
Feature Article: How many people were missed in the 2001 Census?

Summary

In each census, some Canadian residents are missed and some are counted more than once. Starting with the 1991 Census, Statistics Canada has made the decision to adjust the official population estimates to include a measure of net census undercoverage (persons missed less persons counted more than once). The population estimates in this report are based on information from the 2001 Census, adjusted for net census undercoverage.

After each census, Statistics Canada undertakes an extensive evaluation of the quality of the census using statistical methods to assess the coverage of the census. These coverage studies consist of the Reverse Record Check, which primarily measures **undercoverage**, and the Automated Match and Collective Dwellings studies, which measure overcoverage.

People are missed in the census for numerous reasons - households, such as those in secondary suites that are difficult for the enumerators to locate, difficulties in understanding the questionnaire, uncertainty about whether to include someone in a household, persons with no usual residence and a few people who refuse to participate in the census.

The Reverse Record Check (RRC) study selects a sample of approximately 60,000 Canadian residents, who should have been enumerated in the 2001 Census. These persons are selected from the following sources:

- persons enumerated in the 1996 Census;
- persons born between the 1996 and 2001 Censuses;
- immigrants who entered Canada between the 1996 and 2001 Censuses;
- persons who were not enumerated in the 1996 Census, as identified from the 1996 RRC;
- persons on work, student or ministerial permits and refugee claimants, who were in Canada on Census day (May 14, 2001);
- persons on Territorial Health Care Files (for Yukon and NWT only).

The sample represents the same target population as the census, but is obtained in such a manner as to be independent of the census itself. For each person selected in the sample, it must be determined if the person was enumerated in the 2001 Census, if so how many times and if not why not (e.g. the person died, left the country, was missed by the census,..). The RRC is a comprehensive record linkage and matching procedure, which systematically traces all persons in its sample, interviews them to obtain a census day address, and matches these persons to individual census documents.

Overcoverage in the census occurs when persons in the census target population are counted more than once, and when persons not in the target population (e.g. foreign residents, fictitious persons or pets) are enumerated. The first type of overcoverage can occur when a respondent fills out two census forms at different dwellings

Feature Article: How many people were missed in the 2001 Census?

or when two census questionnaires are delivered to the same household.

The Automated Match Study (AMS) is designed to detect pairs of similar households based on the number of persons matched between households (same sex and date of birth), the size of the two households and their relative proximity. Once pairs of similar households are detected, the census questionnaires for a sample of them are verified manually to determine the amount of overcoverage.

The Collective Dwelling Study (CDS) measures overcoverage of persons who are enumerated in both a private dwelling and also in a collective dwelling, such as a hospital, a hotel, or a student residence.

In addition to the AMS and CDS, overcoverage can also be detected by the RRC study.

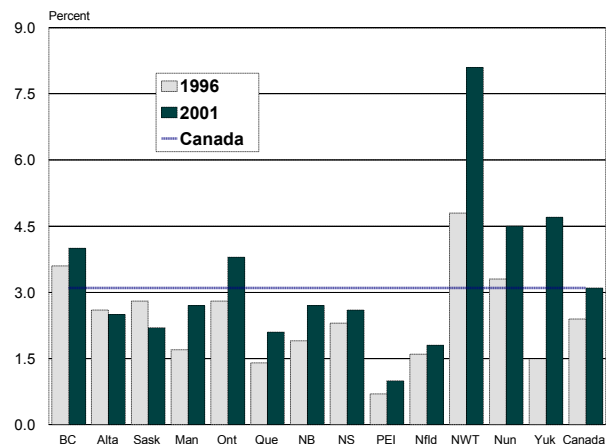
There is another category of missed, which the RRC can not adequately measure, namely **incompletely enumerated Indian reserves** and Indian settlements, where enumeration was not permitted or was interrupted before it could be completed, or where the quality of the data was considered inadequate. A regression model is used to estimate this category of missed people.

There are two other categories in which people may be missed, but for which there are no adequate estimates:

- **Returning emigrants**, Canadian citizens or landed immigrants who emigrated before the 1996 Census and returned to Canada to take up permanent residence prior to the 2001 Census;
- **Temporarily abroad**, Canadian citizens or landed immigrants who were temporarily abroad in 1996, did not have a usual place of residence in Canada, and returned to Canada prior to the 2001 Census.

The following chart shows the results of the 2001 Census coverage studies by Statistics Canada published on September 25, 2003. The 1996 net undercoverage rate is also shown for comparison purposes. Note that this rate has been revised from that previously published as a result of information obtained from the 2001 coverage studies.

In 2001 B.C. had a high undercoverage rate among the provinces.



The estimates indicate that in 2001 British Columbia had a net undercoverage rate that was much higher than that of other provinces. This situation is not unique, as in most

Feature Article: How many people were missed in the 2001 Census?

censuses B.C. has had a higher than average proportion of the population that was missed. Some of the factors that may contribute to the high rate are the remoteness of some areas of the province, the high mobility of the population and the large number of recent immigrants, in particular those from non-English speaking countries. All of these factors tend to make the population more difficult to locate and enumerate successfully.

project was to improve the coverage of the census itself by developing an address file of dwellings using administrative records from many sources and also by compiling better geographical information on the location of addresses. A similar project was not undertaken for either the 1996 or the 2001 Census, and the higher undercoverage rates may be part of the consequences.

From the table below it can be seen that the Census of 1991 was somewhat of an anomaly. The net undercount for B.C. was about the same as the national average, while in 1981, 1986, 1996 and 2001 the rates were relatively high. The 1991 result may have been partially a result of a special census undercount project that was initiated jointly by BC Stats and Statistics Canada prior to the 1991 Census. The purpose of this

Estimated Census Coverage Error (%)
(2001 Figures Based upon the Reverse Record Check)

	2001			1996	1991	1986	1981
	Gross Undercoverage	Gross Overcoverage	Net Undercoverage				
British Columbia	5.30	1.26	4.04	3.68	2.47	3.25	2.20
Alberta	3.18	0.89	2.29	2.40	1.63	2.18	1.62
Saskatchewan	3.18	1.06	2.12	2.75	1.40	1.59	0.47
Manitoba	3.49	0.80	2.69	1.67	1.57	2.25	0.55
Ontario	4.56	0.88	3.68	2.73	3.18	2.49	1.29
Quebec	2.93	1.03	1.90	1.61	2.35	2.04	1.23
New Brunswick	3.57	0.89	2.68	1.89	2.85	1.92	1.18
Nova Scotia	3.44	0.81	2.63	2.24	1.57	1.46	0.60
PEI	1.89	0.92	0.97	0.85	0.55	1.43	0.70
Newfoundland	2.43	0.63	1.80	1.68	1.86	1.31	1.09
NWT *	9.10	1.00	8.11	4.48	4.92	4.60	3.12
Nunavut	5.07	0.59	4.49	3.29			
Yukon	5.59	0.86	4.73	5.22	3.17	3.25	1.96
Canada	3.95	0.96	2.99	2.45	2.52	2.31	1.31

Source: Statistics Canada

*Pre-1996 figures represent combined NWT and Nunavut

Feature Article: How many people were missed in the 2001 Census?

If we look at the Census Metropolitan Areas (CMAs), the Net Undercoverage rates from the RRC for all CMAs across Canada was 3.15%, and 2.70% for the non-CMA areas. In BC the CMAs have considerably higher net undercounts than the national level, as can be seen in the following table.

It should also be noted that coverage errors are extremely variable by age and gender (see the following RRC table and graph). Thus the net undercoverage rates by region within BC may potentially vary considerably depending on the region's age/gender structure.

2001 Estimated CMA Net Undercoverage

All CMA (Canada): 3.15%

Abbotsford	5.44%
Vancouver	3.86%
Victoria	3.94%

B.C. 2001 Census Net Undercoverage By Age/Gender

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Males: 5.04%	3.22	0.34	1.41	2.84	15.29	12.91	8.97	7.10	7.18	2.52	2.82	2.09	-0.51	2.34	1.10	2.73	0.77	2.55
Females: 3.05%	-0.62	1.78	4.36	0.46	6.98	8.08	5.91	6.76	1.14	1.14	0.41	3.16	0.06	0.19	6.61	-0.25	-0.35	2.81

