

Sampling errors:

Some census questions are asked of all Canadian residents, but most of the cultural and economic information is obtained from a sample of one in five households. The information collected from these households is "weighted" to produce estimates for the whole population. The simplest weighting procedure would be to multiply the results for the sampled households by five, since each household in the sample represents five households in the total population. The actual weighting procedure is much more complex, but similar in principle.

Naturally, the results of the weighted sample differ somewhat from the results that would have been obtained from the total population. The difference is known as sampling error. The actual sampling error is of course unknown, but it is possible to calculate an "average" value.

If several samples of the same size were selected using a random process similar to that used in the actual census, the weighted results would tend to vary around the true result for the total population. The "standard error" is a measure of the average size of this variation. Fortunately, it is not necessary to actually generate a number of samples to estimate the standard error for the census; it can be estimated from the single sample actually taken.

Coverage errors:

The census attempts to count every Canadian resident on Census Day. Census representatives (CRs) make a list of all dwellings in their enumeration area and drop off a census questionnaire at each dwelling. The householder is asked to list all usual residents of the dwelling by following the Step 2 guidelines on the questionnaire. Mistakes can occur in this task. The CR may misjudge the location of the enumeration area boundaries and miss certain dwellings. A household may be missed because it is inside what looks like a single dwelling or on a road not marked on the enumeration area map. The CR may fail to drop off a questionnaire at an occupied dwelling because it appears to be vacant.

Householders may misunderstand the Step 2 guidelines and not list all the usual residents of the dwelling; for example, a family member temporarily away from home at school or in a hospital could be left out. A family maintaining two residences could be missed at both because of confusion about where they should be counted. Such situations could also lead to double-counting or "overcoverage", although this is less prevalent than "undercoverage", which occurs when individuals or households are missed.

Non-response errors:

Sometimes it proves impossible to obtain a complete questionnaire from a household, even though the dwelling was identified as occupied and a questionnaire was dropped off. The household members may be away over the entire census period or may refuse to complete the form. In most cases, the questionnaire is returned but information is missing for some questions or individuals. Census representatives edit the questionnaires and follow up on missing information. The CR's work is in turn checked by both a supervisor and a quality control technician. Nevertheless, some non-response is inevitable and, although certain adjustments for missing data can be made during processing, some loss of accuracy is inevitable.

Response errors:

A response may not be entirely accurate. The respondent may have misinterpreted the question or may not know the answer, especially if it is given for an absent household member. Occasionally, a response error may be caused by the Census Representative when following up for a missing response or when recording items such as the structural characteristics of a dwelling.

Processing errors:

After collection has been completed, questionnaires are sent to the regional processing sites. Some of the write-in entries on the form are numerically coded. Mistakes can occur in coding, especially when the written information is ambiguous, incomplete or difficult to read. The coded information and the remaining write-ins are key-entered onto a computer file. Keying errors can occur despite rigorous quality checks on each key operator's work.

Census data files are sent to Ottawa, where the remaining write-ins are coded with the assistance of a computer. Since additional coding mistakes can occur, all the data undergo a series of computer checks to identify missing or inconsistent responses. Responses are created or "imputed" for missing or unacceptable information. The computer cannot, of course, impute a correct response every time, but when results are tabulated for sufficiently large geographic areas or subgroups of the population, imputation errors will more or less cancel out.