



# THE SCOTTISH LONGITUDINAL STUDY

**A technical guide to the creation, quality and linkage  
of the 2001 Census SLS sample**

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# 1 Introduction

The Scottish Longitudinal Study (SLS) is a large scale linkage study that has been created by utilizing data available from routinely collected administrative and statistical datasets. These sources include Census data, Vital Events data (births, deaths, marriages), National Health Service Central Register (NHSCR) data (migration in or out of Scotland) and NHS data (cancer registrations and hospital discharges).

The SLS is a 5.3% representative sample of the Scottish population starting with data drawn from the 1991 Census. For a detailed introduction to the SLS, please refer to LSCS Working Paper 1 “The Scottish Longitudinal Study: an introduction”. For discussion of the quality of the original sample see LSCS Working Paper 2 “**The Scottish Longitudinal Study: Tracing rates and sample quality for the 1991 Census SLS sample**”. A technical guide to creation and quality of the 1991 Census SLS sample”. A detailed discussion of the quality of the linked 1991 – 2001 Census SLS data is given in LSCS Working Paper 4 “**The 1991 – 2001 Scottish Longitudinal Study Census Link**”.

This working paper covers the creation, selection and quality of the 2001 Census SLS sample. It provides details of the methods used to select the sample from the 2001 Census returns and also discusses the effect on the SLS sample of the particular methodology used in the 2001 Census (known as the ‘One Number Census’ methodology).

## 2 The 2001 Census

The 2001 Census took place on the 29<sup>th</sup> April 2001. It differed from the 1991 Census in a number of ways, both at the operational and processing levels. It was the first UK census where envelopes were issued for completed census forms to be posted back to the census offices, rather than being collected by the enumerators. The data on the census forms were scanned in to computer systems using optical character recognition and optical mark recognition technology, rather than being keyed in by data input staff. Because of the technology used the paper census forms could not

be easily retained after scanning. However, images of each completed census form were stored on optical discs for future reference.

It was decided that, unlike the 1991 Census, not only would all variables be fully coded but also that under-enumeration would be dealt with by using a set of statistical imputation procedures commonly referred to as the One Number Census (ONC). Missing households, missing persons and the values for missing variables were imputed based on the results of the Census Coverage Survey and the ONC. This had implications for the sampling of the Census data for the SLS. Because of the longitudinal nature of the SLS it is debatable whether imputed data should be included, as some imputed variables will inevitably be inconsistent with other information collected at different time points. We made the decision to exclude imputed data. As a result the data used to construct the 2001 SLS Census files were extracted after the basic editing of Census data was conducted (this involves some simple editing by ONS to remove obvious errors in the data such as where the age of a person is given as 3 and their marital status is shown as married) but before the ONC imputation process (this version of the Census dataset is referred to as the Post Edit, Pre-Imputation or PEPI dataset). The derived variables created as part of the 2001 Census process (these are variables which are not collected, but which can be created from the existing information – for example, ILLH0 – number of people with long term limiting illness in a household is created from a count of persons with long term limiting illness living in private households who are not students living away from home (ILLP0 = 1 and PERTYPE = P and TTIND0 not = 2)) were produced after both the ONC process had been completed and the record swapping (where a number of records are swapped between households as a confidentiality measure) had taken place. As a result, this caused problems for matching 2001 data into the SLS. To solve these problems, the SLS Unit therefore programmed our own Census derived variables using the original Census algorithms based on the PEPI dataset. This gives rise to certain small differences at both the record level and at the aggregate level between the published 2001 Census derives and those held in the SLS database.

## **2.1 Sampling method**

As in 1991, the 2001 Census data was sampled using the 20 SLS birth dates as the selection criteria. The number of sample members selected in 2001 was 268,428.

This total dropped to 265,104 after 3,324 dummy and duplicate records were deleted (see LSCS Working Paper 2 for a discussion of dummy and duplicate records). This was slightly smaller than the original sample of 270,385 identified at the 1991 Census and only 99% of the expected sample which was calculated to be 268,287, or 5.3% of the usually resident Scottish population enumerated in the 2001 Census (it should be noted that this expected figure was calculated from the final Census counts which had been adjusted for under-enumeration by the ONS process).

Two files were extracted from the 2001 Census data by the General Register Office for Scotland (GROS). One was to be used in the matching and linking process and was sent to the National Health Service Central Register (NHSCR), who are the third party that is used to attach SLS numbers to new members of the SLS sample. The other file, which contained pre-imputation Census data together with 2001 SLS numbers, was sent to the SLS Unit. The NHSCR matching file also contained the 2001 SLS numbers together with the details of name, date of birth and sex required to search the NHSCR database. Name and address were not included in the file given to the SLS.

## **2.2 Flagging and linkage**

When the 2001 sample was drawn a set of new SLS numbers were assigned to each sample member. However, the 2001 SLS sample included 225,445 members who were already flagged on the NHSCR database as they had entered the study at an earlier point (through the 1991 Census, or as a new birth or new immigrant who registers with a General Practitioner (GP)). In these cases the original SLS numbers needed to be identified and entered on the file. This process is known as 'linkage' as it allows the linkage together of previous census and event data for an existing SLS member. New SLS members who had not been found before the 2001 Census had no SLS numbers and therefore needed to be flagged on the NHSCR database. Many of these new entrants would have been immigrants to Scotland since 1991 who had not yet registered with a GP and would therefore not be found on the NHSCR database before the 2001 Census. These entrants would carry a 2001 SLS number but be treated as 'no trace'. This would allow census data to be linked to them but not subsequent vital events data until they became 'traced' by registration with a GP. For details of the 1991 – 2001 SLS Census linkage see Working Paper 4

<http://www.lscs.ac.uk/sls/publications.htm>

In 1991 the names of persons enumerated in the Census were not allowed to be computerised; this legal restriction was printed on the first page of the Census form. This affected the method of extracting and flagging the original SLS sample which had to be done manually (see Working Paper 2). No such restrictions were placed on the computerisation of names in the 2001 Census and this allowed GROS Census Division to extract a file containing names as well as other identification data required for matching the SLS sample to the NHSCR database automatically. Names had been optically scanned from hand written entries in the census form name field. Unfortunately, forenames and surnames were not asked for separately on the Census form (the name was written into a single string of 22 boxes) and, as a result, the names appeared as a single word on a large number of entries. Software had to be written to separate out the forename and surname as the NHSCR require separate surnames and forenames when doing automatic searches of their database. A pilot of the automated matching process was run to estimate the percentage of SLS members who could be found automatically on the NHSCR database. These could either be flagged as new members or identified as existing SLS members. The automatic match rate for the pilot was 73% of which 7% were new entries at the 2001 Census. This left 27% to be matched by other means. It was decided that to reduce the amount of manual matching (involving administrative staff searching through records to identify matches that were not exact, but were most likely to be the same person), probability matching methods would be used on those cases that failed the exact match. The remaining cases that failed probability matching could go for manual resolution.

After the successful run of the pilot the full process was run for the entire set of 268,428 potential SLS members sampled at the 2001 Census. The results of this process were:

Automatic match rate:	69% (183,813)
Of which: New entries flagged	7%
Existing members matched	62%

The remaining 83,615 potential members that had not been automatically matched were put through a probability matching process against the Community Health Index

(CHI). The CHI is a patient database held by the National Health Service, Scotland, which holds name, address, including postcode, and the NHS number. Matching was done using names, sex, date of birth and postcode. This process found an additional 57,236 potential SLS members on the CHI. Other identification data was added to the file (including NHS number) and this was then run against the NHSCR exact matching system (this was done on those 57,236 potential SLS members who had not been automatically matched) and the results were:

NHSCR system match rate:	13% (34,505)
Of which: New entries flagged	1%
Existing members matched	12%.

The remaining 49,110 cases were searched for by NHSCR using manual methods. This resulted in:

Manual match rate:	14% (37,337)
Of which: New entries flagged	3%
Existing members matched	11%

The final results are summarised in Table 3.1.

**TABLE 3.1: Final Results of NHSCR Tracing of 2001 Census SLS Sample**

	Auto match	Probability match	Manual match	Total (%)
New entries flagged on the NHSCR database with 2001 SLS numbers (traced)	19,365	3650	7919	30,934 (12%)
Existing SLS members found on the NHSCR database (traced)	165,172	30,855	29,418	225,445 (84%)
Total traced cases	184,537	34,505	37,337	256,379 (96%)
Total no trace cases				8,725 (3%)
Total dummies & duplicates				3,324 (1%)
Total (%)	184,537 (69%)	34,505 (13%)	37,337 (14%)	268,428 (100%)

Thus, as a result of this complex process only 4% of the potential SLS members found in the 2001 Census could not be linked into the SLS database.

### 2.3 Implications of the One Number Census

One of the main differences between the 2001 Census and previous censuses was the adoption of a statistical methodology to adjust the census results for under-enumeration. In 1991 the Census had an estimated undercount of around 2 million persons for Great Britain (similar to the census undercounts in other countries) which was not spread evenly across the population. Those in inner city areas, males aged 20 – 30 and the elderly were particularly poorly represented. The Census Validation Survey (CVS) was a post-enumeration survey used to identify and estimate the extent of the under-enumeration and to quantify the consistency of census responses. It was found to be inadequate for the first of these purposes and the resulting published census counts required a number of adjustments. Comparisons with the rolled forward figures from the 1981 Census indicated that the CVS only found one seventh of the net under-coverage. As a result the rolled forward demographic estimates were considered to be more accurate.

Because the census is used as the base from which mid-year population estimates are calculated on which central government funding to local authorities is based, as well as providing the demographic base for planning health, education and transport requirements for the next ten years, it was felt that the CVS alone, however accurate, was not adequate to deal with the undercount. The census database itself should be adjusted to account for under-enumeration. The ONC methodology (see [www.statistics.gov.uk/census2001/pdfs/oncguide.pdf](http://www.statistics.gov.uk/census2001/pdfs/oncguide.pdf)) used to achieve the final counts was as follows.

An independent Census Coverage Survey (CCS) was undertaken to establish the extent of coverage of the 2001 Census. The design of the CCS was different from the CVS in that it was much larger and aimed specifically at under-enumeration (there was a separate survey dealing with data quality). The CCS in the UK was based on 112 'design groups' each containing a population of 500,000 persons in one or more Local Authority Districts. There were 8 'design groups' in Scotland each comprising around 40,000 households in 2,400 postcodes. The CCS was interviewer based and consisted of a survey instrument containing basic questions on the demographic characteristics of all household members, accommodation details and relationship information. An overall response rate of 95% was achieved in Scotland.



Once the CCS records were received and processed they were matched with those from the Census using exact matching, probability matching and finally clerical matching methods. Where respondents were found in the CCS but not in the Census, or in the Census but not in the CCS, the number and characteristics of these respondents were used to estimate the under-enumeration by sex and 5 year age groups in council areas. This was done using dual system estimation techniques at the council area level in Scotland.

The CCS results were used to adjust census counts in all council and part council areas (36 baileries) and these results were then aggregated up to Health Board Areas and Council Areas. The council area population estimates were then calculated. Once these population estimates were produced the imputation of missing households and missing individuals was done to provide figures which would compensate for the under-enumeration in the census.

Imputation of missing census variables was done prior to the addition of imputed household and person records to the census household and person files. Imputation of relationships between household members had to be repeated where missing persons had been imputed into enumerated households. The creation of derived variables was done after the ONC process was complete. The 100% coding for all census variables could only be achieved after the completion of both the donor imputation of missing values for variables such as occupation (using the values of a variable from a similar household) and the ONC process (where both missing households and persons were created).

Because the SLS is a longitudinal linkage study that must not have imputed data if links over time are to be made (e.g. between the SLS member record from the 1991 Census and their subsequent record at the 2001 Census) all records used must be for enumerated and not imputed persons. Imputed values of variables that are missing on the original data could also distort the picture of change over time. This is particularly important for variables such as qualifications, occupation and industry. Wherever a variable has a missing value that missing value is given. No imputed data are present in the SLS 2001 census dataset.

The dates of birth that are used for the selection of SLS members into the study were not excluded from the ONC process so that individuals who were putative SLS members and other persons in SLS households could have been imputed. To avoid this problem the SLS sample was taken at a point before the ONC process had begun. This has the effect of the SLS sample population counts being marginally less than would be expected given the final 100% Census counts (which include the imputed people). The Census population count for Scotland was 5,062,011. A 5.5% sample would have netted 278,411 SLS members. In actuality the SLS sample (including duplicates) was 268,428 providing an initial 5.3% per cent sample.

## **2.4 The effect of 100% coding**

Donor imputation was used to supply the missing values where persons and households were imputed. These included imputing basic demographics, relationship and accommodation details. Where a response variable on an existing census record was found to be missing, such as occupation, donor imputation was used to supply the missing value. Donors were selected from households in similar, and generally nearby areas, with similar characteristics to the one in which the value was missing. Only after the completion of imputation, and when no missing values existed in the Census dataset were the derived variables constructed.

This has major implication for the SLS as no imputed data are contained within it. Where a value is missing it remains as such and the result is that the distribution of values within the SLS 2001 dataset is slightly different from the published Census figures.

## **2.5 Programming of Census derived variables by the SLS Unit**

All derived variables (DVs) required for the 2001 Census had to be programmed by the SLS Unit using the Census algorithms and the raw dataset. The raw dataset included missing values in all variables and this had a knock-on effect when constructing derivations. The percentage of missing cases in the final DVs varied from 0% to 18.2% but most derived variables had very few cases missing. Approximately 100 derived variables required programming including those that were needed as input to programming other DVs. Not all of these are available on the

database for analysis. Out of the total DVs, 66 person, household and communal establishment DVs and 20 Scottish migration/geography DVs are available on the database. For a detailed description of these variables see WPn 'Coding of derived variables'.

A 1% sample of the final Census data including the majority of derived variables was provided to the SLS to allow for testing. Postcode data and those geographic derived variables that relied on postcode were excluded from the Census 1% sample. The SLS DVs (apart from a number of geography derives) were tested against the final Census data to check, firstly, that they were programmed correctly and, secondly, that the SLS results were consistent with the published Census results allowing for a small percentage of missing cases. Once they were fully tested they were loaded into the appropriate SLS 2001 database tables.

## 2.6 Quality of 2001 SLS Census data

The SLS figures shown in the sections below include cases with missing data. As a result tracing rates and sampling fractions will be lower than they would have been if the ONC process had not been applied to the base Census data. Where possible sampling fractions have been calculated against both the 100% ONC data and the 2001 base Census data (PEPI) to quantify the quality of sampling. Differences are small but must be taken into account when using SLS data and comparing it with published Census tables.

## 3 Quality of tracing

Note that calculation of 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 is defined as:

$$100 - (\text{the not traced rate}).$$

### **3.1 Tracing rates in the 2001 Census – SLS sample**

The 2001 Census SLS sample was selected from the 2001 Census usually resident population enumerated in Scotland using the SLS selection criteria of 20 birthdates that could occur in any year. The sample was composed of 265,104 persons of whom 96.7% were traced at NHSCR. 126,379 of these persons were male and 137,937 were female. The remaining 788 persons had no sex recorded on their census returns. Among those with a sex recorded 96.6% of males and 96.9% of females were traced.

### **3.2 By age and sex**

Among males, excluding those with a missing age where over a quarter were untraced at NHSCR, the highest not traced rate was found for men aged 80 and over. This ranged from 4.5% to 8.8%. Among younger men the highest not traced rates were found among those aged 20 – 29. The same pattern was observed for women, with those with age missing having the highest not traced rates. Older women (aged 75 and over) also showed high not traced rates.

Comparing the tracing patterns with those found in the 1991 Census SLS sample (see Table 2.1 in LSCS Working Paper 2) it is clear that the same age groups show lower tracing rates at the two censuses. For both men and women these groups comprise those aged in their 20's and the elderly. The causes are not yet clear but it is likely that in the younger age groups a larger number are likely to be immigrants who have not yet registered with a GP at the time of the census or have moved into sub-groups where they have temporarily left the NHS (members of the armed forces and persons in prison). A problem for the census as a whole was also noted for those cases that were enumerated in University and college halls of residence where the name of the student had frequently been left blank on their individual returns. Among the elderly the likelihood is that the census form may either have been filled in incorrectly or scanned incorrectly with at least one of the search terms required by NHSCR missing. The manual checking of the optical records for cases that could not be found on the NHSCR showed that names were frequently misinterpreted by the scanning software or were missing altogether. The date of birth (used in selecting the sample) and sex were generally found to be present.

**TABLE 3.2: 2001 SLS sample population by sex, age and not traced rates**

Excludes 788 cases (784 where sex is missing and 4 cases where both age & sex are missing)

Note that of those 788 cases 661 were traced at NHSCR, the remaining 127 being untraced.

Age	MALES					FEMALES					TOTAL				
	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI
0 - 4	6973	212	7185	2.95	0.40	6502	172	6674	2.58	0.39	13475	384	13859	2.77	0.28
5 - 9	8012	207	8219	2.52	0.35	7586	190	7776	2.44	0.35	15598	397	15995	2.48	0.25
10 - 14	8437	226	8663	2.61	0.34	8073	192	8265	2.32	0.33	16510	418	16928	2.47	0.24
15 - 19	7994	265	8259	3.21	0.39	8003	270	8273	3.26	0.39	15997	535	16532	3.24	0.28
20 - 24	7498	368	7866	4.68	0.48	7602	334	7936	4.21	0.45	15100	702	15802	4.44	0.33
25 - 29	7282	341	7623	4.47	0.47	8077	316	8393	3.77	0.42	15359	657	16016	4.10	0.31
30 - 34	8898	358	9256	3.87	0.40	9918	291	10209	2.85	0.33	18816	649	19465	3.33	0.26
35 - 39	9816	358	10174	3.52	0.37	10708	286	10994	2.60	0.30	20524	644	21168	3.04	0.24
40 - 44	9446	289	9735	2.97	0.34	9956	252	10208	2.47	0.31	19402	541	19943	2.71	0.23
45 - 49	8533	230	8763	2.62	0.34	8943	231	9174	2.52	0.33	17476	461	17937	2.57	0.24
50 - 54	8675	263	8938	2.94	0.36	9107	301	9408	3.20	0.36	17782	564	18346	3.07	0.25
55 - 59	7381	195	7576	2.57	0.36	7630	251	7881	3.18	0.40	15011	446	15457	2.89	0.27
60 - 64	6372	234	6606	3.54	0.45	7088	192	7280	2.64	0.38	13460	426	13886	3.07	0.29
65 - 69	5787	176	5963	2.95	0.44	6545	208	6753	3.08	0.42	12332	384	12716	3.02	0.30
70 - 74	4549	173	4722	3.66	0.55	5907	199	6106	3.26	0.45	10456	372	10828	3.44	0.35
75 - 79	3319	132	3451	3.82	0.65	5138	217	5355	4.05	0.54	8457	349	8806	3.96	0.42
80 - 84	1783	84	1867	4.50	0.96	3442	147	3589	4.10	0.66	5225	231	5456	4.23	0.55
85 - 89	847	45	892	5.04	1.47	2052	127	2179	5.83	1.00	2899	172	3071	5.60	0.83
90 +	301	29	330	8.79	3.12	1113	83	1196	6.94	1.47	1414	112	1526	7.34	1.34
Missing	211	80	291	27.49	5.23	214	74	288	25.69	5.15	425	154	579	26.60	3.67
<b>TOTAL</b>	122114	4265	126379	3.37	0.10	133604	4333	137937	3.14	0.09	255718	8598	264316	3.25	0.07

### **3.3 By age, sex and marital status**

261,523 SLS members who had recorded both sex and marital status on their census returns are included in Table 3.3 below. Among the 124,998 men shown in this table 46% were recorded as single, 46% married, 6% divorced and 3% widowed. Of the 136,525 women in this sample 40% were recorded as single, 43% married, 6% divorced and 11% widowed.

#### **Single**

Tracing rates for single males tend to be worse than those for single females (Table 3.3a). This holds for all age groups except for children and those of school or college age (0 – 19) where the tracing rates for both sexes are similar at around 97%. The tracing rates for men are noticeably worse from the age of 60 upwards but this is partially due to small numbers. Single women's tracing rates also show a marked drop but this occurs at age 80 and over.

#### **Married**

Except at very young ages (16 – 24) where the numbers of married SLS members are very small (293 men and 593 women) the lowest tracing rates are found among women aged 75 and over (Table 3.3b). The numbers of those still married are small and many elderly women will have been in communal establishments where their census forms will have been filled in by the staff, often incorrectly. Generally, married persons show better tracing rates than for any other marital status for both men and women aged between 25 and 69.

#### **Divorced**

More women than men stated that their marital status was divorced (8,632 women and 5,927 men) on their 2001 Census returns (Table 3.3c). Divorced men generally had worse tracing rates than women but the reasons for this are not clear.

#### **Widowed**

As might be expected there were more widows than widowers (14,848 widows compared with 4,046 widowers) as women tend to outlive their spouses often by a substantial number of years. Tracing rates for young widowed SLS members (aged 16 – 39) were low reflecting the very small numbers in these age groups. Tracing rates were generally variable with women showing worse tracing rates at very old ages.

**TABLE 3.3: 2001 SLS population by age, sex, marital status and not traced rates**

Note: 3581 cases excluded because of missing either sex or marital status or both

**3.3.a - SINGLE**

Age	Males					Females				
	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI
<b>0 - 15</b>	25053	691	25744	2.68	0.20	23712	602	24314	2.48	0.20
<b>16 - 19</b>	6207	188	6395	2.94	0.42	6303	199	6502	3.06	0.43
<b>20 - 24</b>	7140	310	7450	4.16	0.46	6955	284	7239	3.92	0.46
<b>25 - 29</b>	5337	253	5590	4.53	0.56	4960	207	5167	4.01	0.55
<b>30 - 34</b>	3768	162	3930	4.12	0.63	3274	119	3393	3.51	0.63
<b>35 - 39</b>	2451	143	2594	5.51	0.90	2066	79	2145	3.68	0.81
<b>40 - 44</b>	1555	79	1634	4.83	1.06	1244	46	1290	3.57	1.03
<b>45 - 49</b>	1051	49	1100	4.45	1.24	784	32	816	3.92	1.36
<b>50 - 54</b>	885	57	942	6.05	1.55	566	24	590	4.07	1.63
<b>55 - 59</b>	625	29	654	4.43	1.61	420	19	439	4.33	1.94
<b>60 - 64</b>	481	33	514	6.42	2.16	402	15	417	3.60	1.82
<b>65 - 69</b>	390	21	411	5.11	2.17	460	21	481	4.37	1.86
<b>70 - 74</b>	340	26	366	7.10	2.69	524	16	540	2.96	1.46
<b>75 - 79</b>	249	18	267	6.74	3.07	539	23	562	4.09	1.67
<b>80+</b>	211	35	246	14.23	4.45	790	49	839	5.84	1.62
<b>Missing</b>	72	35	107	32.71	9.07	81	23	104	22.12	8.14
<b>TOTAL</b>	55815	2129	57944	3.67	0.16	53080	1758	54838	3.21	0.15

3.3b: MARRIED

Age	MALES					FEMALES				
	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI
	0 - 15	0	0	0			0	0	0	
16 - 24	275	18	293	6.14	2.81	566	27	593	4.55	1.71
25 - 29	1764	50	1814	2.76	0.77	2801	78	2879	2.71	0.61
30 - 34	4617	136	4753	2.86	0.48	5787	129	5916	2.18	0.38
35 - 39	6514	161	6675	2.41	0.38	7249	155	7404	2.09	0.33
40 - 44	6782	149	6931	2.15	0.35	7141	153	7294	2.10	0.34
45 - 49	6397	142	6539	2.17	0.36	6667	146	6813	2.14	0.35
50 - 54	6705	148	6853	2.16	0.35	6843	214	7057	3.03	0.41
55 - 59	5859	131	5990	2.19	0.38	5616	163	5779	2.82	0.44
60 - 64	5044	154	5198	2.96	0.47	4846	122	4968	2.46	0.44
65 - 69	4496	115	4611	2.49	0.46	3891	110	4001	2.75	0.52
70 - 74	3349	104	3453	3.01	0.58	2673	81	2754	2.94	0.64
75 - 79	2199	75	2274	3.30	0.75	1637	62	1699	3.65	0.91
80+	1519	56	1575	3.56	0.93	895	53	948	5.59	1.49
Missing	92	30	122	24.59	7.80	76	26	102	25.49	8.63
<b>TOTAL</b>	55612	1469	57081	2.57	0.13	56688	1519	58207	2.61	0.13



3.3c: DIVORCED

Age	MALES					FEMALES				
	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI
0 - 15	0	0	0			0	0	0		
16 - 24	11	6	17	35.29	23.18	23	5	28	17.86	14.48
25 - 29	75	6	81	7.41	5.82	220	8	228	3.51	2.44
30 - 34	397	22	419	5.25	2.18	679	24	703	3.41	1.37
35 - 39	718	25	743	3.36	1.32	1206	36	1242	2.90	0.95
40 - 44	952	32	984	3.25	1.13	1322	36	1358	2.65	0.87
45 - 49	924	24	948	2.53	1.02	1209	38	1247	3.05	0.97
50 - 54	875	37	912	4.06	1.31	1207	39	1246	3.13	0.99
55 - 59	634	21	655	3.21	1.38	851	38	889	4.27	1.36
60 - 64	475	22	497	4.43	1.85	651	19	670	2.84	1.28
65 - 69	320	9	329	2.74	1.80	429	9	438	2.05	1.36
70 - 74	176	10	186	5.38	3.31	264	8	272	2.94	2.05
75 - 79	83	2	85	2.35	3.29	172	9	181	4.97	3.23
80+	41	3	44	6.82	7.60	105	7	112	6.25	4.57
Missing	21	6	27	22.22	16.00	13	5	18	27.78	21.11
<b>TOTAL</b>	5702	225	5927	3.80	0.50	8351	281	8632	3.26	0.38

3.3d: WIDOWED

Age	MALES					FEMALES				
	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un- traced Cases	Selected sample	not traced rate	+/- CI
0 - 15	0	0	0			0	0	0		
16 - 39	51	3	54	5.56	6.23	127	9	136	6.62	4.26
40 - 44	43	6	49	12.24	9.37	142	7	149	4.70	3.47
45 - 49	87	4	91	4.40	4.30	226	10	236	4.24	2.62
50 - 54	142	2	144	1.39	1.95	427	12	439	2.73	1.56
55 - 59	203	8	211	3.79	2.63	693	24	717	3.35	1.34
60 - 64	324	11	335	3.28	1.95	1134	25	1159	2.16	0.85
65 - 69	527	20	547	3.66	1.60	1715	56	1771	3.16	0.83
70 - 74	631	26	657	3.96	1.52	2369	79	2448	3.23	0.71
75 - 79	748	29	777	3.73	1.36	2709	114	2823	4.04	0.74
80+	1115	49	1164	4.21	1.18	4691	235	4926	4.77	0.61
Missing	13	4	17	23.53	20.58	30	14	44	31.82	14.04
<b>TOTAL</b>	3884	162	4046	4.00	0.62	14263	585	14848	3.94	0.32

### **3.4 By country of birth and sex**

Tracing rates by country of birth and sex are shown in Table 3.4. 259,866 out of 265,104 SLS members had entered a country of birth and a sex on their census form. Ninety-six per cent of them had been born in the UK, and among those, 91% were born in Scotland. Tracing rates were highest for the Scottish born with over 97% of both SLS men and women being traced at NHSCR. Those born in other parts of the UK had lower tracing rates but these were still higher than for those born outside the UK altogether where over 10% of males and 9% of females were untraced at the 2001 Census. It is not surprising that the not traced rates are quite high for those born abroad as many may have entered the country for short periods of time and left before registering with a GP. The highest not traced rates were found among males born in South Asia at 12.74% with males of North American origin coming a close second with 12.55% of them untraced. Among women the group with the highest not traced rate (11.96%) was found for those born in South Asia. South Asia encompasses India, Pakistan and Bangladesh and many of the persons of South Asian origin use variable spelling of their names. During the exercise using the optical discs to attempt to find search terms for NHSCR to manually trace SLS members where data had been scanned in wrongly, or had been filled in on the form in the wrong place, it was noticed that some persons of South Asian origin were spelling their names in different ways on different sections of the form. A large proportion of these people were probably registered with a GP and had an entry on the NHSCR but with a different spelling from that given by them on their 2001 Census schedules which may explain their lower rate of tracing. In the case of men whose country of birth was given as North America many would have either been in the USAAF or working for American oil companies where they had private health schemes. In either case they would not have been registered with the National Health Service.

**TABLE 3.4: 2001 SLS sample population by sex, country of birth 'not traced rates'** (excludes 5,238 cases missing sex and/or country of birth)

Country of birth	MALES					FEMALES				
	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI
<b>United Kingdom</b>	116330	3388	119718	2.83	0.10	126841	3566	130407	2.73	0.09
<b>England</b>	9763	486	10249	4.74	0.42	10402	406	10808	3.76	0.37
<b>Scotland</b>	105430	2809	108239	2.60	0.10	115231	3078	118309	2.60	0.09
<b>Northern Ireland</b>	755	61	816	7.48	1.84	841	56	897	6.24	1.62
<b>Wales</b>	382	32	414	7.73	2.63	367	26	393	6.62	2.51
<b>Outside UK</b>	4058	472	4530	10.42	0.91	4742	469	5211	9.00	0.79
<b>Irish Republic *</b>	402	50	452	11.06	2.95	580	49	629	7.79	2.14
<b>European Community</b>	761	103	864	11.92	2.20	1031	99	1130	8.76	1.68
<b>Other Europe</b>	370	32	402	7.96	2.70	351	31	382	8.12	2.79
<b>Africa</b>	502	46	548	8.39	2.37	529	45	574	7.84	2.24
<b>North Africa</b>	93	10	103	9.71	5.83	46	4	50	8.00	7.67
<b>Central &amp; West Africa</b>	55	5	60	8.33	7.14	74	8	82	9.76	6.55
<b>South &amp; Eastern Africa</b>	354	31	385	8.05	2.77	409	33	442	7.47	2.50
<b>Asia</b>	1268	160	1428	11.20	1.67	1233	161	1394	11.55	1.71
<b>Middle East</b>	178	20	198	10.10	4.28	125	13	138	9.42	4.97
<b>Far East</b>	453	47	500	9.40	2.61	497	65	562	11.57	2.70
<b>South Asia</b>	637	93	730	12.74	2.47	611	83	694	11.96	2.46
<b>North America</b>	456	49	505	9.70	2.63	615	36	651	5.53	1.79
<b>Canada</b>	181	10	191	5.24	3.22	256	14	270	5.19	2.70
<b>Caribbean &amp; West Indies</b>	38	5	43	11.63	9.78	53	3	56	5.36	6.02
<b>USA &amp; other N. America</b>	237	34	271	12.55	4.02	306	19	325	5.85	2.60
<b>South America</b>	60	5	65	7.69	6.61	84	7	91	7.69	5.59
<b>Oceania</b>	218	25	243	10.29	3.90	295	37	332	11.14	3.45
<b>Other</b>	21	2	23	8.70	11.75	24	4	28	14.29	13.23
<b>Total</b>	120388	3860	124248	3.11	0.10	131583	4035	135618	2.98	0.09

\*\* Includes Ireland part not stated

### **3.5 By region of usual residence and sex**

Region of usual residence used in this table is the local government region as at 1991. The 2001 Census tables use a different geography with region being defined as 'parliamentary region'. The parliamentary region splits some council areas and is not compatible with the 1991 region. Council areas were the same in both periods so the 1991 region can be easily reconstructed. 264,316 SLS members are included in this table of whom 126,379 were male and 137,937 were female. The highest tracing rates were found in Dumfries and Galloway with 98% of both men and women traced at NHSCR. The lowest tracing rates were found in Shetland where 6% of men and 7% of women were not traced, and in the Western Isles where 5% of both the men and women were not traced. On the mainland Strathclyde and Lothian had lower tracing rates than the other regions but this is not surprising in that the two biggest cities in Scotland, Glasgow and Edinburgh, are in those areas.

**TABLE 3.5: 2001 SLS sample population by sex, region of usual residence and not traced rates** (excludes 788 cases missing sex)

Region of usual residence	MALES					FEMALES				
	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI
Borders	2664	95	2759	3.44	0.69	2924	95	3019	3.15	0.64
Central	6689	211	6900	3.06	0.41	7528	218	7746	2.81	0.38
Dumfries & Galloway	3665	78	3743	2.08	0.47	4032	86	4118	2.09	0.45
Fife	8581	240	8821	2.72	0.35	9222	255	9477	2.69	0.33
Grampian	13361	439	13800	3.18	0.30	13975	457	14432	3.17	0.29
Highland	5409	161	5570	2.89	0.45	5544	154	5698	2.70	0.43
Lothian	18582	740	19322	3.83	0.28	20209	789	20998	3.76	0.26
Strathclyde	51971	1958	53929	3.63	0.16	58020	1937	59957	3.23	0.14
Tayside	9440	262	9702	2.70	0.33	10415	252	10667	2.36	0.29
Orkney	501	11	512	2.15	1.28	500	14	514	2.72	1.44
Shetland	584	37	621	5.96	1.90	545	40	585	6.84	2.09
Western Isles	667	33	700	4.71	1.60	690	36	726	4.96	1.61
Total	122114	4265	126379	3.37	0.10	133604	4333	137937	3.14	0.09

### **3.6 By household type and sex**

The majority of SLS members were enumerated in private households with only 1.6% of men and 1.8% of women being found in communal establishments on Census night. The not traced rates in communal establishments were high with 14.58% of men and 10.31% of women not being found on the NHSCR database. The high not traced rates are particularly affected by the small numbers of SLS members enumerated in those establishments on Census night.

**TABLE 3.6: 2001 SLS sample population by sex, household type and not traced rates**

Note: excludes 788 cases missing sex - 23 in communal establishments & 765 in private households)

Household Type	MALES					FEMALES				
	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI
<b>Private Households</b>	120397	3972	124369	3.19	0.10	131324	4071	135395	3.01	0.09
<b>Communal Establishments*</b>	1717	293	2010	14.58	1.57	2280	262	2542	10.31	1.21
<b>Medical &amp; Care Establishments</b>	737	90	827	10.88	2.17	1538	159	1697	9.37	1.41
All hospitals	164	26	190	13.68	4.99	200	32	232	13.79	4.53
Other medical & care establishments	573	64	637	10.05	2.38	1338	127	1465	8.67	1.47
<b>Other Establishments</b>	980	203	1183	17.16	2.19	742	103	845	12.19	2.25
Defence establishments	115	27	142	19.01	6.59	10	2	12	16.67	21.52
Prison service establishments	167	35	202	17.33	5.33	9	0	9	0.00	0.00
Educational establishments	373	65	438	14.84	3.40	419	56	475	11.79	2.96
Hotel, boarding house, guest house	80	20	100	20.00	8.00	64	9	73	12.33	7.70
Hostel	61	12	73	16.44	8.68	30	2	32	6.25	8.56
Other	184	44	228	19.30	5.23	210	34	244	13.93	4.43
<b>Total</b>	122114	4265	126379	3.37	0.10	133604	4333	137937	3.14	0.09

\* includes non-residents, resident staff & permanent residents of communal establishments



### **3.7 By NS-SEC and sex**

A total of 175,569 SLS members aged between 16 and 74 (84,743 males and 90,826 females) answered the occupation questions and were given a value for the National Statistics Socio-Economic Classification (NS-SEC). This included 13,314 persons who were categorized as 'not classified' (NS-SEC categories L15 full time students; L16 occupation not stated or inadequately described; L17 not classifiable for other reasons). 97.1% of men and 97.3% of women in this sample were traced at the NHSCR. Excluded from this table are 765 non-resident students, 18,938 persons who had no occupation coded and 579 persons who were missing values for both age and occupation. The tracing rates were highest for men in intermediate occupations with only 2.3% of them being untraced and lowest for men who had never worked (6.12% untraced). Among women those in higher professional occupations or in lower managerial and professional occupations had the highest tracing rates (97.6% for both categories). Like men, women who had never worked had the highest untraced rate at 5.45%.

**TABLE 3.7: 2001 SLS sample population by sex, NS-SEC and not traced rates - economically active SLS members aged 16 - 74**

Note: Excludes 765 non-resident students, 18,938 persons who did not answer the occupation questions and 579 persons who had no values for age or NS-SEC.

NS-SEC	MALES					FEMALES				
	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI
1. Higher managerial & professional occupations	9564	288	9852	2.92	0.34	3976	98	4074	2.41	0.48
1.1 Large employers & higher managerial occupations	3522	104	3626	2.87	0.55	1253	31	1284	2.41	0.86
1.2 Higher professional occupations	6042	184	6226	2.96	0.43	2723	67	2790	2.40	0.58
2. Lower managerial & professional occupations	16383	442	16825	2.63	0.25	20400	501	20901	2.40	0.21
3. Intermediate occupations	4834	114	4948	2.30	0.43	15539	357	15896	2.25	0.24
4. Small employers & own account workers	8144	250	8394	2.98	0.37	3249	84	3333	2.52	0.54
5. Lower supervisory & technical occupations	12000	299	12299	2.43	0.28	4399	124	4523	2.74	0.49
6. Semi-routine occupations	9395	258	9653	2.67	0.33	18617	470	19087	2.46	0.22
7. Routine occupations	13491	350	13841	2.53	0.27	11547	350	11897	2.94	0.31
8. Never worked & long-term unemployed	2757	152	2909	5.23	0.83	3610	186	3796	4.90	0.70
Never worked	1442	94	1536	6.12	1.22	2879	166	3045	5.45	0.82
Long-term unemployed	1315	58	1373	4.22	1.09	731	20	751	2.66	1.18
Not classified*	5725	297	6022	4.93	0.56	7038	281	7319	3.84	0.45
Total	82293	2450	84743	2.89	0.12	88375	2451	90826	2.70	0.11

\* Not classified = persons aged 16 - 74 who were either full time students, or persons where occupation was not stated or inadequately described, or were not classifiable for other reasons.

Note - persons aged 16 - 74 who had worked within the last 10 years, but not for the last 5, were specially coded for the SLS

### **3.8 By current religion practiced and sex**

Two questions on religion were asked in the 2001 Census, one asking what religion a person currently practiced, the other what religion a person was brought up in. Unlike all the other Census questions which were compulsory these two questions were voluntary. Table 3.8 below shows tracing rates by current religion and sex.

Although this question was voluntary only 5% of the SLS sample did not answer it. Overall the tracing rate was very slightly better for women (96.9% traced) than for men (96.6% traced). The lowest not traced rate for both sexes of just over 2% was found amongst those who were members of the Church of Scotland and the second lowest for those persons who stated they had no religion at 2.9% for men and 2.8% for women. The highest no trace rates were found among Hindu males at 12.9% and Sikh females at 15.8% which is probably to be expected given the low numbers in these categories.

**TABLE 3.8: 2001 SLS sample by sex, current religion and 'not traced rates**

Note: excludes 788 persons with no sex and 848 non resident students

RELIGION	MALES					FEMALES				
	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI
Church of Scotland	50479	1206	51685	2.33	0.13	59853	1488	61341	2.43	0.12
Roman Catholic	18349	649	18998	3.42	0.26	21801	728	22529	3.23	0.24
Other Christian	7479	370	7849	4.71	0.48	9821	372	10193	3.65	0.37
Buddhist	165	20	185	10.81	4.57	147	17	164	10.37	4.76
Hindu	122	18	140	12.86	5.66	124	10	134	7.46	4.54
Jewish	155	6	161	3.73	2.99	167	6	173	3.47	2.78
Muslim	1048	116	1164	9.97	1.76	899	93	992	9.38	1.85
Sikh	183	24	207	11.59	4.45	187	35	222	15.77	4.89
All other religions	794	40	834	4.80	1.48	503	19	522	3.64	1.64
No religion	36853	1090	37943	2.87	0.17	33572	975	34547	2.82	0.18
Religion not stated *	6127	681	6808	10.00	0.73	6131	546	6677	8.18	0.67
Total	121754	4220	125974	3.35	0.10	133205	4289	137494	3.12	0.09

\* Note: this was not a compulsory question, however only 5% of the SLS sample did not answer it

### **3.9 By ethnic group and sex**

Only 2% of persons in the sample entered their ethnic group on the Census form as other than 'white'. Due to the small numbers involved there are low tracing rates for these groups and any analysis using ethnicity would require a high degree of aggregation. Among those SLS members who categorised themselves as 'white' only the 'white Scottish' had high tracing rates at 97% for both sexes. 'Other white British', 'White Irish' and 'Other white' had high not traced rates but the numbers of SLS members in these categories is small.

**TABLE 3.9: 2001 SLS sample population by sex, ethnic group and not traced rates**

Note: excludes 12,819 persons missing either ethnic group, sex or who were non resident students

Ethnic group	MALES					FEMALES				
	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI	2001 Traced Cases	2001 Un-traced Cases	Selected sample	not traced rate	+/- CI
<b>White</b>	114936	3379	118315	2.86	0.10	125351	3560	128911	2.76	0.09
White Scottish	103598	2626	106224	2.47	0.10	113065	2922	115987	2.52	0.09
Other White British	8743	454	9197	4.94	0.45	9197	345	9542	3.62	0.38
White Irish	1056	89	1145	7.77	1.58	1192	88	1280	6.88	1.41
Other White	1539	210	1749	12.01	1.55	1897	205	2102	9.75	1.29
<b>Indian</b>	362	43	405	10.62	3.06	349	46	395	11.65	3.23
<b>Pakistani &amp; other South Asian</b>	932	94	1026	9.16	1.80	832	81	913	8.87	1.88
Pakistani	741	71	812	8.74	1.98	647	64	711	9.00	2.15
Bangladeshi	49	6	55	10.91	8.41	40	5	45	11.11	9.37
Other South Asian	142	17	159	10.69	4.90	145	12	157	7.64	4.24
<b>Chinese</b>	372	36	408	8.82	2.81	343	51	394	12.94	3.38
<b>Other</b>	634	78	712	10.96	2.34	750	56	806	6.95	1.79
Caribbean	30	4	34	11.76	11.05	52	4	56	7.14	6.88
African	105	17	122	13.93	6.27	117	14	131	10.69	5.40
Any mixed background	277	20	297	6.73	2.91	317	16	333	4.80	2.34
Other Ethnic Group	222	37	259	14.29	4.35	264	22	286	7.69	3.15
<b>Total</b>	117236	3630	120866	3.00	0.10	127625	3794	131419	2.89	0.09

## 4 Quality of sampling

The 2001 SLS sample was chosen to be a 5.3% representative sample of the Scottish population at the time of the Census. However, because it is a sample it is important to measure whether it is truly representative, both of the total population and of specific sub-groups within it. Biases may occur because of variations in tracing rates and in the accuracy of the birth dates given on the Census forms. The SLS has calculated the observed net sampling fractions for the sample to give some measure of this bias.

The majority of analysis using the SLS uses only those SLS members who have been traced at NHSCR and can therefore be linked to events occurring to them. Measuring quality is done here using only those SLS members present at the 2001 Census who have been traced at NHSCR.

Note that the calculation of the observed net sampling fraction is as follows:

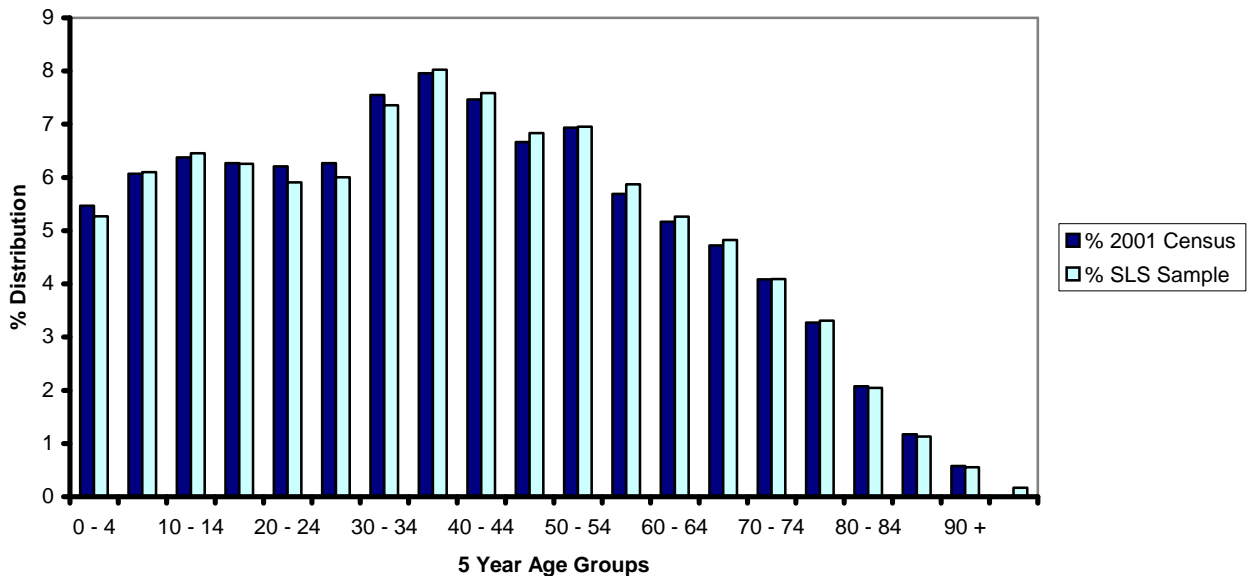
$$\text{Observed net sampling fraction} = \frac{\text{number in subgroup } i \text{ (traced SLS population)}}{\text{number in subgroup in census population}} \times 100$$

where  $i$  = the subgroup of interest

### 4.1 Sampling in the 2001 Census – SLS sample

The quality of the sampling of the 2001 Census - SLS sample has been examined using comparisons with both the 2001 ONC population and, where possible, the 2001 Census population with no adjustment for under-enumeration. As the SLS sample contains missing data the sampling fractions are slightly lower when calculated using the ONC population as the denominator. For all traced SLS members the sampling fraction stands at 5.05% when calculated against the ONC figures but rises to 5.26% when compared with the unadjusted 2001 Census population figures. The population distributions for the 2001 ONC Census population and the SLS sample by five year age-groups are shown in Figure 3.1 below.

Figure 3.1  
% Distribution - 2001 Census & SLS Sample by 5 year age groups



There are no major differences between the 2 different distributions. Some small variations are present with the SLS under-sampling the 0 – 4 and 24 – 34 year olds and over-sampling the 45 – 69 year olds.

#### 4.2 By age and sex

Table 3.10 shows the population distributions and sampling fractions by age and sex. Two sets of sampling fractions are shown, one based on the adjusted ONC population, the other on the unadjusted Census population. Note that 661 traced SLS members were excluded from this table as they had no values for sex. 425 SLS members who gave a sex on their schedules but had age missing have been included.

As would be expected the sampling fractions calculated using the adjusted Census population are lower at 5.02% for males and 5.08% for females than those calculated against the unadjusted Census population (5.25% and 5.26% respectively). Among males under-sampling occurs in those groups that were considered to be under-enumerated at Census, the very young, those aged 20 – 39 and the elderly. The pattern is broadly similar for females.



**TABLE 3.10: 2001 SLS sample population by sex, age, percentage distributions and sampling fractions**

Note: includes 211 traced males and 214 traced females where age is missing

Excludes 661 traced SLS members where sex is missing

Table 3.10a: MALES					OBSERVED SAMPLING FRACTIONS	
Age	2001 One Number Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Based on One Number Census Population	Based on Census Population With No Adjustment for Under-enumeration
0 - 4	142360	5.85	6973	5.71	4.90	5.22
5 - 9	157030	6.46	8012	6.56	5.10	5.39
10 - 14	165583	6.81	8437	6.91	5.10	5.33
15 - 19	160935	6.62	7994	6.55	4.97	5.23
20 - 24	157116	6.46	7498	6.14	4.77	5.29
25 - 29	154112	6.34	7282	5.96	4.73	5.13
30 - 34	184674	7.59	8898	7.29	4.82	5.14
35 - 39	194618	8.00	9816	8.04	5.04	5.28
40 - 44	184176	7.57	9446	7.74	5.13	5.32
45 - 49	166925	6.86	8533	6.99	5.11	5.27
50 - 54	174118	7.16	8675	7.10	4.98	5.12
55 - 59	140835	5.79	7381	6.04	5.24	5.36
60 - 64	124651	5.12	6372	5.22	5.11	5.23
65 - 69	110009	4.52	5787	4.74	5.26	5.33
70 - 74	90053	3.70	4549	3.73	5.05	5.12
75 - 79	66057	2.72	3319	2.72	5.02	5.11
80 - 84	36355	1.49	1783	1.46	4.90	5.01
85 - 89	16661	0.68	847	0.69	5.08	5.18
90 +	6226	0.26	301	0.25	4.83	4.91
Missing	0	0.00	211	0.17	-	
<b>Total</b>	2432494	100.00	122114	100.00	5.02	5.25

Table 3.10b: FEMALES					OBSERVED SAMPLING FRACTIONS	
Age	2001 One Number Census Females	% Distribution	2001 Traced SLS Females	% Distribution	Based on One Number Census Population	Based on Census Population With No Adjustment For Under-enumeration
0 - 4	134514	5.12	6502	4.87	4.83	5.13
5 - 9	150108	5.71	7586	5.68	5.05	5.32
10 - 14	157287	5.98	8073	6.04	5.13	5.37
15 - 19	156338	5.95	8003	5.99	5.12	5.38
20 - 24	157271	5.98	7602	5.69	4.83	5.22
25 - 29	163191	6.21	8077	6.05	4.95	5.25
30 - 34	197420	7.51	9918	7.42	5.02	5.24
35 - 39	208336	7.92	10708	8.01	5.14	5.32
40 - 44	193734	7.37	9956	7.45	5.14	5.30
45 - 49	170544	6.49	8943	6.69	5.24	5.34
50 - 54	176989	6.73	9107	6.82	5.15	5.24
55 - 59	147164	5.60	7630	5.71	5.18	5.26
60 - 64	137082	5.21	7088	5.31	5.17	5.25
65 - 69	129107	4.91	6545	4.90	5.07	5.16
70 - 74	116864	4.44	5907	4.42	5.05	5.16
75 - 79	99466	3.78	5138	3.85	5.17	5.25
80 - 84	68634	2.61	3442	2.58	5.02	5.15
85 - 89	42580	1.62	2052	1.54	4.82	4.94
90 +	22888	0.87	1113	0.83	4.86	4.95
Missing	-	-	214	0.16	-	
<b>Total</b>	2629517	100.00	133604	100.00	5.08	5.26

Table 3.10c: PERSONS

Age	2001 One Number Census – All Persons	% Distribution	2001 Traced SLS		OBSERVED SAMPLING FRACTIONS	
			Persons	% Distribution	Based on One Number Census Population	Based on Census Population With No Adjustment For Under-enumeration
0 - 4	276874	5.47	13475	5.27	4.87	5.18
5 - 9	307138	6.07	15598	6.10	5.08	5.35
10 - 14	322870	6.38	16510	6.46	5.11	5.34
15 - 19	317273	6.27	15997	6.26	5.04	5.30
20 - 24	314387	6.21	15100	5.90	4.80	5.26
25 - 29	317303	6.27	15359	6.01	4.84	5.19
30 - 34	382094	7.55	18816	7.36	4.92	5.19
35 - 39	402954	7.96	20524	8.03	5.09	5.30
40 - 44	377910	7.47	19402	7.59	5.13	5.31
45 - 49	337469	6.67	17476	6.83	5.18	5.30
50 - 54	351107	6.94	17782	6.95	5.06	5.18
55 - 59	287999	5.69	15011	5.87	5.21	5.31
60 - 64	261733	5.17	13460	5.26	5.14	5.24
65 - 69	239116	4.72	12332	4.82	5.16	5.24
70 - 74	206917	4.09	10456	4.09	5.05	5.14
75 - 79	165523	3.27	8457	3.31	5.11	5.19
80 - 84	104989	2.07	5225	2.04	4.98	5.10
85 - 89	59241	1.17	2899	1.13	4.89	5.01
90 +	29114	0.58	1414	0.55	4.86	4.94
Missing	-	-	425	0.17	-	
<b>Total</b>	5062011	100.00	255718	100.00	5.05	5.26

### **4.3 By age, sex and marital status**

The 253,395 traced SLS members who recorded both sex and marital status on their Census returns are shown in table 3.11. Among the 121,013 men included in this table 46% were single, 46% married, 5% were divorced and 3% widowed. Compared with the full sample (both traced and untraced) only the proportions of those men who were divorced differed with 1% of them being untraced and not included in this table. Of the 132,382 traced women in this table 40% were single, 43% married, 6% divorced and 11% widowed. These proportions do not vary from those shown in the original sample.

#### **Single**

The distributions and sampling fractions by age, sex and marital status for single SLS members are shown in Table 3.11a. The sampling fractions for single males and single females showed very little difference overall (4.85% for males and 4.95% for females based on ONC and 5.18 and 5.23% based on the unadjusted Census figures). The highest sampling fractions were found for males aged between 0 and 18 and females aged between 0 and 19. This encompasses all children of school age and very few of them were likely to be missed off the Census forms. Among other age groups males tended to show lower sampling fractions than females and this is particularly noticeable among those aged 65 and over.

#### **Married**

Both male and female married SLS members show the highest overall sampling fractions for any marital status. These stand at 5.14% for males and 5.15% for females (based on the ONC figures) and 5.27% and 5.26% (based on the unadjusted Census figures). As might be expected the lowest sampling fractions are found among younger males and females (aged 16 – 29) where the number of those who are married is small.

Generally those who stated that they were married at the 2001 Census had higher tracing rates than those in other marital status groups and this contributed towards the better sampling fractions seen here.

**TABLE 3.11: 2001 SLS sample population by sex, age, marital status, percentage distributions and sampling fractions**

Note: 2,984 traced cases excluded because of missing either sex or marital status or both

**Table 3.11a SINGLE**

Age	MALES				OBSERVED SAMPLING FRACTIONS		FEMALES				OBSERVED SAMPLING FRACTIONS	
	2001 One Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Based on One Census Population	Based on Census Population With No Adjustment For Under-enumeration	2001 One Census Females	% Distribution	2001 Traced SLS Females	% Distribution	Based on One Census Population	Based On Census Population With No Adjustment For Under-Enumeration
0 - 15	498249	43.32	25053	44.89	5.03	5.30	473816	44.22	23712	44.67	5.00	5.26
16	32970	2.87	1602	2.87	4.86	5.14	31830	2.97	1664	3.13	5.23	5.48
17	31493	2.74	1608	2.88	5.11	5.38	30115	2.81	1483	2.79	4.92	5.15
18	30656	2.67	1520	2.72	4.96	5.23	29880	2.79	1547	2.91	5.18	5.45
19	32087	2.79	1477	2.65	4.60	4.88	31643	2.95	1609	3.03	5.08	5.39
20 - 24	151486	13.17	7140	12.79	4.71	5.23	144491	13.49	6955	13.10	4.81	5.20
25 - 29	115239	10.02	5337	9.56	4.63	5.06	102986	9.61	4960	9.34	4.82	5.14
30 - 34	82496	7.17	3768	6.75	4.57	4.94	69196	6.46	3274	6.17	4.73	5.00
35 - 39	52687	4.58	2451	4.39	4.65	4.96	41777	3.90	2066	3.89	4.95	5.18
40 - 44	33325	2.90	1555	2.79	4.67	4.92	25356	2.37	1244	2.34	4.91	5.12
45 - 49	22382	1.95	1051	1.88	4.70	4.92	15595	1.46	784	1.48	5.03	5.16
50 - 54	18504	1.61	885	1.59	4.78	5.05	11721	1.09	566	1.07	4.83	4.92
55 - 59	12637	1.10	625	1.12	4.95	5.14	8563	0.80	420	0.79	4.90	5.02
60 - 64	10063	0.87	481	0.86	4.78	4.98	8093	0.76	402	0.76	4.97	5.09
65 - 69	8384	0.73	390	0.70	4.65	4.77	8956	0.84	460	0.87	5.14	5.30
70 - 74	7333	0.64	340	0.61	4.64	4.77	10382	0.97	524	0.99	5.05	5.20
75 - 79	5310	0.46	249	0.45	4.69	4.83	10331	0.96	539	1.02	5.22	5.33
80 - 84	2881	0.25	125	0.22	4.34	4.45	7579	0.71	344	0.65	4.54	4.69
85 - 89	1293	0.11	62	0.11	4.80	4.91	5405	0.50	273	0.51	5.05	5.19
90 +	655	0.06	24	0.04	3.66	3.72	3675	0.34	173	0.33	4.71	4.80
Missing	-	-	72	0.13	-	-	-	-	81	0.15	-	-
<b>Total</b>	1150130	100.00	55815	100.00	4.85	5.18	1071390	100.00	53080	100.00	4.95	5.23

TABLE 3.11b: MARRIED

Age	MALES				OBSERVED SAMPLING FRACTIONS		FEMALES				OBSERVED SAMPLING FRACTIONS	
	2001 One Number Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Based on One Number Census Population	Based on Census Population With No Adjustment For Under-enumeration	2001 One Number Census Females	% Distribution	2001 Traced SLS Females	% Distribution	Based on One Number Census Population	Based on Census Population With No Adjustment For Under-enumeration
0 - 15	0	0.00	0	0.00	-	-	-	-	-	-	-	-
16 - 19	333	0.03	12	0.02	3.60	3.77	797	0.07	34	0.06	4.27	4.56
20 - 24	5381	0.50	263	0.47	4.89	5.34	12159	1.10	532	0.94	4.38	4.70
25 - 29	36732	3.39	1764	3.17	4.80	5.10	55665	5.06	2801	4.94	5.03	5.27
30 - 34	93262	8.62	4617	8.30	4.95	5.21	113031	10.27	5787	10.21	5.12	5.29
35 - 39	125840	11.63	6514	11.71	5.18	5.36	141334	12.84	7249	12.79	5.13	5.27
40 - 44	130772	12.09	6782	12.20	5.19	5.34	138283	12.56	7141	12.60	5.16	5.30
45 - 49	124015	11.46	6397	11.50	5.16	5.28	125647	11.42	6667	11.76	5.31	5.39
50 - 54	133589	12.35	6705	12.06	5.02	5.12	132926	12.08	6843	12.07	5.15	5.23
55 - 59	110107	10.18	5859	10.54	5.32	5.41	108533	9.86	5616	9.91	5.17	5.23
60 - 64	97919	9.05	5044	9.07	5.15	5.24	93912	8.53	4846	8.55	5.16	5.22
65 - 69	85013	7.86	4496	8.08	5.29	5.33	75984	6.90	3891	6.86	5.12	5.17
70 - 74	65528	6.06	3349	6.02	5.11	5.16	52885	4.80	2673	4.72	5.05	5.10
75 - 79	43445	4.01	2199	3.95	5.06	5.10	31370	2.85	1637	2.89	5.22	5.26
80 - 84	20850	1.93	1058	1.90	5.07	5.14	12953	1.18	646	1.14	4.99	5.06
85 - 89	7390	0.68	374	0.67	5.06	5.11	4098	0.37	191	0.34	4.66	4.73
90 +	1904	0.18	87	0.16	4.57	4.61	1120	0.10	58	0.10	5.18	5.23
Missing	-	-	92	0.17	-	-	-	-	76	0.13	-	-
<b>Total</b>	1082080	100.00	55612	100.00	5.14	5.27	1100697	100.00	56688	100.00	5.15	5.26

## **Divorced**

Table 3.11c shows the population distributions and sampling fractions for SLS members who stated they were divorced at the 2001 Census. It should be noted that tracing rates for divorced male and female SLS members tended to be lower than for either single or married persons in the sample and this has affected the sampling fractions in turn. Males had lower overall sampling fractions than females but this is partly caused by small numbers. Among the sample of those who stated that they were divorced on the Census form, 60% were female. It should also be taken into account that divorced men are more likely to remarry than divorced women.

## **Widowed**

3,884 traced SLS men and 14,263 traced SLS women were recorded as widowed at the 2001 Census. The majority were aged over 60 with sampling fractions generally being low at younger ages. However, although sampling fractions improved for the older ages there was still some evidence of under-sampling. Overall sampling fractions stood at 4.83% for men and 4.92% for women when compared with the ONC figures only rising to 5.01% and 5.05% respectively when compared with the unadjusted Census population.

## 3.11c: - DIVORCED

Age	MALES				OBSERVED SAMPLING FRACTION		FEMALES				OBSERVED SAMPLING FRACTION	
	2001 One Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Based on One Census Population	Based on Census Population With No Adjustment for Under-enumeration	2001 One Census Females	% Distribution	2001 Traced SLS Females	% Distribution	Based on One Census Population	Based on Census Population With No Adjustment for Under-enumeration
0 - 15	-	-	-	-	-	-	-	-	-	-	-	-
16 - 24	264	0.22	11	0.19	4.17	4.66	581	0.48	23	0.40	3.96	4.48
25 - 29	2037	1.70	75	1.32	3.68	4.10	4261	2.55	220	2.63	5.16	5.48
30 - 34	8623	7.20	397	6.96	4.60	4.98	14405	8.60	679	8.13	4.71	4.96
35 - 39	15513	12.95	718	12.59	4.63	4.97	23513	14.05	1206	14.44	5.13	5.38
40 - 44	19103	15.94	952	16.70	4.98	5.25	27181	16.24	1322	15.83	4.86	5.11
45 - 49	18762	15.66	924	16.20	4.92	5.17	24796	14.81	1209	14.48	4.88	5.01
50 - 54	18934	15.80	875	15.35	4.62	4.85	23751	14.19	1207	14.45	5.08	5.22
55 - 59	13618	11.36	634	11.12	4.66	4.87	16506	9.86	851	10.19	5.16	5.30
60 - 64	10028	8.37	475	8.33	4.74	4.98	12543	7.49	651	7.80	5.19	5.35
65 - 69	6629	5.53	320	5.61	4.83	4.99	8815	5.27	429	5.14	4.87	5.03
70 - 74	3668	3.06	176	3.09	4.80	4.93	5512	3.29	264	3.16	4.79	4.96
75 - 79	1713	1.43	83	1.46	4.85	4.98	3156	1.89	172	2.06	5.45	5.57
80 - 84	628	0.52	31	0.54	4.94	5.10	1541	0.92	74	0.89	4.80	5.03
85+	308	0.26	10	0.18	3.25	3.31	847	0.71	31	0.54	3.66	3.76
Missing	-	-	21	0.37	-	-	-	-	13	0.16	-	-
<b>Total</b>	119828	100.00	5702	100.00	4.76	5.02	167408	100.00	8351	100.00	4.99	5.18



3.11d - WIDOWED

Age	MALES				OBSERVED SAMPLING FRACTIONS		FEMALES				OBSERVED SAMPLING FRACTIONS	
	2001 One Number Census Males	% Distrib-ution	2001 Traced SLS Males	% Distrib-ution	Based on One Number Census Population	Based on Census Population With No Adjustment for Under-enumeration	2001 One Number Census Females	% Distrib-ution	2001 Traced SLS Females	% Distrib-ution	Based on One Number Census Population	Based on Census Population With No Adjustment for Under-enumerationD
0 - 15	-	-	-	-	-	-	-	-	-	-	-	-
16 - 29	209	0.26	5	0.13	2.39	2.67	485	0.60	16	0.41	3.30	3.61
30 - 34	293	0.36	8	0.21	2.73	2.99	788	0.27	37	0.26	4.70	4.97
35 - 39	578	0.72	38	0.98	6.57	6.96	1712	0.59	74	0.52	4.32	4.52
40 - 44	976	1.21	43	1.11	4.41	4.69	2914	1.00	142	1.00	4.87	5.12
45 - 49	1766	2.19	87	2.24	4.93	5.51	4506	1.55	226	1.58	5.02	5.12
50 - 54	3091	3.84	142	3.66	4.59	4.94	8591	2.96	427	2.99	4.97	5.09
55 - 59	4473	5.56	203	5.23	4.54	4.85	13562	4.68	693	4.86	5.11	5.24
60 - 64	6641	8.25	324	8.34	4.88	5.12	22534	7.77	1134	7.95	5.03	5.16
65 - 69	9983	12.41	527	13.57	5.28	5.44	35352	12.19	1715	12.02	4.85	4.99
70 - 74	13524	16.81	631	16.25	4.67	4.80	48085	16.58	2369	16.61	4.93	5.07
75 - 79	15589	19.38	748	19.26	4.80	4.95	54609	18.83	2709	18.99	4.96	5.07
80 - 84	11996	14.91	554	14.26	4.62	4.76	46561	16.05	2317	16.24	4.98	5.12
85 - 89	7747	9.63	381	9.81	4.92	5.05	32458	11.19	1524	10.68	4.70	4.81
90 +	3590	4.46	180	4.63	5.01	5.12	17865	6.16	850	5.96	4.76	4.84
Missing	-	-	13	0.33	-	-	-	-	30	0.21	-	-
<b>Total</b>	80456	100.00	3884	100.00	4.83	5.01	290022	100.00	14263	100.00	4.92	5.05

#### **4.4 By country of birth and sex**

The majority of traced members of the SLS sample were born in the United Kingdom with 87.58% of males and 87.57% of females giving their country of birth as Scotland. Only 3.37% of traced male SLS members and 3.6% of traced female SLS members were born outside the UK. The small number included in the sample who were born outside the UK have much lower tracing rates (see Table 3.4 for tracing rates) and as a result are under-sampled. Males born outside the UK provide 3.7% of the 2001 Census population but the SLS traced sample population contains only 3.37%. Females born outside the UK make up 4.15% of the 2001 Census population but the SLS population only contains 3.6% who are traced.

Observed sampling fractions for male members of the SLS who were born in the UK are 4.97% when compared with the ONC population figures and 5.19% when compared with the unadjusted Census figures. Female SLS members who stated they were born in the UK showed sampling fractions of 5.02% and 5.19% respectively. Sampling fractions for non-UK born SLS members are very variable and are the result of small numbers and lower tracing rates. Overall they stand at 4.51% for males born outside the UK compared with the ONC population and 4.77% when compared with the unadjusted Census figures. Female non-UK born SLS members showed sampling fractions slightly higher than those for males at 4.70 and 4.94%.

When analyzing data using 'Country of Birth' it is recommended that countries of birth other than the UK are aggregated together to ensure that results are non-disclosive.

TABLE 3.12: 2001 SLS sample population by sex, country of birth, percentage distributions and sampling fractions

Table 3.12a: MALES – COUNTRY OF BIRTH					OBSERVED SAMPLING FRACTIONS	
Country of Birth	2001 Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
<b>United Kingdom *</b>	2342420	96.30	116330	96.63	4.97	5.19
<b>England</b>	200301	8.23	9763	8.11	4.87	5.13
<b>Scotland</b>	2116743	87.02	105430	87.58	4.98	5.20
<b>Northern Ireland</b>	15750	0.65	755	0.63	4.79	5.09
<b>Wales</b>	8360	0.34	382	0.32	4.57	4.83
<b>Outside UK</b>	90074	3.70	4058	3.37	4.51	4.77
<b>Irish Republic **</b>	9179	0.38	402	0.33	4.38	4.62
<b>Channel Islands &amp; Isle of Man</b>	748	0.03	29	0.02	3.88	4.18
<b>European Community</b>	18678	0.77	761	0.63	4.07	4.30
<b>Other Europe</b>	27458	1.13	341	0.28	1.24	5.58
<b>Africa</b>	11282	0.46	502	0.42	4.45	4.80
<b>North Africa</b>	1938	0.08	93	0.08	4.80	5.21
<b>Central &amp; West Africa</b>	1366	0.06	55	0.05	4.03	4.34
<b>South &amp; Eastern Africa</b>	7978	0.33	354	0.29	4.44	4.78
<b>Asia</b>	27971	1.15	1268	1.05	4.53	4.92
<b>Middle East</b>	4519	0.19	178	0.15	3.94	4.24
<b>Far East</b>	9756	0.40	453	0.38	4.64	4.99
<b>South Asia</b>	13696	0.56	637	0.53	4.65	5.09
<b>North America</b>	9768	0.40	456	0.38	4.67	4.90
<b>Canada</b>	3776	0.16	181	0.15	4.79	5.02
<b>Caribbean &amp; West Indies</b>	707	0.03	38	0.03	5.37	5.59
<b>USA &amp; Other North America</b>	5285	0.22	237	0.20	4.48	4.91
<b>South America</b>	1137	0.05	60	0.05	5.28	5.54
<b>Oceania</b>	5055	0.21	218	0.18	4.31	4.57
<b>Other</b>	447	0.02	21	0.02	4.70	5.04
<b>Total</b>	2432494	100.00	120388	100.00	4.95	5.18

\* UK total includes 633 males & 308 females where UK part not specified

\*\* Includes Ireland part not stated

Table 3.12b: Females – country of birth

Country of Birth	2001 Census Females		2001 Traced SLS Females		OBSERVED SAMPLING FRACTIONS	
	Females	% Distribution	SLS Females	% Distribution	Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
<b>United Kingdom *</b>	2528653	96.16	126841	96.40	5.02	5.19
<b>England</b>	208647	7.93	10402	7.91	4.99	5.17
<b>Scotland</b>	2293657	87.23	115231	87.57	5.02	5.20
<b>Northern Ireland</b>	17778	0.68	841	0.64	4.73	4.95
<b>Wales</b>	8263	0.31	367	0.28	4.44	4.61
<b>Outside UK</b>	100864	4.15	4742	3.60	4.70	4.94
<b>Irish Republic **</b>	12630	0.48	580	0.44	4.59	4.76
<b>Channel Islands &amp; Isle of Man</b>	872	0.03	41	0.03	4.70	4.90
<b>European Community</b>	23158	0.88	1031	0.78	4.45	4.65
<b>Other Europe</b>	31596	1.20	310	0.24	0.98	5.55
<b>Africa</b>	10767	0.41	529	0.40	4.91	5.21
<b>North Africa</b>	1184	0.05	46	0.03	3.89	4.14
<b>Central &amp; West Africa</b>	1192	0.05	74	0.06	6.21	6.77
<b>South &amp; Eastern Africa</b>	8391	0.32	409	0.31	4.87	5.14
<b>Asia</b>	27398	1.04	1233	0.94	4.50	4.79
<b>Middle East</b>	3339	0.13	125	0.09	3.74	3.99
<b>Far East</b>	11782	0.45	497	0.38	4.22	4.45
<b>South Asia</b>	12277	0.47	611	0.46	4.98	5.36
<b>North America</b>	12028	0.46	615	0.47	5.11	5.31
<b>Canada</b>	4793	0.18	256	0.19	5.34	5.50
<b>Caribbean &amp; West Indies</b>	906	0.03	53	0.04	5.85	6.10
<b>USA &amp; Other N. America</b>	6329	0.24	306	0.23	4.83	5.26
<b>South America</b>	1480	0.06	84	0.06	5.68	5.88
<b>Oceania</b>	6208	0.24	295	0.22	4.75	4.97
<b>Other</b>	490	0.02	24	0.02	4.90	5.12
<b>Total</b>	2629517	100.00	131583	100.00	5.00	5.18

\* UK total includes 633 males &amp; 308 females where UK part not specified

\*\* Includes Ireland part not stated

## 4.5 By region of usual residence and sex

Region of usual residence used in Table 3.13 is the local government region as at 1991. The 2001 Census tables use a different geography with region being defined as 'parliamentary region'. The parliamentary region splits some council areas and is not compatible with the 1991 region. Council areas remained consistent so the 1991 region can be easily reconstructed. Note that sampling fractions calculated against the unadjusted 2001 Census figures are not available based on the definition of the 1991 Local Government Region.

Overall sampling fractions for the SLS sample stood at 5.02% for males and 5.08% for females. The largest proportion of the population in a single region in Scotland in 2001 resided in the Strathclyde area (around 43% for both males and females). The lowest sampling fractions for males were found in Strathclyde (4.94%), and in Central and Lothian, both standing at 4.98%. This appears to be associated with the lower tracing rates that are found in the major cities of Scotland. In contrast the highest tracing rates for males are found in Orkney and Shetland (at 5.28%) where the population size is small. The highest sampling fraction for women was found in the Borders region at 5.28% with the lowest being found in Lothian (4.99%), Strathclyde (5.02%) and Shetland (4.99%). It should be noted that Shetland has a small population and that in 2001 it had the lowest tracing rate at 93% for women in any of the regions.

**TABLE 3.13: 2001 SLS sample by sex, local government region, percentage distributions and sampling fractions**  
**- Note local government region uses the 1991 definitions**

Note: These tables exclude 661 traced SLS members with no sex

Region of Usual Residence	MALES				BASED ON ONE NUMBER CENSUS POPULATION	FEMALES				BASED ON ONE NUMBER CENSUS POPULATION
	2001 Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Observed Sampling Fraction	2001 Census Females	% Distribution	2001 Traced SLS Females	% Distribution	Observed Sampling Fraction
<b>Borders</b>	51361	2.11	2664	2.18	5.19	55403	2.11	2924	2.19	5.28
<b>Central Dumfries &amp; Galloway</b>	134444	5.53	6689	5.48	4.98	145036	5.52	7528	5.63	5.19
<b>Fife</b>	71303	2.93	3665	3.00	5.14	76462	2.91	4032	3.02	5.27
<b>Grampian</b>	167628	6.89	8581	7.03	5.12	181801	6.91	9222	6.90	5.07
<b>Highland</b>	259735	10.68	13361	10.94	5.14	266201	10.12	13975	10.46	5.25
<b>Lothian</b>	102297	4.21	5409	4.43	5.29	106617	4.05	5544	4.15	5.20
<b>Strathclyde</b>	373045	15.34	18582	15.22	4.98	405322	15.41	20209	15.13	4.99
<b>Tayside</b>	1052261	43.26	51971	42.56	4.94	1156348	43.98	58020	43.43	5.02
<b>Orkney</b>	186770	7.68	9440	7.73	5.05	202242	7.69	10415	7.80	5.15
<b>Shetland</b>	9497	0.39	501	0.41	5.28	9748	0.37	500	0.37	5.13
<b>Western Isles</b>	11071	0.46	584	0.48	5.28	10917	0.42	545	0.41	4.99
<b>Western Isles</b>	13082	0.54	667	0.55	5.10	13420	0.51	690	0.52	5.14
<b>Total</b>	2432494	100.00	122114	100.00	5.02	2629517	100.00	133604	100.00	5.08

#### **4.6 By household type and sex**

Over 98% of traced SLS members were resident in private households in 2001. Only 1,717 SLS men and 2,280 SLS women who were traced at NHSCR were enumerated as resident in communal establishments on Census night.

Overall observed sampling fractions for SLS men were 5.02% based on the ONC population and 5.25% where there had been no adjustment for under-enumeration in the Census population. Among those SLS men enumerated as resident in private establishments the sampling fractions stood at 5.03% and 5.26%. Sampling fractions for men found in communal establishments tended to be low and quite variable with the exception of those enumerated in the category 'Other' with a sampling fraction of 18.44%. The small number of men in the 'Other' category included rough sleepers, people on boats, persons on oil-rigs etc and nearly 20% of them were untraced at NHSCR which substantially reduced the numbers included in this table.

SLS women showed overall sampling fractions of 5.08 and 5.26%. More women than men were enumerated in communal establishments with the largest proportion of them being found in 'Other medical and care establishments' which include nursing homes. Like the men, women in communal establishments had variable sampling fractions due to low tracing rates and small numbers.

**TABLE 3.14: 2001 SLS sample by sex, household type, percentage distributions and sampling fractions**

Note: 661 traced SLS persons excluded from this table with sex missing

Table 3.14a: MALES – household type					OBSERVED SAMPLING FRACTIONS	
Household Type	2001 Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
<b>Private Households</b>	2393348	98.39	120397	98.59	5.03	5.26
<b>Communal Establishments</b>	39146	1.61	1717	1.41	4.39	4.57
<b>Medical &amp; Care Establishments</b>	15710	0.65	737	0.60	4.69	4.69
All hospitals	3944	0.16	164	0.13	4.16	4.16
Other medical & care establishments	11766	0.48	573	0.47	4.87	4.87
<b>Other Establishments</b>	23436	0.96	980	0.80	4.18	4.48
Defence establishments	4349	0.18	115	0.09	2.64	4.16
Prison service establishments	3987	0.16	167	0.14	4.19	4.19
Educational establishments	10574	0.43	373	0.31	3.53	3.53
Hotel, boarding house, guest house	1673	0.07	80	0.07	4.78	4.78
Hostel	1855	0.08	61	0.05	3.29	3.29
Other	998	0.04	184	0.15	18.44	18.44
<b>Total</b>	2432494	100.00	122114	100.00	5.02	5.25

\* includes non-residents, resident staff & permanent residents of communal establishments



Table 3.14b: Females – household type

Household Type	2001 Census Females		2001 Traced SLS Females		OBSERVED SAMPLING FRACTIONS	
	2001 Census Females	% Distribution	2001 Traced SLS Females	% Distribution	Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
<b>Private Households</b>	2582657	98.22	131324	98.29	5.08	5.27
<b>Communal Establishments</b>	46860	1.78	2280	1.71	4.87	4.90
<b>Medical &amp; Care Establishments</b>	32310	1.23	1538	1.15	4.76	4.76
All hospitals	4731	0.18	200	0.15	4.23	4.23
Other medical & care establishments	27579	1.05	1338	1.00	4.85	4.85
<b>Other Establishments</b>	14550	0.55	742	0.56	5.10	5.23
Defence establishments	585	0.02	10	0.01	1.71	4.57
Prison service establishments	119	<0.01	9	0.01	7.56	7.56
Educational establishments	10879	0.41	419	0.31	3.85	3.85
Hotel, boarding house, guest house	1085	0.04	64	0.05	5.90	5.90
Hostel	572	0.02	30	0.02	5.24	5.24
Other	1310	0.05	210	0.16	16.03	16.03
<b>Total</b>	2629517	100.00	133604	100.00	5.08	5.26

\* includes non-residents, resident staff & permanent residents of communal establishments

#### **4.7 By NS-SEC and sex**

Table 3.15 shows the population distributions and sampling fraction for SLS members by NS-SEC and sex. It should be noted that much of the difference between distributions and sampling fractions is due to the fact that NS-SEC was programmed by the SLS using the PEPI data and included persons aged 16 – 74 who had worked in the 10 years prior to the Census (maintaining consistency with previous censuses). The population base used by Census for calculating NS-SEC only included those aged 16 – 74 who were either currently working or had worked in the 5 years prior to the 2001 Census. Because NS-SEC was created by the Census offices after the ONC process was complete there is no data available for comparison with NS-SEC based on the full unadjusted Census population.

157,905 SLS traced members who were economically active and aged between 16 and 74 in 2001 are included table 3.15. The overall sampling fractions are higher than would be expected standing at 5.46% for men and 6.02% for women. Much of this is due to the inclusion of those members specially coded for the SLS who had worked between 1991 and 1996 but not thereafter.

Of the 76,568 SLS men in the sample 21% were found in lower managerial and professional occupations and 18% in routine occupations. Over-sampling was found among those categorized as 'lower managerial and professional' (5.51%), 'lower supervisory and technical' (5.8%) and among those in 'routine occupations' (5.86%).

The majority of the 81,337 SLS women in the sample were found either in lower managerial and professional occupations (25%) or in semi-routine occupations (23%). Over-sampling was found for women in occupations categorized as 'lower managerial and professional' (5.83%), 'lower supervisory and technical' (6.37%), 'semi-routine' (6.33%) and 'routine' (7.40%).

Under-sampling was found for both men and women who had either never worked or who were long term unemployed.

TABLE 3.15: 2001 SLS sample by sex, NS-SEC, percentage distributions and sampling fractions - economically active traced SLS members aged 16 - 74

NS-SEC	MALES				BASED ON ONE NUMBER CENSUS POPULATION	FEMALES				BASED ON ONE NUMBER CENSUS POPULATION
	2001 Census Males	% Distrib -ution	2001 Traced SLS Males	% Distrib -ution	Observed Sampling Fraction	2001 Census Females	% Distrib -ution	2001 Traced SLS Males	% Distrib -ution	Observed Sampling Fraction
<b>1. Higher managerial &amp; professional occupations</b>	178881	12.75	9564	12.49	5.35	76073	5.63	3976	4.89	5.23
1.1 Large employers & higher managerial occupations	65338	4.66	3522	4.60	5.39	24016	1.78	1253	1.54	5.22
1.2 Higher professional occupations	113543	8.09	6042	7.89	5.32	52057	3.85	2723	3.35	5.23
<b>2. Lower managerial &amp; professional occupations</b>	297570	21.20	16383	21.40	5.51	349718	25.89	20400	25.08	5.83
<b>3. Intermediate occupations</b>	95474	6.80	4834	6.31	5.06	255777	18.93	15539	19.10	6.08
<b>4. Small employers &amp; own account workers</b>	152376	10.86	8144	10.64	5.34	61201	4.53	3249	3.99	5.31
<b>5. Lower supervisory &amp; technical occupations</b>	206856	14.74	12000	15.67	5.80	69009	5.11	4399	5.41	6.37
<b>6. Semi-routine occupations</b>	174598	12.44	9395	12.27	5.38	294324	21.79	18617	22.89	6.33
<b>7. Routine occupations</b>	230401	16.42	13491	17.62	5.86	155975	11.55	11547	14.20	7.40
<b>8. Never worked &amp; long-term unemployed</b>	67157	4.79	2757	3.60	4.11	88904	6.58	3610	4.44	4.06
Never worked	36300	2.59	1442	1.88	3.97	71557	5.30	2879	3.54	4.02
Long-term unemployed	30857	2.20	1315	1.72	4.26	17347	1.28	731	0.90	4.21
<b>Total</b>	1403313	100.00	76568	100.00	5.46	1350981	100.00	81337	100.00	6.02

#### **4.8 By current religion practiced and sex**

There were two religion questions included in the 2001 Census, one asking about the religion a person was brought up in and the other about religion currently practiced. Of the 95% of SLS members who answered the question on current religious practice, 41% of men and 45% of women stated they were Church of Scotland, 15 and 16% stated they were Roman Catholic and 30 and 25% stated they had no religion. The number who stated they were practicing other religions was small with the exception of those stating they were 'Other Christian'. The other major faiths have very small numbers of practitioners in Scotland and this is reflected in the variability of the observed sampling fractions in table 3.16.

Overall sampling fractions for male SLS members were 5.01% of the ONC population and 5.24% of the unadjusted Census population. For females the sampling fractions were 5.07 and 5.25%.

**TABLE 3.16: 2001 SLS sample by sex, current religion, percentage distributions and sampling fractions**

Note: excludes 1420 traced persons with either no sex or who were non resident students

This question was not compulsory - 13,636 SLS persons chose not to answer it (see 'not stated' category below)

Table 3.16a: MALES – current religion					OBSERVED SAMPLING FRACTIONS	
Religion	2001 Census		2001 Traced		Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
	Males	% Distribution	SLS Males	% Distribution		
Church of Scotland	984229	40.46	50479	41.46	5.13	5.31
Roman Catholic	372020	15.29	18349	15.07	4.93	5.18
Other Christian	151186	6.22	7479	6.14	4.95	5.17
Buddhist	3465	0.14	165	0.14	4.76	5.05
Hindu	3038	0.12	122	0.10	4.02	4.43
Jewish	3107	0.13	155	0.13	4.99	5.23
Muslim	22621	0.93	1048	0.86	4.63	5.17
Sikh	3401	0.14	183	0.15	5.38	5.85
All other religions	17366	0.71	794	0.65	4.57	4.95
No religion	731348	30.07	36853	30.27	5.04	5.30
Religion not stated	140713	5.78	6127	5.03	4.35	4.63
Total	2432494	100.00	121754	100.00	5.01	5.24

Table 3.16b: FEMALES – current religion					OBSERVED SAMPLING FRACTIONS	
Religion	2001 Census Females	% Distribution	2001 Traced SLS Females	% Distribution	Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
Church of Scotland	1162022	44.19	59853	44.93	5.15	5.29
Roman Catholic	431712	16.42	21801	16.37	5.05	5.25
Christian	193376	7.35	9821	7.37	5.08	5.24
Buddhist	3365	0.13	147	0.11	4.37	4.57
Hindu	2526	0.10	124	0.09	4.91	5.41
Jewish	3341	0.13	167	0.13	5.00	5.15
Muslim	19936	0.76	899	0.67	4.51	4.98
Sikh	3171	0.12	187	0.14	5.90	6.34
All other religions	9608	0.37	503	0.38	5.24	5.55
No religion	663112	25.22	33572	25.20	5.06	5.29
Religion not stated	137348	5.22	6131	4.60	4.46	4.67
Total	2629517	100.00	133205	100.00	5.07	5.25

## 4.9 By ethnic group and sex

Table 3.17 shows percentage distributions and observed sampling fractions by ethnic group and sex in 2001. 11,518 traced cases are missing from this table either because they were non-resident students or had no entries for ethnic group or sex. Among the 244,861 remaining traced SLS members 98% of the population defined themselves as 'White' with those calling themselves 'White Scottish' making up the preponderance (88% of both males and females). Only 2% of the remaining SLS members were from other ethnic groups with the most common group being Pakistani and other South Asian. The sampling fractions are low with the overall observed sampling fractions being 4.82% of the ONC population and 5.04% of the unadjusted 2001 Census population for males. The overall sampling fractions for SLS female members were similar at 4.85% and 5.03%.

The high number of missing cases and the low numbers of SLS members in the non-White groups may make analysis difficult without aggregation.

**TABLE 3.17: 2001 SLS population by sex, ethnic group, percentage distributions and sampling fractions**

Note: excludes 11,518 traced SLS persons with either no ethnic group, no sex or who were non resident students

Ethnic Group	Table 3.17a: MALES				OBSERVED SAMPLING FRACTIONS	
	2001 Census Males	% Distribution	2001 Traced SLS Males	% Distribution	Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
<b>White</b>	2380586	97.87	114936	98.04	4.83	5.05
White Scottish	2137262	87.86	103598	88.37	4.85	5.06
Other White British	183439	7.54	8743	7.46	4.77	5.02
White Irish	23442	0.96	1056	0.90	4.50	4.76
Other White	36443	1.50	1539	1.31	4.22	4.45
<b>Indian</b>	7965	0.33	362	0.31	4.54	5.01
<b>Pakistani &amp; other South Asian</b>	20762	0.85	932	0.79	4.49	4.99
Pakistani	16187	0.67	741	0.63	4.58	5.13
Bangladeshi	1104	0.05	49	0.04	4.44	4.96
Other South Asian	3471	0.14	142	0.12	4.09	4.39
<b>Chinese</b>	8148	0.33	372	0.32	4.57	4.95
<b>Other</b>	15033	0.62	634	0.54	4.22	4.57
Caribbean	892	0.04	30	0.03	3.36	3.68
African	2781	0.11	105	0.09	3.78	4.27
Black Scottish or Other Black	571	0.02	24	0.02	4.20	4.59
Any mixed background	6194	0.25	277	0.24	4.47	4.74
Other Ethnic Group	4595	0.19	198	0.17	4.31	4.67
<b>Total</b>	2432494	100.00	117236	100.00	4.82	5.04

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## 5.17b: FEMALE

Ethnic Group	2001 Census		2001 Traced		OBSERVED SAMPLING FRACTIONS	
	Females	% Distribution	SLS Females	% Distribution	Based on One Number Census Population	Based on Census Population with no Adjustment for Under-Enumeration
<b>White</b>	2579748	98.11	125351	98.22	4.86	5.29
White Scottish	2321809	88.30	113065	88.59	4.87	5.31
Other White British	190246	7.24	9197	7.21	4.83	5.20
White Irish	25986	0.99	1192	0.93	4.59	4.98
Other White	41707	1.59	1897	1.49	4.55	4.97
<b>Indian</b>	7072	0.27	349	0.27	4.93	5.55
<b>Pakistani &amp; other South Asian</b>	19208	0.73	832	0.65	4.33	5.04
Pakistani	15606	0.59	647	0.51	4.15	4.85
Bangladeshi	877	0.03	40	0.03	4.56	5.24
Other South Asian	2725	0.10	145	0.11	5.32	5.99
<b>Chinese</b>	8162	0.31	343	0.27	4.20	4.69
<b>Other</b>	15327	0.58	750	0.59	4.89	5.45
Caribbean	886	0.03	52	0.04	5.87	6.42
African	2337	0.09	117	0.09	5.01	5.95
Black Scottish or Other Black	558	0.02	28	0.02	5.02	5.49
Any mixed background	6570	0.25	317	0.25	4.82	5.31
Other Ethnic Group	4976	0.19	236	0.18	4.74	5.23
<b>Total</b>	2629517	100.00	127625	100.00	4.85	5.03

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## 5 Conclusion

The quality of tracing for the 2001 Census-SLS sample is extremely good reaching an overall tracing rate of 96.7%. As in 1991, tracing rates for certain sub-groups of the Scottish population are low. These include younger men, particularly those aged 20 to 39, persons in the armed forces, those whose country of birth was outwith the UK and persons enumerated in communal establishments. Tracing rates for both men and women are lower among those aged over 70 and particularly so among the very elderly (aged over 85). Again, as in 1991, tracing rates by age and sex are highest for children aged 14 and under compared with other age groups and men are still generally better traced than women.

The use of the ONC methodology affected the sampling fractions for the SLS in 2001. Because the SLS sample was taken at an early stage in the Census processing it includes missing data. This results in the SLS having slightly lower sampling fractions than would otherwise have been expected. Where possible observed sampling fractions have also been calculated using a Census extract which contains missing data to check whether the SLS sample is representative. The overall sampling fractions stand at 5% when compared with the ONC but 5.3% (the expected sampling fraction) when compared with the unadjusted Census figures.