

Household Estimates and Dwelling Stock: Comparison with Census 2001

Cecilia Macintyre, Scottish Executive Development Department
Katherine Walker, Scottish Executive Development Department

Monday, 07 April 2003

Introduction

The availability of 2001 Census figures at local authority on households, household spaces and dwellings provides the opportunity to review the current household estimates methodology. This review will include the examination of

- the assumptions underlying the current methodology and issues relating to updating baseline figures
- potential use of council tax billing information
- adoption of a method which derives estimates from population estimates through headship rates¹

This aim of the review is to agree a timetable for producing and implementing a methodology to use in producing household estimates in future. Under the current timetable any new methodology will be required for the estimates to be produced in Spring 2004 and annually thereafter.

This paper sets out some of the initial findings from the Census 2001 and highlights some further work which will be required in carrying out the review. The paper consists of the following sections.

1. A comparison of the Census household estimates with the 2001 mid-year household estimates, with a description of current methodology used by the Scottish Executive.
2. A review of the assumptions used in the current SE methodology for vacant dwellings and non-effective stock in the light of the 2001 Census
3. A comparison of dwelling estimates from Census 2001, Scottish Executive Housing returns and Scottish Assessor data from Valuation lists
4. A comparison of trends in council tax based returns of occupied dwellings with Scottish Executive household estimates
5. Conclusions and proposals for additional analysis to investigate underlying reasons for differences in sources, and to allow a new methodology to be agreed.

¹ This approach is taken currently by Office of the Deputy Prime Minister, and Welsh Assembly

2001 mid-year household estimates compared with Census 2001

The 2001 Census published in March 2003 estimated that there were 2,192,246 households in Scotland. The mid-year estimate for 2001 is 1.2% higher than this at 2,218,596. When individual local authority estimates are compared with their census estimates, the individual variations range from SE household estimates 4.2% higher in Aberdeen City to estimates which are 1.9% lower than Census in Stirling.

Annex B gives the local authority based mid-year estimates for 2001 and compares these with the Census. The following authorities in table A have household estimates which were over 1.5% different from the Census.

Table A: Local Authorities with household estimates higher than or lower than the Census.	
Local Authority Area	Household estimates compared with Census 2001
<i>HH estimates higher than Census</i>	
Aberdeen City	4.2%
Eilean Siar	3.8%
Inverclyde	3.5%
City of Edinburgh	2.5%
North Lanarkshire	2.3%
Shetland Islands	2.3%
East Ayrshire	2.0%
City of Glasgow	1.9%
Moray	1.6%
<i>HH estimates lower than Census</i>	
Midlothian	-1.9%
Stirling	-1.9%

The following sections examine the main inputs into the household estimates methodology to assess if there is evidence as to the extent which they are still reasonable. An outline of the methodology is given in Annex A.

Vacancy and non-effective stock

The current available Census tables provide information on vacancy and second/holiday accommodation on the basis of household spaces. In practice this will relate very closely to dwelling based vacancy, as the differences will relate to the very small number of sharing households or caravans and other non standard accommodation.

The rates of vacancy and non-effective stock which are built into the current methodology for household estimates were derived from the Vacant Follow Up Survey (VFUS) in 1991. The VFUS was carried out after the Census and surveyed a sample of all dwellings classified as vacant in the Census. The survey provided two purposes, firstly to give an indication of the accuracy of the enumerators initial assessment as vacant, and secondly to provide further information about the characteristics of vacant dwellings. The value of vacant dwellings in the 1991 Census (102,052 vacant dwellings) was then adjusted downwards using results from the VFUS to take account of vacant dwellings which were found to be not vacant. This gave 98,456 vacant dwellings for use in the estimates methodology.

The non-effective stock is taken from those dwellings which were correctly classified in the Census as Not Main Residence and those which were classified as vacants but which the VFUS showed were in fact second/holiday homes. There were 34,294 dwellings in the Census which were classified as not used as main residence. Using the 1991 and 1981

VFUS adjustments were made for misclassification. This gave the number of dwellings correctly classified as Not Main Residence.

Due to the differences between vacant and non-effective dwellings in the Census and in the VFUS it is not possible to assess the changes in the vacancy rates between the 1991 VFUS and the 2001 Census. However, we can compare the data from the 1991 Census with the 2001 Census. Both the number of vacant and non-effective dwellings has decreased between the Censuses. Therefore the data from the 2001 VFUS should be lower than the 1991 VFUS data.

When the data from the 2001 VFUS is available in summer 2003 we will update the rates used in the estimates methodology. The 2001 VFUS was drawn in such a way that results can be split by urban and rural Scotland and also for deprived and non-deprived areas. It will only be possible to split by local authority for those areas where a boost was funded or where the sample size is large enough by chance. Therefore we will need to use the results of this survey along with the 2001 census data to calculate the percentages at Local Authority level.

Following this the current methodology will be rerun including these new assumptions to gauge the extent to which this may explain some of the differences between the current household estimates and the Census based estimates.

Sharing allowance

The sharing allowance used in the household estimates methodology is an adjustment which converts the estimates of occupied dwellings into households i.e. additional households which occupy dwellings with two or more household spaces. The estimate for sharing was calculated using the 1992 SE household estimate (produced using the old methodology) and comparing with the number of occupied dwellings (estimated by rolling forward the total dwelling stock at the 1991 Census).

The Census also shows an estimate for shared dwellings. This was a different approach to that used in 1991. It is likely that due to the nature of this exercise, it will miss some sharing households and therefore underestimates the sharing allowance and overestimates the dwelling count. Both of the sharing estimates from the two Censuses are lower than the sharing estimate that is used in the household estimates methodology.

In the light of this, an important part of the review will be to examine other evidence on dwelling counts and household sharing to validate the Census results such as data from the Scottish Household Survey or Scottish House Condition Survey.

Dwelling Estimates

There are currently three sources of estimates of dwellings which are either used or potentially could be used in the SE household estimates methodology. These are

- Dwelling estimates (rolled forward from 1991 Census estimates) based on local authority returns to the SE
- Census 2001 estimates, derived from household information in the Census and enumerator feedback on addresses with sharing households
- Scottish Assessor returns of their Valuation lists used for ward based dwelling estimates for the Scottish Neighbourhood Statistics project

The Census 2001 estimates a total of 2,307,305 dwellings in Scotland. The current dwelling estimates which are used in household estimates indicate a total of 2,334,809 dwellings in Scotland, which is 1.2% higher. There are a number of local authorities where these differences are greater than 1.5%. The authorities where the Scottish Executive estimates are higher are Glasgow City (3.7%), Shetland Islands (3.4%), Dundee City (2.7%), North Lanarkshire (2.5%), City of Edinburgh (2.0%) and West Lothian (1.9%).

Of these authorities, Glasgow City, Shetland, North Lanarkshire and City of Edinburgh had SE mid year estimates which were high relative to the Census, and so it is possible that the high dwelling counts may explain this to a certain extent.

The authorities where the Scottish Executive dwelling estimates are lower are Argyll & Bute (-3.5%), Orkney Islands (-2.6%) and Midlothian (-1.7%). Of these both Argyll & Bute and Midlothian had household estimates which were relatively low suggesting that low dwelling estimates may provide an explanation.

The council tax valuation lists held by Scottish Assessors are potentially an independent source of information which is available to validate these two sets of dwellings estimates.

This information is available through annual returns which are made to the Local Government Finance section of the Scottish Executive by the Revenues departments and in addition through Assessors direct. This latter source is available through the Scottish Neighbourhood Statistics project as Assessors were asked to provide extracts of their Valuation lists. These were then used to estimate small area dwellings counts by linking the postcode of the address to electoral wards. In practice these two sources should be identical although the latter is only available for 2001 and is incomplete.

The dwelling counts for 2001 from the valuation lists could be used to compare the census and SE estimates. The Scottish Executive Local Government Finance Statistics branch is able to provide the dwelling counts. In September 2001 the number of dwellings on the council tax list was 2,322,844. Annex B compares the three different sources of dwelling counts. The differences vary between Local Authorities. In Argyll and Bute the dwelling count from the estimates and from the valuation list are very close but the Census is significantly higher. However, in West Lothian the valuation list counts are closer to the Census counts.

Comparison of Household Estimates with Council Tax returns

Local authorities provide the Scottish Executive with annual summary returns of their Council tax systems, including estimates of numbers of occupied dwellings²(Defn). Annex C provides graphical representation of the trends in both these returns and the Scottish Executive household estimates between 1996 and 2001. In summary, over this period the occupied dwelling estimates from the Council tax returns are on average 0.2% higher than the household estimates. In 27 out of the 32 local authorities, the difference is less than 1.5%. In the remaining areas the differences the following patterns can be seen.

Council tax based occupied dwelling counts are consistently higher than the household estimates in Argyll & Bute (2.3%), East Renfrewshire (1.8%) and Scottish Borders (2.5%). The estimates are also higher in Orkney, although in more recent years the two estimates appear to be converging, so it would be useful to investigate if there have been any changes in practice at either the council tax billing system or the Assessors office or the housing department. It is notably that there has been a similar pattern in Shetland with a relative increase in household estimates compared with the Council tax based estimates.

² This includes dwellings occupied by non-vacant exempt categories.

Inverclyde has consistently lower estimates of occupied dwellings compared with household estimates by an average of 1.9%. This is different from the general the pattern where the occupied dwelling estimates are close to or higher than the household estimates, so it may be useful to examine the data more closely.

Conclusions and Final points

Issues in interpretation

It is difficult to draw firm conclusions from the comparison of census and the SE estimates as there are possible issues with each data source.

The Census dwelling count may be low because of the algorithm for deriving dwellings from households.

Scottish Executive household estimates are biased because of out of date assumptions on vacancy and non-effective stock estimates. These will need to be updated from the Vacant Follow Up Survey and then the estimates could be compared with the census again. The dwelling estimates for the SE estimates could be biased because of poor quality information on demolitions, new build and conversion from Local Authorities.

Using the assessor data as an independent source to compare with the census and estimates could help validate the sources. However, because of definitional issues the estimates will be different anyway. The census includes caravans and mobile homes but has treated student halls of residence different in 2001 than in 1991.

Some other issues for discussion at the meeting and future work

There is a need to gather local based information to explain some of the discrepancies between the different data sources. Also to suggest reasons the trends in council tax returns mirror the household estimates (annex C).

The sharing allowance needs to be examined to clarify if the Census methodology has resulted in a sharing allowance too low, how to update the sharing allowance used in the estimates methodology and what alternative survey sources could be used instead.

The assumptions on vacant and non effective dwellings needs to be updated from the 2001 VFUS in July.

Other methods need to be considered. For example the English method which derives household estimates from population estimates through headship rates. This could be compared with the Census

Annex A

The Scottish Executive estimates methodology is dwelling based, with the 1991 Census being used to provide the baseline dwelling estimate. These dwelling estimates are annually updated using information on demolition, new build and conversions provided by the local authority. These include information on Housing Association houses and the private sector.

Occupied dwelling estimates are derived by subtracting vacant dwellings and non-effective stock which is mainly second and holiday homes. The estimates of vacant local authority stock is taken directly from returns provided by local authorities on their own stock. A percentage of the total non local authority stock which is vacant in 1991 from the Post Census Vacant Survey is applied to an estimate of total non local authority stock for each year. A constant rate of non-effective stock is assumed to hold between the Censuses.

Finally an allowance is made for additional households due to sharing of dwellings. The assumption is that a constant number of additional households are found in each local authority area, derived from the 1991 Census.