

2001 Census of Population & Housing Health Warnings

The demographic profile of Cardiff has never been subject to as much scrutiny as at the current time. The results of the 2001 have caused a great deal of concern.

The 2001 Census of Population and Housing results are believed to be flawed in Cardiff for the following reasons, in order of precedence:

- Failure to enumerate thousands of dwellings and their residents
- Partial avoidance by some residents in enumerated households that returned Census forms
- Incorrect imputation of data for non-respondent residents in enumerated dwellings

For Cardiff, the first statistic published, namely a total resident population of 305,353 was greeted with some astonishment by local government and health service demographers/statisticians. Between National Censuses ONS publishes annual estimates of population for local authorities and health areas as at 30th June each year. For Cardiff the 2000 mid year estimate of population was 327,500, compared with the 1991 estimate of 300,000.

Demographic trends during the 1990's, as published prior to the 2001 Census, were deemed by most demographers to be a fairly accurate reflection of population change experienced in the 1990's when 12,500 new homes were built, 25,000 extra jobs created and a growth of 8,000 student places in Cardiff's higher education establishments took place. The 2001 Census based MYE for Cardiff has now undergone a revision and stands at 307,500, 20,000 less than the original estimate for mid 2000.

A number of urban areas in England and Wales were subject to significant reductions in the population when the original 2000 mid year estimates were compared with original 2001 Census totals, Table 1, below highlights a few of these areas, including Cardiff:

Table 1

Population Estimate Change 2000 to 2001				
Location	2000 MYE	2001 Census Based Original MYE	Difference	% Difference
Westminster LB	244,600	181,300	-63,300	-25.9
Kensington & Chelsea LB	190,300	158,900	-31,400	-16.5
Manchester City	439,500	392,800	-46,700	-10.6
Cambridge	124,400	108,900	-15,500	-12.5
Oxford	149,100	134,200	-14,900	-10.0
Bristol	406,200	380,600	-25,600	-6.3
Derby	236,300	221,700	-14,600	-6.2
Cardiff	327,500	305,300	-22,200	-6.8

Under Enumeration & Imputation Errors

The decennial census remains the largest population survey conducted in the UK. Of all the data that is eventually published from census surveys only a few alternative data sources can be used to check the accuracy and comprehensiveness of the Census coverage within a geographical spatial unit.

At the time of the release of the Census Key Statistics data sets for local authorities in Wales in February 2003 a known universe of data for benchmarking comparisons was the total local authority housing stock, and more importantly the number of occupied LA dwelling units. Key Statistics table KS18 contains the total number of occupied household spaces by tenure as recorded by the Census. The known total number of LA housing units, and the number of vacant (void) and occupied properties as at 31st March 2001 was submitted by Cardiff Council to the National Assembly for Wales and appear in the document entitled '*Local Authority Housing: Management and Performance 2001-02*' published by National Statistics. While the capture date for these statistics is nearly a month before Census Day (29th April 2001), this minor temporal difference does not account for the huge anomalies in the levels of occupied local authority dwelling units recorded by the two sources. Table 2, below, highlights the stark differences between local authority records and the Census recorded statistics.

Table 2

The Implied Under-Enumeration or Incorrect Imputation of Local Authority Housing Stock in the 2001 Census			
Unitary Authority	Local Authority Occupied Council Houses @ 31st March 2001 [1]	2001 Census Occupied Council Houses @ 29th April 2001 [2]	Total LA Housing Stock Not Enumerated and/or Incorrectly Imputed As Another Tenure
Cardiff	15,026	12,781	2,245

Source: [1] '*Local Authority Housing: Management and Performance 2001- 02*' published by National Statistics. [2] 2001 Census Key Statistics Table KS18.

Due to the 'right to buy scheme' introduced in the early 1980's neighbourhoods, and in some cases entire electoral divisions once dominated by local authority housing now have a greater mix of tenure. Attempts to account for non-respondents by 'imputation' of the typical characteristics of similar households known not to have completed and returned their Census forms may have led to the discrepancies highlighted in the table above. This is most likely to be true if response rates were typically lower from those residing in local authority tenure.

The apparent under enumeration in Cardiff of residential dwellings is highlighted by Electoral Division in Table 3 below:

Table 3

Comparative Total Dwelling Counts in 2001				
Electoral Division	Electoral Registration Canvas Households (Cardiff ERO)	2001 Census Dwellings (Standard Table 48a)	Implied Under Enumeration of Residential Dwellings by the 2001 Census of Population	% Difference
Adamsdown	3,815	3,080	-735	-19.3
Butetown	3,203	2,341	-862	-26.9
Caerau	4,370	4,329	-41	-0.9
Canton	5,973	5,779	-194	-3.2
Cathays	5,078	4,832	-246	-4.8
Creigiau / St Fagans	1,738	1,653	-83	-4.8
Cyncoed	4,411	4,305	-106	-2.4
Ely	6,298	6,118	-180	-2.9
Fairwater	5,931	5,585	-346	-5.8
Gabalfa	2,364	2,211	-153	-6.5
Grangetown	6,604	6,222	-382	-5.8
Heath	4,650	4,667	17	0.4
Lisvane	1,261	1,266	-4	-0.3
Llandaff	3,851	3,778	-73	-1.9
Llandaff North	3,503	3,444	-59	-1.7
Llanishen	6,732	6,687	-45	-0.7
Llanrumney	4,818	4,740	-78	-1.6
Pentwyn	5,975	5,672	-303	-5.1
Pentyrch	1,427	1,397	-30	-2.1
Penylan	4,920	4,688	-232	-4.7
Plasnewydd	7,278	6,984	-294	-4.0
Pontprennau & Old St Mellons	3,420	3,271	-149	-4.4
Radyr & Morganstown	1,897	1,847	-50	-2.6
Rhiwbina	5,087	5,051	-36	-0.7
Riverside	6,018	5,610	-408	-6.8
Rumney	3,512	3,506	-6	-0.2
Splott	5,394	5,219	-175	-4.0
Trowbridge	6,215	6,087	-128	-2.1
Whitchurch & Tongwynlais	6,898	6,902	4	-0.1
Cardiff	132,641	127,270	-5,371	-4.0

Source: Derived from the 2001 Census and Cardiff Council Electoral Registration Office

The discrepancies in dwelling units for Adamsdown and Butetown are massive and it is difficult to come to any conclusion other than a failure in Census fieldwork and methodologies put in place to correct for such failures.

It is clear from the statistics highlighted in Table___, overleaf that the South East and Central areas have experienced the greatest under enumeration of dwellings in Cardiff with some 66% of the implied shortfall being located in these two areas totalling some 3,550 dwellings and their occupants, therefore, also not included. This in turn gives a much lower population for these two areas than those estimated by other sources, for example the NHSAR. The

potential for under enumeration of population in the South East and Central LHB Localities was always greater, as these areas of the City contain population groups that are widely recognised as hard to enumerate and engage with by ONS themselves. This however does not explain the failure to identify physical dwelling units in the first place.

LHB Area	Total Implied Under Enumeration of Dwellings By 2001 Census	% of Cardiff Total
Central	-1,916	35.6
South East	-1,631	30.3
West	-1,405	26.1
North	-425	7.9
Cardiff LHB	-5,377	100.0

Source: Derived from 2001 Census of Population & Cardiff Electoral Registration Address File by Cardiff Research Centre

Partial Avoidance

In addition to the failure to enumerate dwellings and their occupants it is believed that due to avoidance by some residents, not all those living in households that were enumerated by the 2001 census were recorded. For example, if two adults live in a household, maybe only one adult is recorded on the Census return. This factor, which is difficult to quantify, may have further reduced the population estimates produced by the 2001 Census.

A Potential Remedy?

With both revenue and capital funding for local authorities being distributed on a per-capita basis the accuracy of population estimates are crucial for financial reasons. Not only local government but also, local health boards, fire services and police authorities are affected by per-capita based funding formulas.

Recent developments in England suggest that ONS are prepared to revise 2001 Census population statistics where local authorities have made representations regarding their unhappiness with the figures and have taken steps to highlight 'gold standard' evidence to support their case.

On November 4th 2003 ONS announced that they had further revised upwards the 2001 based population of Manchester City by some 20,000 persons. The reason for this unprecedented decision was a data matching exercise conducted by Geometrics. Residential address files supplied by Manchester City Council were compared with the final 2001 ONS Census address file, as a result of this exercise it was revealed that the Census address file for Manchester was 14,000 lower than those administrative records held by the local authority. This has set a precedent that should enable more local authorities to successfully challenge the population totals published from the 2001 Census. The results of a similar data matching exercise for Westminster London Borough will be made public in December 2003.

Cardiff Council has sent a letter to the National Assembly Minister for Finance requesting that the Assembly instigates a similar data matching exercise for each Welsh local authority to ensure that revised population estimates are produced where the evidence fits. This will help to ensure that the total Wales share of population used in the Barnett Formula is appropriate. Cardiff Council is prepared to go directly to ONS and request a similar data matching exercise to ensure a more accurate revised, official, population estimate is published for the city. As outlined above it is probable that in Cardiff as many as 5,400 residential dwelling units and their occupants were not enumerated by the 2001 Census.