

Census 2001

One Number Census Quality Assurance information: 00CL South Tyneside

Introduction

The following information is available at Local Authority level

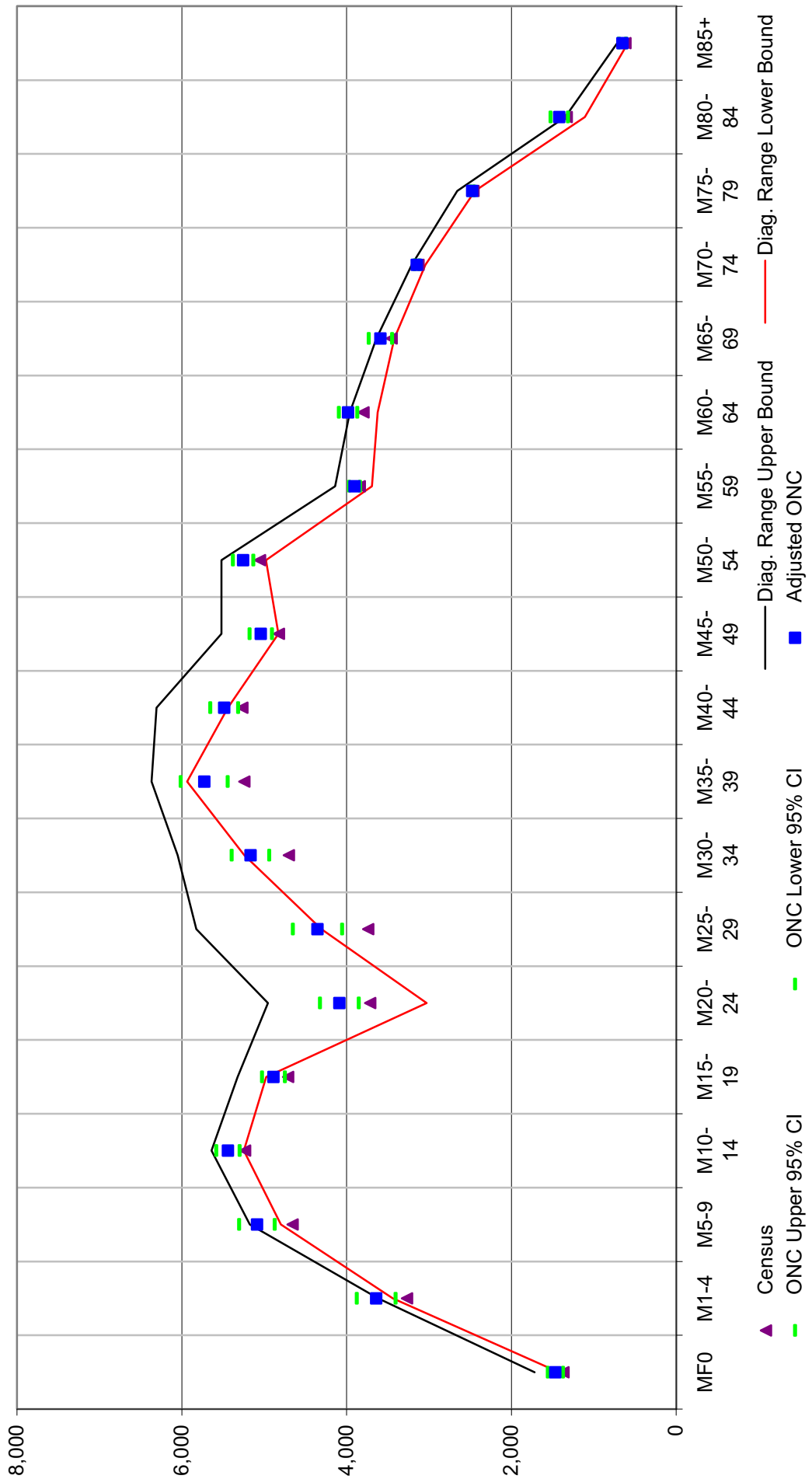
- The Quality Assurance charts and theme commentaries
- The Administrative data (comparator data) used in the One Number Census Quality Assurance process
- A map showing the location of postcodes sampled by the Census Coverage Survey.

It is important to note that the Quality Assurance process found that in about 75% of Local authorities, the One Number Census estimates were lower than the diagnostic ranges for the males aged between 25 and 39. Commentary on this feature was published with the first release of Census results at www.statistics.gov.uk/census2001/methodology.asp

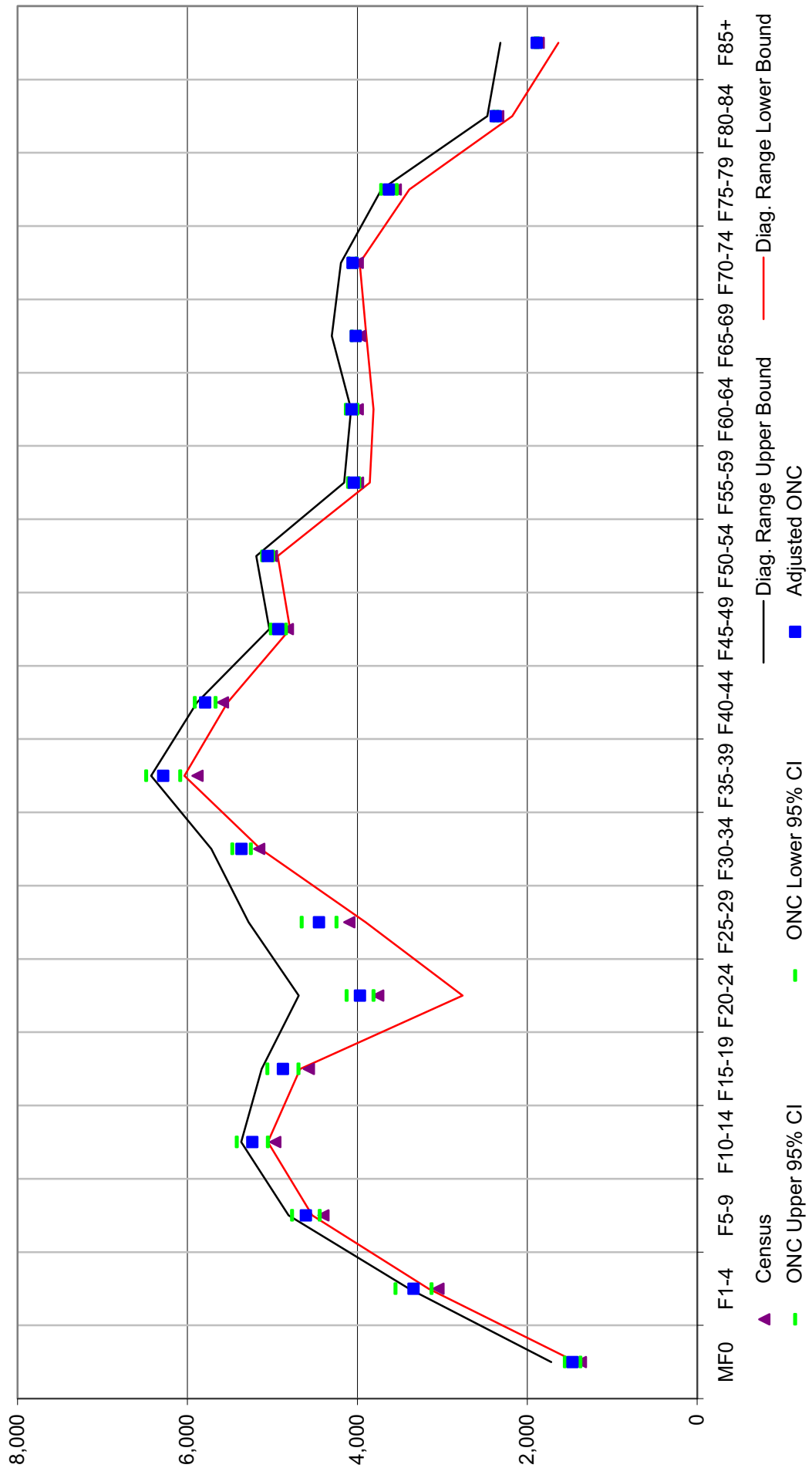
Quality Assurance charts

The charts on pages 2 and 3 are those that were used during the Quality Assurance (QA) part of the One Number Census (ONC) process. Each chart compares the original 2001 Census count with the One Number Census estimates by age-sex group for one Local Authority District. They also show the upper and lower boundaries of the corresponding 95% Confidence Interval for the estimate, as well as the upper and lower boundaries of the diagnostic range that the estimate was compared against. The diagnostic ranges were calculated using the 2000 mid-year population estimates, patient records, pension data, child benefit data, school census information and approximate 2001 mid-year population estimates. They were used to give an idea of the range within which we could expect the population to be given the alternative data sources. They were not used as control totals or an indication that the Census results were in error. Full details of how the diagnostic ranges were calculated can be found in the ONC Quality Assurance strategy paper at www.statistics.gov.uk/census2001/pdfs/oncinfopaper.pdf

00CL - South Tyneside - ONC Estimates - Males



00CL - South Tyneside - ONC Estimates - Females



Quality Assurance themes

During the One Number Census process, a number of themes were identified which explained why specific subgroups of the population were consistently behaving differently to expectations. The commentary below details these themes, along with any actions taken to try and resolve these differences and any conclusions drawn or solutions found. These themes have been written generically, and have been included for those Local Authorities to which they apply. Therefore the description may not reflect the actual extent of the issue and action taken for any particular Local Authority. However, it gives a good guide to the issues faced in the area during Quality Assurance.

Armed forces

Problem

Home armed forces are one of the subgroups that are difficult to enumerate. They are subject to frequent changes in location, often at short notice. Many also live in large communal accommodation blocks which can lead to problems which are common with other similar establishments such as student halls of residence. Armed forces personnel living in barracks who owned a property elsewhere were asked to fill in a form for the place they spent the most time and this will have reduced the number of people enumerated as living in bases.

The Quality Assurance strategy included a comparison of the 2001 Census count of home armed forces against both the Defence Analytical Services Agency (DASA) data and the 2000 mid-year estimate (MYE) of home armed forces. The DASA data places people where they are stationed, whereas the MYEs applies a residence matrix to the DASA data to estimate the home armed forces on a residence base.

The QA panel noted that the ONC estimates were lower than than 2000 MYEs in a number of areas containing high concentrations of Home Armed Forces. There was also some disparity between the number of Armed Forces recorded by DASA and the number captured by the Census. Conversely, in other areas there were noticeably more home armed forces than in either the 2001 MYEs or the 2001 DASA data.

The QA panel concluded that the differences could be a result of a number of causes, such as: definitional differences; error in the base to residence matrix used by the PEU; form completion errors; coding errors; and undercount in the Census.

Actions

Further work:

- identified areas with expected high concentrations of home armed forces, and examined the geographical location of the bases within them. This highlighted that some of the armed forces bases were close to area boundaries, which meant personnel could be living in the surrounding areas and travelling to the bases.

- looked at the workplace postcode of a 10% sample of armed forces personnel enumerated for selected areas where the Census counts were larger than the comparator data.
- assessed the accuracy of DASA data in relation to the definitions used to place armed forces at a particular base.
- assessed the quality of coding and form completion.
- reviewed alternative sources of information regarding the numbers of armed forces living in communal accommodation.

Results

This further work led to improvements in the information provided in the QA process, including additional charts for aggregated areas to reflect cross border flows.

The analysis of workplace postcodes did highlight members of the home armed forces that worked a significant distance from their usual residence.

There was evidence that some armed forces personnel had been coded as civilians, reflecting form completion difficulties rather than errors in the coding system. The Census Quality report will include more information on the quality of the statistics for this subgroup, but it is clear that this explains most of the large differences. The information was fed into the QA process so that the armed forces comparisons could take account of this. ONS will release more detailed analysis on Armed Forces in due course to help with the interpretation and use of Armed Forces information.

Adjustments for undercount among the armed forces were distributed between the areas with the largest differences between the comparator data and these were made to the populations of communal establishments. Following further discussions with officials at DASA, extra information was provided detailing the number of people paying to live in communal accommodation, by establishment, for each of the services. This allowed us to distribute the adjustment for an area between the communal establishments within that EA. A total of 35 adjustments to defence communal establishments were made. The total adjustment made was based on a national comparison between the ONC estimates adjusted for the completion difficulties and the DASA total of home armed forces.

Administrative data (comparator data) used in the One Number Census quality assurance process

Introduction

The One Number Census (ONC) population estimates were quality assured using a range of comparator data. These sources were combined to produce the diagnostic ranges shown on the quality assurance charts for each Local Authority. Estimates falling outside this range were looked at in more detail. More information on the process used to produce the diagnostic ranges, and the QA process generally, can be found in the paper “A Quality Assurance and Contingency Strategy for the One Number Census”

www.statistics.gov.uk/census2001/pdfs/oncinfopaper.pdf

The comparator data included demographic estimates from ONS’s Population Estimates Unit and a number of administrative data sources. These sources are described below.

Demographic estimates

Rolled-forward mid-year population estimates (MYEs) are produced every year by the Population Estimates Unit (PEU) of Population & Demography (P&D) Division of ONS. The rolled-forward MYEs for 2001 were not available to feed into the sub-national ONC Quality Assurance process. This was because many of the constituent components that make up the estimates were not available in time. Instead, MYEs from 2000 were used and extrapolated forward to mid-2001 to allow for average annual population change between mid-1991 and mid-2000.

Health authority patient register

Patient registers administered by individual health authorities provide the most comprehensive administrative source in terms of coverage of the whole population. However, these records do not cover the whole population (foreign armed forces are excluded), and are known to be prone to “list inflation” - that is, they include more people than actually live in the area. This is due mainly to two factors:

- the way in which the patient register is managed (e.g. delays in removing patients who have moved or died from the register)
- certain types of people being more or less likely to register with a new GP when they move (e.g. young males tend to be less likely to re-register than young females).

The error is not uniform and varies by both age and geography, with some groups (e.g. 25-29 year old males) generally having a lower patient register count than the Mid Year Estimate.

To allow for these variations, an adjusted patient register count for April 2001 was used in the ONC quality assurance. First of all, foreign armed forces data was added to the patient register numbers. An adjustment was then made to

compensate for the variations in list inflation. This involved comparing the difference between the patient register and the Mid Year Estimate across the most similar local authorities.

Department of Works and Pensions (DWP) child benefit data

The Benefits Agency administer the Child Benefit Claimant Register which holds information on all persons claiming child benefit in the UK and the children for whom the benefit is claimed. Child benefit is almost universally taken up for children under 16 in the UK. However, there are certain problems:

- Many of the postcodes on the records are either missing, contain errors or are out of date.
- New-born children can take up to three months to appear on the Child Benefit Register, due to delays in claims being made and the information subsequently being added to the register.
- Children of foreign armed forces are not eligible.
- There can often be a lag in updating records when a claimant moves, particularly now that payments are made directly into bank accounts.
- There are also some issues regarding benefit fraud, although this is difficult to quantify.

To allow for the first two points, ONS liaised with DWP and Oxford University to obtain “clean” child benefit data relating to August 2000. To allow for the third, foreign armed forces data was added to the child benefit information before using it as a comparator. Some inaccuracies may however remain, and these and the last two points should be borne in mind when making comparisons. It must also be remembered that the data relates to a date several months before Census day.

Department of Works and Pensions (DWP) retirement pensions data

The Benefits Agency administers the Retirement Pension Register that holds information on all persons claiming a state pension in the UK. Almost all persons aged 65 or over are entitled to claim some form of state retirement pension. However, pension data suffers from many of the same problems as child benefit data, including the problems with postcodes and the lag in updating records when a claimant moves. In addition, there are several different forms of state pension which can lead to duplication. Once again ONS liaised with DWP and with a data cleaning expert at Oxford University to obtain “clean” retirement pension data from May 2000, but the same caution must be taken in making comparisons as with the child benefit data.

School Census data

The School Census is an annual count of all children attending educational establishments, including schools which are privately funded. In England, information relating to January is collected from local authorities by DfES each year, while in Wales, Scotland and Northern Ireland this role is carried out by the appropriate devolved government authority and has a different reference date. The data used in ONC quality assurance relate to place of study in January 2001, although the ages are as at 31st August 2000.

The main problem with this data is that it relates to place of study, which may be in a different local authority to where the child lives. For this reason, less weight was given to these figures in the quality assurance procedure.

Birth registration data

The civil registration system records all new births in the population, and this was therefore a key source of data when quality assuring ONC estimates for children aged under one year - a group which Censuses worldwide generally undercount to a greater extent. Infant mortality and migration before the age of one will clearly cause differences between the registration data and the actual number of babies living in an area. ONS's methods were used for adjusting the registration data on births at both national and sub-national levels for infant deaths and migration to produce a high quality comparator for use in the ONC quality assurance procedures. The figures relate to 30th April 2001.

Comparator data

Population estimates

The Population Estimates table shows the ONC estimate along with all the administrative data that was used to quality assure the estimates for each age group. These data were used to calculate the ranges into which we would have expected the estimates to fall (the diagnostic ranges). Babies were examined as a single group and so the data has not been split into the two sexes. Therefore, the line for males and females aged less than 1 (labelled MF0) appears twice in the table, at the top of the male age groups and the female age groups.

Population estimates

Age Group	ONC Estimate	2000 MYE	Adjusted Patient Records	"Pension/ Child Benefit"	"Pop'tion Est.<1/ School Census"	2001 Extrap'ns	Diag. Range Upper Bound	Diag. Range Lower Bound
MF0	1467	1,640	1,575	1,500	1,496	1,643	1,717	1,423
M1-4	3641	3,524	3,551	3,550		3,506	3,617	3,440
M5-9	5088	5,080	4,910	5,050	4,978	4,892	5,174	4,798
M10-14	5440	5,540	5,438	5,350	5,397	5,487	5,638	5,246
M15-19	4887	5,062	5,199			5,236	5,323	4,975
M20-24	4088	3,509	4,472			3,666	4,954	3,027
M25-29	4352	4,941	5,598			4,528	5,823	4,304
M30-34	5166	5,443	5,847			5,445	6,049	5,241
M35-39	5728	6,044	6,259			6,050	6,367	5,936
M40-44	5486	5,657	6,091			5,743	6,307	5,440
M45-49	5041	5,000	5,346			5,009	5,519	4,827
M50-54	5255	5,112	5,382			5,155	5,517	4,977
M55-59	3904	3,803	4,027			3,963	4,139	3,691
M60-64	3982	3,777	3,876			3,708	3,961	3,624
M65-69	3589	3,583	3,510	3,500		3,475	3,637	3,421
M70-74	3148	3,104	3,167	3,150		3,084	3,208	3,043
M75-79	2475	2,602	2,568	2,500		2,536	2,656	2,442
M80-84	1419	1,168	1,258	1,300		1,254	1,347	1,109
M85+	653	677	649	600		683	716	586
MF0	1467	1,640	1,575	1,500	1,496	1,643	1,717	1,423
F1-4	3338	3,307	3,281	3,350		3,220	3,391	3,163
F5-9	4606	4,738	4,616	4,650	4,599	4,608	4,808	4,530
F10-14	5236	5,288	5,155	5,150	5,143	5,231	5,367	5,053
F15-19	4876	4,786	4,966			5,012	5,125	4,673
F20-24	3969	3,242	4,206			3,312	4,689	2,760
F25-29	4451	4,563	5,043			4,137	5,279	3,902
F30-34	5364	5,575	5,285			5,501	5,720	5,141
F35-39	6285	6,290	6,133			6,329	6,427	6,035
F40-44	5792	5,617	5,750			5,796	5,886	5,528
F45-49	4930	4,859	4,969			4,949	5,037	4,791
F50-54	5057	5,009	5,118			5,036	5,190	4,937
F55-59	4043	3,928	3,998			4,079	4,155	3,853
F60-64	4067	3,960	4,008			3,876	4,074	3,810
F65-69	4019	4,199	4,116	4,000		3,995	4,301	3,893
F70-74	4056	4,061	4,137	4,050		4,051	4,192	3,973
F75-79	3629	3,635	3,564	3,550		3,470	3,718	3,388
F80-84	2370	2,250	2,375	2,350		2,397	2,471	2,177
F85+	1888	2,135	1,909	1,800		2,146	2,317	1,633
Male	74,071	74,457	77,952			74,270		
Female	78,714	78,251	79,400			77,938		
TOTAL	152,785	152,708	157,352			152,208		

Sex ratios

The Sex Ratios table shows the ratio of males to females for the ONC estimate and all the administrative data by age group. They are calculated as follows:

$$\text{Sex Ratio} = \frac{\text{Number of Males}}{\text{Number of Females}} \times 100$$

Age Group	ONC Estimate	2000 MYE	Patient Records	Adjusted Patient Records	"Pension/ Child Benefit"	"Pop'tion Est.<1/ School Census"	2001 Extrap'ns	Diag. Range Upper Bound	Diag. Range Lower Bound
0	98.8	102.7	101.5	104.4	97.1	98.7	107.2	112.2	92.1
1-4	109.1	106.6	107.5	108.2	106.5		108.9	110.1	105.3
5-9	110.5	107.2	106.6	106.4	108.4	108.2	106.2	109.5	105.0
10-14	103.9	104.8	105.6	105.5	104.2	104.9	104.9	106.4	103.4
15-19	100.2	105.8	103.8	104.7			104.5	106.8	102.8
20-24	103.0	108.2	107.4	106.3			110.7	112.9	104.1
25-29	97.8	108.3	108.4	111.0			109.5	112.4	106.9
30-34	96.3	97.6	108.9	110.6			99.0	117.1	91.1
35-39	91.1	96.1	105.0	102.1			95.6	109.8	90.9
40-44	94.7	100.7	107.1	105.9			99.1	111.1	95.1
45-49	102.3	102.9	107.8	107.6			101.2	111.1	97.9
50-54	103.9	102.1	105.2	105.2			102.4	106.8	100.5
55-59	96.6	96.8	101.4	100.7			97.2	103.7	94.5
60-64	97.9	95.4	97.5	96.7			95.7	98.5	94.3
65-69	89.3	85.3	88.8	85.3	87.0		87.0	90.5	83.5
70-74	77.6	76.4	79.3	76.5	78.2		76.1	80.8	74.6
75-79	68.2	71.6	71.9	72.1	69.8		73.1	74.7	68.2
80-84	59.9	51.9	56.2	52.9	55.0		52.3	58.3	49.8
85+	34.6	31.7	35.3	34.0	34.3		31.8	37.1	29.9

Dependency ratios

The Dependency Ratios table shows ratios for the two main groups of economically inactive people to economically active people for the ONC estimate and all the administrative data. They are calculated as follows:

$$\text{Young Dependency Ratio} = \frac{\text{Population Aged 0-14}}{\text{Population Aged 15-64}} \times 100$$

$$\text{Old Dependency Ratio} = \frac{\text{Population Aged 65+}}{\text{Population Aged 15-64}} \times 100$$

	ONC Estimate	2000 MYE	Patient Records	Adjusted Patient Records	2001 Extrap'ns	Diag. Range Upper Bound	Diag. Range Lower Bound
Young	29.8	30.3	28.3	28.1	29.6	31.4	27.0
Old	28.2	28.5	27.0	26.8	28.1	29.3	26.0

Census Coverage Survey maps

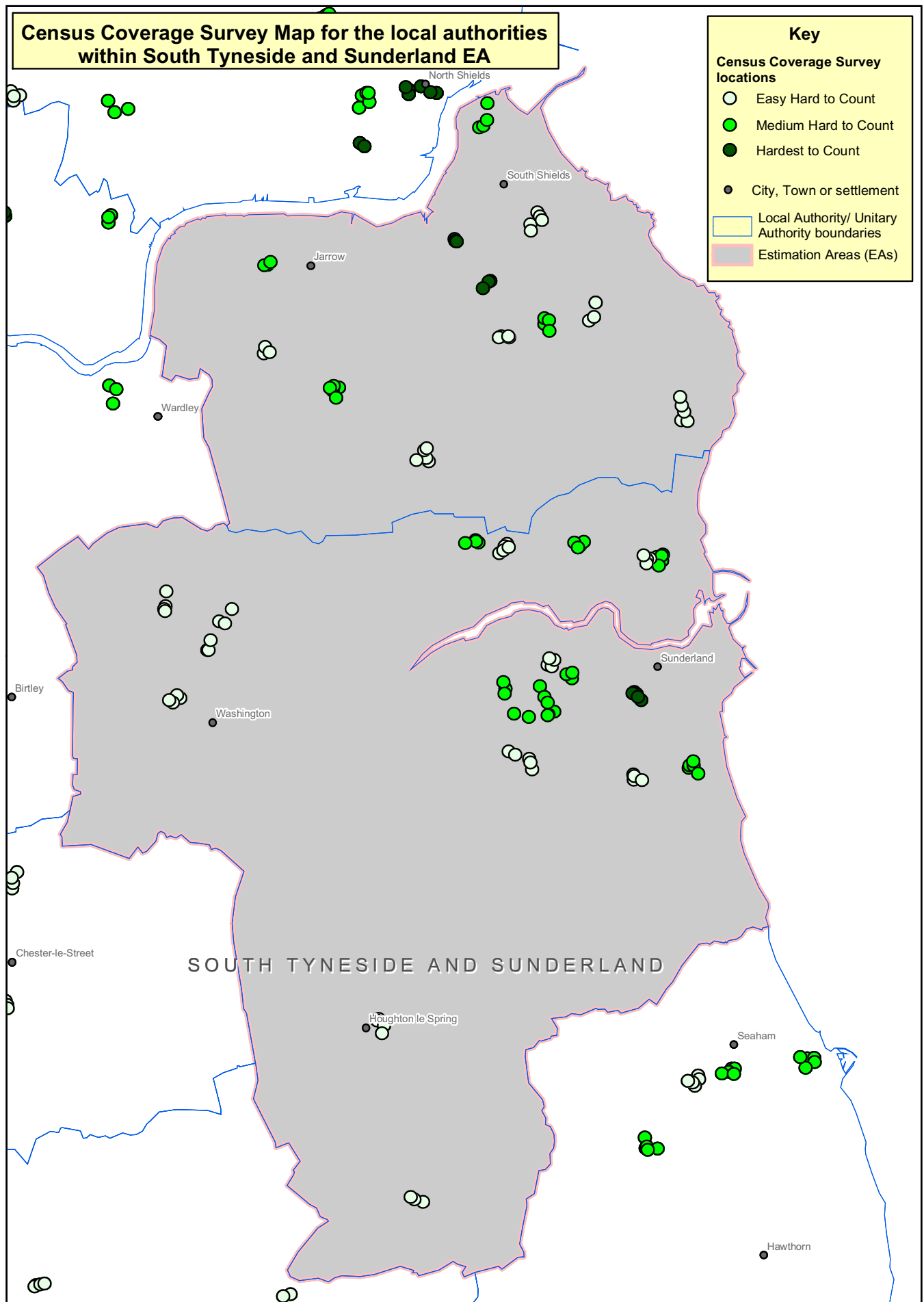
It is standard ONS practice not to release sample details which allow the identification of individual households or people sampled in the Office's surveys. In addition, Census data for areas consisting of a small number of postcodes will be released at a later date. By releasing the details of the individual postcodes sampled in the CCS, we would effectively be releasing information about some individual households and persons sampled, since some postcodes may contain only one household and it may be possible to identify these from the small area data. This would be contrary to the confidentiality assurances given by the Registrar General. The specific postcodes sampled in the CCS will not, therefore, be published.

The map below shows the location of the CCS Postcodes within the Local Authority. Please note that these maps were created as working documents. We plan to replace them with higher quality maps in the near future.

The local authorities covered by this map are:

- South Tyneside
- Sunderland

White circles show postcodes with a Hard to Count (HtC) index of 1 (the easiest areas to enumerate), light green circles have a HtC index of 2 and dark green circles have a HtC index of 3 (the hardest areas to enumerate). Local Authority boundaries are marked in blue and the Estimation Area boundary in red.



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