in paragraph 2.6). A *visitor to a specified area* is a person present in that area with a usual address located outside the area.

#### Households

3.11 A *household* is either:

- (a) one person living alone; or
- (b) a group of people (who may or may not be related) living, or staying temporarily, at the same address, with common housekeeping.

**3.12** As in 1981, enumerators were instructed to treat a group of people as a household if there was any regular arrangement to share at least one meal (including breakfast) a day, or if the occupants shared a common living or sitting room. The occupants of one-room accommodation or of a caravan are treated as a single household.

### ***Head of household***

**3.13** It should be noted that in 1991 the H form was addressed "to the Head or Joint Head or members of the Household aged 16 or over" (thus allowing for households with no head). Furthermore, the question on relationship in household (see paragraph 7.4) asked for the relationship of the second and subsequent persons to the person entered in the first column on the form. For *statistical purposes* however, in the 100 per cent processed tables the *head of household* is usually taken to be the person entered in the first column. (For the procedures for selecting the head of a household see paragraph 6.49.)

## 4 Communal establishments: definitions and classifications

### Enumeration

4.1 The 1991 Census enumerated all persons present on Census night in a variety of types of *communal establishment* in addition to those living in households. The term covers all establishments in which some form of communal catering is provided. Such establishments were enumerated using the L form on which were listed the names of all persons present on Census night together with individual (I) forms containing the relevant census questions (See Appendix 1 for copies of the L and I forms).

4.2 In 1981 the population in communal establishments (referred to then as the population in non-private households) made up 2½ per cent of the total present population. Included in the communal establishment population are campers with communal catering, and persons sleeping rough.

4.3 In 1991, enumerators were instructed to contact the person in charge of the establishment, for example, the proprietor or manager, who then had the responsibility of listing on an L form all those present in the establishment on Census night and all who arrived on Monday, 22 April and who had not been included as present on a census form elsewhere. The names of any non-resident staff who happened to be on duty on the premises on Census night were not required to be listed.

4.4 The person in charge also had the responsibility of issuing I forms to persons present in the establishment on Census night and of collecting the completed forms, or of completing the forms where necessary in the cases, for example, of any persons who were incapable of completing the forms for themselves.

### Special types of establishment

4.5 *Small hotels* and *guest houses* containing ten rooms or more were treated as communal establishments. Those that contained fewer than ten rooms were classified as communal establishments if there were present on Census night any resident staff other than the proprietor and his family or five or more guests. Otherwise, they were treated as households. *Inns* and *public houses* with no accommodation were treated as partly residential premises and H forms were issued in the usual way.

4.6 *Nurses' homes* and *students' hostels*, etc, with self-catering facilities were enumerated as communal establishments if there was someone in charge to take responsibility for issuing I forms. Otherwise, each person, or group of persons sharing meals or accommodation, was treated as a separate household.

4.7 *Private residences in the grounds of an establishment*, such as a doctor's house, a caretaker's cottage or a porter's lodge, were treated as households, but *flats or suites of rooms, within the main building* were treated as part of the main establishment, and persons living in such accommodation were enumerated on L and I forms.

4.8 *Service families or civilians, living in married quarters* as part of a military establishment were enumerated as households whether the quarters were located within or outside the boundaries of the establishment.

4.9 *Sheltered housing*, that is, accommodation provided for the elderly, handicapped etc, often fell between a communal establishment and a household, in that a main meal could be taken communally though each person had their own separate accommodation with facilities for cooking their own meals. If at least half the people within the sheltered housing complex possessed such facilities, they were all treated as separate households, and, if fewer than half, as members of a communal establishment.

4.10 *Annexes to communal establishments* were treated as part of the main establishment if located in the same ED or if meals were taken at the main establishment even though the annexe was in a different ED. The annexe was treated as a separate establishment if located in a different ED and meals were provided at the annexe (breakfast counting as a meal) or there were facilities for self-catering; in these circumstances, if there was no one in charge to complete the L form and issue/collect I forms, the annexe was enumerated as though it were accommodation occupied by households, but at coding, such households were transcribed onto L and I forms.

4.11 *Itinerant caravan dwellers*, for example, with circuses or fairs, were treated as households.

### Classification of establishments

4.12 The classification of communal establishments shown below comprises 18 major categories used in the standard published output, and 25 sub-categories relating to 'client groups' which will only be identified separately in commissioned tables.

4.13 The first digit of the following classification represents the major group and the second digit the more detailed client group classification. In standard output, such as Table 3 in the LBS and *County/Region Reports* and Table 3 of the *Communal Establishments* volume, only the first digit categories are identified.

#### MEDICAL AND CARE ESTABLISHMENTS

- 1 NHS HOSPITALS/HOMES - PSYCHIATRIC
- 2 NHS HOSPITALS/HOMES - OTHER
  - 2.1 Mentally handicapped
  - 2.2 Other (including general)
- 3 NON-NHS HOSPITALS - PSYCHIATRIC
- 4 NON-NHS HOSPITALS - OTHER
  - 4.1 Mentally handicapped
  - 4.2 Other

- 5 LOCAL AUTHORITY HOMES
- 5.1 Mentally ill (including children)
  - 5.2 Mentally handicapped (including children)
  - 5.3 Elderly
  - 5.4 Other
- 6 HOUSING ASSOCIATION HOMES AND HOSTELS
- 6.1 Mentally ill (including children)
  - 6.2 Mentally handicapped (including children)
  - 6.3 Elderly
  - 6.4 Other
- 7 NURSING HOMES (non-NHS/LA/HA)
- 7.1 Mentally ill
  - 7.2 Mentally handicapped
  - 7.3 Elderly mentally infirm
  - 7.4 Elderly
  - 7.5 Other
- 8 RESIDENTIAL HOMES (non-NHS/LA/HA)
- 8.1 Mentally ill
  - 8.2 Mentally handicapped
  - 8.3 Elderly
  - 8.4 Other
- 9 CHILDREN'S HOMES
- 9.1 Local authority
  - 9.2 Other

#### DETENTION, DEFENCE AND EDUCATION ESTABLISHMENTS

- 10 PRISON SERVICE ESTABLISHMENTS
- 11 DEFENCE ESTABLISHMENTS
- 12 EDUCATION ESTABLISHMENTS

#### OTHER GROUPS

- 13 HOTELS, BOARDING HOUSES, ETC
- 14 HOSTELS AND COMMON LODGING HOUSES (non-HA)
- 15 OTHER MISCELLANEOUS ESTABLISHMENTS
- 15.1 Miscellaneous family establishments
  - 15.2 Others
- 16 PERSONS SLEEPING ROUGH
- 17 CAMPERS
- 18 CIVILIAN SHIPS, BOATS AND BARGES

#### 4.14 *Groups 1 and 2* comprise:

- hospitals and nursing homes which are self-governed or managed by a Hospital Management Committee, a Board of Governors or a Hospital Trust, or directly by the Department of Health;
- nurses' homes and hostels managed by a Hospital Management Committee or a Board of Governors, even when the accommodation is separate from the main hospital premises; and
- rehabilitation centres provided within the NHS.

Homes and hostels for district nurses and private nurses' associations are included in *Group 15.2*. Separate accommodation occupied by, for example, a Medical Superintendent and his family, is treated as a household.

4.15 The 1981 term *psychiatric* has been retained for output from the 1991 Census, although this category consists only of hospitals and homes for the mentally ill. Hospitals in *Group 1* include those classified as such by the Department of Health and the three Special Hospitals (Broadmoor, Rampton and Ashworth - formerly Moss Side).

4.16 *Groups 3 and 4* include hospitals not managed under the NHS or by the Department of Health, and nurses' homes and hostels linked to such hospitals, even when separate from the main premises. *Group 3* includes mental/mental care hospitals, hospitals for the mentally ill and mental after-care units. *Group 4.1* comprises hospitals for the mentally handicapped and *Group 4.2* all other non-NHS hospitals.

4.17 *Group 5* comprises homes managed by local authorities but excludes homes run by voluntary, charitable or private organisations (see paragraph 4.20), and hostels managed by religious institutions, private individuals, commercial or voluntary organisations (included in *Group 14*).

#### 4.18 *Group 6* includes:

- almshouses or Abbeyfield Societies registered with the Housing Corporation and Scottish Homes;
- residential homes registered with a local authority and managed by a housing association; and
- other homes and hostels managed by a housing association (except for housing association children's homes, which are included in *Group 9.2*).

4.19 *Group 7* includes nursing homes, convalescent homes and hospices run by voluntary, charitable or private organisations.

4.20 *Group 8* includes residential homes registered with the local authority, or exempt from registration and managed or funded by a voluntary, charitable or private organisation, such as Cheshire Homes. Residential homes managed by the NHS, a local authority or a housing association are classified to *Groups 1, 2, 5, or 6* as appropriate.

**4.21** *Group 9.1* comprises children's homes maintained, controlled or assisted by the local authority, and *Group 9.2* includes children's homes and hostels provided, or maintained, by voluntary organisations, and 'households' with five or more foster children. Residential schools and homes for physically handicapped and disabled children, maintained or assisted by educational authorities, are included in *Group 12* (see paragraph 4.24).

**4.22** *Group 10* includes prisons, detention centres and young offender institutions. Excluded are: approved schools, ex-offenders' hostels, and probation and remand homes (included in *Group 5.4*); police stations with a lock-up (included in *Group 15.2*); and Special Hospitals (see paragraph 4.15).

**4.23** *Group 11* comprises:

- Army and Air Force camps or establishments, naval shore stations and vessels maintained by service personnel, Fleet Auxiliary vessels and Service hospitals;
- hostels and similar establishments for NAAFI personnel, even if located outside the grounds of the camp; and
- civilians in services establishments including NAAFI staff.

Married quarters for service personnel or civilians are excluded (see paragraph 4.8).

**4.24** *Group 12* comprises:

- residential schools, training colleges, theological colleges, and university halls of residence and students' hostels administered by schools, colleges and universities;
- residential schools and homes for physically handicapped and disabled children maintained or assisted by education authorities; and
- religious institutions which are boarding schools or which have living accommodation for teachers.

Training schools provided exclusively for a single employer or for a trade association or government department are classified in *Group 15.2*. Wholly separate accommodation for teachers, caretakers, groundsmen, etc are treated as households.

**4.25** *Group 13* includes hotels, boarding houses, apartment houses, inns, public houses with sleeping accommodation, residential clubs, health farms, holiday camps, YHA/YMCA/YWCA hostels, and other similar establishments providing board and accommodation for visitors. Households with 5 or more paying guests and/or resident staff are also included. Establishments described as hotels or inns but with no sleeping accommodation for guests are excluded, along with bed-and-breakfast accommodation for homeless families (included in *Group 15.1*), hotels with less than 10 rooms and less than 5 guests and 5 resident staff

(which are treated as households), and youth hostels managed by a Housing Association (included in *Group 6.4*).

**4.26** *Group 14* includes hostels not covered in other groups, such as, common lodging houses and reception centres with resident staff, used by people as their main or only residence and run by religious institutions or voluntary organisations (for example, Salvation Army), or by private individuals, commercial organisations or local authorities. All housing association hostels are coded to *Group 6*.

**4.27** *Group 15.1* includes bed-and-breakfast accommodation for homeless families, homes for families, hostels and shelters for women, and mother-and-baby homes. Maternity homes are classified elsewhere according to the management type. *Group 15.2* is a heterogeneous group consisting of fire stations, lighthouses and lightships, and hostels, homes, training centres, camps and institutions not classified elsewhere.

**4.28** *Group 16* comprises *persons sleeping rough* at sites identified before the Census by voluntary organisations, local authorities and churches, as well as those persons who were counted by ordinary enumerators. In output, figures relate only to those persons sleeping rough in the open air on Census night and do not include persons of no fixed abode who spent Census night in shelters, hostels or squats, etc. *Group 17* includes persons sleeping in a tent or caravan with communal catering, or spending Census night out of doors for recreational purposes (often at a recognised camp site) with a stated permanent address elsewhere (see paragraph 3.6). Travelling people, encampments and circuses are treated as households (see paragraph 4.11).

**4.29** *Group 18* includes all civilian boats, barges, ferries and ships with sleeping accommodation, but excludes naval vessels (*Group 11*), and lightships (*Group 15.2*). Houseboats are treated as households.

### *Changes since 1981*

**4.30** Compared with the 1981 Census, the number of major categories in the classification of communal establishments identifiable in tables has been expanded from 12 to 18. The changes are:

- NHS hospitals/homes and non-NHS hospitals/homes become separate categories;
- nursing and residential homes covered by the 1984 Registration of Homes Act, and homes and hostels managed by housing associations, are identified as three separate additional groups; in 1981 these were collectively included in the *Hospitals and homes - other* category;
- homes for the old and the disabled, identified as a separate category in 1981 output, are included in Groups 5, 6, 7 or 8 as appropriate; and
- persons sleeping rough (*Group 16*) and campers (*Group 17*) become separate categories.

## Residence classification and status

4.31 The status of persons enumerated in communal establishments is obtained from the information given on *position in establishment* on the I form

5 **Position in establishment**

Please write in your position in this establishment. For example, write 'Guest'; 'Patient'; 'Inmate'; 'Staff'; 'Student'; 'Boarder'.  
If you are completing the form in a private household, your relationship to the person making the return for the rest of the household should be stated.



and the response to the *usual address* question (see paragraph 2.4). The full range of categories is:

- 1 Residents (non-staff)  
Visitors/guests
- 2 Residents in the UK
- 2a of which Visiting staff/relatives of staff
- 3 Resident outside the UK
- 3a of which Visiting staff/relatives of staff
- 4 Resident staff
- 5 Resident relatives of staff

4.32 *Residents* are persons stating 'this address' as their usual address; persons with a stated usual address of 'elsewhere' are classified as *visitors*. Visiting relatives of visiting staff are included in (3a). This classification is used in full in Table 8 in the *Communal Establishments* topic report. More generally, however, an abbreviated version of the classification, giving just three categories, is used in output. In terms of the groups shown above these are:

- Residents (non-staff) (1);
- Visitors (2)+(3); and
- Residents (staff) (4)+(5).

4.33 *Residents (non-staff)* comprises resident guests and inmates; *visitors* comprises guests, inmates, staff and relatives of staff with usual address 'elsewhere'; *residents (staff)* includes resident relatives of managers and staff. *Staff* includes managers of establishments.

4.34 Persons in defence establishments, civilian ships, boats and barges, sleeping rough or camping are all allocated to either category (1) or (2) depending on their answer to the usual address question, irrespective of their response to the question on position in establishment.

## 5 Housing and availability of cars

### The Census questions

5.1 Statistics on housing and cars are derived from:

- the information supplied by the enumerator at Panel A of the Census form and the householder's answers to Questions H1-H5 and, additionally in Scotland, Question HL; and
- information recorded by the enumerator in his/her record book on the accommodation at each address and on those household spaces sharing a building.

5.2 Output on housing from the Local and Small Area Statistics and *Housing and Availability of Cars* reports for Great Britain and Scotland covers analyses of residential accommodation for households including any unoccupied on Census night. Analyses for people enumerated in communal establishments such as hotels and hospitals are covered in separate tables (see Chapter 4).

5.3 The main source of information on accommodation is taken from Panel A of the Census form and Question H2. Use is also made of the information provided by the building bracket linking household spaces in a converted or shared house, bungalow or flat (Panel A boxes 7 or 8).

Panel A	
To be completed by the Enumerator and amended, if necessary, by the person(s) signing this form.	
Tick one box to show the type of accommodation which this household occupies.	
<b>A caravan or other mobile or temporary structure</b>	<input type="checkbox"/> 1
<b>A whole house or bungalow that is</b>	detached <input type="checkbox"/> 2
	semi-detached <input type="checkbox"/> 3
	terraced (include end of terrace) <input type="checkbox"/> 4
<b>The whole of a purpose built flat or maisonette</b>	in a commercial building (for example in an office building or hotel or over a shop) <input type="checkbox"/> 5
	in a block of flats or tenement <input type="checkbox"/> 6
<b>Part of a converted or shared house, bungalow or flat</b>	separate entrance into the building <input type="checkbox"/> 7
	shared entrance into the building <input type="checkbox"/> 8

5.4 Enumerators were given guidance on identifying caravans and other mobile or temporary (*non-permanent*) structures. While towable caravans, mobile homes, converted railway carriages, and houseboats were treated as non-permanent, other structures, such as huts and holiday chalets were not always so easy to classify. Enumerators were thus instructed to consider as a *permanent building* any structure which satisfied at least one of the following criteria:

- that the walls are of brick, stone and mortar, concrete, breeze block, or similar material;

- that the roof is of ceramic tiles, slate, thatch, shingle, or concrete; and
- that the length of the shortest wall is at least 15 feet.

Otherwise, enumerators were instructed to tick box 1 of Panel A if the accommodation was occupied on Census night or, where unoccupied, if it was the usual residence of a household.

5.5 All occupants in a non-permanent structure were treated as a single household; separate caravans in, for example, sites for travelling people or circuses were enumerated as separate households.

### Dwellings

5.6 *Dwellings* are defined as 'structurally separate accommodation'. For *permanent accommodation*, this is determined on the basis of the information from Panel A (boxes 2-8) and Question H2, which applies to Panel A codes 7 (unshared entrance) and 8 (shared entrance) in accommodation occupying part of a converted or shared house, bungalow or flat. *Non-permanent accommodation*, such as caravans, houseboats and other temporary structures (see paragraph 5.4), were identified from box 1 of Panel A.

H2 Accommodation	
If box 7 or box 8 in Panel A is ticked, tick one box below to show the type of accommodation which your household occupies.	
<b>A one roomed flatlet</b> with private bath or shower, WC and kitchen facilities.	<input type="checkbox"/> 1
<b>One room or bedsit, not self-contained</b> (to move from your room to bathroom, WC or kitchen facilities you have to use a hall, landing or stairway open to other household(s)).	<input type="checkbox"/> 2
<b>A self-contained flat or accommodation with 2 or more rooms,</b> having bath or shower, WC and kitchen facilities all behind its own private door.	<input type="checkbox"/> 3
<b>2 or more rooms, not self-contained</b> (to move between rooms or to bathroom, WC or kitchen facilities you have to use a hall, landing or stairway open to other household(s)).	<input type="checkbox"/> 4

5.7 Boxes 2-6 on Panel A are classified as *Unshared dwellings - purpose built*.

5.8 Accommodation which forms part of a converted building or shares part of a building is allocated either box 7 or box 8 at Panel A and, in these cases, Question H2 further identifies the type of such accommodation. These dwelling categories are defined as:

*Unshared dwellings - converted*, comprising self-contained accommodation in part of a converted or

shared house, bungalow or flat with either separate or shared access to the building;

*Unshared dwellings - not self-contained*, comprising accommodation which is not self-contained but which has a separate entrance into the building; and

*Shared dwellings - not self-contained*, comprising accommodation which is not self-contained and which has a shared entrance into the building.

5.9 In terms of the responses to Panel A and Question H2, these dwelling types may be summarised as:

	Panel A	H2
<i>Unshared dwellings - purpose built</i>	2-6	-
<i>Unshared dwellings - converted</i>	7 or 8	1 or 3
<i>Unshared dwellings - not self-contained</i>	7	2 or 4
<i>Shared dwellings - not self-contained</i>	8	2 or 4

5.10 Accommodation sharing an entrance into the building (Panel A, box 8) that is not self-contained (H2, box 2 or 4) group to form a single *shared dwelling*. However, where there is one such household in the shared house, bungalow or flat, the accommodation does not form, or belong to the dwelling but is classified as an *unattached household space* (see paragraph 5.18 below).

### Dwelling type

5.11 Information on dwellings is available for all household spaces, whether occupied or not (see *Occupancy type* - paragraph 5.81 below) since Panel A is completed by the enumerator whether or not there are any persons present on Census night.

5.12 Accommodation in permanent buildings may be classified in some tables by *dwelling type*. For example, in Tables 20-22 in the *Housing and Availability of Cars* reports, the following dwelling type classification is used:

- Unshared dwellings
  - Purpose built
  - Converted
  - Not self-contained
- Shared dwellings
  - 2 household spaces
  - 3 household spaces
  - 4 household spaces
  - 5 or more household spaces

### Household space type

5.13 The *household space* is generally defined as the accommodation available for a household. The basic household space classification, used in the LBS/SAS and in the *Housing and Availability of Cars* report, is based on the information obtained from Panel A, Question H2 and Question H4 on amenities (see paragraphs 5.3 and 5.54).

5.14 The following full classification of household spaces used in the 100 per cent census processing is structured in relation to the categories of dwellings and unattached household spaces described above.

### FULL CLASSIFICATION OF HOUSEHOLD SPACE TYPES

HOUSEHOLD SPACES IN PERMANENT ACCOMMODATION	
	Unshared dwelling - purpose built
1	Detached
2	Semi-detached
3	Terraced
4	Purpose built flat in residential building
5	Purpose built flat in commercial building
	Unshared dwelling - converted
6	Converted flat - separate entrance into building
7	Converted flat - shared entrance into building
8	Converted flatlet - separate entrance into building
9	Converted flatlet - shared entrance into building
	Unshared dwelling - not self-contained
10	Not self-contained flat
11	Not self-contained 'rooms'
12	Bedsit
13	Not self-contained unoccupied
	Shared dwelling - not self-contained
14	Not self-contained flat
15	Not self-contained 'rooms'
16	Bedsit
17	Not self-contained unoccupied
	Unattached household space - not self-contained
18	Not self-contained flat
19	Not self-contained 'rooms'
20	Bedsit
21	Not self-contained unoccupied
22	NON-PERMANENT ACCOMMODATION

5.15 *Unshared converted accommodation* is a household space with its room(s) including a bath or shower, WC and kitchen facilities behind its own private door. Such accommodation is identified either by Question H2 box 1 (*converted flatlet*) or box 3 (*converted flat*).

5.16 *Unshared not self-contained accommodation* is identified by Panel A box 7, Question H2 box 2 (*bedsit*) or box 4. This latter group is further sub-divided into two household space types - those with exclusive use of bath/shower and inside WC (*flat*) and those without exclusive use of bath/shower and inside WC ('rooms').

5.17 *Shared dwellings* comprise two or more household spaces sharing an entrance into the building (Panel A, box 8) that are not self-contained (Question H2, boxes 2 or 4).

**5.18** *Unattached spaces* are household spaces also sharing an entrance into the building but where they are the *only* one not self-contained.

**5.19** Where not self-contained accommodation is unoccupied on Census night and no information on amenities is available to the enumerator, the accommodation is classified as *not self-contained unoccupied*.

**5.20** Generally, in output, such as Table 1 in the *Housing and Availability of Cars* report, the full household space type classification is reduced to 16 categories by combining

*shared dwellings - not self-contained* with *unattached household spaces - not self-contained*.

**5.21** The 16-category basic output classification of household spaces, together with the definition of the categories in terms of Panel A, H2 and H4, is shown below.

**5.22** In the LBS where household space type is cross-analysed with *occupancy type* (for example, Table 56) or is used with the *Households with residents* base rather than *Household spaces* base (for example, Table 58), the unoccupied household spaces (categories 13 and 17/21) are not shown.

## 16-CATEGORY OUTPUT CLASSIFICATION OF HOUSEHOLD SPACE TYPES

Household space type	Panel A code	Accommodation code (H2)	Bath/shower and inside WC (H4)
<b>Accommodation in permanent buildings</b>			
<i>Unshared dwellings - purpose built</i>			
1 Detached	2	-	-
2 Semi-detached	3	-	-
3 Terraced	4	-	-
4 Purpose built flat in residential building	6	-	-
5 Purpose built flat in commercial building	5	-	-
<i>Unshared dwelling - converted</i>			
6, 7 Converted flat	7 or 8	3	-
8, 9 Converted flatlet	7 or 8	1	-
<i>Unshared dwelling - not self-contained</i>			
10 Flat	7	4	Exclusive use of both
11 'Rooms'	7	4	Not exclusive use of both
12 Bedsit	7	2	-
13 Unoccupied	7	4	Not known
<i>Other household spaces - not self-contained</i>			
14, 18 Flat	8	4	Exclusive use of both
15, 19 'Rooms'	8	4	Not exclusive use of both
16, 20 Bedsit	8	2	-
17, 21 Unoccupied	8	4	Not known
<b>Non-permanent accommodation (22)</b>	<b>1</b>	<b>-</b>	<b>-</b>

5.23 In the SAS versions of the LBS tables the classification of household space types is generally further reduced by combining the categories into half a dozen or so broad groups. For example, in SAS Tables 57-59 the following six-category grouping is adopted:

	Unshared dwelling - purpose built
1-3	Detached, semi or terraced
4,5	Purpose built flat
	Unshared dwelling
6-9	Converted
10-13	Not self-contained
14-21	Other household spaces - not self-contained
22	Non-permanent accommodation

### Comparison with 1981 - dwellings and household space type

5.24 A count of dwellings was not included in the 1981 Census but estimates of the number of dwellings were made from the data supplied on household spaces. This was reported in Appendix 3 of the *1981 Census Definitions* volume<sup>8</sup> which referred readers to the article 'Dwelling stock estimates from the 1981 Census of Population' in *Statistical News* no. 49<sup>9</sup>. Because of a basic change in the definition of self-contained accommodation in 1991, it is not possible to compare accurately 1991 and 1981 statistics on self-contained and not self-contained accommodation.

5.25 In the 1981 Census in England and Wales, self-contained accommodation required a household space sharing an entrance from outside the building with one or more other household(s) to have its rooms (not including a bathroom or WC) enclosed behind its own front door inside the building. For 1991, the definition was changed to require the rooms and kitchen facilities, bath or shower, and inside WC, to be contained behind the 'private' door. In Scotland, the most closely corresponding question in 1981 was the one on 'shared access' to the household's accommodation (Question 19).

5.26 In 1981, purpose built flats (categories 4 and 5 of the 1991 household space type classification) were counted as a single group 'in a purpose built block of flats or maisonettes'. The separate 1991 categories of *detached*, *semi-detached* and *terraced* were only identified in Scotland in 1981. In England and Wales in 1981 these were included with accommodation in converted or shared houses, bungalows or flats as a single group 'household spaces in permanent buildings with separate entrance from outside the building'.

### Rooms

5.27 The number of rooms in the household's accommodation was obtained from Question H1.

5.28 Caravans and other non-permanent accommodation recorded as having 6 or more rooms either have the number

### H1 Rooms

Please count the number of rooms your household has for its own use.

**Do not count:** small kitchens, under 2 metres (6 feet 6 inches) wide  
bathrooms  
toilets

**Do count:** living rooms  
bedrooms  
kitchens at least 2 metres (6 feet 6 inches) wide  
all other rooms in your accommodation

The total number of rooms is

of rooms re-set to 5 or fewer, or are re-classified to another household space type, by the imputation procedure.

5.29 The question asked for the inclusion of the same categories of rooms that were included in the 1981 Census in England and Wales, though rooms used solely for business purposes were then excluded. The question in Scotland in 1981 was slightly different in an attempt to identify rooms used as ancillary kitchens. In 1991 the question was the same throughout Great Britain.

5.30 In output, statistics on rooms are given either as the total number of rooms cross-analysed by other housing or non-housing variables, such as dwelling type, occupancy type, or number of students in household, or, in more detailed tables, as the number of households with 1, 2, 3, 4, 5, 6 and 7 or more rooms cross-analysed by other census variables. Tables on rooms are included in the Local Base Statistics and Small Area Statistics as well as in the *Housing and Availability of Cars* report.

### Household size

5.31 1991 Census tables relating to housing and households generally refer to the resident population. *Household size*, the number of residents in a household, is derived from the answer to Question 7 (see paragraph 2.10).

5.32 In the *Housing and Availability of Cars* report and in other tables, one of three distributions of household size is commonly used, namely:

- 1, 2, 3, 4, 5, 6 and 7 or more persons;
- 1, 2, 3, 4 and 5 or more persons; or
- 1, 2 and 3 or more persons.

### Density of occupation

5.33 Two measures of under-occupancy or overcrowding have been used in the 1991 Census (*persons per room* and *occupancy norm*), following the pattern adopted in 1981. In Scotland, since the definition of a 'room' has changed since 1981 (see paragraph 5.29), comparison of both these measures between censuses must be made with caution.

### Number of persons per room

5.34 One measurement of under-occupancy and overcrowding is given by the number of *persons per room*, that is, the ratio of the number of residents in a household,

obtained from Question 7 (see paragraph 2.4) to the number of rooms in the accommodation of that household, provided by the response to Question H1.

**5.35** In processing, 9 categories are identified:

- 1 under 0.5
- 2 0.5
- 3 over 0.5 but under 0.75
- 4 0.75
- 5 over 0.75 but under 1.0
- 6 1.0
- 7 over 1.0 but under 1.5
- 8 1.5
- 9 over 1.5

**5.36** In output, various distributions of households by persons per room are produced. The standard, four category, distribution is:

- 1,2 Up to 0.5 persons per room
- 3-6 Over 0.5 and up to 1.0 person per room
- 7,8 Over 1.0 and up to 1.5 persons per room
- 9 Over 1.5 persons per room

These grouped categories appear, for example, in Table 23 of the LBS and *County/Region Reports*.

**5.37** In other tables, such as Table 3 in the *Housing and Availability of Cars* volume, a three-fold distribution is presented:

- 1-6 Up to 1.0 person per room
- 7, 8 Over 1.0 and up to 1.5 persons per room
- 9 Over 1.5 persons per room

**5.38** In the SAS, some tables are presented as abbreviated versions of the LBS tables. Thus, in Table 23 a truncated version of the distribution in paragraph 5.36 above appears:

- 1,2 Up to 0.5 persons per room
- 7,8 Over 1.0 and up to 1.5 persons per room
- 9 Over 1.5 persons per room

allowing the user to derive the missing group (categories 3-6) by differencing.

**5.39** Tables in some topic volumes other than *Housing and Availability of Cars* may only present *persons per room* as summary statistics, identifying perhaps just two groups, or as a single indicator. For example, Table 2 in the *Household Composition (100 per cent)* report gives figures of households with residents living at:

- 1,2 Up to 0.5 persons per room
- 9 Over 1.5 persons per room

while Table G in the *County/Region Monitors* shows the single percentage of households living at a density of more than 1.0 person per room (categories 7-9).

## **Occupancy norm (Scotland only)**

**5.40** The second measure of under-occupancy and overcrowding equates the rooms available with an assessment of the rooms required by the people resident in the household. This measure is labelled the *occupancy norm* and is adopted in some housing and household composition tables for Scotland only (see, for example, Table 5(S) in the *Household Composition (100 per cent)* report or Tables 26-28 in the *Housing and Availability of Cars* volume for Scotland).

**5.41** It is an approximate measure developed in the 1981 Census along the lines of the 'bedroom standard' used in survey work. Bedrooms are not counted separately in the Census, and it has been argued that the specific use to which a room is put is often determined by the household occupying the accommodation. The total number of rooms required by a household is calculated as outlined below, and this figure is compared with the number of rooms available.

**5.42** The room requirement is calculated as follows:

- (a) a one-person household is assumed to require only one room; and
- (b) where there are two or more residents it is assumed that they require a minimum of one common room plus one bedroom for:
  - each married couple (taken as 2 persons in a household, of the opposite sex, both married);
  - any other person aged 21 or over;
  - each pair aged 10-20 of the same sex;
  - each pair formed from a remaining child aged 10-20 with a child aged under 10 of the same sex;
  - each pair of children aged under 10 remaining; and
  - each child unable to form a pair.

**5.43** This room requirement is compared with the number of rooms available and the resulting difference forms the basis of a 4-category classification. In output the full *occupancy norm* categories are:

Permanent accommodation		
1	+1 or more	(greater than the norm)
2	0	(the norm)
3	-1	(one room less than the norm)
4	-2 or less	(two or more rooms less than the norm)
5	Non-permanent accommodation	

## **Tenure of accommodation: household spaces**

**5.44** The tenure of the household's accommodation was obtained from the answer to Question H3 (see opposite page). The question in Scotland had an additional category - *renting from Scottish Homes*.

## England and Wales

**H3 Tenure**

Please tick the box which best describes how you and your household occupy your accommodation.

If buying by stages from a Council, Housing Association or New Town (under shared ownership, co-ownership or equity sharing scheme), answer as an owner-occupier at box 1.

**As an owner-occupier:**

-buying the property through mortgage or loan  1

-owning the property outright (no loan)  2

**By renting, rent free or by lease:**

-with a job, farm, shop or other business  3

-from a local authority (Council)  4

-from a New Town Development Corporation (or Commission) or from a Housing Action Trust  5

-from a housing association or charitable trust  6

-from a private landlord, furnished  7

-from a private landlord, unfurnished  8

**In some other way:**

-please give details below

If your accommodation is occupied by lease originally granted for, or extended to, more than 21 years, answer as an owner-occupier. For shorter leases, answer 'By renting'.

A private landlord may be a person or a company or another organisation not mentioned at 3, 4, 5 or 6 above.

## Scotland

**H3 Tenure**

Please tick the box which best describes how you and your household occupy your accommodation.

If buying by stages from a Council, Housing Association, New Town or Scottish Homes (under shared ownership, co-ownership or equity sharing scheme), answer as an owner-occupier at box 1.

**As an owner-occupier:**

-buying the property through mortgage or loan  1

-owning the property outright (no loan)  2

**By renting, rent free or by lease:**

-with a job, farm, shop or other business  3

-from a local authority (Council)  4

-from a New Town Development Corporation  5

-from Scottish Homes  0

-from a housing association or charitable trust  6

-from a private landlord, furnished  7

-from a private landlord, unfurnished  8

**In some other way:**

-please give details below

If your accommodation is occupied by lease originally granted for, or extended to, more than 20 years, answer as an owner-occupier. For shorter leases, answer 'By renting'.

A private landlord may be a person or a company or another organisation not mentioned at 3, 4, 5, 0 or 6 above.

5.45 At the processing stage, if more than one box was ticked a priority order of 1, 2, 4, 6, 5, 3, 7, 8 is assigned. A set of coding instructions was devised, in consultation with the Department of Environment, for coding answers written in under the *In some other way* category. For example, answers such as "relative's property" or "squatting" are assigned to an appropriate renting category.

5.46 Tables showing the full and abbreviated tenure categories appear in both the Local Base Statistics and Small Area Statistics as well as in the main *Housing and Availability of Cars* report. Analyses of other household variables by tenure of accommodation are also included in other topic volumes. The full list of tenures in output is:

- |   |   |
|---|---|
|   | Owner occupied                            |
| 1 | Owned outright                            |
| 2 | Buying                                    |
|   | Rented privately                          |
| 3 | Furnished                                 |
| 4 | Unfurnished                               |
| 5 | Rented with job or business               |
| 6 | Rented from a housing association         |
| 7 | Rented from a local authority or New Town |
| 8 | Rented from Scottish Homes                |

5.47 This classification appears, for example, in Table 6 of the *Housing and Availability of Cars* report and in Table 20

of the LBS/SAS, but may be abbreviated in a number of ways to suit the needs of different topics; for example, in Table 6 in the *Children and Young Adults* report the two owner occupied categories (1 and 2) are combined.

### Comparison with 1981

5.48 The division of owner-occupiers into *buying through mortgage or loan* and *owning outright* represents a slight difference from the categories adopted in England and Wales in 1981 when owner-occupation was classified as either freehold or leasehold, irrespective of whether the property was being purchased by mortgage or owned outright.

5.49 In England and Wales the renting categories are the same as in 1981 except that the category *renting from a New Town Development Corporation or from a Housing Action Trust* is separately identified on the 1991 Census form to reflect the increase in this sector of the housing market. In standard output in England and Wales (but not in Scotland), however, numbers in this group are combined with those in the *renting from a local authority* category as in 1981.

5.50 In Scotland there is an additional category identified in Question H3 - *renting from Scottish Homes*. In output, when tenure categories are required to be combined, for example, when statistics at the Great Britain level are shown, numbers in this group will be merged with those for *renting from a local authority or New Town*. In SAS, the *Scottish Homes* category is merged with that for *New Towns*, since, for most small areas, these do not occur together.

## Tenure of accommodation: dwellings

5.51 The tenure of a dwelling is chosen with reference to the tenure(s) of the constituent household space(s). For a dwelling of one household space, the tenure of the dwelling will be the same as that of the household space. For a multi-household space dwelling, the tenure is chosen according to a priority order:

- 1 Owner occupied - owned outright
- 2 Owner occupied - buying
- 3 Rented from a housing association
- 4 Rented from Scottish Homes
- 5 Rented from a New Town
- 6 Rented from a local authority
- 7 Rented privately - unfurnished
- 8 Rented privately - furnished
- 9 Rented with a job or business

5.52 In output, category 4 is only used in Scotland; categories 5 and 6 are always combined in England and Wales (see, for example, Table 64 of the LBS and *County/Region Reports*).

5.53 The highest ranked tenure among the household spaces becomes the tenure for the dwelling. For example, a dwelling consisting of one 'owner occupied - buying' household space and one 'rented privately - furnished' household space will be classified as an *owner occupied - buying* dwelling.

## Amenities

H4 Amenities	
<b>Does your household — that is, you and any people who usually live here with you — have the use of:</b>	
<b>a</b> A bath or shower?	<b>Yes — for use only by this household</b> <input type="checkbox"/> 1 <b>Yes — for use also by another household</b> <input type="checkbox"/> 2 <b>No — no bath or shower available</b> <input type="checkbox"/> 3
<b>b</b> A flush toilet (WC) with entrance inside the building?	<b>Yes — for use only by this household</b> <input type="checkbox"/> 0 <b>Yes — for use also by another household</b> <input type="checkbox"/> 1 <b>No — flush toilet with outside entrance only</b> <input type="checkbox"/> 2 <b>No — no flush toilet indoors or outdoors</b> <input type="checkbox"/> 3
<b>c</b> Central heating in living rooms and bedrooms (including night storage heaters, warm air or under-floor heating), whether actually used or not?	<b>Yes — all living rooms and bedrooms centrally heated</b> <input type="checkbox"/> 1 <b>Yes — some (not all) living rooms and bedrooms centrally heated</b> <input type="checkbox"/> 2 <b>No — no living rooms or bedrooms centrally heated</b> <input type="checkbox"/> 3

5.54 Question H4 on the 1991 Census form asked if the household had exclusive/shared/no use of a bath or shower and a flush toilet (WC) with entrance inside the building, and whether there was central heating in all/some/no living rooms and bedrooms. The same question was asked both in England and Wales and in Scotland.

5.55 Part (a) and boxes 0 and 1 of part (b) of Question H4 were asked in 1981 but the question on central heating was new to the Census in 1991; it replaced the separate question on outside WCs, which was incorporated as boxes 2 and 3 in part (b). In output, the answers for boxes 2 and 3 in part (b) are combined, resulting in 3 categories for use of WC.

5.56 In output, the number of separate amenities categories varies from table to table depending on the detail of other variables being cross-analysed and the area level. The full classification extends to 27 (3 x 3 x 3) categories and hierarchically covers bath/shower, inside WC and central heating:

	Exclusive use of bath/shower
	Exclusive use of inside WC
1	With central heating - all rooms
2	- some rooms
3	No central heating
	Shared use of inside WC
4	With central heating - all rooms
5	- some rooms
6	No central heating
	No inside WC
7	With central heating - all rooms
8	- some rooms
9	No central heating
	Shared use of bath/shower
	Exclusive use of inside WC
10	With central heating - all rooms
11	- some rooms
12	No central heating
	Shared use of inside WC
13	With central heating - all rooms
14	- some rooms
15	No central heating
	No inside WC
16	With central heating - all rooms
17	- some rooms
18	No central heating
	No bath/shower
	Exclusive use of inside WC
19	With central heating - all rooms
20	- some rooms
21	No central heating



## Occupancy type: households

5.61 The full list of categories of *occupancy type* in the order that they appear in output, such as Table 4 in the *Housing and Availability of Cars* volume, is as follows:

	Households with residents
1	Enumerated with person(s) present
	Absent households
2	Enumerated
3	Imputed
	Vacant accommodation
4	New, never occupied
5	Under improvement
6	Other
	Accommodation not used as main residence
	No persons present
7	Second residences
8	Holiday accommodation
9	Student accommodation
	Persons enumerated but no residents
10	Owner-occupied
11	Not owner-occupied

5.62 There is no single question on the Census form from which information on *occupancy type* is derived. The enumerator classified residential accommodation by whether it was occupied or vacant (see paragraph 1.25) and attempted to distinguish between the 'unoccupied' categories 4-9.

### Occupied accommodation

5.63 Household spaces that were *occupied* on Census night, regardless of whether or not there were persons present on Census night, comprise five of the categories listed in paragraph 5.61 above, that is, 1-3, 10, and 11.

5.64 Accommodation in categories 1, 10, and 11 was enumerated in the usual way and census forms returned in respect of all persons present in the accommodation on Census night (and persons usually resident but absent from category 1 households on Census night). Households in permanent buildings which consist entirely of *visitors*, (included in categories 10 and 11, and shown separately in, for example, LBS and *County/Region Report* Table 56) give an approximate measure of those second homes (*owner-occupied*) and holiday homes (*not owner-occupied*) that were occupied on Census night.

5.65 Accommodation occupied by a wholly absent household is defined as "accommodation from which *all* the occupants who usually live there were away on Census night (for example, on holiday) and in which no other person was present". Such households were identified by the enumerator at the Delivery stage from information obtained either from a member of the household contacted before Census day or from a neighbour or other reliable source. In the absence of any such information enumerators made their own assessment as to whether the household was absent on Census night.

5.66 At the Collection stage, the enumerators were asked to confirm that the household had, in fact, been absent on Census night and, if so, they recorded some basic information about the household (see paragraph 1.51) and left a leaflet and return envelope inviting the householder to complete and return (voluntarily) the census form on their return home. Households completing their census forms in this way were classified as *enumerated absent households* (category 2 in paragraph 5.61). Households originally thought to be absent at the Delivery stage but which, at Collection, were found to have been present on Census night, were enumerated and recorded in the normal way.

5.67 Wholly absent households for which no census forms were returned, and households not personally contacted and from whom no forms were received (see paragraph 1.54), were classified as *imputed absent households* (category 3 in paragraph 5.61). (Details of the imputation of 1991 Census data for such households is given at paragraphs 1.50-1.52.)

### Vacant accommodation

5.68 Enumerators were instructed to treat any residential accommodation as *vacant* where:

- the property was new and ready for occupation but not yet occupied (category 4 in paragraph 5.61);
- the accommodation was in the course of conversion or improvement (renovation or decoration) and was not yet occupied (category 5); and
- the property was clearly without furniture, or information was obtained that the property was not occupied, for example, because new tenants were awaited or that the occupier was deceased (category 6).

5.69 The *vacant (under improvement)* category covers a wide range of types of improvement, from major structural alteration to inside decoration. It would not have been practicable to obtain a finer distinction of types because reliable information on the improvement may not have been obvious or easy to obtain. Previous evidence has indicated some mis-classification between categories 5 and 6 but this division of previously occupied accommodation nevertheless provides reasonable measures of distinction.

5.70 Enumerators were instructed to treat any vacant premises previously used as a small hotel or boarding house as a private residence, because of the tendency for such premises to move in and out of the private housing market.

### Derelict buildings

5.71 Derelict buildings were not recorded unless occupied on Census night, in which case they were treated in a similar way to any other accommodation occupied by households.

5.72 Enumerators were instructed to treat a building as derelict if the roof was partly missing, if floors or staircases were missing, or if the doors were missing and there was no sign that the building was being converted or renovated. Properties which had their doors and windows boarded or

bricked up were not necessarily considered as derelict as this may have only been a precaution against vandalism or squatters during a temporary vacancy. Neighbours were often able to provide information, but in the absence of any reliable source enumerators made their own assessment.

5.73 If enumerators had any reason to believe that persons were sleeping rough in a derelict building, they reported this to their Assistant Census Officer and alternative arrangements were made to enumerate the building. For output purposes, persons sleeping rough are included in the population in communal establishments, that is, not in households (see paragraph 4.28).

5.74 Enumerators were instructed, as in 1981, to treat cases where there were difficulties in distinguishing between vacant and derelict as *vacant (other)*.

5.75 In interpreting the statistics on occupancy type it is important to remember that the Census gives a snapshot of the housing stock at a point in time. Thus, vacant accommodation was classified as at 21 April 1991. Known future plans, for example, to demolish the building, should not have been taken into account. Furthermore, not all accommodation classified as *vacant (other)* was necessarily in the housing market at the time of the Census, since some could have been purchased but awaiting occupation by the new tenants (see paragraph 5.68).

#### ***Accommodation not used as a main residence***

5.76 *Second residences* were defined as company flats, holiday houses, weekend cottages, etc in permanent buildings which were *known* to be the second residences of people who had a more permanent address elsewhere and which were unoccupied on Census night. This classification was applied even if the premises were occasionally let to others.

5.77 Accommodation in permanent buildings which were let to different occupiers for holidays, for example, self-catering holiday flats, were defined as *holiday accommodation* if they were unoccupied on Census night.

5.78 *Student accommodation* was defined as private accommodation (for example, in a house or flat) which was unoccupied on Census night but *entirely* occupied during term-time by one or more students.

#### ***Categories identified in output***

5.79 The full 11-fold classification (paragraph 5.61) is used in the *Housing and Availability of Cars* volume (see, for example Table 4), but in other sources abbreviations of the full classification are often adopted; for example, in Table 61 of the LBS the absent household categories (2 and 3) are combined giving a 10-fold classification, whereas in the SAS version of this table a further reduction is achieved by combining 4, 5 and 6 into a single *vacant accommodation* category and identifying only two other categories where accommodation was not used as a main residence: *no persons present* (categories 7, 8 and 9) and *persons enumerated but no residents* (categories 10 and 11).

#### ***Comparison with 1981***

5.80 In 1981, student accommodation in private residences was classified as *second residences*, otherwise the categories in 1991 are the same as those adopted ten years earlier, but an additional *absent household* category is available in 1991 through the imputation procedure (see paragraphs 1.48-1.54). Categories 10 and 11 (*persons enumerated but no residents*) include non-permanent accommodation with persons present but no residents. In 1981 people enumerated in such accommodation were included as *campers* in the communal establishments population (see paragraph 3.7).

#### **Occupancy type: dwellings**

5.81 The occupancy type of a dwelling is chosen with reference to the occupancy type(s) of the constituent household space(s). For a dwelling comprising one household space, the occupancy type will be the same as that of the household space. For a multi-household space dwelling the occupancy type is chosen according to a priority order:

- 1 With residents - persons present
- 2 With residents - absent household (no persons present)
- 3 Vacant - under improvement
- 4 Vacant - other
- 5 Persons enumerated but no residents - owner occupied
- 6 Second residences
- 7 Persons enumerated but no residents - not owner occupied
- 8 Holiday accommodation
- 9 Student accommodation
- 10 Vacant - new, never occupied

5.82 The highest ranked occupancy type among the household spaces becomes the occupancy type for the dwelling. For example, a dwelling consisting of one 'second residence' household space and one household space 'with residents - persons present' will be classified as a dwelling *with residents - persons present*.

5.83 In output, the full 10-fold occupancy type classification of dwellings is given in Table 20 of the *Housing and Availability of Cars* volume, whereas elsewhere, abbreviated versions of the classification are adopted; for example, in Table 64 of the LBS and *County/Region Reports* a 5-fold classification is shown which combines categories 1, 2 and 3 (from paragraph 5.61) as one group, 4, 5 and 6 as another and 7, 8 and 9 as a third, with the categories 10 and 11 separately identified.

#### **Floor level of household's accommodation (Scotland only)**

5.84 In Scotland only, as in the 1981 Census, an additional question was asked on *floor level of accommodation*.

### HL Floor level of household's living accommodation

Which is the lowest floor on which any of your household's living accommodation is situated?

Tick box **B** or **G** or write number of floor

Basement  **B**

Ground floor  **G**

Floor number

The 1991 Census question differed from the question asked in 1981 which identified accommodation:

- all on ground floor or on ground and other floors;
- all in basement; and
- all on first or higher floors (stating floor of entry to accommodation).

**5.85** In the *Housing and Availability of Cars* volume for Scotland and Local Base Statistics tables the full classification of floor level is:

- 1 Basement
- 2 Ground
- 3 1st or 2nd
- 4 3rd or 4th
- 5 5th or 6th
- 6 7th-9th
- 7 10th and over

**5.86** There was no question in the 1991 Census, as there was in 1981, on shared access or means of access to the household's accommodation.

### Cars and vans

**5.87** The same question that was asked in 1981 was included on the 1991 Census form.

#### H5 Cars and vans

Please tick the appropriate box to indicate the number of cars and vans normally available for use by you or members of your household (other than visitors).

**Include** any car or van provided by employers if normally available for use by you or members of your household, but **exclude** vans used only for carrying goods.

None  0

One  1

Two  2

Three or more  3

**5.88** The same categories are recognised in the full output classification (such as in Table 16 in the *Housing and Availability of Cars* volume and Table 6 in the *Workplace and Transport to Work* volume). Elsewhere, abbreviated categories or summary statistics are given; for example, in Table 83 of the LBS and SAS the classification is reduced to three categories:

- No car
- 1 car
- 2 or more cars

while in LBS/SAS Table 46 and elsewhere, a single *households with no car* variable is given.

## 6 Population topics (100 per cent)

### Age and sex

6.1 This information comes from Questions 2 and 3 of the Census form.

<b>Sex</b>		
Male	<input type="checkbox"/>	1
Female	<input type="checkbox"/>	2
<b>Date of birth</b>		
Day	Month	Year
<input type="text"/>	<input type="text"/>	<input type="text"/>

6.2 Age is derived from the date of birth and is the number of completed years of age at Census date (21 April 1991), unless specified otherwise in a table. *Pensionable age* is the minimum age at which a person may receive a national insurance retirement pension; that is, 60 for women and 65 for men.

6.3 A national single year of age distribution for all residents is given for ages up to 99 then 100 and over in Table 1 of the *Sex, Age and Marital Status* volume, and local figures of residents in households for ages up to 89 and then 90 and over in Table 38 of the *County/Region Reports (part 1)* and Local Base Statistics (LBS). Elsewhere aggregations of age groups are used as either summary groupings or to focus on particular age bands of the population. For example, some of the aggregations used in the LBS are shown below.

### Some age aggregations used in the Local Base Statistics

Table 15	Table 11	Table 12	Table 8	Table 52
1-4	0-4	0-4		
5-9	5-9			
10-14	10-14	5-15		0-17
15	15			
16	16-17	16-17	16	
17			17	
			18	
18-19	18-19		19	
20-24	20-24	18-29	20	18-44
25-28			21-24	
29	25-29		25-29	
30-34	30-34	30-44	30-34	
35-39	35-39		35-39	
40-44	40-44		40-44	
45-49	45-49	45-54	45-49	45-pensionable age
50-54	50-54		50-54	
55-59	55-59	55-59	55-59	
60-64	60-64	60-64	60-64	
65-69	65-69		65-69	
70-74	70-74	65-74	70-74	
75-84	75-79		75+	pensionable age +
	80-84			
85+	85-89	85+		
	90+			

6.4 In LBS Table 67 different age groupings are identified in the Welsh language and Gaelic versions to reflect the specialist uses for this table.

### Marital status

6.5 Information on *marital status* comes from Question 4.

<b>4 Marital status</b>	Single (never married) <input type="checkbox"/> 1
On the 21st April what is the person's marital status?	Married (first marriage) <input type="checkbox"/> 2
If separated but not divorced, please tick 'Married (first marriage)' or 'Re-married' as appropriate.	Re-married <input type="checkbox"/> 3
Please tick one box.	Divorced (decree absolute) <input type="checkbox"/> 4
	Widowed <input type="checkbox"/> 5

The question in England and Wales is unchanged from that asked in 1981; in Scotland box 4 is labelled just 'Divorced'. In 1981 the question in Scotland did not distinguish between first and subsequent marriages.

6.6 *Single* persons are those who have never married (bachelors and spinsters). *Married (first marriage)* persons are those whose first marriage had not ended by divorce or death of a spouse. *Re-married* persons are those who have married again after their first or subsequent marriage(s) ended in divorce or death of a spouse and who were still married at the time of the Census. The *total married* population comprises those persons classified as married (first marriage) plus those classified as re-married. *Widowed* and *divorced* persons are those whose most recent marriage ended, respectively, through the death of a spouse or divorce.

Persons who were separated but not divorced from their spouse are classified as either *married (first marriage)* or *re-married*.

6.7 The same categories that appear in the question are also identified in the full output classification (for example, in Table 1 of the *Sex, Age and Marital Status* volume). In other tables, such as in the *County/Region Reports* and LBS/SAS, abbreviated categories are given; for example:

LBS Table 2	SAS Table 2	LBS Table 8
<i>Males</i>		
Single	Single, widowed and divorced	Total males
Married	Married	
Widowed		
Divorced		
<i>Females</i>		
Single	Single, widowed and divorced	Single, widowed and divorced
Married	Married	Married
Widowed		
Divorced		

## Migration

6.8 The identification of a migrant is based on answers to the questions on usual address (see paragraph 2.4) and address one year before the Census (Question 9).

**9 Usual address one year ago**

If the person's usual address one year ago (on the 21st April 1990) was the same as his or her current usual address (given in answer to question 7), please tick 'Same'. If not, tick 'Different' and write in the usual address one year ago.

If everyone on the form has moved from the same address, please write the address in full for the first person and indicate with an arrow that this applies to the other people on the form.

For a child born since the 21st April 1990, tick the 'Child under one' box.

Same as question 7  1

Different  2

Child under one  3

If different, please write the person's address and postcode on the 21st April 1990 below in BLOCK CAPITALS

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Postcode

The question is unchanged from the 1981 Census.

6.9 A *migrant within one year preceding the Census* (often referred to simply as a *migrant*) is a person with a different usual address one year ago to that at the time of the Census. The usual address at the Census provides the *area of destination* and the usual address one year ago the *area of origin* in tables of migration flows.

6.10 A *migrant household* is a household whose head is a migrant.

6.11 A *wholly moving household* is a household all of whose resident members aged one year and over were migrants with the same postcode of usual residence one year before the Census. Children aged under one are included as members of wholly moving households.

6.12 The *resident population* used in tables in the *Migration* volumes is defined according to the topped-up

present/absent base (see paragraph 2.10). A *migrant resident* in an area is a resident in the area who was resident at a different address one year before the Census.

6.13 Certain categories of change of usual address during the reference period are excluded from the statistics for various reasons:

- (a) children aged under one at Census date, though they are included in tabulations as members of wholly moving households (see paragraph 6.11 above);
- (b) persons who died before Census date (not enumerated);
- (c) migrants usually resident in communal establishments but absent on Census night (see the definition of the present/absent base at paragraph 2.10); and
- (d) persons who emigrated overseas (not enumerated); the Census does, however, provide information on persons with a previous address overseas.

6.14 In the case where a person had moved more than once during the year preceding the Census date, only the net result of those moves is recorded.

## Coding a migrant's address by area

6.15 The *usual address* at the Census is coded to the enumeration district (ED) in England and Wales and to the postcode unit in Scotland. Although the postcode of enumeration is captured in England and Wales, it will not be used for standard output.

6.16 The question on *usual address one year ago* is coded to postcode unit for addresses in Great Britain, or to an overseas country (see Annex A for a full list of countries coded - the same as those recognised in the country of birth code list). Non-responses to Question 9 are assigned either a non-migrant code or a migrant (origin not stated) code by the edit/imputation system.

6.17 When the response to Question 9 does not contain a postcode and the address is not complete enough for a full postcode to be assigned, then it is coded as *migrant (origin not stated)*. The 1991 Census will have no provision for partial postcodes on the lines adopted in Scotland in 1981.

6.18 When coded to postcode unit, areas of origin in England and Wales are translated into wards and to the higher area levels used in tables via the Central Postcode Directory that links postcodes to wards. In England and Wales, the use of postcodes to define areas of previous residence results in some asymmetry, that is, wards are exact aggregates of EDs (for data on usual address) but only approximate aggregations of postcodes (for data on previous address). Consequently, a person who moved *within* an area may be counted as having moved from *outside* the area (and *vice versa*) for a very small number of cases. In Scotland, both areas of origin and areas of destination are translated into postcode sectors.

## Type of move

**6.19** Statistics on migrants are available for a wide range of standard census variables, but migration data is also often analysed on a *type of move* (TYMO) basis. Definitions of these are:

- a *migrant within a defined area*, for example a migrant within a local authority district, is one whose former usual address (area of origin) and usual address at Census (area of destination) are within the same defined area;
- a *migrant to a defined area* is a migrant whose usual address at Census was inside the defined area but whose former usual address was outside that area;
- a *migrant from overseas to a defined area* is a migrant whose address at Census was inside the defined area but whose former usual address was outside Great Britain (this definition carries no implication with regard to birthplace or ethnic group of the migrant);
- a *migrant from a defined area* is a migrant whose former usual address was inside the defined area but whose usual address at Census was outside the area but within Great Britain;
- *migrants resident in a defined area* is the sum of migrants within the area and migrants into the area, including those migrants resident in the area with origin not stated; and
- *migrants from/to contiguous areas* are defined as the sum of all migrants from/to areas which have a shared boundary with the defined area (see paragraphs 8.17-8.18 for definition of contiguous areas).

**6.20** A migration table will comprise several of these TYMOs depending on the area level being analysed. A typical TYMO classification as used, for example, in Table 4 of the *National Migration (100 per cent)* report is as follows:

- 1 Migrants resident in [area]
- 2 Migrants moving within [area]
- 3 Migrants moving within standard regions of [area]/Scotland
- 4 Migrants moving within counties/Scottish Regions of [area]
- 5 Migrants moving within districts of [area]
- 6 Migrants moving into [area] from rest of GB
- 7 Migrants moving into [area] from Northern Ireland
- 8 Migrants moving into [area] from outside UK
- 9 Migrants moving into [area] from origin not stated
- 10 Migrants moving from [area] to rest of GB

In 1981 output, categories 8 and 9 were not separately identified.

**6.21** In the LBS (which describes only migration flows within and into each local area) there are variations to these

TYMOs, with some additional categories. Thus Table 15, for example, has the following column headings:

- Total residents with different address one year before the Census
- Moved within wards/postcode sectors
- Moved between wards/postcode sectors but within district
- Moved between districts but within county/Scottish Region
- Moved between counties/Scottish Regions but within standard region/Scotland
- Moved between regions or between Scotland and England and Wales
- Moved from outside GB

plus

- Moved between neighbouring districts
- Moved between neighbouring counties/Scottish Regions

## Distance of move

**6.22** An alternative measure in analysing migration flows is to consider the distance of move as, for example, in Table 10 of the *National Migration (100 per cent)* report. The range of distances analysed are:

0- 4 kilometres	
5- 9 kilometres	
10-19 kilometres	(1 km = 0.62 miles)
20-49 kilometres	
50-79 kilometres	
80 or more kilometres	

**6.23** Distance is the measurement of the straight line between the postcode of the addresses of origin and destination. For areas in England and Wales the calculation uses the National Grid reference of the first address in the postcode contained in the Central Postcode Directory; the reference is usually given to the nearest 100 metres. In Scotland the references are to the nearest 10 metres and are the centroids of the populated part of the postcode.

**6.24** In tables analysing distance of move, moves of migrants from areas of origin outside Great Britain or not stated are excluded.

## Migration reports

**6.25** Tables on migration are published in volumes at both the national and regional level, each in two parts. The *National Migration (100 per cent)* volume comprises tables cross-analysing migrants by a range of those variables processed at the 100 per cent level, such as economic position, ethnic group and amenities. The set of *Regional Migration (100 per cent)* volumes presents broadly corresponding tables for smaller areas. Part 2 of each report includes tables showing variables processed only at the 10 per cent level (see paragraph 7.100).

6.26 In *Special Migration Statistics*, summary tables are given for customer-specified areas down to the local authority district level for most counts, and to the ward level (in England and Wales) and postcode sector level (in Scotland) for less detailed counts.

## Country of birth

6.27 Question 10 asked:

10 **Country of birth**  
Please tick the appropriate box.

If the 'Elsewhere' box is ticked, please write in the present name of the country in which the birthplace is now situated.

England	<input type="checkbox"/>	1
Scotland	<input type="checkbox"/>	2
Wales	<input type="checkbox"/>	3
Northern Ireland	<input type="checkbox"/>	4
Irish Republic	<input type="checkbox"/>	5
Elsewhere	<input type="checkbox"/>	

If elsewhere, please write in the present name of the country

The question was unchanged from the 1981 Census.

6.28 Although only five pre-coded categories are given, that is, England, Scotland, Wales, Northern Ireland, and Irish Republic, all answers are coded to the countries as listed in Annex A.

6.29 *Great Britain* comprises England, Wales and Scotland; the *United Kingdom* comprises Great Britain and Northern Ireland; the *British Isles* comprises the United Kingdom, the Irish Republic, the Channel Islands and the Isle of Man. The *Irish Republic* is taken to include responses written in under the 'Elsewhere' box as simply 'Ireland', except in tables where *Ireland - part not stated* is shown as a separate category.

6.30 The full country of birth classification is given in Table 1 of the *Ethnic Group and Country of Birth* volume, but in other output tabulations abbreviated versions only of the full classification may be given; for example, a reduction to 90 categories is available from Table 7 of the *County/Region Reports* and LBS while a 24-category classification is provided in Table 2 of the *Ethnic Group and Country of Birth* report; SAS Table 7 presents a further reduction to 19 categories. In summary-type tables even further reductions, or selected groupings, may be adopted; for example in the language indicator table (Table 52) in the *County/Region Reports* and LBS, only two country of birth groupings - (i) New Commonwealth and (ii) Outside of UK, Ireland, Old Commonwealth and USA are presented (see paragraph 6.58).

## Country of birth of head of household

6.31 In the absence of a question on ethnic group in the 1981 Census, several household composition analyses were given by country of birth of head of household as a proxy measure. In order to maintain comparability with the previous census, similar cross-analyses are presented for 1991 (see paragraph 6.49 for definition of *head of household*).

6.32 In most tables the number of country of birth categories, when relating to head of household, are further

reduced; for example, in Table 3 of the *Ethnic Group and Country of Birth* volume, a 14-category classification is given.

## Ethnic group

6.33 Question 11 asked:

11 **Ethnic group**  
Please tick the appropriate box.

If the person is descended from more than one ethnic or racial group, please tick the group to which the person considers he/she belongs, or tick the 'Any other ethnic group' box and describe the person's ancestry in the space provided.

White	<input type="checkbox"/>	0
Black-Caribbean	<input type="checkbox"/>	1
Black-African	<input type="checkbox"/>	2
Black-Other	<input type="checkbox"/>	
please describe		
<input type="text"/>		
Indian	<input type="checkbox"/>	3
Pakistani	<input type="checkbox"/>	4
Bangladeshi	<input type="checkbox"/>	5
Chinese	<input type="checkbox"/>	6
Any other ethnic group	<input type="checkbox"/>	
please describe		
<input type="text"/>		

The question was new to the Census in Great Britain in 1991.

## Coding ethnic group

6.34 Answers to this question are assigned one of 35 codes, given in Annex B. This full classification incorporates each of the 7 pre-coded categories from the question, plus another 28 derived from any multi-ticking of boxes and the written descriptions given in the 'Black-Other' and 'Other ethnic group' boxes.

6.35 Written descriptions which are the same (or generally have the same meaning) as one of the pre-coded categories are assigned the relevant code in the range 0-6. Generally, where the 'Black-Other' box has been ticked, a code in the range 7-17 is allocated, and where the 'Any other ethnic group' box has been ticked a code is allocated in the range 18-34.

## Output classifications

6.36 For the purposes of most statistical output on ethnic group, the full classification (35 codes) will be condensed into 10 categories. This *output classification*, together with the constituent codes, is as follows:

### Ethnic group output classification

White	0 26-29 33
Black-Caribbean	1 8 20
Black-African	2 10 22
Black-Other	7 14 15 17
Indian	3
Pakistani	4
Bangladeshi	5
Chinese	6
Other groups - Asian	11-13 23-25
- Other	9 16 18 19 21 30-32 34

6.37 The full classification is given in one table only (Table A in the *Ethnic Group and Country of Birth* volume). To show the effect of grouping the 35 codes, this table also

shows the above 10-fold output classification (*after allocation*), together with the following summary classification (*before allocation* to the output categories):

**Ethnic group summary classification**

White	0
Black-Caribbean	1
Black-African	2
Black-Other	7-17
Indian	3
Pakistani	4
Bangladeshi	5
Chinese	6
Other groups	18-34

This provides an indication of the numbers of people who responded to the Census question with write-in answers.

6.38 In most other tables showing ethnic group, the 10-fold output classification is given, though in several SAS tables, which can relate to small areas such as EDs in England and Wales, and Output Areas in Scotland, a reduction to 4 groups is adopted:

White	0
Black	1 2 7-17
Indian, Pakistani and Bangladeshi	3-5
Chinese and other groups	6 18-34

6.39 An additional category, *born in Ireland*, derived from the country of birth question, is given in most tabulations by ethnic group for which there is no equivalent country of birth cross-tabulation. Counts in this category will also be included in the appropriate ethnic group categories.

**Limiting long-term illness**

6.40 Another question new to the Census related to *limiting long-term illness*.

12 Long-term illness

Does the person have any long-term illness, health problem or handicap which limits his/her daily activities or the work he/she can do?

Yes, has a health problem which limits activities  1

Has no such health problem  2

Include problems which are due to old age.

6.41 In tables, statistics are presented simply as numbers in population groups with long-term illness, often compared with the total population in those groups (for example, Tables 1-4 in the *Limiting Long-term Illness* volume), or as analyses of housing or households containing persons with a long-term illness (for example, LBS Table 49).

**Household composition**

6.42 The 1991 Census adopts two approaches to the analysis of the composition of households, both referring to either households with residents or residents in households as the base population; that is, the base is restricted to persons whose usual address at Question 7 (see paragraph 2.4) was entered as 'this address'.

6.43 The first approach uses only the answers to the questions on age, sex and marital status (see paragraphs 6.1 and 6.4) and the question on long-term illness (see paragraph 6.40) for each person in the household. All four variables are included in the full processing.

6.44 The second approach also uses the answers to the question on relationship in household, the answers for which were only processed for a sample of one in ten household forms. A description of the relationship question and of the output produced for this 10 per cent topic is given in Chapter 7 (paragraphs 7.3-7.21).

**Household composition type**

6.45 In general, the main classification of *household composition* used in the 100 per cent tables is self-explanatory. The full classification is:

- 1 No adults, all dependent children
- One adult (male)
  - 2 Aged 65 or over with no dependent children
  - 3 Aged under 65 with no dependent children
  - 4 With 1 dependent child
  - 5 With 2 or more dependent children
- One adult (female)
  - 6 Aged 60 or over with no dependent children
  - 7 Aged under 60 with no dependent children
  - 8 With 1 dependent child
  - 9 With 2 or more dependent children
- Two adults (1 male, 1 female)
  - 10 One or both of pensionable age with no dependent children
  - 11 Both under pensionable age with no dependent children
  - 12 With 1 dependent child
  - 13 With 2 dependent children
  - 14 With 3 or more dependent children
- Two adults (same sex)
  - 15 One or both of pensionable age with no dependent children
  - 16 Both under pensionable age with no dependent children
  - 17 With 1 or more dependent children
- Three or more adults (male(s) and female(s))
  - 18 With no dependent children
  - 19 With 1 or 2 dependent children
  - 20 With 3 or more dependent children
- Three or more adults (same sex)
  - 21 With no dependent children
  - 22 With 1 or more dependent children

6.46 This full classification is used, for example, in Tables 1-10 of the *Household Composition (100 per cent)* volume. In some other tabulations, however, the full classification is collapsed by varying degrees. Thus, for example, in Table 59

of the *County/Region Reports* and the LBS/SAS, the 22 categories are reduced to 11:

- 2,6 One adult of pensionable age with no dependent children
- 3,7 One adult under pensionable age with no dependent children
- 4,5,8,9 One adult, any age with 1 or more dependent children
- 10,11 Two adults (1 male and 1 female) with no dependent children
- 12-14 Two adults (1 male and 1 female) with one or more dependent children
- 15,16 Two adults (same sex) with no dependent children
- 17 Two adults (same sex) with 1 or more dependent children
- 18 Three or more adults (male(s) and female(s)) with no dependent children
- 19,20 Three or more adults (male(s) and female(s)) with 1 or more dependent children
- 21 Three or more adults (same sex) with no dependent children
- 22 Three or more adults (same sex) with 1 or more dependent children

**6.47** Category 1 is likely to contain only a very small number of households (comprising households of, for example, one or more 18-year old never married students in full-time education). In abbreviated versions of the classification these are included in the Total households but are not shown separately.

**6.48** Other tables may focus on particular types of households or will present household composition types in different ways. For example, Table 47 in the *County/Region Reports* and LBS/SAS looks at households with pensioners, separately identifying persons aged 75-84 and 85 and over living alone, while Table 1 of the *Household Composition (100 per cent)* volume presents a cross-analysis of the adult classification by the number of dependent children up to 4 or more.

### **Definition of terms used in the household composition classification**

**6.49** The following terms are used in relation to persons included in the 100 per cent processing of household composition:

- (a) The *head of household* is regarded as the person entered in the first column of the form, provided that person was: (i) aged 16 years or over; and (ii) usually resident at the address of enumeration.

If one of these conditions was not met, the first person aged 16 or over to be entered on the form and recorded as usually resident at the address of enumeration was coded as the head. In the last resort the oldest resident aged under 16 was taken as the head.

No head was identified in households consisting entirely of visitors. This is the same definition that was adopted in the 1981 Census.

- (b) *Dependent children* are defined as: persons aged 0-15 in a household; or persons aged 16-18, never married, in full-time education and economically inactive. The additional qualification 'and economically inactive' has been added to the 1981 Census definition (which also included persons aged 19-24 who were also never married and classified as a student from the question on economic activity).
- (c) An *adult* is any person who is not a dependent child.

### **Household dependant type**

**6.50** For output from the 1991 Census, an additional, *household dependant type*, classification of households has been introduced and is defined in terms of *dependants* and *non-dependants* in the household.

**6.51** In this classification of household types a *dependant* is either a dependent child or a person who both has a limiting long-term illness and whose economic position is either 'permanently sick' or 'retired'. A *non-dependant* is any person who is not a dependant.

**6.52** In output, the full classification comprises 21 categories:

1 Households with no dependants

Households with 1 dependant, aged:

- 2 0- 4
- 3 5-15
- 4 16-18
- 5 19 up to pensionable age
- 6 Pensionable age and over

Households with at least 2 dependants

Age of youngest dependant 0-4 and age of oldest:

- 7 0- 4
- 8 5-15
- 9 16-18
- 10 19 up to pensionable age
- 11 Pensionable age and over

Age of youngest dependant 5-15 and age of oldest:

- 12 5-15
- 13 16-18
- 14 19 up to pensionable age
- 15 Pensionable age and over

Age of youngest dependant 16-18 and age of oldest:

- 16 16-18
- 17 19 up to pensionable age
- 18 Pensionable age and over

Age of youngest dependant 19 up to pensionable age and age of oldest:

- 19 19 up to pensionable age
- 20 Pensionable age and over

21 Age of youngest dependant pensionable age and over

6.53 This full classification is used, for example, in Table 28 of the *County/Region Reports* and in the LBS. In other tables, abbreviated versions of the classification may appear. For example: in Table 14 of the *Household Composition (100 per cent)* volume a 15-fold version is adopted, combining categories 2/3, 7/8/12, 9/13, 10/14 and 11/15; and in the SAS version of Table 28 a further reduction to 10 groups is achieved by additionally combining categories 4/5, 9/10/13/14, 16/17/19 and 18/20.

### Welsh and Gaelic languages

6.54 In Wales and Scotland respectively the following questions were asked of persons aged 3 and over:

<p><b>W Welsh Language</b></p> <p>Does the person speak, read or write Welsh?</p> <p>Please tick the appropriate box(es)</p>	<p>Speaks Welsh <input type="checkbox"/> 1</p> <p>Reads Welsh <input type="checkbox"/> 2</p> <p>Writes Welsh <input type="checkbox"/> 4</p> <p>Does not speak, read or write Welsh <input type="checkbox"/> 0</p>
<p><b>G Scottish Gaelic</b></p> <p>Can the person speak, read or write Scottish Gaelic?</p> <p>Please tick the appropriate box(es)</p>	<p>Can speak Gaelic <input type="checkbox"/> 1</p> <p>Can read Gaelic <input type="checkbox"/> 2</p> <p>Can write Gaelic <input type="checkbox"/> 4</p> <p>Does not know Gaelic <input type="checkbox"/> 0</p>

6.55 The question in Scotland was unchanged from 1981; the Welsh version varied only slightly from the question in 1981, which had a yes/no filter for 'speaks Welsh'.

6.56 In output, such as Table 67 in the *County/Region Reports* and LBS/SAS, the following are identified:

persons who:

- speak Welsh/Gaelic
- read Welsh/Gaelic
- write Welsh/Gaelic
- speak and read Welsh/Gaelic
- speak, read and write Welsh/Gaelic
- either speak, read or write (that is, have some knowledge of) Welsh/Gaelic.

### Language indicator

6.57 In consultation, many users expressed a requirement for the Census to include a question on language other than English usually spoken in the home (or 'mother tongue'). Such a question was not included in the Census, but Table 52 in the *County/Region Reports* and LBS/SAS attempts to provide a general, and approximate, indication, at the local area level, of the possible extent of a language other than English being the first language spoken.

6.58 The table cross-analyses residents in the broad age groups 0-17, 18-44, 45 up to pensionable age, and pensionable age and over, by whether born in (i) the New Commonwealth or (ii) Outside the British Isles, Old Commonwealth and USA (including persons born in the New Commonwealth).

### Economic activity

6.59 The general topic of *economic activity* covers a wide range of census characteristics including both those obtained directly from questions on the Census form, such as *economic position, employment status and occupation*, and others which are derived by combining answers to these questions, for example, *social class* and *socio-economic group*, which are derived from occupation and employment status.

6.60 The question giving information on economic position and employment status (Question 13) was asked of all persons aged 16 or over at the time of the Census and is fully processed. Subsequent questions were addressed only to those persons who were either in paid employment in the week before Census day or who had had a paid job within the previous ten years. These questions are only processed for a ten per cent sample of households and persons in communal establishments (see paragraphs 7.23, 7.29, 7.42 and 7.70 in Chapter 7).

### Economic position and employment status

6.61 These 100 per cent processed items are taken directly from the answers to Question 13:

<p><b>13 Whether working, retired, looking after the home etc last week</b></p> <p>Which of these things was the person doing last week?</p> <p>Please read carefully right through the list and tick all the descriptions that apply.</p>	<p>Casual or temporary work should be counted at boxes 1, 2, 3 or 4. Also tick boxes 1, 2, 3 or 4 if the person had a job last week but was off sick, on holiday, temporarily laid off or on strike.</p> <p>Boxes 1, 2, 3 and 4 refer to work for pay or profit but not to unpaid work except in a family business.</p> <p>Working for an employer is part time (box 2) if the hours worked, excluding any overtime and mealbreaks, are usually 30 hours or less per week.</p>	<p>Was working for an employer full time (more than 30 hours a week) <input type="checkbox"/> 1</p> <p>Was working for an employer part time (one hour or more a week) <input type="checkbox"/> 2</p> <p>Was self-employed, employing other people <input type="checkbox"/> 3</p> <p>Was self-employed, not employing other people <input type="checkbox"/> 4</p> <p>Was on a government employment or training scheme <input type="checkbox"/> 5</p> <p>Was waiting to start a job he/she had already accepted <input type="checkbox"/> 6</p> <p>Was unemployed and looking for a job <input type="checkbox"/> 7</p> <p>Was at school or in other full time education <input type="checkbox"/> 8</p> <p>Was unable to work because of long term sickness or disability <input type="checkbox"/> 9</p> <p>Was retired from paid work <input type="checkbox"/> 10</p> <p>Was looking after the home or family <input type="checkbox"/> 11</p> <p>Other <input type="checkbox"/> please specify</p>
	<p>Include any person wanting a job but prevented from looking by holiday or temporary sickness.</p>	
	<p>Do not count training given or paid for by an employer.</p>	

Written answers at the 'other-please specify' box are re-coded where possible to one of the eleven numbered categories. For example, entries such as 'au pair' are coded as either 1 or 2 (depending on the number of hours worked); 'job creation scheme' is coded 5; 'handicapped' is coded 9.

**6.62** In cases of multiple ticking, up to three codes are entered on the computer file. The three lowest numbered boxes ticked are given priority except for boxes 5 and 8 which take precedence over all other boxes. Thus, for example, ticks in boxes 1, 5 and 11 are coded as 5 (*primary code*), 1 (*secondary code*) and 11 (*tertiary code*), while ticks in, say, boxes 1, 4, 8 and 11 are coded, respectively, as 8, 1 and 4.

**6.63** In statistical output such as tables in the *County/Region Reports*, the LBS/SAS and the *Economic Activity* volume, only the primary code is identified, except in the case of students, where the secondary code (if any) is used to distinguish economically active from economically inactive students (see paragraph 6.66 below).

**6.64** The full details of the coding instructions are not included in this volume but a copy may be obtained from Census Customers Services at the address given on page 147.

**6.65** The full 12-fold *economic position/employment status* classification, as used, for example, in Table 1 of the *Economic Activity* volume, is:

- Economically active
- Persons in employment
- Employees
- 1 Full-time
- 2 Part-time
- Self-employed
- 3 With employees
- 4 Without employees
- 5 On a government scheme
- Unemployed
- 6 Waiting to start a job
- 7 Seeking work
- 8 Students (included above)
- Economically inactive
- 9 Students
- 10 Permanently sick
- 11 Retired
- 12 Other inactive

In many tables, however, categories 6 and 7 are combined to form a single *unemployed* category (see, for example, Table 8 in the *County/Region Reports* and LBS/SAS).

**6.66** Category 9, *students - economically inactive*, comprises persons who are allocated a primary code of 8, and no other boxes 1-4 were ticked. However, persons who ticked any box 1-4 in addition to box 8 are separately identified as *students - economically active* as well as being included in the appropriate economically active category. (A tick in box 5 takes priority over all other boxes, and persons ticking this box are thus coded as being *on a Government scheme*.)

**6.67** Category 12, *other inactive*, comprises persons *looking after the home or family*, or for whom the last box was ticked and who are not re-allocated to another category, including persons of independent means.

### **Differences from the 1981 question on economic activity**

**6.68** Question 13 on the 1991 Census form attempts to

obtain the same information that was asked for in two separate questions in 1981. Question 10 on the 1981 form had just two *persons in employment* boxes, which distinguished only between persons with a full-time and a part-time job. The information on *employment status* (that is, whether a person was working for an employer or was self-employed with/without employees) was obtained from a separate question (Question 13).

**6.69** The introduction of economically active students in categories 1-4 is also a change from 1981, introduced to follow International Labour Organisation definitions adopted in the early 1980s.

**6.70** Additionally, the 1991 question allows for persons on government employment and training schemes - introduced widely only since 1981 - to be identified. The 1981 question on employment status included a box for 'apprentice or articled trainee'.

### **10 per cent employment status**

**6.71** A fuller breakdown of employment status, based on the 10 per cent sample processing, is described in Chapter 7 (paragraphs 7.65-7.67).

### **Lifestages**

**6.72** Also new to 1991 Census output is a summary household composition/economic activity classification designed to attempt to identify households at different stages in their development. For example, Table 53 in the *County/Region Reports* and LBS/SAS presents figures for persons and household heads:

#### Aged 16-24

- 1 With no children aged 0-15 in household
- 2 With children aged 0-15 in household

#### Aged 25-34

- 3 With no children aged 0-15 in household
- 4 With children aged 0-4 in household
- 5 With youngest child in household aged 5-10
- 6 With youngest child in household aged 11-15

#### Aged 35-54

- 7 With no children aged 0-15 in household
- 8 With children aged 0-4 in household
- 9 With youngest child in household aged 5-10
- 10 With youngest child in household aged 11-15

#### Aged 55 up to pensionable age

- 11 Working or retired
- 12 Unemployed
- 13 Pensionable age-74
- 14 Aged 75 and over

analysed by whether or not living in a '*couple*' household (defined for this purpose as a household containing two persons aged 16 and over of the opposite sex with no other persons aged 16 and over, with or without children aged 0-15).

## 7 10 per cent topics

### Introduction

7.1 As explained at paragraph 1.10, the responses to the 1991 Census questions that were harder to code, mainly those with write-in answers, were processed only for a 10 per cent sample of households and persons in communal establishments. The 10 per cent questions were:

relationship in household;  
hours worked;  
occupation;  
industry;  
workplace;  
journey to work; and  
higher qualifications.

7.2 Journey to work, though relatively easy to code, is included with the 10 per cent topics because the output is most often used in conjunction with workplace, which is a hard-to-code topic.

### Household and family composition

7.3 Paragraphs 6.42-6.44 explained that the 1991 Census adopts two approaches to the analysis of the composition of households. The first (described in paragraphs 6.45-6.53) uses only the answers to the questions on age, sex, marital status and long-term illness, which are processed for 100 per cent of household returns.

7.4 The second approach uses, additionally, the answer to the question on *relationship in household* (Question 5).

<p>5 Relationship in household</p> <p>Please tick the box which indicates the relationship of each person to the person in the first column.</p> <p>A step child or adopted child should be included as the son or daughter of the step or adoptive parent.</p> <p>Write in relationship of 'Other relative' — for example, father, daughter-in-law, niece, uncle, cousin.</p> <p>Write in position in household of an 'Unrelated' person for example, boarder, housekeeper, friend, flatmate, foster child.</p>	<p>Relationship to Person No.1</p> <p>Husband or wife <input type="checkbox"/> 1</p> <p>Living together as a couple <input type="checkbox"/> 2</p> <p>Son or daughter <input type="checkbox"/> 3</p> <p>Other relative <input type="checkbox"/></p> <p>Unrelated <input type="checkbox"/></p> <p>please specify</p>
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The aim of this approach is to classify households, taking account of the inter-relationships between household members. To do this each member's relationship to head of household is coded to a 17-category classification. This is, in turn, used to group individuals into families, and households are classified according to the numbers and type of families they contain.

7.5 The head of household, or a joint head, or other member of the household, is entered as person 1 on the Census household form, and relationship to that person is answered for all other persons on the form.

7.6 The question (which is not asked for person 1) is very similar to the one asked throughout Great Britain in 1981 but, additionally, attempts to identify *cohabiting* by means of a stated category on the form rather than by the coding of write-in answers.

7.7 Written answers at the un-numbered boxes for *other relative* and *unrelated* are coded so that all persons in households are allocated one of the following codes:

0 Head of household	9 Brother/sister
1 Spouse	10 Brother/sister-in-law
2 Cohabitant	11 Grandchild
3 Son/daughter	12 Nephew/niece
4 Child of cohabitant	13 Other related
5 Son/daughter-in-law	14 Boarder, lodger, etc
6 Cohabitant of son/daughter	15 Joint head
7 Parent	16 Other unrelated
8 Parent-in-law	

The accuracy of this allocation will depend on how specific the information given at Question 5 is.

7.8 Step and adopted relationships, when specified as such on the form, are not distinguished from blood relationships. Thus 'adopted son' or 'step-son' is coded 3, but 'foster son' is treated as *unrelated*.

7.9 The list of relationship codes differs from that followed in 1981 only in that *cohabitant* (code 2) replaces the former *de facto spouse* (derived from write-in answers) and that additional codes are introduced for *child of cohabitant* (code 4) and *cohabitant of son/daughter* (code 6) in an attempt to identify 'hidden' families within households. The *other unrelated* category (code 16) now includes domestic servants, who were separately coded - though not identified in tables - in 1981.

7.10 Category 10 (brother/sister-in-law) is intended to comprise the spouses of siblings and the siblings of spouses but *not*, for example, the wife of the brother of the wife of the head (who should be recorded as category 13 - 'other related').

### Family unit type

7.11 A computer algorithm is used to allocate individuals within households to one of the 60 detailed family unit types shown at Annex C. The algorithm also defines the number of family units within a household, the relationship of each unit to the head of the household, and the generation within the family unit to which the individual belongs.

7.12 In any family unit within a household where there are two generations, the younger generation must be single (never married) and have no obvious partner or offspring. When a person in a younger generation has, or can be shown to have had, a relationship to a person other than their parent(s), that person is not placed in the same family unit as his or her parent(s). Thus, in two-generation family units, married and divorced children are not put in the same family unit as their parent(s), but single, non-cohabiting children, even those who used to have a cohabiting partner, are put in the same family unit, since their former relationship cannot be deduced from information given on the Census form.

**7.13** For the purposes of statistical output the detailed family unit types identified by the algorithm are grouped into one of the following standard types:

- (a) *married couple family*: a married couple with or without their never married child(ren) - including a childless married couple;
- (b) *cohabiting couple family*: two persons of the opposite sex living together as a couple with or without their never married child(ren) - including a childless cohabiting couple;
- (c) *lone parent family*: a father or mother together with his or her never married child(ren); or
- (d) *no family person*: an individual member of a household not assigned with other members to a family; for example, a household containing a brother and sister only would be classified as *no family, 2 or more persons* (category 2 in paragraph 7.15 below).

**7.14** Grandparent(s) with grandchild(ren), if there are no apparent parents of the grandchild(ren) resident in the household, are classified as type (a), (b) or (c) as appropriate. Households consisting entirely of persons aged under 16 are not grouped into families.

### **Classification of household and family composition type**

**7.15** In 10 per cent output the standard classification of households with residents by household and family composition is:

	Households with no family
1	1 person
2	2 or more persons
	Households with 1 family
	Married couple family with no children
3	Without others
4	With others
	Married couple family with child(ren)
	Without others
5	With dependent children
6	With non-dependent children only
	With others
7	With dependent children
8	With non-dependent children only
	Cohabiting couple family with no children
9	Without others
10	With others
	Cohabiting couple family with child(ren)
	Without others
11	With dependent children
12	With non-dependent children only
	With others
13	With dependent children
14	With non-dependent children only

	Lone parent family
	Without others
15	With dependent children
16	With non-dependent children only
	With others
17	With dependent children
18	With non-dependent children only
	Households with 2 or more families
19	With no children
20	With dependent children
21	With non-dependent children only

**7.16** This classification is given, for example, in Tables 1 and 3 in the *Household and Family Composition (10 per cent)* volume.

**7.17** More detailed breakdowns of households with two or more residents not in families, and of households with two or more families are also given in tables in the *Household and Family Composition (10 per cent)* volume.

### **Definition of other terms used in the 10 per cent household and family composition classification**

**7.18** The following terms are used in relation to persons included in the 10 per cent processing of household and family composition:

- (a) *Head of household* takes the same definition as adopted in the 100 per cent processing (see paragraph 6.49(a)).
- (b) In this classification of household types there is no age limit to the term *child*. For example, a parent (or parents) living with a never married son aged 40, would be classified as a family consisting of a lone parent (or married or cohabiting couple) with children.
- (c) A *dependent child* is a person in the second generation of a family and with the same characteristics as defined in paragraph 6.49(b).
- (d) A *non-dependent child* is any person in the second generation of a family who is not a dependent child.
- (e) The *head of family* is generally taken to be the head of household if the family contains the head of household, otherwise:
  - in a couple family, the head of family is the first member of the couple on the form;
  - in a lone parent family, the head of family is the lone parent; or
  - in some tables a no family person (type (d) in paragraph 7.13) is treated as a head of family.
- (f) *Family size* is the number of residents in a family as defined above. No person can belong to more than one family.

## Differences between the 1981 and 1991 classifications

7.19 The main difference between Question 5 on the 1991 Census form and the relationship question asked in 1981 is, as stated in paragraph 7.6, the inclusion of the category *living together as a couple* (box 2).

7.20 In 1981, responses that either indicated cohabitation, such as 'common-law spouse', or which were incompatible with the answer to the marital status question, were coded as *de facto spouse*. But, although some information on *de facto* unions was available from the 1981 Census, such unions were not included with married couples in the classification of married family types. As a consequence, cohabiting couple families (categories 9-14 in the 1991 classification) were not separately identified in 1981. Such households would have appeared as households with no family, or as lone parent families with others, or as 2-family households - depending on the presence of any children of the cohabitants.

7.21 However, in 1981 output, separate categories for families with *all dependent children* and with *both dependent and non-dependent children* were included in the 10 per cent household classification. In 1991 these two groups are combined into a single *with dependent children* category for each standard family type.

### Hours worked per week

7.22 Although a question on *hours worked* was included in the 1971 Census, this item was dropped from the 1981 Census form and replaced with additional full-time/part-time job boxes in the 100 per cent question on economic activity.

7.23 In order to obtain more information on the changing working patterns in certain occupations and industries, particularly among women and on part-time working, a question on hours *usually* worked in a person's *main* job was re-introduced in the 1991 Census (Question 14) as well as retaining, for comparison purposes, the full-time/part-time categories in the economic activity question.

14 Hours worked per week	Number of hours worked per week <input style="width: 40px;" type="text"/>
How many hours per week does or did the person usually work in his or her main job?	
Do not count overtime or meal breaks.	

7.24 The maximum number of hours worked to be recorded is 99, and any responses in excess of 99 hours are coded as 99. Fractions of an hour are rounded to the nearest even number.

7.25 In output, the standard groupings of hours worked is as follows:

3 and under	31-35
4- 7	36-40
8-15	41-50
16-21	51-60
22-23	61 and over
24-30	not stated

7.26 The full categories are given, for example, in Table 75 of the *County/Region Reports* and LBS and in Table 7 of the *Economic Activity* volume, whereas in other tables, such as the SAS version of Table 75, abbreviated groupings only are provided:

15 and under	31-40
16-21	41 and over
22-23	not stated
24-30	

7.27 For comparison with 100 per cent figures on full-time and part-time workers, total counts of persons working *31 or more hours* and *30 hours or less* are often provided in 10 per cent tables (such as Table 72 in the *County/Region Reports*). In all tables showing hours worked in the *Economic Activity* volume (and elsewhere) a split in the distribution is always made at 31 hours to equate with the *full-time* and *part-time* employment status categories (see paragraph 6.65).

### Occupation

7.28 The *occupation* of a person defines the kind of work performed; this generally determines the assignment to an *occupation group*. The nature of the factory, business or service in which the person is employed has no bearing on the classification of the occupation, except to the extent that such information may clarify the nature of the duties. Thus, for example, a 'crane driver' may be employed in a shipyard, in an engineering works or on a construction site, but this makes no difference as to how the occupation is coded, and all crane drivers are classified to the same occupation group. Whereas, in the case, for example, of a 'jeweller', account is taken of the nature of the business, so that such a person engaged in manufacture or repair is coded to a different occupation from one employed in wholesaling or retailing.

7.29 Occupation codes are allocated from the write-in answers to Question 15, which was asked of all persons who had had a paid job either in the week before the Census or within the previous ten years.

15 Occupation	a Full job title
Please give the full title of the person's present or last job and describe the main things he/she does or did in the job.	
At a, give the full title by which the job is known, for example: 'packing machinist'; 'poultry processor'; 'jig and tool fitter'; 'supervisor of typists'; 'accounts clerk'; rather than general titles like 'machinist'; 'process worker'; 'supervisor' or 'clerk'. Give rank or grade if the person has one.	
At b, write down the main things the person actually does or did in the job. If possible ask him/her to say what these things are and write them down.	
Armed Forces — enter 'commissioned officer' or 'other rank' as appropriate at a, and leave b blank.	
Civil Servants — give grade at a and discipline or specialism, for example: 'electrical engineer'; 'accountant'; 'chemist'; 'administrator' at b.	
	b Main things done in job
	<input style="width: 100%; height: 15px;" type="text"/>
	<input style="width: 100%; height: 15px;" type="text"/>
	<input style="width: 100%; height: 15px;" type="text"/>
	<input style="width: 100%; height: 15px;" type="text"/>
	<input style="width: 100%; height: 15px;" type="text"/>
	<input style="width: 100%; height: 15px;" type="text"/>

7.30 During the late 1980s, OPCS collaborated with the Employment Department Group and the Institute for Employment Research at Warwick University to produce a new *Standard Occupational Classification* (SOC)<sup>10</sup> for use as a single standard classification in the Census and other official statistics, replacing both the OPCS 1980 *Classification of Occupations* (CO80)<sup>11</sup>, which was used in

the 1981 Census, and the *Classification of Occupations and Directory of Occupational Titles* (CODOT)<sup>12</sup>, which was used widely in the employment service field.

### Aims for the new classification

7.31 The main concept of the new SOC was to classify *jobs* (considered as a set of employment tasks) as opposed to classifying *persons*. Thus the classification is based entirely on information about the type of work done, as indicated by the job title and description, and, unlike CO80, takes no account of ancillary information on employment status (such as whether the person is self-employed) which is not always available from non-census sources.

7.32 A further aim of SOC was to maintain a reasonable degree of comparability with the existing classifications in use, particularly CO80, though the new classification does reflect important differences within the current range of occupations and employment; in particular it draws distinctions between types and levels of work in certain fast-growing industries, such as those involved in Information Technology, and also between types of work which account

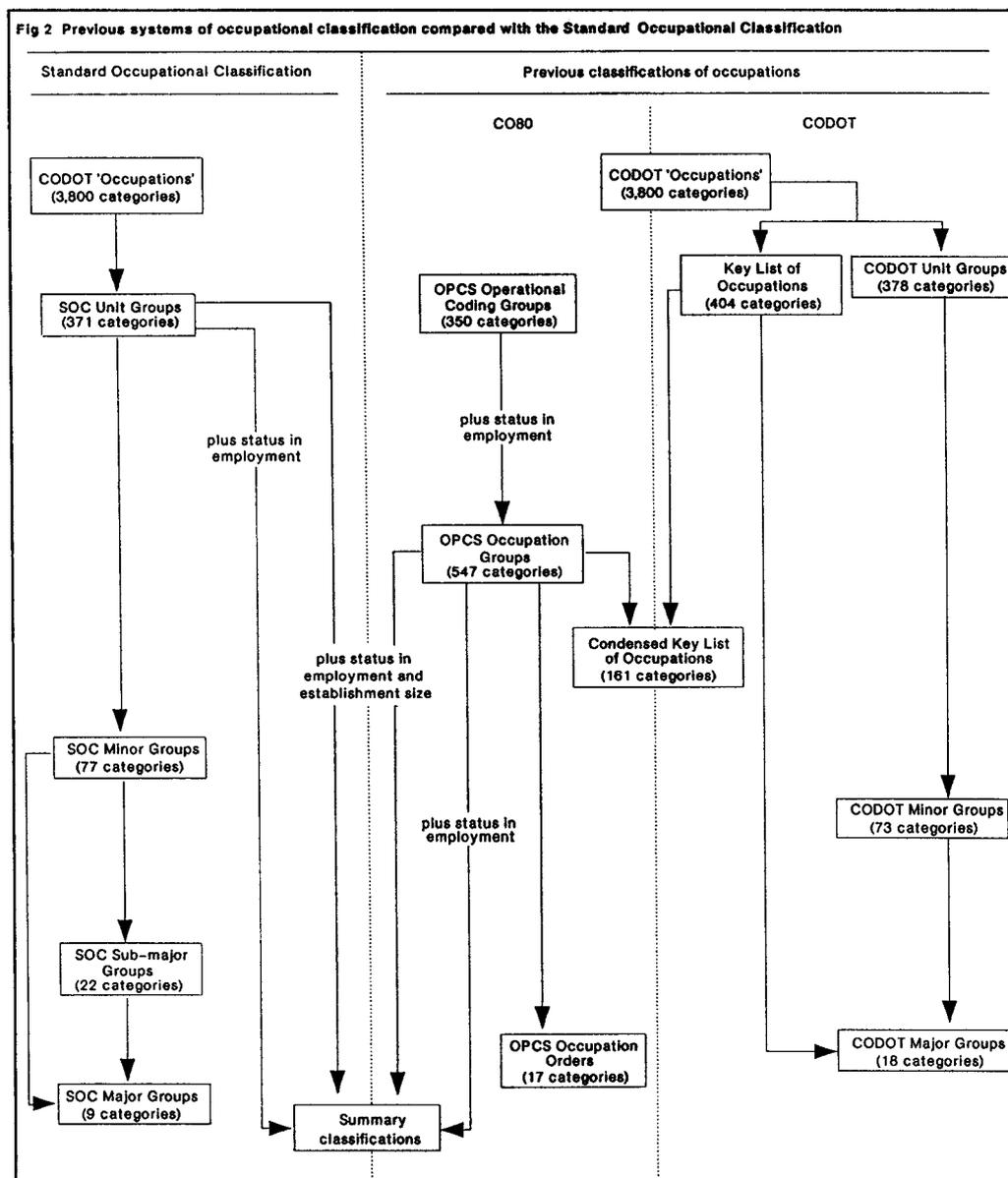
for high proportions of female employment, such as nursing and teaching. Conversely, an effort was made to remove those distinctions in previous classifications which had become obsolete and to reduce the high proportion of jobs in CO80 which were allocated to residual 'not elsewhere classified' (nec) categories.

7.33 The format of the classification, like CODOT, is hierarchical, offering different levels of aggregation suitable for various analytical purposes. Thus, SOC comprises:

- 9 Major Groups, sub-divided into
- 22 Sub-major Groups, sub-divided into
- 77 Minor Groups, sub-divided into
- 371 Unit Groups created from the
- 3,800 CODOT occupational titles.

### Continuity with the 1980 Classification of Occupations

7.34 Figure 2 illustrates how the hierarchical structure of SOC is built up from the 3,800 CODOT job titles and how the new classification corresponds to CO80.



7.35 Most of the work in developing SOC went into the definition of the Unit Groups, with which coders and other practical users are mainly concerned. The aim was to adapt the structure of the 350 Occupational Coding Groups (OCGs) used in the CO80 to meet the SOC criteria.

7.36 Over half (56.3 per cent) of the OCGs match with the SOC Unit Groups on a one-to-one basis, and a further 4.9 per cent can be exactly reconstructed by aggregating two or more SOC Unit Groups. Of the others which cannot be exactly matched, a significant number differ only slightly from the SOC Unit Groups thus providing a reasonably good overall fit. Much of the remaining discontinuity affects the residual 'nec' groups in CO80.

### 1991 Census output

7.37 In most output, 1991 Census statistics on occupation are presented either for *Major*, *Sub-major* and *Minor Groups*, or *Unit Groups* of the SOC. There are 9/22 *Major/Sub-major Groups*:

- 1 Managers and Administrators
  - 1a Corporate managers and administrators
  - 1b Managers/proprietors in agriculture and service
- 2 Professional Occupations
  - 2a Science and engineering professionals
  - 2b Health professionals
  - 2c Teaching professionals
  - 2d Other professional occupations
- 3 Associate Professional and Technical Occupations
  - 3a Service and engineering associate professionals
  - 3b Health associate professionals
  - 3c Other associate professional occupations
- 4 Clerical and Secretarial Occupations
  - 4a Clerical occupations
  - 4b Secretarial occupations
- 5 Craft and Related Occupations
  - 5a Skilled construction trades
  - 5b Skilled engineering trades
  - 5c Other skilled trades
- 6 Personal and Protective Service Occupations
  - 6a Protective service occupations
  - 6b Personal service occupations
- 7 Sales Occupations
  - 7a Buyers, brokers and sales representatives
  - 7b Other sales occupations
- 8 Plant and Machine Operatives
  - 8a Industrial plant and machine operators, assemblers
  - 8b Drivers and mobile machine operators
- 9 Other Occupations
  - 9a Other occupations in agriculture, forestry and fishing
  - 9b Other elementary occupations

7.38 Some tables, such as Table 4 in the *Economic Activity* volume, present, additionally, the 77 Minor Groups and 371 Unit Groups. A summary of the Major, Sub-major and Minor Groups is given in Annex D.

7.39 As an indication of the degree of comparability of output between the 1980 classification and SOC, the information presented in Table 4 of the *Economic Activity* volume for SOC Unit Codes is also given in terms of occupation groups, orders and units from the CO80 (Table A in the same volume). Also Table 98 from the *County/Region Reports* and LBS presents a summary table of 1980 occupation orders for comparison at the local area level.

7.40 A full description of the SOC is published by HMSO in three volumes<sup>10</sup>, and users who wish to become more familiar with the details of the classification should consult these volumes (see *References* on page 56 for publication details).

### Industry

7.41 The *industry* in which a person is engaged is determined by the business or activity in which his or her occupation is followed. A single business may employ people of various occupations to provide a particular service or to make a particular product. While the occupational classification takes account of the nature of the work performed, the *industrial classification* has regard only to the nature of the service or product to which the labour contributes. For example, a carpenter is classified industrially to *building* if employed by a building firm, but to *brewing* if employed by a brewery.

7.42 The allocation of an industry code is based on the write-in answers to Question 16, which was asked of all persons who had a paid job either in the week before the Census or within the previous ten years.

<p><b>16</b> Name and business of employer (if self-employed give the name and nature of the person's business)</p> <p>At a, please give the name of the employer. Give the trading name if one is used. Do not use abbreviations.</p> <p>At b, describe clearly what the employer (or the person if self-employed) makes or does (or did).  <b>Armed Forces</b> — write 'Armed Forces' at a and leave b blank.          For a member of the Armed Forces of a country other than the UK — add the name of the country.  <b>Civil Servants</b> — give name of Department at a and write 'Government Department' at b.  <b>Local Government Officers</b> — give name of employing authority at a and department in which employed at b.</p>	<table border="1" style="width: 100%;"> <tr> <td style="padding: 2px;">a Name of employer</td> </tr> <tr> <td style="height: 20px;"></td> </tr> <tr> <td style="height: 20px;"></td> </tr> <tr> <td style="height: 20px;"></td> </tr> <tr> <td style="padding: 2px;">b Description of employer's business</td> </tr> <tr> <td style="height: 20px;"></td> </tr> </table>	a Name of employer				b Description of employer's business				
a Name of employer										
b Description of employer's business										

7.43 Industry codes are assigned, as far as possible, by reference to lists from the Department of Employment which give names and addresses of employers by industry code. Where the employer's name is not listed, a code is allocated based on information given in the description of the employer's (or self-employed person's) business.

7.44 A description of the codes which form the basis of the Standard Industrial Classification (SIC) was published as *Standard Industrial Classification Revised 1980* by HMSO<sup>13</sup> (see *References* for publication details). Users who wish to become familiar with SIC should consult this volume.

7.45 There has been no subsequent revision to the classification which comprises the full range of industries

grouped into 10 *Divisions* each denoted by a single digit. The Divisions (with the abbreviated descriptions used in output) are as follows:

- 0 Agriculture, Forestry and Fishing
- 1 Energy and Water Supply Industries (Energy and water)
- 2 Extraction of Minerals and Ores, other than Fuels; Manufacture of Metals, Mineral Products and Chemicals (Mining)
- 3 Metal Goods, Engineering and Vehicle Industries (Manufacturing, metal, etc)
- 4 Other Manufacturing Industries (Other manufacturing)
- 5 Construction
- 6 Distribution, Hotels and Catering (Distribution and catering)
- 7 Transport and Communication (Transport)
- 8 Banking, Finance, Insurance, Business Services and Leasing (Banking and finance etc)
- 9 Other Services

7.46 The Divisions are divided into 60 *Classes*, each denoted by the addition of a second digit, and divided further into 222 *Groups* and 334 *Activities* by the addition of third and fourth digits. For example:

#### Division 4 Other manufacturing industries

##### Class Group Activity

48	481	Processing of rubber and plastics
		Rubber products
	4811	Rubber tyres and inner tubes
	4812	Other rubber products

7.47 Census industry coding is based on the *Activity* heading level with some exceptions where it is not possible to distinguish separate activities/sub-divisions of activities. However, elsewhere further distinctions are made, for example, in activities covering educational establishments in order to identify separately those that are 'maintained' from those 'non-maintained' and the type of establishment (see Industry Activities 9310 and 9320 at Annex E, page 78).

7.48 The classification of some activities presents conceptual problems, for example, head offices which are sited in different locations from the place where the main activities are carried out, or repair work carried out by the manufacturers or distributors of the goods concerned. Methods of dealing with such problems are set out in the introduction to the *Standard Industrial Classification Revised 1980*.

7.49 In most output, such as Tables 10-12 in the *Economic Activity* volume, statistics are presented for Industry Divisions and Classes, although one table in this volume (Table 9) does go down to the Activity level. Elsewhere, such as in the *County/Region Reports* and other topic volumes, statistics at the Division level only are generally presented.

7.50 A summary of the Industry Classes, Groups and Activities is given at Annex E.

## Social class based on occupation

7.51 Since the 1911 Census it has been customary, for certain analytical purposes, to arrange the large number of groups in the classification of occupations into a smaller number of summary categories called *Social Classes*. In the 1991 Census, persons with a paid job are assigned to one of the following social classes by reference to their occupation in the week preceding the Census or, where there was no paid job, on the basis of the most recent paid job held within the previous ten years.

- I Professional, etc occupations
- II Managerial and technical occupations
- III(N) Skilled occupations: non-manual
- III(M) Skilled occupations: manual
- IV Partly skilled occupations
- V Unskilled occupations

7.52 Members of the armed forces and those with inadequately described occupations are not allocated a social class and are, generally, separately identified in tables showing social class distributions, for example, Tables 90 and 91 in the *County/Region Reports* and LBS, and in Table 17 of the *Economic Activity* volume. Persons on a government employment or training scheme are similarly not allocated a social class, and are generally omitted from 10 per cent analyses (see paragraph 7.68).

7.53 Late in 1989 OPCS conducted a consultation exercise to ascertain whether there was any user requirement to revise the terminology of the then existing classification in order to answer a long-standing criticism that the name implied that the classification embraced many social characteristics, whereas it is, in fact, based solely on occupation.

7.54 Some of the interested parties consulted supported the proposal to change the name of the classification from *Social Class* to *Occupational Skill Group*, though many preferred a simpler name, such as *Occupational category*. But there was, however, serious opposition to any change; in particular, it was pointed out that, although the classification is indeed based on occupation, it is *related* to other factors, and is applied to all members of a household or family, including those without occupations.

7.55 In the light of the views expressed, OPCS decided to retain the name 'social class' but to expand it to *Social Class based on occupation* in order to make its basis more explicit.

7.56 The proposal to change the name of Social Class II from *Intermediate Occupations* to *Managerial and Technical Occupations* was welcomed and this has been implemented.

7.57 Notwithstanding these minor changes to the nomenclature of the classification, the occupation groups included in each of the social class categories are, as in 1981, selected in such a way as to bring together, as far as possible, people with similar levels of occupational skill. In general, for the 1991 Census, each SOC Unit Group is assigned as a whole to one or other social class and no account is taken of differences between individuals in the same group, such as differences of education or levels of remuneration. However,

for persons having the *employment status* of 'foreman' or 'manager' the following additional rules apply:

- (a) each occupation is given a basic social class;
- (b) persons of 'foreman' status whose basic social class is IV or V are allocated to Social Class III; and
- (c) persons of 'manager' status are allocated to Social Class II with certain exceptions.

### *Continuity between 1981 and 1991 Censuses*

**7.58** Volume 3 of the *Standard Occupational Classification*<sup>10</sup> presents an analysis of allocated social class based on CO80 tabulated against social class as re-allocated on the basis of SOC, for a sample of 1981 Census occupations.

**7.59** The most salient net effects on the distribution of the sample are:

- a decrease from 18.0 per cent to 16.8 per cent in the proportion of cases assigned to Social Class IV; and
- an increase from 6.2 per cent to 7.6 per cent in the proportion of cases assigned to Social Class V.

**7.60** In none of the other social classes was there a difference in the proportion of cases allocated which was greater than + 0.3 per cent.

### **Socio-economic group**

**7.61** Classification by *socio-economic group* (SEG) was introduced in the 1951 Census and extensively amended in 1961. This non-hierarchical classification aims to bring together people with jobs of similar social and economic status. The allocation of occupied persons to an SEG is determined by considering their *employment status* and *occupation*. The 20-fold classification, with brief descriptions, is as follows:

- 1 Employers and managers in central and local government, industry, commerce, etc - large establishments
  - 1.1 Employers
  - 1.2 Managers
- 2 Employers and managers in industry, commerce, etc - small establishments
  - 2.1 Employers
  - 2.2 Managers
- 3 Professional workers: self-employed
- 4 Professional workers: employees
- 5 Intermediate non-manual workers
  - 5.1 Ancillary workers and artists
  - 5.2 Foremen and supervisors
- 6 Junior non-manual workers
- 7 Personal service workers
- 8 Foremen and supervisors: manual
- 9 Skilled manual workers
- 10 Semi-skilled manual workers
- 11 Unskilled manual workers
- 12 Own account workers (other than professional)

- 13 Farmers: employers and managers
- 14 Farmers: own account
- 15 Agricultural workers
- 16 Members of armed forces
- 17 Inadequately described and not stated occupations

**7.62** It is not practicable to obtain from a census the degree of responsibility exercised by employers and managers. An indirect, and necessarily rather crude, distinction between greater and lesser responsibility is therefore provided by classifying employers and managers by the size of the establishment in which they work: SEGs 1.1 and 1.2 comprise, respectively, employers and managers in enterprises employing 25 or more persons, while SEGs 2.1 and 2.2 comprise those in enterprises employing fewer than 25 persons. Civil servants, local authority officials and ships' officers are conventionally regarded as working in large establishments.

**7.63** A more detailed description of SEGs is given in Annex F, and a full account of the construction of SEGs, in terms of the SOC Unit Groups, is given in Volume 3 of the *Standard Occupational Classification*<sup>10</sup>.

**7.64** In output, the full SEG classification is generally given (see, for example, Table 92 of the *County/Region Reports* and LBS and in Table 17 in the *Economic Activity* volume). However, in some tables, abbreviated versions of the full classification are adopted: for example, in Table 86 of the LBS groups 1.1 and 1.2 are combined, and 2.1 and 2.2 combined, to form single categories; and in Table 82 further reductions are achieved by combining the following groups:

- |          |   |
|----------|---|
| 1,2      | Employers and managers  |
| 3,4      | Professional workers  |
| 5        | Intermediate non-manual workers                                 |
| 6        | Junior non-manual workers                                       |
| 8,9,12   | Manual workers (foremen, supervisors, skilled and own account)  |
| 7,10     | Personal service and semi-skilled manual workers                |
| 11       | Unskilled manual workers  |
| 13,14,15 | Farmers and agricultural workers                                |
| 16,17    | Members of armed forces and inadequately described occupations. |

### **Employment status**

**7.65** For most output, *employment status* is taken from the responses from Question 13, which is processed for 100 per cent of returns (see paragraphs 6.61 and 6.65). In some tables, however, employment status is presented broken down by census characteristics which are processed only for the 10 per cent sample.

**7.66** Thus in Table 3 of the *Economic Activity* volume, *employees* are sub-divided into those who are:

- working 31 or more hours per week
- working 16-30 hours per week
- working 15 hours or fewer per week

and also into:

- Managers
  - Large establishments
  - Small establishments
- Foremen
  - Non-manual
  - Manual
- Professional employees
- Other employees

while the *self-employed* are similarly sub-divided by hours worked and also into:

- With employees
  - Large establishments
  - Small establishments
- Without employees.

7.67 Abbreviated versions of these 10 per cent analyses of employment status also appear in the *County/Region Reports* and LBS/SAS (see Tables 79 and 81 for example).

### Persons on a Government scheme

7.68 Persons on a Government employment or training scheme are classified as *economically active - in employment* (see paragraph 6.65). Information about the particular scheme was not collected in the Census, however, so tables which analyse occupation, industry, hours worked, social class based on occupation and SEG do not include persons working on such a scheme.

### Persons not in employment

7.69 Persons who were not in employment in the week before Census day were asked details of their most recent paid job, if one had been held within the previous ten years. If no paid job had been held in this period, such persons are not included in tables analysing occupation, industry, hours worked, social class and SEG.

### Workplace and transport to work

7.70 The questions on *workplace* and *transport to work* (Questions 17 and 18) are similar to those asked in the 1981 Census. However, Question 17 had an additional instruction to members of the armed forces not to enter their address of place of work, and, in Scotland, a note on offshore installations was added. Furthermore, in Question 18 the 1981 means of transport to work category 'car or van - pool, sharing driving' was dropped.

### Population base

7.71 The 1991 Census tables on *Workplace and Transport to Work* will be published in volumes for Great Britain and, separately, for Scotland. The population base used for these tables differs slightly from the *resident population*, in that *economically active* persons with a workplace in Great Britain but who are resident outside Great Britain are also included. The resident population base used elsewhere only includes persons resident in Great Britain at the time of the Census (see paragraph 2.10).

<p><b>17 Address of place of work</b></p> <p>Please give the full address of the person's place of work.</p> <p>For a person employed on a site for a long period, give the address of the site.</p> <p>For a person not working regularly at one place who reports daily to a depot or other fixed address, give that address.</p> <p>For a person not reporting daily to a fixed address, tick box 1.</p> <p>For a person working mainly at home, tick box 2.</p> <p><b>Armed Forces — leave blank.</b></p>	<p>Please write full address and postcode of workplace below in <b>BLOCK CAPITALS</b></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Post-code: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>No fixed place <input type="checkbox"/> 1</p> <p>Mainly at home <input type="checkbox"/> 2</p>
<p><b>18 Daily journey to work</b></p> <p>Please tick the appropriate box to show how the longest part, by distance, of the person's daily journey to work is normally made.</p> <p>For a person using different means of transport on different days, show the means most often used.</p> <p>Car or van includes three-wheeled cars and motor caravans.</p>	<p>British Rail train <input type="checkbox"/> 1</p> <p>Underground, tube, metro <input type="checkbox"/> 2</p> <p>Bus, minibus or coach (public or private) <input type="checkbox"/> 3</p> <p>Motor cycle, scooter, moped <input type="checkbox"/> 4</p> <p>Driving a car or van <input type="checkbox"/> 5</p> <p>Passenger in car or van <input type="checkbox"/> 6</p> <p>Pedal cycle <input type="checkbox"/> 7</p> <p>On foot <input type="checkbox"/> 8</p> <p>Other <input type="checkbox"/> 9</p> <p><i>please specify</i></p> <p>_____</p> <p>Works mainly at home <input type="checkbox"/> 0</p>

### Usual address

7.72 For some people their *usual address* (see paragraph 2.4) may differ from the address from which they go to work; a note to the usual address question states that 'the home address should be taken as the usual address for any person who lives away from home for part of the week'. Consequently, any cross-tabulation of usual address and address of workplace can produce some unlikely combinations, particularly when the means of transport to work is added as an additional cross-variable.

### Address of workplace

7.73 Apart from those cases where the workplace is given as an address outside Great Britain, 'no fixed place', 'mainly at home' or is not stated, the address is postcoded for computer processing. Workplaces are therefore recorded in terms of postcode units and are allocated to local authority wards, districts or counties (postcode sectors and Regions in Scotland) using the OPCS Central Postcode Directory (CPD). Only full postcode units for workplace will be processed and these will be obtained, as far as possible, even for incomplete workplace addresses, by searching lists of workplace establishments obtained from the 1989 Census of Employment and other sources, such as a list of schools from the Department of Education and Science.

7.74 Cases where a full postcode is not obtained are treated as 'not stated'. Members of the armed forces will not be coded to area of workplace but where possible are separately identified in output as 'armed forces' to distinguish them within the *not stated* category (in 1981 they were assigned to their area of workplace where possible).

7.75 Persons working on offshore installations (oil and gas) within the UK sector on Census night were not enumerated in the 1991 Census, but persons who work on them may have been counted at an address in Great Britain, either as present on Census night or as an absent resident

member of a household. Where such persons have been enumerated, their area of workplace is coded *offshore installations* and treated as *outside Great Britain*. In 1981, these cases were generally treated as if their area of workplace was the same as their area of residence.

7.76 Persons with 'no fixed workplace' or 'workplace not stated' are, wherever possible, coded as such, though in output they are sometimes included as working in their area of usual residence.

### Workplace type

7.77 There are three main categories of workplace type used in output. These relate to the person's residence and workplace in terms of the area of analysis. The categories are:

- (i) resident and working in the area;
- (ii) working in area, resident outside; and
- (iii) resident in area, working outside.

Categories (i) + (ii) give the total population *working* in the area, while (i) + (iii) give the total employed population *resident* in the area.

7.78 In main output, such as Table 1 of the *Workplace and Transport to Work* volume, a more detailed, 12-fold breakdown of the above categories is presented. The full *workplace* categories are:

	Resident in area
1	In employment
2	Unemployed
3	Working in area
	Resident and working in area
4	Total
5	Workplace at home
6	No fixed workplace
	Workplace not stated
7	Armed forces
8	Other
	Working in area, resident outside
9	Total
10	Resident outside GB
	Resident in area, working outside
11	Total
12	Workplace outside GB

Categories 4, 9 and 12 equate, respectively with the main categories (i), (ii) and (iii) in paragraph 7.77 above.

7.79 In the 1991 Census, categories 5-8 are counted as working in their area of residence, whereas in 1981 Census tables these categories were not identified separately (although members of the armed forces were counted in their area of workplace when this was stated). Persons *resident outside GB* (category 10) were, in 1981, counted as resident in the area of enumeration, but for 1991 this practice has been changed and this group is identified as *resident outside area* and shown separately as such wherever possible.

7.80 In *Special Workplace Statistics* three sets of tables (Set A - area of residence, Set B - area of workplace, and Set C - matrix of journeys from residence to workplace) are given for customer-specified areas built up from EDs in England and Wales and Output Areas in Scotland.

### Transport to work

7.81 The journey to work question (see paragraph 7.70) asked about the longest part, by distance, of the person's normal daily journey to work. The categories 1-9 listed in the question are the same as those in 1981 except that the former category 'car pool/sharing driving' is no longer separated from 'driving a car or van' (category 5) or 'passenger in car or van' (category 6).

7.82 Where more than one box was ticked the lowest number was coded; for example, if box 1 and box 6 were ticked, then the code for 'British Rail, train' was allocated.

7.83 During the coding of workplace and journey to work a check is made to ensure that no inconsistencies occur. Thus if *workplace* has been given as 'mainly at home' then the corresponding code for 'works mainly at home' is assigned if box 0 in the journey to work question has not been ticked, regardless of any of the other boxes 1-9 being ticked.

7.84 The categories 1-8, plus an 'other' or 'not stated' category, are used in output, for example, in Table 8 of the *Workplace and Transport to Work* volume and in Table 82 of the *County/Region Reports* and LBS/SAS. The 'other' or 'not stated' category comprises those persons who failed to answer the question, or who selected box 9 but cannot be assigned another code, or who selected box 0 but gave an address of workplace other than 'mainly at home'.

### Distance to work

7.85 Table 7 in the *Workplace and Transport to Work* volume analyses means of transport to work by *distance to work*. This distance is a measure, in kilometres, of a straight line between the postcode of residence and postcode of workplace. For England and Wales, the calculation is performed using the National Grid reference of the first address in the postcode, contained in the CPD; the reference is usually given to the nearest 100 metres. In Scotland, the references are to the nearest 10 metres and are referenced from the centroid of the populated part of the postcode.

7.86 The accuracy of the distance calculated will be affected by the accuracy of the postcodes of residence and workplace and of the grid references on the CPD. Additionally, anomalies in addresses of residences (for example, persons having a temporary residence near their place of work but with a usual residence elsewhere) may result in an incorrect distance to work.

7.87 The *distance to work* categories, in output, are:

- Workplace stated
- 1 Less than 2 km
  - 2 2- 4 km
  - 3 5- 9 km
  - 4 10-19 km
  - 5 20-29 km
  - 6 30-39 km
  - 7 40 km and over
- 8 Workplace at home
  - 9 No fixed workplace
  - 10 Workplace not stated
  - 11 Workplace outside GB

## Qualified manpower

7.88 Question 19 on the Census form requested, for all persons aged 18 and over, details of degrees and professional and vocational qualifications obtained.

<p>19 Degrees, professional and vocational qualifications</p> <p>Has the person obtained any qualifications after reaching the age of 18 such as:</p> <ul style="list-style-type: none"> <li>-degrees, diplomas, HNC, HND,</li> <li>-nursing qualifications,</li> <li>-teaching qualifications (see * below),</li> <li>-graduate or corporate membership of professional institutions,</li> <li>-other professional, educational or vocational qualifications?</li> </ul> <p>Do not count qualifications normally obtained at school such as GCE, CSE, GCSE, SCE and school certificates.</p> <p>If box 2 is ticked, write in all qualifications even if they are not relevant to the person's present job or if the person is not working.</p> <p>Please list the qualifications in the order in which they were obtained.</p> <p>If more than three, please enter in a spare column and link with an arrow.</p> <p>*For a person with school teaching qualifications, give the full title of the qualification, such as 'Certificate of Education' and the subject(s) which the person is qualified to teach. The subject 'education' should then only be shown if the course had no other subject specialisation.</p>	<p>NO — no such qualifications <input type="checkbox"/> 1</p> <p>YES — give details <input type="checkbox"/> 2</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">1 Title</td> </tr> <tr> <td style="padding: 2px;">Subject(s)</td> </tr> <tr> <td style="padding: 2px;">Year</td> </tr> <tr> <td style="padding: 2px;">Institution</td> </tr> <tr> <td style="padding: 2px;">2 Title</td> </tr> <tr> <td style="padding: 2px;">Subject(s)</td> </tr> <tr> <td style="padding: 2px;">Year</td> </tr> <tr> <td style="padding: 2px;">Institution</td> </tr> <tr> <td style="padding: 2px;">3 Title</td> </tr> <tr> <td style="padding: 2px;">Subject(s)</td> </tr> <tr> <td style="padding: 2px;">Year</td> </tr> <tr> <td style="padding: 2px;">Institution</td> </tr> </table>	1 Title	Subject(s)	Year	Institution	2 Title	Subject(s)	Year	Institution	3 Title	Subject(s)	Year	Institution
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The question was in the same form as the one included in the 1981 Census.

## Coding of qualifications

7.89 Each qualification is allocated a 6-digit code: the first 3 digits indicating the type and level of the qualification, for example, degree, diploma, certificate, etc; and the second 3 indicating the subject, or combination of subjects, in which the qualification was obtained.

7.90 The awarding institution and year of the award are not coded, but this additional information is used to improve the accuracy of the 6-digit coding.

7.91 Each recorded qualification is checked against indexes of acceptable and unacceptable qualifications, which are updated with the help of the Department of Education and Science and the Scottish Office Education Department. The indexes also contain the codes to be applied to the acceptable qualifications. The coded qualifications are subjected to a

computer edit by checking against a combination of acceptable qualifications and subjects. Edit failures are recorded as necessary.

7.92 Cases requiring special treatment include:

- (a) *Conjoint degrees and professional qualifications*, such as MB (Bachelor of Medicine), BCh (Bachelor of Surgery) and MRCS (Member of the Royal College of Surgeons of England), which are treated as single qualifications.
- (b) *Degrees in combined subjects*: such degrees differ from (a) above. The subject classification contains specific codes to be allocated to degrees in which more than one major subject is stated.
- (c) *Teaching qualifications*. Initial teaching qualifications, including non-graduate teaching certificates, certificates in education, post-graduate certificates in education (PGCE) and Bachelor of Education degrees (where obtained in 1967 or later) are subject coded 1.2.1 (see Annex G for the full list of subject codes). Subsequent teaching qualifications are coded 1.2.2 if a special education component (for example, teaching of music) is mentioned, and 1.1 if there was no mention of a specialist subject.

Where a BEd was obtained within two years of a non-graduate certificate of education, the two are treated as a single qualification and coded to the BEd.

- (d) *Masters' degrees and Bachelorates*. In general MAs are coded to level a, except those obtained at Cambridge, Oxford and the Scottish universities of Aberdeen, Dundee, Edinburgh, Glasgow and St Andrews, where they are coded to level b (see paragraph 7.94). Bachelorates are generally coded to level b but, conversely, some are coded to level a; for example:

- in Civil Law or Science at Oxford
- in Divinity at Birmingham
- in Letters or Philosophy at all universities
- in Planning at Manchester.

## Population base

7.93 The 1991 Census tables on *qualified manpower* cover the resident population aged 18 and over. The 1981 population base also included persons resident outside Great Britain but with a workplace in Great Britain. This latter group added just 1,240 persons in the 10 per cent sample in 1981 and has been omitted from the 1991 base.

## Educational level

7.94 For the purposes of output, qualifications are grouped into three *educational levels*:

Level a - higher degrees of UK standard;

Level b - first degrees and all other qualifications of UK first degree standard; and

Level c - qualifications that are: (i) generally obtained at 18 and over; (ii) above GCE 'A' level standard; and (iii) below UK first degree standard.

7.95 Level c includes most nursing and many teaching qualifications, although degrees in education (including PGCE) will be classified as level b.

7.96 A *qualified* person is one who holds at least one qualification at level a, b or c. Persons holding more than one qualification are generally analysed by the highest qualification; if two or more qualifications of the same (highest) level are held, the one most recently obtained is used.

7.97 Tabulations of level of qualification are published in the *Qualified Manpower* volume and in Tables 84 and 85 of the *County/Region Reports* and LBS and Table 84 of the SAS.

### Subject group

7.98 The major subject(s) of each qualification that a person holds is coded using a standard subject classification, consisting of 10 *subject groups* and 108 *primary subjects*. The full classification is given at Annex G.

7.99 As stated in paragraph 7.96 above, unless otherwise stated in tables, the most recently obtained qualification at the highest level is used to determine the educational level and subject for each qualified person. In Tables 14a-14e of the *Qualified Manpower* volume, the most recently obtained qualification at the highest level in a *particular* subject area is used. Thus in some cases, for example, where two qualifications in two different subjects are held, a person can be counted in more than one of the tables.

### Migration (10 per cent tables)

7.100 Although migration is a 100 per cent topic (that is, the questions on usual address (see paragraph 2.4) and address one year before the Census (see paragraph 6.8) are fully processed), tables on this topic show migrants analysed both by other 100 per cent variables (see paragraph 6.25) and, separately, by 10 per cent variables.

7.101 In both the *National* and *Regional Migration* reports the 10 per cent variables cover occupation, industry and socio-economic group. However, all definitions pertaining to the *migrants* are common to both levels of processing (see paragraphs 6.8-6.26).

### Interpretation of the 10 per cent sample statistics

7.102 The 10 per cent sample is a stratified sample covering one in ten enumerated households and one person in ten enumerated in communal establishments (see paragraph 1.5). Evaluation of the 1981 Census 10 per cent sample<sup>14</sup>, when the same sampling strategy was used, has shown that a reliable estimate of the enumerated population is achieved by simply multiplying the sample counts by 10. A similar analysis will be carried out for the 1991 Census sample and reported in the *Census Monitor* series.

7.103 For the first time in a British Census, the 1991 Census includes statistics for households with residents where nobody was present on Census night. These *wholly absent households* were left a census form for voluntary completion on their return home (see paragraphs 1.48-1.49). All forms completed and returned to the Census Offices have been processed and, where selected, are included in the 10 per cent sample. In some cases no form was received from an absent household because, for example, the household returned home too late to be included in the census processing. In these cases the items which are processed for 100 per cent level have been imputed (see paragraphs 1.50-1.54).

7.104 Because there is no reliable method of imputing the more complex items processed for the 10 per cent sample (for example, occupation, industry, higher qualifications and family composition), imputed absent households are *excluded* from the 10 per cent sample. This means that grossing-up sample counts by the simple factor of 10 will not give figures comparable with the published figures for the total population (although, as stated in paragraph 7.102, the grossed-up figures will be a reliable estimate of the *enumerated* population, that is, the total population minus members of imputed wholly absent households).

7.105 In each 10 per cent topic report, tables show counts of residents in imputed wholly absent households for all of the geographic areas covered in the particular volume. The tables cover all of the 100 per cent processed items included in the volume and enable users to compare grossed-up counts from 10 per cent sample tables with 100 per cent processed tables. For example, Table 1 in the *Qualified Manpower* volume shows the 10 per cent sample resident population of England age 18 and over. A reliable estimate of the total population aged 18 and over is thus given by:

sample count x 10 = estimate of enumerated population....(1)

(1) + residents in imputed households  
= estimate of total population.....(2)

7.106 The residents in imputed wholly absent households are, in effect, an addition to the 'not stated' categories of the 10 per cent processed items.

# Appendix VII Live birth registration draft entry form

Reg. Dist.	District & SD. Nos.	Entry No.	<b>LIVE BIRTH</b>		District & SD. Nos.	Entry No.
Sub. Dist.	Date of registration				Date of registration	
<b>DRAFT OF PARTICULARS OF LIVE BIRTH TO BE REGISTERED</b>			<b>Z</b>		<b>CONFIDENTIAL PARTICULARS</b>	
1. Date and place of birth <b>CHILD</b> (date) .....			L <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> grams		The particulars below, required under the Population (Statistics) Acts, will not be entered in the register. This information will be confidential and used only for the preparation of statistics by the Registrar General.	
2. Name and surname		3. Sex	(i) <input type="text"/> (ii) <input type="text"/>		1. Where the father's name is entered in register: Father's date of birth <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
4. Name and surname <b>FATHER</b>			(iii) <input type="text"/> (iv) <input type="text"/>		2. In all cases: Mother's date of birth <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
5. Place of birth			G(a) Father		3. Where the child is of legitimate birth: (i) Date of marriage <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
6. Occupation			(va) <input type="text"/>		(ii) Has the mother been married more than once? *YES NO	
7. Name and surname <b>MOTHER</b>			H(a)* 1 2 3 4 5 <small>See cover for Employment Status codes</small>		(iii) Mother's previous children (excluding birth or births now being registered) by her present husband and any former husband	
8. Place of birth			G(b) Mother		(a) Number born alive (including any who have died) <input type="text"/>	
9. (a) Maiden surname		(b) Surname at marriage if different from maiden surname	H(b)* 1 2 3 4 5 <small>See cover for Employment Status codes</small>		(b) Number still-born <input type="text"/>	
10. Usual address (if different from place of child's birth)			<b>POSTCODE</b>		X Is this birth one of twins, triplets, etc *YES NO If YES, complete (a) and (b)	
11. Name and surname (if not the mother or father)		12. Qualification	<input type="text"/>		* (a) Total number of births at this maternity 2 3 4 5 6	
13. Usual address (if different from that in 10 above)			Edit Control		(vi) Live births <input type="text"/> Still-births <input type="text"/>	
Signature of registration officer by whom the above particulars were obtained			Signature of registrar registering birth on declaration			

SP(1)160 8/85

\* Ring as appropriate

FORM 309

# Appendix VIII Stillbirth registration draft entry form

Reg. Dist.	District & SD. Nos.	Entry No.	<b>STILL-BIRTH</b>		District & SD. Nos.	Entry No.
Sub. Dist.	Date of registration				Date of registration	
<b>DRAFT OF PARTICULARS OF STILL-BIRTH TO BE REGISTERED</b>			<b>L</b>		<b>Z</b>	
1. Date and place of birth <b>CHILD</b> (date) .....			L <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> grams		K <input type="text"/> <input type="text"/> weeks	
2. Cause of Stillbirth		3. Sex	N * Post Mortem YES NO		B SD * Eng YES NO (iv) 1 ME 2 Y * Before Labour During Labour Not Known	
a .....			3 4 5 6		a b c	
b .....					(vi) <input type="text"/>	
c .....						
d .....						
e .....						
Certified by			M (vii) <input type="text"/> (viii) <input type="text"/>		<b>CONFIDENTIAL PARTICULARS</b>	
4. Name and surname <b>FATHER</b>			G(a) Father		The particulars below, required under the Population (Statistics) Acts, will not be entered in the register. This information will be confidential and used only for the preparation of statistics by the Registrar General.	
5. Place of birth			(ixa) <input type="text"/>		1. Where the father's name is entered in register: Father's date of birth <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
6. Occupation			H(a)* 1 2 3 4 5 <small>See cover for Employment Status codes</small>		2. In all cases: Mother's date of birth <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
7. Name and surname <b>MOTHER</b>			G(b) Mother		3. Where the child is of legitimate birth: (i) Date of marriage <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
8. Place of birth			H(b)* 1 2 3 4 5 <small>See cover for Employment Status codes</small>		(ii) Has the mother been married more than once? *YES NO	
9. (a) Maiden surname		(b) Surname at marriage if different from maiden surname	<b>POSTCODE</b>		(iii) Mother's previous children (excluding birth or births now being registered) by her present husband and any former husband	
10. Usual address (if different from place of child's birth)			<input type="text"/>		(a) Number born alive (including any who have died) <input type="text"/>	
11. Name and surname (if not the mother or father)		12. Qualification	X Is this birth one of twins, triplets, etc *YES NO If YES, complete (a) and (b)		(b) Number still-born <input type="text"/>	
13. Usual address (if different from that in 10 above)			* (a) Total number of births at this maternity 2 3 4 5 6		(x) Live births <input type="text"/> Still-births <input type="text"/>	
Edit Control			Signature of registrar			

SP(1)158 7/85

\* Ring as appropriate

FORM 308

# Appendix IX Death registration draft entry form

Reg. Dist.	District & SD Nos.	Entry No.	(i)	<b>DEATH</b>		District & SD Nos.	Entry No.						
Sub-Dist.	Date of registration					Date of registration							
<b>DRAFT OF PARTICULARS OF DEATH TO BE REGISTERED</b>				<b>C</b>		<b>CONFIDENTIAL PARTICULARS</b>							
1. Date and place of death (date) .....				(iia) .....		<p>The particulars below, required under the Population (Statistics) Acts, will not be entered in the register. This information will be confidential and used only for the preparation of statistics by the Registrar General.</p> <p>At date of death the deceased was (ring appropriate number)</p> <p>Single 1</p> <p>Married 2 → (if married insert date of birth of spouse)</p> <table border="1" style="display: inline-table;"> <tr><td>Day</td><td>Month</td><td>Year</td></tr> <tr><td> </td><td> </td><td> </td></tr> </table> <p>Widowed 3</p> <p>Divorced 4</p> <p>Not known 5</p>		Day	Month	Year			
Day	Month	Year											
2. Name and surname		3. Sex	D & SD No. (v)		E								
		4. Maiden surname of woman who has married	F		*6 mths or over			*Under 6 mths					
5. Date and place of birth (date) .....				(vii) P									
6. Occupation and usual address				G(a) Deceased		G(b) Husband or †Parent							
				(via)		(vib)							
8. Cause of death				H*(a) 1 2 3 4 5		H*(b) 1 2 3 4 5							
Ia .....				J		(viii) (ix)							
Ib .....				J									
Ic .....				J		N Post Mortem							
Id .....				J		B SD Enq							
Ie .....				M		* YES NO * YES NO							
Certified by				(x)									
7. (a) Name and surname of informant		(b) Qualification											
(c) Usual address						(xiii) Z							
O National Health Service medical card collected? * YES NO				Signature of registrar		(xi) (xii)							
If NO, NHS No. ....													

\* Ring as appropriate † If deceased is under 15 years of age Form 310

# Appendix X Neonatal death certificate

MED B 000000  
1

**BIRTHS AND DEATHS REGISTRATION ACT 1953**  
(Form prescribed by the Registration of Births, Deaths and Marriages (Amendment) (No. 2) Regulations 1985)

**MEDICAL CERTIFICATE OF CAUSE OF DEATH OF A LIVE-BORN CHILD DYING WITHIN THE FIRST TWENTY-EIGHT DAYS OF LIFE**

For use only by a Registered Medical Practitioner WHO HAS BEEN IN ATTENDANCE during the deceased's last illness, and to be delivered by him forthwith to the Registrar of Births and Deaths.

Registrar to enter No. of Death Entry

Name of child .....

Date of death ..... day of ..... 19 ..... Sex .....

Age at death ..... days (complete period of 24 hours) ..... hours

Place of death .....

Place of birth .....

Last seen alive by me ..... day of .....

1 The certified cause of death has been confirmed by post-mortem.

2 Information from post-mortem may be available later.

3 Post-mortem not being held.

4 I have reported this death to the Coroner for further action. [See overleaf]

Please ring appropriate digit and letter.

a Seen after death by me.

b Seen after death by another medical practitioner but not by me.

c Not seen after death by a medical practitioner.

**CAUSE OF DEATH**

a. Main diseases or conditions in infant .....

b. Other diseases or conditions in infant .....

c. Main maternal diseases or conditions affecting infant .....

d. Other maternal diseases or conditions affecting infant .....

e. Other relevant causes .....

I hereby certify that I was in medical attendance during the above named deceased's last illness, and that the particulars and cause of death above written are true to the best of my knowledge and belief.

Signature .....

Address .....

Qualifications as registered by General Medical Council

Date .....

For deaths in hospital: Please give the name of the consultant responsible for the above-named as a patient .....

# Appendix XI Cancer registration abstract card

Office of Population Censuses and Surveys Titchfield Hants		Cancer Abstract Card 1984		Region 2-5	Registration number 6-12 84 -				
Please complete in black ink and BLOCK LETTERS		Hospital case number		Hospital		Treated at this hospital		Sex M F	13
NHS number 63-73						Yes No		Date of birth	
Surname 74-		Hospital referred from		Hospital referred to		DAY MONTH YEAR		14-15 16-17 18-19	
Forenames		Occupation		Industry		Area		20-23	
Maiden name of married woman -133		of patient				POB		24-27	
Full home address 134-173		of husband, if married, or of wife, if single, or of partner, if living with partner				Occ-Patient		28-34	
Postcode 173-179		OR main presenting secondary if primary unknown				Occ-Hub/Fa		35-41	
Place of birth		Type of growth				Site		42-45	
						Type			
						Yes No Don't know			
						Microscopically confirmed (Tick box)			
				Anniversary Date		DAY MONTH YEAR		Date of Death	
								DAY MONTH YEAR	
NOTES									
CR(T)62 7/82									

SPECIMEN

# Appendix XII Other notification forms:

## (a) Form CR54 – Record of Live Birth

<b>BLOCK CAPITALS</b>	SURNAME OF CHILD		Date of birth
	Other names		Sex (M or F)
	For use of Registrar* 1. Re-registration 2. Entry incomplete / spoiled / left blank 3. Child deceased		* Ring appropriate digit NHS Number
	Surname(s) of parent(s) if different from above	Father  Mother	

Signature ..... Date of registration .....

Registrar of Births  
for Sub-district of .....

CR. 54  
GAZ 1/88

## (b) Form F99G & FP99B – Record of Immigrants

NOTIFICATION OF FIRST ACCEPTANCE (IMMIGRANT) FP99G

-----  
SEX: \_\_\_\_\_  
NHS NUMBER: \_\_\_\_\_  
DATE OF BIRTH: \_\_\_\_\_  
-----  
CURRENT DETAILS

OR

-----  
DATE ACCEPTED: \_\_\_\_\_  
PLACE OF BIRTH: \_\_\_\_\_ FROM: \_\_\_\_\_

NOTIFICATION OF FIRST ACCEPTANCE FP99B

-----  
NHS No : \_\_\_\_\_  
DOB : \_\_\_\_\_  
Current address : \_\_\_\_\_  
-----  
Date actioned : \_\_\_\_\_  
Prev. GP : \_\_\_\_\_  
Prev. Addr : \_\_\_\_\_

(c) Form CR375 – Record of Enlistment

CR 375

To NHS Central Register, Smedley Hydro, Southport,  
Merseyside PR8 2HH

Surname ..... Any former surname .....

Forename(s) .....

Date of birth ..... Place of birth .....

Mother's maiden name .....

Date of last  
enlistment ..... Service number .....

Usual address prior to enlistment .....

.....

Please supply the NHS number of the above-named person

Record Office ..... Date .....

For use at NHSCR

To the Officer i/c Records

1. NHS number is .....

2. NHS number not traced .....

Initials ..... Date .....

**(d) Form CR237(j) – Record of embarkation**

C.R.237(j) (Rev.) Part 2

C.R.237(j) (Rev.) Part 1

**NOTIFICATION OF EMBARKATION**

**NATIONAL HEALTH SERVICE**

**DETAILS RELATING TO YOURSELF**

Surname \_\_\_\_\_ Forename(s) \_\_\_\_\_

If you are a woman who is married, widowed or divorced please also enter your maiden surname )

Your date ) (Day) (Month) (Year) )  
of birth ) Your National Health )  
Service number )

Your address when you were )  
last registered with a )  
National Health Service doctor )

The name and address )  
of your last doctor )

Your proposed date of departure \_\_\_\_\_

**NOTICE TO PERSONS WHO INTEND LEAVING THE UNITED KINGDOM FOR A PERIOD OF MORE THAN 3 MONTHS**

If you are going abroad, or to the Channel Islands, for more than 3 months, it is important that you and any dependants or other persons accompanying you surrender your National Health Service medical card(s) either by:-

- i. handing it (them) to the Immigration Officer at your point of departure, or
- ii. sending the card(s) to the National Health Service Central Register in the envelope provided, which does not require a stamp.

If you are unable to find your medical card(s), would you please complete Part 2 of this form in respect of each person whose medical card has been lost or mislaid, detach it and send it to the N.H.S. Central Register in the envelope provided.

Should you be preceding your family or other persons who will eventually join you, their details should not be entered on Part 2. Instead their medical cards should be surrendered by one of the methods listed above before they leave the United Kingdom.

You should notify your local Family Practitioner Committee at once if for any reason you find it necessary to postpone or cancel your travel arrangements.

If you subsequently return to this country it will be necessary for you to re-register with a doctor.

TEAR OFF

**DETAILS OF DEPENDANTS OR OTHER PERSONS ACCOMPANYING YOU FOR WHOM MEDICAL CARDS ARE LOST OR MISLAID**

Your wife	Forename(s)	Maiden Surname			National Health Service number
	(Day) (Month) (Year)	Date of birth			
Your child(ren)	Forename(s)	Date of birth			National Health Service number
		Day	Month	Year	
	1.				
	2.				
	3.				
	4.				
Any other persons who will accompany you	Surname and Forename(s)	Date of birth			National Health Service number
		Day	Month	Year	

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**(e) Form CR378 – Record of entry to Long-stay Psychiatric Hospital**

PART 1

CR378

To NHS CENTRAL REGISTER, SMEDLEY HYDRO, SOUTHPORT, MERSEYSIDE PR8 2HH

Name or Serial No. of Hospital .....

Date of admission ..... NHS number .....

Surname ..... (Mr, Mrs, Miss)  
(In BLOCK LETTERS)

Forename(s) .....

Former name (if any) .....

Date of birth, and place if known .....

Home and other addresses .....

.....

.....

Name of doctor (prior to admission) .....

PART 2

To ..... FPC

The above-named has been a patient in a Psychiatric Hospital for more than two years.  
Will you please have a search made in your records and, if an acceptance is found,  
cancel the registration.

If the NHS NUMBER IS ALREADY ENTERED ABOVE, DO NOT RETURN THIS FORM.

If the NHS NUMBER IS NOT ENTERED ABOVE, PLEASE )  
INSERT IT AT A BELOW. ) AND RETURN THIS FORM  
IF NO TRACE, PLEASE TICK BELOW ) TO NHSCR

Initials ..... Date .....  
NHSCR

PART 3

REPLY (If necessary)

A. Registration now cancelled. NHS No. is .....

B. No Trace

Initials ..... FPC ..... Date .....

## Appendix XIII Tracing history indicators

Tracing history indicators (THIs) are a series of codes which are used to define subsets of the Longitudinal Study (LS) sample. The THIs were created using information about each members' method of entry into the LS, their further exits from and re-entries to the study, their presence at one or more censuses, and whether they were traced at NHSCR.

There are three methods of entry into the study: first by birth if the birth occurs on an LS date between censuses (new births), second on registration with the NHS if the LS member is an immigrant, and third at census if an LS date of birth is quoted. Exits may be by death or emigration from England and Wales with possible re-entry to the study if an emigrant returns at a later date. Presence at Censuses is recorded and is used to link information about the LS member over time. The members are either traced (that is they have an NHS number which allows events to be linked to them) or they are untraced (have no NHS number).

The development of the THIs began during the 1981 Census-LS link exercise when it became important to define subsets of the data so that linkage between the 1971 and 1981 Censuses could be made easier. The THIs also offered a way of defining stable samples for research using populations of LS members who had known study histories from 1971 to 1981 and were traced at NHSCR.

### 1981 Tracing history indicators

In 1981 LS members were originally divided into those who were traced and those who were not traced. However, other groupings had to be considered for those LS members who were not present at the 1971 Census. These included immigrants into England and Wales after the 1971 Census, new births on LS dates occurring after the 1971 Census and persons who quoted an LS date of birth at the 1981 Census but were not known to be immigrants or new births. Exits via deaths and embarkations from England and Wales between 1971 and 1981 also had to be taken into account as, though present at the 1971 Census, they should have had no record for 1981.

Eighteen codes were developed to define all the subset types up to and including the 1981 Census. The terms used in describing the subsets include 'matched', 'unmatched', 'traced', 'traced later', 'no trace' and 'first decade' and are explained below.

'Matched' - this refers to the fact that there is an existing entry in the LS index which can be matched with the card prepared for an LS person sampled at a subsequent census.

'Unmatched' - the LS member is traced but cannot be matched to an existing entry in the LS index.

'Traced' - an NHS number exists for the LS person.

'Traced later' - an NHS number was found for the LS person some time after their entry to the study, but before the 1981 Census.

'No trace' - no NHS number has been identified for the LS person.

'First decade' - first decade refers to the period of time between the 1971 Census and the 1981 Census.

**Table XIII.1 1981 THI codes**

THI code	Description
00	Scottish LS member. 1981 card matched with 1971. Traced
01	1981 card only. No trace in 1981
02	1981 card matched with 1971. No trace in 1971, traced later
03	1981 card matched with 1971. No trace in 1971
04	1981 card matched with 1971. Traced in 1971
05	1981 card matched to first decade New Birth entry to LS. Traced
06	1981 card matched to first decade immigrant entry to LS. Traced
07	1981 card only, no match. Traced
08	1981 card only, no match. NHS number traced to first decade birth
09	1981 card only, no match. NHS number traced to first decade immigrant
10	1971 card only, not present at 1981 Census. Traced in 1971
11	1971 card only, not present at 1981 Census. No trace in 1971, traced later
12	1971 card only, not present at 1981 Census. No trace
13	1971 card only. Traced in 1971. First decade death
14	First decade immigrant entry to LS, not present at 1981 Census. Traced
15	First decade immigrant entry to LS, first decade death. Traced
16	First decade birth entry to LS, not present at 1981 Census. Traced
17	First decade birth entry to LS, first decade death. Traced
97	A 1981 THI should have been assigned but was not. For investigation
98	Not present in decade (can be applicable to either the first or second decade)

## 1991 Tracing history indicators

At the time of the 1991 Census a further set of THIs had to be defined to describe the tracing history of LS persons up to and including the 1991 Census. 22 codes were defined to cover the subset types between 1981 and 1991 together with 4 codes for missing or suspect data. Because of the expansion of the possible subsets over time it was decided to adopt a positional code where the first two digits referred to the subset type of the member at the 1981 Census and the second two to the subset type of the member at the 1991 Census. 1971-1981 code values were re-used where possible with new codes being created only where there was no 1981 THI equivalent. It should be noted that the term 'second decade' used in defining the 1991 subset types refers to the period between 1981 and 1991. 'nn' is used to mark the position of the 1981 codes. The 1991 THI codes and descriptions are as follows:-

**Table XIII.2 1991 THI codes**

THI code	Description
nn02	1991 card matched with an existing 1981 LS index entry (no trace member). NHS number traced after the 1981 Census
nn03	1991 card matched with an existing 1981 LS index entry (no trace member). Still not traced
nn04	1991 card matched with 1981. Traced
nn05	1991 card matched to second decade new birth entry to the LS Traced
nn06	1991 card matched to second decade immigrant entry to the LS Traced
nn08	1991 card only, no match. NHS number traced later to second decade birth
nn09	1991 card only, no match. NHS number traced later to second decade immigrant
nn13	Present in LS index. Second decade death. Traced
nn14	Second decade immigrant entry to LS, not present in the 1991 Census. Traced
nn15	Second decade immigrant entry to LS, second decade death. Traced
nn16	Second decade birth entry to LS, not present at the 1991 Census. Traced
nn17	Second decade birth entry to LS, second decade death. Traced
nn18	Present in LS Index but not in 1991 Census. Found to be first decade emigration not THI coded in 1981. Traced
nn19	Present in LS Index, not present at 1991 Census. Second decade emigration. Traced
nn20	Second decade immigrant entry to LS, second decade emigration. Traced
nn22	Second decade birth entry to LS, second decade emigration. Traced
nn23	Present in LS index but not in 1991 Census. Found to be first decade death. Traced
nn24	Present in the 1991 Census, not in the 1981 Census although in the LS index. Traced
nn25	Present in the 1991 Census, not in the 1981 Census although in the LS index. No trace
nn26	Entered at the 1991 Census, not in the 1981 Census. Traced
nn27	1991 card, present in LS index. First decade emigration, second decade re-entrant. Traced
nn28	Present in LS index. Traced. Moved to Scotland before 1991
88	'Not possible' code - to be investigated
97	A previous 1981 THI should have been assigned - to be investigated
98	Not present in decade (can be applicable to either the first or second decade)
99	Missing data (applies to 1991 codes only)

The total number of valid combinations generated for the full set of THIs (1971 to 1991) was 116. Among the 116 codes are two ending in 88 which is a 'bucket' code for the second decade. The presence of code 88 indicates a situation where a traced member was known to have embarked in the first decade but had no subsequent re-entry record although they were found at the 1991 Census. These codes are not included here as they were created purely for checking purposes. The remaining 114 codes and their meanings are listed below:

### Tracing History Indicator Codes

**Table XIII.3 THI codes: traced LS members present at the 1971 Census only**

THI code	Description
1013	Entered at 1971 Census, not present at 1981 Census, died after 1981
1018	Entered at 1971 Census, emigrated before the 1981 Census - late report
1019	Entered at 1971 Census, not present at 1981 Census, emigrated after 1981
1023	Entered at 1971 Census, died before 1981 - late report
1028	Entered at 1971 Census, not present at 1981 Census, known to have gone to Scotland after 1981
1099	Entered at 1971 Census, no further data
1113	Entered at 1971 Census, not present at 1981 Census, died after 1981 - late trace at NHSCR
1118	Entered at 1971 Census, emigrated before 1981 Census - late report and late trace at NHSCR
1119	Entered at 1971 Census, not present 1981, emigrated after 1981 - late trace at NHSCR
1123	Entered at 1971 Census, died before 1981 Census - late report and late trace at NHSCR
1128	Entered at 1971 Census, not present at 1981 Census, known to have gone to Scotland after 1981 - late trace at NHSCR
1199	Entered at 1971 Census, no further data, late trace at NHSCR
1213	Entered at 1971 Census, not present at 1981 Census, died after 1981 - late trace at NHSCR
1218	Entered at 1971 Census, emigrated before 1981 Census - late trace at NHSCR
1219	Entered at 1971 Census, not present 1981, emigrated after 1981 - late trace at NHSCR
1223	Entered at 1971 Census, died before 1981 Census - late report and late trace at NHSCR
1398	Entered at 1971 Census, died before 1981 Census. Traced

**Table XIII.4 THI codes: traced LS members present at the 1971 and 1981 Censuses only**

THI code	Description
0013*	Member of Scottish LS, present 1971 and 1981, died after the 1981 Census
0019*	Member of Scottish LS, present 1971 and 1981, emigrated after the 1981 Census
0028*	Member of Scottish LS, present 1971 and 1981, gone to Scotland after the 1981 Census
0099*	Member of Scottish LS, present 1971 and 1981, no further data
0213	Entered at 1971 Census, present in 1981, died after the 1981 Census - late trace at NHSCR
0219	Entered at 1971 Census, present in 1981, emigrated after the 1981 Census - late trace at NHSCR
0228	Entered at 1971 Census, present in 1981, gone to Scotland after the 1981 Census - late trace at NHSCR
0299	Entered at 1971 Census, present in 1981, no further data - late trace at NHSCR
0313	Entered at 1971 Census, present in 1981, died after the 1981 Census - late trace at NHSCR
0319	Entered at 1971 Census, present in 1981, emigrated after the 1981 Census - late trace at NHSCR
0413	Entered at 1971 Census, present in 1981, died after the 1981 Census
0419	Entered at 1971 Census, present in 1981, emigrated after the 1981 Census
0428	Entered at 1971 Census, present in 1981, gone to Scotland after the 1981 Census
0499	Entered at 1971 Census, present in 1981, no further data

Note: Late traces refer to the fact that these members were untraced at the time of the 1981 Census and have been traced since.

\* Census information is not available for members of the Scottish LS for 1971 (for further details see Chapter 5).

**Table XIII.5 THI codes: traced LS members present at the 1971, 1981 and 1991 Censuses**

THI code	Description
0004*	Member of Scottish LS, present at 1971, 1981 and 1991 Censuses
0204	Entered at 1971 Census, present in 1981 and 1991 Censuses - late trace at NHSCR
0302	Entered at 1971 Census, present in 1981 and 1991 Censuses - late trace at NHSCR
0404	Entered at 1971 Census, present in 1981 and 1991 Censuses

Note: Late traces refer to the fact that these members were untraced at the time of the 1981 Census and have been traced since.

\* Census information is not available for members of the Scottish LS for 1971 (for further details see Chapter 5).

**Table XIII.6 THI codes: traced LS members present at the 1971 and 1991 Censuses only**

THI code	Description
1024	Entered at 1971 Census, present at 1991 Census, not present at 1981 Census
1027	Entered at 1971 Census, emigrated before 1981 Census, re-entered before 1991, present at 1991 Census
1124	Entered at 1971 Census, present at 1991 Census, not present at 1981 Census - late trace at NHSCR
1127	Entered at 1971 Census, emigrated before 1981 Census, re-entered before 1991, present at 1991 Census - late trace at NHSCR
1226	Entered at 1971 Census, present at 1991 Census, not present at 1981 Census - late trace at NHSCR

Note: Late traces refer to the fact that these members were untraced at the time of the 1981 Census and have been traced since.

**Table XIII.7 THI codes: traced LS members present at the 1981 Census only**

THI code	Description
0113	Entered at 1981 Census, died before 1991 Census - late trace at NHSCR
0119	Entered at 1981 Census, emigrated before 1991 Census - late trace at NHSCR
0513	First decade birth, present 1981, died before 1991 Census
0519	First decade birth, present 1981, emigrated before 1991 Census
0528	First decade birth, present 1981, gone to Scotland before 1991 Census
0599	First decade birth, present 1981, no further data
0613	First decade immigrant, present 1981, died before 1991 Census
0619	First decade immigrant, present 1981, emigrated before 1991 Census
0628	First decade immigrant, present 1981, gone to Scotland before 1991 Census
0699	First decade immigrant, present 1981, no further data
0713	Entered at 1981 Census, died before 1991 Census
0719	Entered at 1981 Census, emigrated before 1991 Census
0728	Entered at 1981 Census, gone to Scotland before 1991 Census
0799	Entered at 1981 Census, no further data
0813	First decade birth identified at 1981 Census, died before 1991
0819	First decade birth identified at 1981 Census, emigrated before 1991
0828	First decade birth identified at 1981 Census, gone to Scotland before 1991
0899	First decade birth identified at 1981 Census, no further data
0913	First decade immigrant identified at 1981 Census, died before 1991
0919	First decade immigrant identified at 1981 Census, emigrated before 1991
0928	First decade immigrant identified at 1981 Census, emigrated before 1991
0999	First decade immigrant identified at 1981 Census, no further data

Note: Late traces refer to the fact that these members were untraced at the time of the 1981 Census and have been traced since.

**Table XIII.8 THI codes: traced LS members present at the 1981 and 1991 Censuses only**

THI code	Description
0102	Entered at 1981 Census, present in 1991 - late trace at NHSCR
0504	First decade birth, present at 1981 and 1991 Censuses. Traced
0604	First decade immigrant, present at 1981 and 1991 Census. Traced
0704	Entered at 1981 Census, present in 1991. Traced
0804	First decade birth found at 1981 Census, present in 1991. Traced
0904	First decade immigrant found at 1981 Census, present in 1991. Traced

Note: Late traces refer to the fact that these members were untraced at the time of the 1981 Census and have been traced since.

**Table XIII.9 THI codes: traced LS members present at the 1991 Census only**

THI code	Description
9805	Second decade birth entry to the LS, present at 1991 Census. Traced
9806	Second decade immigrant entry to the LS, present at 1991 Census. Traced
9808	Second decade birth found at 1991 Census. Traced
9809	Second decade immigrant found at 1991 Census. Traced
9824	Present at 1991 Census. Traced
9826	Entered at 1991 Census. Traced
9726	Present at 1991 Census, no further information. Traced
1624	First decade birth, not present at 1981 Census, present in 1991. Traced
1424	First decade immigrant, not present at 1981 Census, present in 1991. Traced

**Table XIII.10 THI codes: no trace LS members present at Censuses**

THI code	Description
0303	Entered at 1971 Census, present in 1981 and 1991. No trace at NHSCR
0399	Entered at 1971 Census, present in 1981, no further data. No trace at NHSCR
1225	Entered at 1971 Census, not present in 1981, present in 1991. No trace at NHSCR
1299	Entered at 1971 Census, no further data. No trace at NHSCR
0103	Entered at 1981 Census, present in 1991. No trace at NHSCR
0199	Entered at 1981 Census, no further data. No trace at NHSCR
9725	Present at 1991 Census, no further data. No trace at NHSCR
9825	Entered at 1991 Census. No trace at NHSCR

**Table XIII.11 THI codes: traced LS members who were not present at any Census**

THI code	Description
1413	Late report - first decade immigrant, not present at 1981 Census, died before 1991. Traced
1418	Late report - first decade immigrant, emigrated before 1981 Census. Traced
1419	Late report - first decade immigrant, not present at 1981 Census, second decade emigrant. Traced
1423	Late report - first decade immigrant, died before 1981. Traced
1428	Late report - first decade immigrant, not in 1981 Census. Moved to Scotland before 1991. Traced
1499	Late report - first decade immigrant, no further data. Traced
1598	First decade immigrant, died before 1981. Traced
1613	First decade birth, not in 1981 Census, died before 1991. Traced
1618	First decade birth, late report of emigration before 1981. Traced
1619	First decade birth, not in 1981 Census, emigrated before 1991. Traced
1623	First decade birth, late report of death before 1981. Traced
1628	First decade birth, not in 1981 Census. Moved to Scotland before 1991. Traced
1699	First decade birth, no further data. Traced
1798	First decade birth, died before 1981. Traced
9713	No information for first decade, died before 1991. Traced
9718	Late report - first decade emigration. Traced
9719	No information for first decade, emigrated before 1991. Traced
9723	Late report - first decade death. Traced
9728	No information for first decade. Moved to Scotland before 1991. Traced
9799	No data
9814	Second decade immigrant, not present at 1991 Census. Traced
9815	Second decade immigrant, died before 1991. Traced
9816	Second decade birth, not present at 1991 Census. Traced
9817	Second decade birth, died before 1991. Traced
9820	Second decade immigrant, emigrated before 1991. Traced
9822	Second decade birth, emigrated before 1991. Traced

## Appendix XIV Other quality issues

This appendix covers issues raised briefly in the main body of the report and discusses them in more detail. They include date of birth discrepancies, complex multiple and double enumerations and under-enumeration at census.

All these issues affect the quality of the data. Discrepancies in dates of birth affect both the linkage of census data and of events occurring to Longitudinal Study (LS) members and allow the entry of spurious LS members to the study. Complex multiple and double enumerations put the onus on OPCS to sort out which is the valid resident record (if there is one). Under-enumeration has occurred at each census, and affects the quality of linkage of LS members from census to census.

### Date of birth discrepancies

Date of birth discrepancies are a major cause of linkage failure. They occur on all types of documents which provide data used by the Longitudinal Study. These documents, of which there are examples in the appendices to this volume, include the drafts completed at birth and death registration, cancer registration abstract cards and census forms.

To become an LS member the date of birth used on an entry document must be one of the four LS dates of birth. These entry documents are either a birth registration draft for a new birth entry, a FHSA NHS acceptance form (completed when first registering with a GP and joining the NHS as an immigrant entry), or a census schedule. Apart from the date given at birth registration, which is likely to be correct, there is no way of checking whether the dates of birth given on other documents are accurate. Once a member is in the LS, the only way in which subsequent event or census data may be linked to the member is by using the date of birth quoted for, or by, an LS member. If an LS member quotes a date of birth which is discrepant from that on their original entry, then later event or census data will not be linked.

The quality check of the 1971 Census<sup>1</sup> (discussed in detail in Chapter 4, section 4.1.2.1) revealed that 1.83 per cent of the enumerated population of Great Britain had a discrepancy of over one month between the date of birth given on their census form and that found at the quality check. Among the 1971 LS sample, NHSCR found that there was a slight tendency for children to be given a year of birth one year later on census forms than that shown at NHSCR. There was an excess of one-year-olds classified as aged under one and an under-reporting of babies under one year of age at the 1971 Census.

At the 1981 Census it was found that over 14,000 LS members had date of birth discrepancies of greater than one year when compared with the dates of birth they had stated at the 1971 Census (see Chapter 5, section 5.2.3). These discrepancies were large enough to lead to a difference in age in completed years. This was particularly noticeable among the very elderly (aged 75 and over).<sup>2</sup> A similar pattern was observed at the 1991 Census for 11,577 LS members with date of birth discrepancies greater than one year between the 1981 and 1991 Censuses (see Chapter 5, section 5.5.3).

Samples were taken after the 1981 Census, and again after the 1991 Census, of LS members who were known to be alive and had been present at the previous census but had failed to link to the current census. These samples were then examined at NHSCR to investigate the reasons for linkage failure. It was found that out of 39,616 cases who failed to link at the 1981 Census, 24 per cent had a different date of birth recorded at NHSCR from that shown on the 1981 Census form. A further 13 per cent had stated a different date of birth from that given in the 1971 Census. Among the 46,652 LS members present in 1981 who were not linked at the 1991 Census, 21 per cent were found to have a date of birth discrepancy between their 1991 Census form and the records held at NHSCR.

No study has been made of the numbers of events occurring to LS members that have been missed purely due to date of birth discrepancies. However, it is clear from the linkage rates for events since 1971 that the LS has been systematically failing to collect a small number of events due to the inability to match the event to the person. The number of unmatched events varies and some are subsequently matched to the correct LS member but not all will or can be.

Where events cannot be matched to the LS database they are sent to NHSCR for matching and tracing against the CHRIS database. In the first decade (Census day 1971 to the day before Census 1981) approximately 10 per cent of deaths, 14 per cent of widow(er)hoods, 13 per cent of cancers and 15 per cent of births to sample mothers notified to the LS as occurring to persons born on LS dates could not be matched to an LS member. In the second decade (Census day 1981 to the day before Census 1991) the rate of matching improved. Approximately 5 per cent of deaths, 13 per cent of widow(er)hoods, 8 per cent of cancers and 9 per cent of births to sample mothers remained unmatched after investigation at NHSCR. Although a few of these unmatched cases may have occurred to genuine LS members who have not been flagged as 'LS' on the CHRIS database, the majority do not have LS dates of birth recorded at NHSCR.

Certain population groups appear to have more date of birth discrepancies than others. This is particularly true of immigrants and members of some ethnic minorities. In the original Census-LS sample of 1971 it was found that members originating from the New Commonwealth were oversampled and undertraced as well as more frequently 'lost to link'.<sup>3</sup> This situation has persisted over the 1981 and 1991 Censuses.

## Double enumeration and complex multiple enumeration

Complex multiple enumerations can occur where a single person is enumerated twice (or in some cases three or more times) at different addresses on census night. Only one type of multiple enumeration is valid, a double enumeration where a person is enumerated as an absent usual resident at their address of usual residence and as a visitor elsewhere. No data for LS members who were absent usual residents were collected in 1971 but they were collected for both the 1981 and 1991 Census-LS samples.

Before resolution, the 1981 Census-LS sample included over 6,000 complex multiple and double enumerations. These included some 5,922 double enumerations and 33 triple enumerations in England and Wales, together with a further 845 Scottish double enumerations (shown in Table XIV.1). Of these, 1,761 enumerations were valid absent resident/visitor pairs but the rest required resolution. The census forms for the LS members involved were extracted from storage and the details of each pair were examined to determine whether they were genuine pairs, different people, double counts of single people or the result of keying errors. If they were genuine pairs they had to be resolved into which was the absent resident and which was the visitor record. Eighteen per cent of cases were found to have been caused by keying error, with 'present' being keyed instead of 'absent', and a further 24 per cent were discovered to be two different people who had been mistakenly coded as a pair. A total of 2,051 entries were estimated to have been due to double counting. The final resolution of the complex double enumerations during the 1981 link resulted in 2,497 additional absent resident/visitor pairs. The rest were resolved into single entries or were deleted.

**Table XIV.1 Complex multiple enumerations - types of pair in 1981 LS-Census sample**

Types of pair	Number
Absent resident/visitor	14
Absent resident/Absent resident	6
Visitor/Visitor*	52
Present resident/Visitor*	2,140
Present resident/Absent resident	447
Present resident/Present resident*	1,498
Triples	31

\* Overcounts found in these groups. Estimates of double counts for 2,051 cases; 1,020 cases found to be two different people; 759 cases caused by keying error.

At the 1991 Census 11,053 enumerations were found for members of valid absent resident/visitor pairs in the LS sample. Another 7,638 enumerations were identified as complex multiple enumerations that required resolution (see Table XIV.2). Although the majority of these enumerations were pairs, such as present resident/visitor (2,294 individual enumerations) or present resident/present resident (397 enumerations) they also included 66 triple enumerations and two quadruple enumerations.

**Table XIV.2 Complex multiple enumerations - types of pair in 1991 LS-Census sample**

Types of pair*	Number
Absent resident/Absent resident	36
Visitor/Visitor	336
Present resident/Visitor	2,294
Present resident/Absent resident	739
Present resident/Present resident	397

\* These include the 66 triple and two quadruple complex multiple enumerations found in the 1991 Census-LS sample. After final resolution the database contains 3,795 primary records for these complex enumerations and 3,843 secondary records.

As before, the resolution of these complex multiple enumerations was done using the relevant census forms and resulted in the identification of 3,795 absent usual resident/visitor pairs. Further work was carried out looking at the membership of complex multiple enumeration pairs to try to ascertain what types of person were being included. The majority of those identified as members of complex multiple enumeration pairs were young, and classified as white. Apart from the 16–29 year age group, where over half were found to be students, the majority of persons were economically active and in work at the time of the census.

## Under-enumeration

The main sources of error in a census occur at the field stage and range from incomplete coverage of the population to the provision of inaccurate information on the census schedules. Errors leading to under-enumeration are as follows:

- (i) Failure to identify all the living accommodation in an enumeration district.
- (ii) Incorrect classification of accommodation as vacant or occupier being absent.
- (iii) Failure to identify all the households in a building.
- (iv) Failure to make contact with some households.
- (v) Incorrect information supplied by the form filler.
- (vi) Processing errors such as miscoding, miskeying etc.<sup>4</sup>

## Under-enumeration in the 1971 Census

In the 1971 Census the gross undercount of persons in private households was estimated at 0.23 per cent by the coverage check. This was believed to be too low and a

more realistic estimate placed the undercount at between 0.4 and 1 per cent. When the LS was created it gave an opportunity to assess the size of any potential overcount of population resulting from double enumeration and from there to estimate a net undercount figure. The overcount for England and Wales was estimated at 0.25 per cent and the net undercount as between 0.15 per cent and 0.75 per cent.<sup>1</sup> The effect of this level of census under-enumeration is likely to have been very small on the quality of the original Census LS sample.

### **Under-enumeration in the 1981 Census**

The coverage check and post enumeration survey (PES) performed after the 1981 Census of England and Wales gave an estimate of net under-enumeration for the population usually resident in private households of 0.45 per cent, or 215,000 persons. The highest rates of under-enumeration were found in Inner London (2.46 per cent) and Outer London (1.01 per cent). The PES showed that the characteristics of persons missed at census were likely to include being aged 25–44, being male rather than female and generally being more mobile than the rest of the population.<sup>4</sup>

The Census-LS sample in 1981 shows the same characteristics for those members lost to linkage between 1971 and 1981 as the population investigated by the PES. However, the losses to the LS sample over time were far greater than those that would have been expected as a result of pure under-enumeration. Much of this extra loss was due to the inability to link persons where their dates of birth were discrepant between their entry to the LS and a subsequent census or where they were members of a wholly absent household in 1981.

### **Under-enumeration in the 1991 Census**

The estimate of under-enumeration in the 1991 Census for the resident population of Great Britain was 1.9 per cent or 1.05 million persons.<sup>5</sup> This estimate was later revised to 1.2 million persons.<sup>6</sup>

After the 1991 Census Validation Survey (CVS) was complete and the rebasing of the annual England and Wales population was done, the final figure for under-enumeration of the population of England and Wales in 1991 was estimated at 2 per cent or 1.1 million.<sup>6</sup> Four possible reasons for the loss of population were investigated by OPCS.<sup>7</sup>

First, it was suggested that errors in the 1981 Census could have affected the rolled forward population estimates for 1991. It was felt that this was highly unlikely as the errors were small and the population age structure at 1981 did not reflect the situation in 1991.

Second, it was suggested that there had been errors in the components of population change (births, deaths and migration) used to roll forward the population from 1981 to 1991. Migration is the most likely candidate for error as migration figures are based on FHSA data together with data from the International Passenger Survey (IPS). The IPS is a continuous sample of international migration which is known to contain sampling errors. However, these errors are estimated to be too small to have caused the large undercount.

The third explanation concerns errors in adjusting the 1991 Census counts produced by using grossed up results from the CVS. As these results are grossed up from a small sample they are subject to sampling error and bias in non-response.

The fourth reason, that there were genuine undercounts in the 1991 Census due to a large amount of social change between 1981 and 1991, seems the most likely. It has been suggested that this may have been contributed to by changes in attitudes to authority, increase in one-person households, fear of opening the door to strangers, an increase in homelessness and the unpopularity of the community tax.<sup>7</sup>

The number of LS members lost to link between 1981 and 1991 was nearly 20 per cent higher than the number lost to link between 1971 and 1981. A total of 46,652 LS members present in the 1981 Census who were believed to be alive and in the country in 1991 were not linked at the 1991 Census. If the 1991 LS sampling fraction is applied to the 1.1 million persons under-enumerated at the Census, the expected number of LS members not present at census due to under-enumeration should have been approximately 12,000. Date of birth discrepancies, though estimated to be on a smaller scale than at the 1981 Census (see Chapter 5, section 5.5.4), together with the number of LS members resident in wholly absent households at the 1991 Census and missed migrations have made a substantial contribution to the extra losses to linkage.

The patterns of under-enumeration found in the 1981 Quality Check<sup>4</sup> and the 1991 CVS<sup>6</sup> confirm that the same demographic and socio-economic groups within the England and Wales population were under-enumerated as were 'lost to link' in the LS between censuses. The percentage of LS members 'lost to link' at the 1981 and 1991 Censuses are shown in Table XIV.3 by selected socio-demographic characteristics. In both censuses the same type of characteristics were found to be associated with 'loss to link'. LS members who did not link were more likely to be young, male, either single or divorced, students, in furnished rented accommodation, in very large households and whose social class (as defined by occupation) was given as 'armed forces' or as 'inadequately described'.

**Table XIV.3 Percentages of LS members lost to link at the 1981 and 1991 Censuses by demographic and socio-economic characteristics**

Characteristics of LS members lost to link	Percentage lost to link at 1981 Census	Percentage lost to link at 1991 Census
<b>Age (at previous census)</b>		
0-4	8	8
5-14	8	12
15-24	10	14
25-44	8	9
45-64	7	6
65+	3	3
<b>Sex</b>		
Male	8	10
Female	8	8
<b>Marital status</b>		
Single	9	12
Married	7	7
Widowed	5	5
Divorced	10	10
<b>Economic position</b>		
Economically active:		
In employment	8	8
Out of employment	13	13
Economically inactive:		
Retired	4	4
Student	13	19
Other inactive	7	6
<b>Tenure</b>		
Owner-occupied	7	8
Local Authority rented	7	9
Rented furnished	19	22
Rented unfurnished	8	10
<b>Household size</b>		
1	8	7
2	6	6
3-6	7	9
7+	12	18
<b>Social class</b>		
I	8	8
II	7	7
IIIN	7	7
IIIM	7	8
IV	8	8
V	9	9
Armed forces	17	24
Inadequately described	7	9

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# Appendix XV Publications arising from research using the OPCS Longitudinal Study prior to June 1993

This appendix lists all of the publications arising from research using the OPCS Longitudinal Study published by June 1993. Publications are organised under the following broad headings:

- Cancer studies
- Inequalities in health and mortality
- Ethnicity
- Gerontological studies
- Migration
- Demographic studies
- Social and economic change
- General and methodological

To facilitate searching the large number of publications on inequalities in health and mortality are divided into three further categories reflecting:

- Geographical differences in health and mortality
- Inequalities in women's health and mortality **and**
- Socio-economic differences in health and mortality.

## Cancer Studies

Dolin P (1992) 'A descriptive study of occupation and bladder cancer in England and Wales', *British Journal of Cancer*, **Vol. 65:3**, pp 476-478

Dolin PJ, and Cook-Mozaffari, P (1992) 'Occupation and bladder cancer: a death-certificate study' *British Journal of Cancer*, **Vol. 66:3**, pp 568-579

Jones DR (1988) 'Cancer mortality following widow(er)hood in Office of Population Censuses and Surveys' Longitudinal Study', in Eylenbosch, WJ, Depoorter A-M and van Larebeke N (Eds) *Proceedings of the First International Symposium on Primary Prevention of Cancer (Antwerp)*, *EORTC Monograph Vol. 19*, New York: Raven Press

Jones DR (1988) 'Cancer mortality following widow(er)hood in the Office of Population Censuses and Surveys' Longitudinal Study', in Watson M, Greer S and Thomas C (Eds) *Psychological oncology: proceedings of conference on bereavement and cancer (Leicester, 1987)*, Oxford: Pergamon Press

Jones DR and Goldblatt PO (1986) 'Cancer and mortality following widow(er)hood. Some further results from the Office of Population Censuses and Surveys Longitudinal Study', *Stress Medicine*, **Vol. 2**, pp 129-140

Jones DR, Goldblatt PO and Leon DA (1984) 'Bereavement and cancer: some data on deaths of spouses from the Longitudinal Study of the Office of Population Censuses and Surveys', *British Medical Journal*, **Vol 289**, pp 461-464

Kogevinas M (1990) *Longitudinal Study: Socio-demographic differences in cancer survival*, *Longitudinal Study Series No.5*, London: HMSO

Kogevinas M (1992) 'Social inequalities and cancers', in Heller T, Bailey L and Patterson S (Eds) *Preventing Cancers*, London: Open University Press

Kogevinas M, Marmot MG and Fox AJ (1988) *Socio-economic status and cancer: results from the OPCS Longitudinal Study*, *LS Working Paper Series no. 56*, London: Social Statistics Research Unit, City University

Kogevinas M, Goldblatt P and Pugh H (1989) *Socio-economic status and breast cancer in England and Wales: time trends in incidence, survival and mortality*, *LS Working Paper Series no. 63*, London: Social Statistics Research Unit, City University

Kogevinas M, Marmot MG, Fox AJ and Goldblatt P O (1991) 'Socio-economic differences in cancer survival', *Journal of Epidemiology and Community Health*, **Vol. 45**, pp 216-219

Leon DA (1985) *Socio-economic differentials in cancer, a review paper written for the International Agency for Research in Cancer*, *LS Working Paper Series no. 31*, London: Social Statistics Research Unit, City University

Leon D (1988) *The Social Distribution of Cancer, Longitudinal Study Series No. 3*, London: HMSO

Leon D (1988) 'Socio-economic factors and the primary prevention of cancer', in Eylenbosch WJ and Depoorter A-M and van Larebeke N (Eds) *Proceedings of the First International Symposium on Primary Prevention of Cancer (Antwerp)*, *EORTC Monograph Vol. 19*, New York: Raven Press

Leon D (1989) 'A prospective study of the independent effects of parity and age at first birth on breast cancer incidence in England and Wales' *International Journal of Cancer*, **43**, pp 986-991

Leon D and Wilkinson RG (1989) 'Inequalities in prognosis: socio-economic differences in cancer and heart diseases survival', in Fox J (Ed) *Health Inequalities in European Countries, Proceedings of the European Science Foundation Workshops held in London 1984 - 86*, pp 280-300, Aldershot: Gower Press

Leon D, Davey-Smith G, Shipley M and Rose G (1991) 'Socio-economic differentials in cancer among men', *International Journal of Epidemiology*, **Vol 20:2**, pp 339-345

Murphy M, Goldblatt P, Thornton-Jones H and Silcocks P (1990) 'Survival amongst women with cancer of the uterine cervix; the influence of marital status and social class', *Journal of Epidemiology and Community Health*, **Vol. 44**, pp 293-296

Pugh H, Power C, Goldblatt P and Arber S (1991) 'Women's lung cancer mortality, socio-economic status and changing smoking patterns', *Social Science and Medicine*, **Vol. 32:10**, pp 1105-1110

## Inequalities in health and mortality

### Geographical differences in health and mortality

Britton M (1989) 'Mortality and geography', *Population Trends*, **56**, pp 16-23

Britton M (Ed.) (1990) *Mortality and Geography: decennial supplement*, London: HMSO

Downing A (1993) *The effects of total water hardness, smoke particles and sulphur dioxide levels on mortality in urban areas in England and Wales using the OPCS Longitudinal Study*, Report submitted in partial fulfilment of the requirements for the MSc in Medical Demography, London: London School of Hygiene and Tropical Medicine

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### Inequalities in women's health and mortality

Green A, Beral V and Moser K (1988) 'Mortality in women in relation to their childbearing', *British Medical Journal*, **Vol 297 No. 6645**, pp 391-395

Harrop A and Joshi H (1994) *Death and the saleswoman: an investigation of mortality and occupational immobility of women in the Longitudinal Study of England and Wales*, LS Working Paper Series No. 73, London: LS Support Programme, SSRU, City University

Mercer A, Goldblatt P and Pugh H (1989) *Family and demographic circumstances and mortality among married women of working ages*, LS Working Paper Series no. 65, London: Social Statistics Research Unit, City University

Moser KA and Goldblatt P (1984) *Mortality of women in private and non-private households using data from the OPCS Longitudinal Study*, LS Working Paper Series no. 14, London: Social Statistics Research Unit, City University

Moser K, Pugh H and Goldblatt P (1987) *Inequalities in women's health: developing an alternative approach (more comprehensive version of BMJ article)*, LS Working Paper Series no. 54, London: Social Statistics Research Unit, City University

Moser K, Pugh H and Goldblatt P (1988) 'Inequalities in women's health: developing an alternative approach', *British Medical Journal*, **Vol 296 No. 6631**, pp 1221-1224

Moser K and Goldblatt P (1990) *Occupational mortality of women aged 15-59 at death in England and Wales*, LS Working Paper Series no. 66, London: Social Statistics Research Unit, City

University

Moser KA, Pugh H and Goldblatt PO (1990) 'Inequalities in women's health: mortality among married women according to social circumstances, employment characteristics and life-cycle stage', *Genus*, **Vol XLVI**, pp 71-84

Moser KM and Goldblatt P (1991) 'Occupational mortality of women aged 15-59 at death in England and Wales', *Journal of Epidemiology and Community Health*, **Vol 45**, pp 117-124

Pugh H and Moser K (1990) 'Women's mortality', in Roberts H (Ed) *Women's Health Counts*, London: Routledge

Sloggett A, Joshi H and Clarke L (1994) *Women's smoking and mortality in Britain: linking smoking patterns, socio-economic factors and mortality*, Centre for Population Studies Research Paper 94-1, London: London School of Hygiene and Tropical Medicine

Sloggett A and Joshi H (1994) 'Higher mortality in deprived areas: community or personal disadvantage?' *British Medical Journal*, **Vol 309**, pp 1470-1474

Weatherall R, Joshi H and Macran S (1994) 'Double burden or double blessing? Employment, motherhood and mortality in the Longitudinal Study of England and Wales', *Soc Sci Med*, **Vol 38:2**, pp 285-297

### Socio-economic differences in health and mortality

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