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Census of Population, 2016

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Introduction

The Census of Population covers all people who usually live in Canada. It includes people who live on Indian reserves and settlements, people who live in Inuit communities, permanent residents, and non-permanent residents—such as refugee claimants, holders of work or study permits and family members living with work or study permit holders.¹

The *Aboriginal Peoples Technical Report, Census of Population, 2016* aims to inform users of the conceptual framework and definitions used to gather the 2016 Census data on Aboriginal peoples, how the data were collected, the products used to disseminate the information, and the relevant data quality aspects.

[Chapter 1](#) describes the various concepts and variables that can be used to define the Aboriginal population. [Chapter 2](#) and [Chapter 3](#) describe the data collection and data processing procedures. Confidentiality and data quality are discussed in [Chapter 4](#). [Chapter 5](#) discusses data comparability over time and with other data sources. [Chapter 6](#) presents some final remarks about data comparability and data quality for the 2016 Census data for Aboriginal peoples.

1. For more information on the census target population, refer to the [Guide to the Census of Population, 2016](#), Catalogue no. 98-304-X.

1. Concepts and variables

There are various ways to define the Aboriginal population using data from the 2016 Census of Population, depending on the data user's focus and requirements. The following variables, which are used to define the Aboriginal population, are available from the survey and are defined in the [Dictionary, Census of Population, 2016](#), Catalogue no. 98-301-X:

- [Aboriginal identity](#)
- [Aboriginal group](#)
- [Registered or Treaty Indian status](#)
- [Membership in a First Nation or Indian band](#)
- [Aboriginal ancestry](#).

The population estimates for Canada from the 2016 Census using the different definitions are shown below.

Table 1
Estimates for Aboriginal identity, Aboriginal group, Registered or Treaty Indian status, Membership in a First Nation or Indian band and Aboriginal ancestry, 2016 Census

Concept	2016 Census of Population estimate ¹
Aboriginal identity ²	1,673,785
Aboriginal group	1,651,115
Registered or Treaty Indian status	820,115
Membership in a First Nation or Indian band	792,140
Aboriginal ancestry ³	2,130,520

1. Random rounding and percentage distributions: To ensure the confidentiality of responses collected for the 2016 Census of Population while maintaining the quality of the results, a random rounding process is used to alter the values reported in individual cells. As a result, when these data are summed or grouped, the total value may not match the sum of the individual values since the total and subtotals are rounded independently. Similarly, percentage distributions, which are calculated on rounded data, may not necessarily add up to 100%. Due to random rounding, estimates and percentages may vary slightly between different 2016 Census products, such as the analytical documents and various data tables.

2. "Aboriginal identity" refers to whether the person reported identifying with the Aboriginal peoples of Canada. This includes those who reported being an Aboriginal person—that is, First Nations (North American Indian), Métis or Inuk (Inuit); and/or those who reported Registered or Treaty Indian status—that is, registered under the *Indian Act* of Canada; and/or those who reported Membership in a First Nation or Indian band. Aboriginal peoples of Canada are defined in the *Constitution Act*, 1982, Section 35 (2) as including the Indian, Inuit and Métis peoples of Canada.

3. "Aboriginal ancestry" includes at least one response in Question 17 to an origin that can be classified as First Nations (North American Indian), Métis or Inuit ancestry, either with or without also reporting a non-Aboriginal ancestry.

Source: Statistics Canada, Census of Population, 2016.

Specific legally defined geographic regions are often important to users of Aboriginal data. The following variables—as defined in the [Dictionary, Census of Population, 2016](#), Catalogue no. 98-301-X—are available from the survey:

- [Residence on or off reserve](#)
- [Residence inside or outside Inuit Nunangat](#).

The data collected in the Census of Population are used by governments, including Aboriginal governments and organizations, to develop programs and services for Aboriginal peoples.

It is possible to derive other definitions of the Aboriginal population by using different combinations of the census questions. For example, in the 2016 Census long-form (2A-L) questionnaire, the information from Question 18 on Aboriginal groups and Question 20 on Registered or Treaty Indian status can be used to derive the First Nations (North American Indian) identity population with Registered or Treaty Indian status.

Other examples include:

- First Nations (North American Indian) identity population without Registered or Treaty Indian status (non-status)
- First Nations (North American Indian) identity population with Indian band membership
- Registered or Treaty Indian population with Indian band membership.

Other combinations of Aboriginal variables that can correspond to users' data needs and purposes are also possible.

2. Data collection

The 2016 Census was conducted in May 2016. In November 2015, the government reinstated the mandatory long-form census questionnaire, which replaced the National Household Survey. Most households (75%) received the short-form census questionnaire, while one in four households (25%) received the long-form questionnaire.

For residents of private dwellings who completed a census questionnaire without the assistance of a Statistics Canada representative, the self-response rate was 88.8%. This did not include dwellings in canvasser enumeration areas or on Indian reserves.

For more information about the collection response rate, refer to the [2016 Census of Population collection response rates](#).

A [collective dwelling](#) refers to a commercial, institutional or communal dwelling. It may be identified as a collective by a sign on the premises, or by an enumerator speaking with a resident, person in charge, neighbour, etc. Collective dwellings include lodging or rooming houses, hotels, motels, tourist establishments, nursing homes, hospitals, staff residences, military bases, work camps, jails, group homes, etc.

In 2016, census short-form information was collected for the usual residents of institutional collective dwellings. Census short-form information was also collected for Canadian government employees (federal and provincial), members of the Canadian Armed Forces and their families, and people living outside Canada.

Aboriginal people living in collective dwellings or institutions, and outside Canada, received a short-form census questionnaire; the short-form questionnaire did not include questions that allowed for the identification of the Aboriginal population. People who were homeless and not living in a shelter on Census Day were less likely to be enumerated.

For more information about the reference date and the census collection, refer to the [Guide to the Census of Population, 2016](#), Catalogue no. 98-304-X.

2.1 Collection methods

Respondents living outside Indian reserves and settlements; Métis settlements; or Inuit and remote communities had three response options:

- **An online questionnaire:** All private dwellings in the mail-out area (approximately 82% of private dwellings in Canada) received a bilingual invitation letter to complete the questionnaire online. As in 2011, this letter contained a secure access code (SAC), the URL of the 2016 Census website, and a telephone number that the respondent could call to request a paper questionnaire, if preferred.
- **A paper questionnaire:** For 17% of dwellings, enumerators delivered paper questionnaire packages. The paper questionnaire had a SAC in the upper right-hand corner so that respondents could complete the questionnaire online.
- **An interview with a Statistics Canada enumerator**

One in four private dwellings received the long-form questionnaire ([2A-L](#)), while three in four dwellings received a short-form questionnaire ([2A](#)). Residents who wanted to be enumerated separately were able to fill out their own form by requesting a short-form questionnaire for individuals ([3A](#)).

Respondents living inside Indian reserves and settlements; Métis settlements; or Inuit and remote communities—where only the interview response option was offered—all households (100%) were invited to complete a long-form questionnaire ([2A-R](#)) for the household by interview. In these areas, the questionnaires were completed in person with an enumerator to increase the likelihood that there would be sufficient data available for small communities.

In some northern and remote areas of Canada, enumeration was conducted before Census Day from February to May 2016 because of seasonal climate variations or other travel impediments, and to reach respondents before they migrated to hunting and fishing camps for the summer. When enumeration occurred before Census Day (May 10, 2016), the date on which the household was enumerated was used as the reference date.

Overall, approximately 2,000 crew leaders and assistants were hired to recruit, train and supervise around 29,000 census enumerators. Canvasser enumeration also took place on Indian reserves and settlements, and on Métis settlements in southern areas of the country. This occurred primarily from May 2 to July 29, 2016, but extended into early August in some areas.

For enumeration on Indian reserves and settlements, the chief and council were contacted prior to collection to obtain permission to conduct the 2016 Census. As much as possible, community members were hired as crew leaders, enumerators, guides or translators to help with enumeration.

2.2 Census response rates (collection)

The 2016 Census response rate was 97.4% at the Canada level, but varied by province and territory. The highest response rate was 97.6% in several provinces, and the lowest response rate was 92.7% for Nunavut (refer to [Table 10.1](#) for response rates by province and territory). For more information on response rates, including weighted response rates, see the [Guide to the Census of Population, 2016](#), Catalogue no. 98-304-X.

2.3 Questionnaires and instruction guides

Most census data are collected using the [census short form](#) or the [census long form](#). The census short form is the primary source of exhaustive demographic data in Canada. Complementing the data collected by the short-form questionnaire, the long-form questionnaire is designed to provide information about people in Canada based on their demographic, social and economic characteristics.

The [2A-L](#) questionnaire focused on a variety of topics, including Aboriginal ancestry, Aboriginal identity, First Nation or Indian band membership, and Registered or Treaty Indian status. It was used to enumerate private dwellings in mail-out and list-leave areas.

The [2A-R](#) questionnaire was used to enumerate Indian reserves and settlements, Métis settlements, and Inuit and remote communities. In 2016, there were some areas where non-Aboriginal households were on leased Aboriginal land; these households did not receive the 2A-R questionnaire. The questions asked on the 2A-R questionnaire were the same as the ones asked on the 2A-L questionnaire, but the examples provided for write-in responses included more Aboriginal groups in the ethnic origin or ancestry question, and industries or occupations more commonly found in the North. Examples for the education questions were also geared toward the Aboriginal population living in these areas. Also, in the 2A-R questionnaire, people living on Indian reserves or settlements were instructed to skip questions 13, 14 and 15 on citizenship, landed immigrant status and year of immigration, respectively.

Refer to the [questionnaire\(s\) and reporting guide\(s\) for 2016](#) for more information.

2.3.1 Questionnaire languages

In addition to English and French, the 2016 Census questions and the explanations of why the questions were asked were available in 11 Aboriginal languages, in 11 immigrant languages, in Braille, in an audio version and as a sign language video. It is important to note that the questions were translated for reference purposes only—the census questionnaire had to be completed in either English or French, online or on paper.

The 2016 Census questions were translated into the following Aboriginal languages:

- Atikamekw
- Denesuline (Chipewyan)
- Dogrib
- Inuktitut (Nunavik)
- Inuktitut (Nunavut)
- Montagnais
- Northern Quebec Cree
- Ojibway
- Oji-Cree
- Plains Cree
- Swampy Cree.

3. Data processing

The processing phase of the 2016 Census began with the translation of responses into meaningful data. This part of the survey cycle was divided into six main activities:

1. receipt and registration
2. imaging and data capture
3. edits
4. coding
5. edit and imputation
6. weighting.

For general information regarding data processing, please refer to the [Guide to the Census of Population, 2016](#), Catalogue no. 98-304-X.

3.1 Coding of the Membership in a First Nation or Indian band write-in question

Write-in responses to the Membership in a First Nation or Indian band question were coded to a list of over 600 First Nations and Indian bands. Automated coding was used to code 73.2% of responses. The remaining responses were coded with an interactive application. This application included several reference files, including a file that contained different spellings of First Nation and Indian band names and their corresponding codes, and a file that contained geographic codes for Indian reserves, the names of those reserves and the names of First Nations or Indian bands that were affiliated with those reserves.²

3.1.1 Edit and imputation of Aboriginal variables

After the data capture and initial editing and coding operations were completed, the data were processed up to the final edit and imputation stage. This final edit stage detected invalid responses and inconsistencies, and identified unanswered questions. Imputation replaced missing, invalid or inconsistent responses with plausible values. When carried out properly, imputation can improve data quality by replacing non-responses with plausible responses that are similar to the responses the respondents would have given if they had answered the questions. Imputation also has the advantage of producing a complete dataset.

The nearest-neighbour-donor method was used to impute census data. This method is widely used in the treatment of item non-response. This method replaces missing, invalid or inconsistent information about one respondent with values from a similar respondent. The rules for identifying the respondent most similar to the non-respondent may vary depending on the variables to be imputed. Donor imputation methods have good properties and generally will not alter the distribution of the data, unlike many other imputation techniques. Nearest-neighbour imputation ensures data consistency (see [Chapter 8](#) of the *Guide to the Census of Population, 2016*, Catalogue no. 98-304-X).

In 2016, the following variables were processed together, and interrelations between them were clearly defined in advance: immigration, citizenship, place of birth, ethnic origin or Aboriginal ancestry, population group or visible minority, Aboriginal group, Registered or Treaty Indian status, and Membership in a First Nation or Indian band. As much as possible, donor imputation for missing information within these variables was done with one donor for all variables.

2. Statistics Canada acknowledges the expertise and assistance provided by Indigenous and Northern Affairs Canada in the coding of the Membership in a First Nation or Indian band responses for the 2016 Census.

All people who required imputation and who were not census family (CF) children had their missing data imputed using a single donor who was also not a CF child. The imputed information for CF children could be from a person within the same CF, from a person outside the CF, or from deterministic rules, in that order of preference. As a result, the imputed records were internally consistent and based on actual full responses, rather than multiple-donor responses that might have resulted in inconsistent information.

The low rates for item non-response and invalid response rates, and the corresponding low imputation rates for Aboriginal variables (i.e., Aboriginal group, Registered or Treaty Indian status, and Membership in a First Nation or Indian band—see Table 2), had little overall impact on data quality.

Table 2
Imputation rates for questions on Aboriginal group, Registered or Treaty Indian status and Membership in a First Nation or Indian band, for Canada, provinces and territories, 2016 Census

Region	Aboriginal group (Question 18)	Registered or Treaty Indian status (Question 20)	Membership in a First Nation or Indian band (Question 21)
	percent		
Canada	1.1	1.4	1.8
Newfoundland and Labrador	2.2	2.3	3.3
Prince Edward Island	1.7	1.9	2.6
Nova Scotia	1.2	1.6	2.4
New Brunswick	1.3	1.5	2.0
Quebec	1.2	1.3	1.6
Ontario	0.9	1.3	1.7
Manitoba	1.1	1.6	2.1
Saskatchewan	1.2	1.7	2.3
Alberta	1.2	1.6	2.1
British Columbia	1.1	1.4	1.9
Yukon	0.8	1.4	2.6
Northwest Territories	1.9	2.6	5.6
Nunavut	1.2	1.5	2.1

Source: Statistics Canada, Census of Population, 2016.

3.2 Weighting

Weighting was done to ensure that results were representative of the entire population. Therefore, each household was given a sample weight equivalent to the inverse of its probability of selection in the sample. In collection units (CUs) where enumerators conducted personal interviews and 100% of the households were asked to complete a long-form questionnaire, this weight was 1. In non-canvasser CUs, this weight was generally 4.

In the canvasser-enumerated CUs, non-response to the long-form questionnaire was accounted for by imputation. Data for households that did not respond to any questions were imputed using data from a respondent household in the same type of CU. All private households in these CUs that were not part of incompletely enumerated Indian reserves and establishments kept their sample weight of 1 for estimation purposes. Other private households and collective households were attributed a final weight of nil, and therefore did not contribute to the estimates.

In the non-canvasser CUs, several adjustments were made to the weight, and a different imputation method was used.

Further information regarding weighting can be found in [Chapter 9](#) of the *Guide to the Census of Population, 2016*.

4. Data quality assessment and indicators

The objective of the data quality assessment was to evaluate the overall quality of survey data to improve understanding of how and where errors occur, and to inform users of the reliability of the data. For detailed information on the overall quality of the 2016 Census data, see the [Guide to the Census of Population, 2016](#), Catalogue no. 98-304-X.

4.1 Data suppression related to confidentiality and data quality

Data disseminated by the census are also subjected to a variety of automated and manual processes to determine whether the data need to be suppressed to maintain confidentiality (nondisclosure) and quality.

4.1.1 Random rounding

All counts in census tabulations undergo random rounding, a process that transforms all raw counts into randomly rounded counts. This reduces the possibility of individuals being identified in the tabulations.

In addition to being suppressed for confidentiality reasons, data dissemination may also be limited because of data quality. Further information regarding data suppression can be found in the [Guide to the Census of Population, 2016](#).

4.1.2 Global non-response rates

The global non-response rate (GNR) is an important measure of census data quality. It combines total non-response (households) and partial non-response (questions). This measure was used for the 2016 Census, and for the 2011 and 2006 censuses. The GNR is calculated for dissemination of the short-form questionnaire counts and long-form questionnaire estimates. For the long-form census questionnaire, the GNR is weighted to account for sampling. A lower GNR indicates a lower risk of non-response bias and, as a result, a lower risk of inaccuracy.

The GNR is the main dissemination criterion associated with the quality of the 2016 Census short-form questionnaire counts and long-form questionnaire estimates. The counts and estimates for geographic areas with a GNR equal to or greater than 50% are not published in the standard products. The counts and estimates for these areas have a high risk of non-response bias.

4.1.3 Other occurrences when data are suppressed or not available

In addition to being suppressed for confidentiality and data quality reasons, data may also be suppressed or unavailable for reasons related to data collection.

4.1.3.1 Suppression of citizenship, landed immigrant status and period of immigration data— Indian reserve 2A-R suppression

Data suppression also occurs when certain questions are not asked of all respondents. Persons living on Indian reserves and Indian settlements (i.e. persons living [on reserve](#)) who were enumerated with the 2016 Census of Population [2A-R](#) questionnaire were not asked the questions on citizenship (Question 13), landed immigrant status (Question 14) or year of immigration (Question 15).

Consequently, [citizenship](#), [immigrant status](#), [year of immigration](#), [admission category](#) and [applicant type](#) data are not available for geographic areas where the majority of the population was living on reserve and enumerated with the 2A-R questionnaire.

4.1.3.2 Incompletely enumerated areas

In 2016, a total of 14 Indian reserves and Indian settlements were reported as “incompletely enumerated” in the Census of Population. For more information, see [Appendix 1.2 – Incompletely enumerated Indian reserves and Indian settlements](#) in the *Guide to the Census of Population, 2016*, Catalogue no. 98-304-X.

4.1.3.3 Availability of census data for communities (census subdivisions)

Table 3 shows the number of census subdivisions (CSDs) by type of data suppression and data availability. Of the total 5,162 CSDs in Canada, 272 had no population, and 14 were incompletely enumerated Indian reserves and settlements (CSDs). There were 4,876 populated CSDs and, of these, 6 were suppressed for data quality reasons (GNR of 50% and over). Also, 301 CSDs were excluded because they had a population greater than 0, but less than 40. Data are available for 4,569 CSDs.

Table 3
Census subdivisions (CSDs) by type of data suppression and data availability, Canada, provinces and territories, 2016 Census

Number of CSDs	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.
Total CSDs	5,162	372	112	96	273	1,285	575
Total CSDs (with no population)	272	10	...	4	3	100	16
Total incompletely enumerated reserves (CSDs)	14	...	...	...	...	4	8
Total CSDs (with population)	4,876	362	112	92	270	1,181	551
CSDs excluded (population less than 40 but more than 0)	301	10	1	7	2	11	8
CSDs excluded for data quality purposes (GNR of 50% and over)	6	...	...	...	...	...	2
CSDs with data available	4,569	352	111	85	268	1,170	541

Number of CSDs	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Total CSDs	229	950	425	737	36	41	31
Total CSDs (with no population)	10	44	10	63	5	2	5
Total incompletely enumerated reserves (CSDs)	...	...	1	1	...	...	...
Total CSDs (with population)	219	906	414	673	31	39	26
CSDs excluded (population less than 40 but more than 0)	8	86	18	139	6	5	...
CSDs excluded for data quality purposes (GNR of 50% and over)	1	...	...	3	...	...	...
CSDs with data available	210	820	396	531	25	34	26

... not applicable

GNR = Global non-response

Source: Statistics Canada, Census of Population, 2016.

4.1.3.4 Availability of census data for on-reserve communities (CSDs)

The 2016 Census on-reserve area of residence comprised a total of 984 CSDs, including 134 uninhabited CSDs, 14 incompletely enumerated Indian reserves and settlements, and 836 inhabited CSDs. Among the 836 inhabited CSDs, 202 were suppressed because they had a population greater than 0 but less than 40. An additional five CSDs were suppressed for data quality reasons (GNR of 50% and over). Table 4 shows the number of on-reserve communities (CSDs) for which census data are available.

Table 4
On-reserve census subdivisions (CSDs), by type of data suppression and data availability, Canada, provinces and territories, 2016 Census

Number of on reserve CSDs	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.
Total CSDs	984	3	4	26	18	42	145
Total CSDs (with no population)	134	...	...	4	...	...	13
Total incompletely enumerated reserves (CSDs)	14	...	...	...	...	4	8
Total CSDs (with population)	836	3	4	22	18	38	124
CSDs excluded (population less than 40 but more than 0)	202	0	1	7	1	2	6
CSDs excluded for data quality purposes (GNR of 50% and over)	5	...	...	...	...	...	2
CSDs with data available	629	3	3	15	17	36	116

Number of on reserve CSDs	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Total CSDs	81	166	79	418	...	2	...
Total CSDs (with no population)	8	42	4	63	...	...	...
Total incompletely enumerated reserves (CSDs)	...	...	1	1	...	...	...
Total CSDs (with population)	73	124	74	354	...	2	...
CSDs excluded (population less than 40 but more than 0)	7	32	9	136	...	1	...
CSDs excluded for data quality purposes (GNR of 50% and over)	1	...	...	2	...	...	...
CSDs with data available	65	92	65	216	...	2	...

... not applicable

GNR = Global non-response

Source: Statistics Canada, Census of Population, 2016.

4.2 Coverage

There are two types of coverage errors: population undercoverage and population overcoverage. **Population undercoverage** refers to the error of excluding someone who should have been enumerated. **Population overcoverage** refers to the error of either enumerating someone more than once, or including someone who should not have been enumerated. Previous studies have shown that the error of enumerating people who should not have been enumerated is negligible in the Canadian census; consequently, that error is ignored.

Undercoverage is generally more common than overcoverage. The net impact of undercoverage and overcoverage on the size of a population of interest is **population net undercoverage**. Net undercoverage is calculated as the number of people excluded who should have been enumerated (undercoverage) minus the number of excess enumerations of people enumerated more than once (overcoverage). **Census net population undercoverage**, the net of undercoverage and overcoverage, quantifies the net number of people missed by the census.

This section presents estimates of **census net population undercoverage** for the 2016 Census for people residing on Indian reserves and settlements, including people without Aboriginal identity. These estimates are presented separately for Indian reserves and settlements for which enumeration was either not completed or not performed at all (incompletely enumerated reserves), and for all others (participating reserves).

Coverage errors generally occur during the field collection stage of the census. Examples of undercoverage and overcoverage follow:

Examples of undercoverage

1. A person temporarily out of the country during the collection of census data was missed.
2. A questionnaire was returned, but someone who lived there was not included.
3. The dwelling never received a questionnaire.
4. People residing at more than one address were missed at both addresses because of the uncertainty of what their main address was.
5. People who did not reside at a fixed address were missed by the census.

Examples of overcoverage

1. Children whose parents live in separate households were included in both parents' questionnaires.
2. Young adults who were newly away from home, perhaps searching for work or attending a postsecondary institution, were listed at their new residence and at their parents' home.
3. People whose employment required them to live away from home were listed at both locations.
4. People in institutions were also listed by their families as living at home.

4.2.1 Data sources

The estimates of the 2016 Census of Population coverage errors are derived from 2016 Census data and the results of two studies—the Reverse Record Check (RRC) and the Census Overcoverage Study (COS). The RRC measures population undercoverage, while the COS measures population overcoverage.

In the RRC, a random sample of individuals representing the census target population was taken from frames independent of the 2016 Census. The 2016 Census database was searched to determine whether these people were enumerated. When required, an interview (usually by telephone) was conducted to collect further information to determine whether the individual was in scope or out of scope for the census and, when in scope, to gather further data to ascertain that individual's coverage status.

Overcoverage was measured by matching the 2016 Census database to a list constructed from administrative data sources of people who should have been enumerated, and by matching the 2016 Census database to itself. The COS used probabilistic record linkage methods to identify close or exact matches to create a sampling frame of potential duplicates on the 2016 Census database. Pairs of potential duplicates were sampled, and a manual verification was completed using names, demographic characteristics, household composition and relationships to identify the true cases of duplication.

For more information on 2016 Census population coverage errors, refer to [The Daily](#).

4.2.2 Net undercoverage error for participating reserves

Table 5 provides estimates of 2016 Census net undercoverage for people living on participating reserves in Canada and in each province and territory. The split between people with Aboriginal identity and people without Aboriginal identity is not available. The census net undercoverage rate indicates what proportion of the entire population should have been enumerated but was missed in 2016 Census tabulations. Negative estimates mean that the estimates of overcoverage were higher than the estimates of undercoverage. This may also be caused by

a high number of imputed people on reserves in the province or territory when whole-household imputation was conducted to compensate for occupied dwellings that were misclassified as unoccupied or non-response dwellings based on the results of the Dwelling Classification Survey.

Table 5
The 2016 Census population net undercoverage for participating reserve communities, Canada, provinces and territories

Provinces and territories	Census count	Census net undercoverage			
		Estimated number	Standard error	Estimated rate (%)	Standard error (%)
Canada	363,398	27,371	5,892	7.00	1.40
Newfoundland Labrador	2,915	-7	122	-0.25	4.20
Prince Edward Island	598	72	105	10.81	13.96
Nova Scotia	10,055	333	393	3.20	3.66
New Brunswick	8,168	434	472	5.05	5.21
Quebec	40,812	-113	1,218	-0.28	3.00
Ontario	44,422	-2,259	2,088	-5.36	5.22
Manitoba	64,740	10,057	2,167	13.45	2.51
Saskatchewan	55,317	2,199	1,298	3.82	2.17
Alberta	53,137	4,673	2,788	8.08	4.43
British Columbia	82,924	11,998	3,450	12.64	3.18
Yukon	0	0	0	0.00	0.00
Northwest Territories	310	-14	12	-4.88	4.19
Nunavut	0	0	0	0.00	0.00

Sources: Statistics Canada, 2016 Census, 2016 Reverse Record Check and 2016 Census Overcoverage Study.

Twenty Indian reserves that did not participate in the 2011 Census participated in the 2016 Census (the returning reserves). There were 2 reserves in Quebec, 16 in Ontario, 1 in Manitoba and 1 in Saskatchewan. The majority of the population on these reserves was not covered by the sampling frames used to select the 2016 RRC sample. Also, one other reserve in Ontario that participated in the 2011 Census, but did not participate in the 2006 Census, was excluded from the 2016 RRC frames because of weak coverage in the 2011 Census Response Database. That reserve participated in the 2016 Census, and therefore was considered a returning reserve again for the 2016 RRC.

The RRC could not estimate the undercoverage for those 21 returning reserves. This situation was not new to the RRC. For this reason, the 21 returning reserves were excluded from the RRC Census undercoverage estimate and from the census counts presented in the previous table.

The population overcoverage estimate for a particular geography, such as participating reserves, includes people who appear on questionnaires for two dwellings where at least one of the dwellings is on a reserve. The other dwelling may be on the same reserve, on a different reserve, or not on a reserve. Since the COS does not determine at which dwelling an individual should have been listed, it is assumed that it is equally likely that the individual should have been listed at the first dwelling as at the second dwelling. Therefore, to produce overcoverage estimates, half of the weight for the person is assigned to each dwelling. This concept is important for small domains like the on-reserve population. About 60% of overcoverage cases involving an on-reserve dwelling also involved a dwelling off reserve.

4.2.3 Coverage error for incompletely enumerated reserves and settlements

As noted earlier, some Indian reserves and settlements did not participate in the census because enumeration was not permitted or was interrupted before completion. In 2016, there were 14 Indian reserves and Indian settlements that were ‘incompletely enumerated’ in the census. For these reserves, census data are not available and therefore have not been included in any census tabulation.

These areas present unique problems for the coverage studies and for the Demographic Estimates Program. The Reverse Record Check (RRC) survey population does not include residents for whom the census was unable to collect any data. However, the Demographic Estimates Program requires an estimate of the permanent resident population living in these 14 incompletely enumerated reserves. As neither the census nor the RRC is in a position to produce an estimate of the population living in the 14 areas, a model-based methodology was used for these reserves. The resulting estimates should be used with caution since they are based entirely on a model. The national model results are presented in Table 6.

Table 6
Model estimated counts for incompletely enumerated Indian reserves and Indian settlements (IEIR) for Canada, 2006, 2011 and 2016

Estimated counts	Canada
2006 estimate of IEIR population	40,115
2011 estimate of IEIR population	37,392
2016 estimate of IEIR population	27,790
2016 estimated census population count	28,168
2016 estimated census net undercoverage	-378

Sources: Statistics Canada, 2006, 2011 and 2016 censuses of population.

In the 2016 Census, 14 reserves, with an estimated 27,790 people, were classified as “incompletely enumerated.” The 2016 estimates of that population were approximately 25% lower than the 2011 estimates.

4.2.3.1 Estimation model

A two-step estimation model was developed to estimate the population. The first step used a simple linear regression to predict the census count in 2016 for the 14 reserves where no data were collected. The linear regression was constructed using all Indian reserves that were completely enumerated in both the 2011 and the 2016 censuses. The model assumed a linear growth from 2011 to 2016 for all provinces, with separate estimates for the intercept and the regression parameters for each province. The model was evaluated for the basic regression assumptions of independence of errors, homogeneity of variances and normality of errors. For the 13 reserves where late enumeration was completed in 2011, their population counts were used as enumerated reserves for this first step if they were completely enumerated in 2016.

For each incompletely enumerated reserve, the input variable for the regression model was either the actual census count in 2011, the best predicted census count from the 2011 model, or—for the 13 reserves in Northern Ontario—the late enumeration counts from 2011. The output of the model was the estimated census count in 2016.

The second step was completed to produce consistency with the results of the census coverage studies. The estimated census count was adjusted to account for net undercoverage of all subjected census counts. Net undercoverage for the incompletely enumerated reserves was estimated by calculating the net undercoverage rate for all completely enumerated reserves in each province, and then applying that rate to the estimated census count of all the incompletely enumerated Indian reserves in the province. The estimated census count and the estimated net missed people in each reserve were then summed to create an estimated population for the incompletely enumerated Indian reserves.

5. Comparability

5.1 Historical comparability

The counts for Aboriginal groups, the Registered or Treaty Indian status group, and First Nation or Indian band membership may change over time for a number of reasons. The change (increase or decrease) in the number of people reporting Aboriginal group, Registered or Treaty Indian status, or First Nation or Indian band membership is partly caused by demographic growth, and partly caused by changes in reporting patterns between Aboriginal groups and between Aboriginal and non-Aboriginal populations.

Changes in Aboriginal counts over time can also be affected by differences in the wording and format of Aboriginal questions, legislative changes, differences in the set of incompletely enumerated reserves, and changes made to the definition of reserves.

The counts for the Aboriginal variables may also change as a result of methodology differences and changes between the 2016 Census, the 2011 National Household Survey (NHS), and the 2006 and 2001 censuses (changes related to weighting and calibration, changes to the universe, etc.).

5.1.1 Differences in wording and format of Aboriginal questions

There are various ways to define the Aboriginal population based on the four Aboriginal questions asked in the census (Aboriginal ancestry [Question 17], Aboriginal group [Question 18], Registered or Treaty Indian status [Question 20], and membership in a First Nation or Indian band [Question 21]).

Although they measure the same concepts, the four Aboriginal questions in the 2016 Census differ from the Aboriginal questions in the 2006 Census. The question wording was modified to reflect current terminology and to ensure ongoing accuracy in Aboriginal population measurement. The question wording remained consistent between the 2011 NHS and the 2016 Census.

To see how these questions have changed between 2006 and 2016, please refer to the 2016 Census [2A-L](#) and [2A-R](#) questionnaires, and to the 2006 Census [2B](#) and [2D](#) questionnaires.

5.1.2 Legislative changes

Legislative changes, such as the amendments to the *Indian Act* of Canada (e.g., Bill C-31 in 1985 and Bill C-3 in 2011³), may affect concepts such as Aboriginal identity and Registered or Treaty Indian status. Legislative changes may have affected how individuals responded to the Aboriginal identity and Registered or Treaty Indian status questions in the 2016 Census. The net effect of these changes cannot be measured. Users should be careful when interpreting the results.

In addition, the Government of Canada, by order in council, recognized the Qalipu Mi'kmaq First Nation in Newfoundland and Labrador under the *Indian Act* in September 2011. The number of Registered or Treaty Indians living in Newfoundland and Labrador grew from 6,600 in the 2006 Census to 21,155 in the 2016 Census.

3. Bill C-3, the *Gender Equity in Indian Registration Act*, in effect since January 31, 2011, ensures that eligible grandchildren of women who lost status as a result of marrying non-Indian men will become entitled to registration (Indian status). For more information on Bill C-3, refer to [Gender Equity in Indian Registration Act](#).

5.1.3 Response mobility

In addition to the factors listed above, some people report their Aboriginal identity or ancestry differently from one data collection period to another, for a variety of reasons. Response mobility is the movement of responses from one category to another, such as “No, not an Aboriginal person,” to “Yes, Métis.” Response mobility has a greater impact on estimates for First Nations and Métis populations than on estimates for the Inuit population. Changing attitudes about Aboriginal identity, judicial decisions or anticipated legal changes, the social climate, and other factors may influence how people identify themselves.

Further research from the Social and Aboriginal Statistics Division will use the term “response mobility” to better reflect that the analysis focuses on changes to individuals’ responses to a questionnaire, not on shifts in ethnic or cultural identity.

5.1.4 Other factors that affect responses to the Aboriginal questions

In summary, population estimates for concepts such as Aboriginal identity and Registered or Treaty Indian status are influenced by numerous factors. Users should be aware that point estimates and changes over time are influenced by a combination of natural growth, changes to coverage and measurement, and other factors that affect how people self-identify. It is not possible to quantify the impact these changes have in isolation from each other.

5.1.5 Differences in the list of incompletely enumerated reserves

In 2016, 14 Indian reserves and Indian settlements were incompletely enumerated in the census. Incompletely enumerated reserves have an impact on census estimates for the First Nations population living on reserve, and for the Registered or Treaty Indian population living on reserve. Estimates for other populations could also be affected, including the total Aboriginal identity population, the First Nations (North American Indian) identity population, the total Aboriginal ancestry population, the First Nations (North American Indian) ancestry population, the Registered or Treaty Indian population, the population who reported membership in a First Nation or Indian band, and the population living on Indian reserves and Indian settlements.

Estimates associated with other variables related to First Nations, such as language and band housing, may also be affected by the incomplete enumeration of certain Indian reserves and Indian settlements in the census. This issue does not have an impact on the estimates for the Inuit or Métis populations since those populations are much less likely to live on reserves.

The extent of the impact of the exclusion of the incompletely enumerated reserves depends on the geographic area under study. The impact is much lower for higher geographic areas, such as Canada, provinces and territories, census metropolitan areas, and census agglomerations. The impact may be more significant for lower geographic areas, such as census subdivisions.

5.1.6 Changes made to the census subdivision types associated with the “residence on reserve” population

Statistics Canada uses the definition of “[residence on or off reserve](#)” provided by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). From time to time, changes are made to the geographies that define Indian reserves and Indian settlements (see the [census subdivision \(CSD\)](#) definition in the [Dictionary, Census of Population, 2016](#), Catalogue no. 98-301-X). In 2006, there were 1,174 on-reserve CSDs; in 2011, there were 997; and, in 2016, there were 984. These changes could be the result of additions, deletions, boundary changes or amalgamations. Additionally, only reserves that contain population are recognized as individual CSDs. Data are adjusted for these changes to compare populations of the affected geographies (e.g., to compare the on- and off-reserve populations). These comparisons can be requested through custom tabulations.

For more information on Indian reserves, consult the [CIRNAC](#) website. Users need to request special tabulations for data that have been adjusted for these changes to compare populations of the affected geographies (e.g., comparing on- and off-reserve population).

5.1.7 Comparability of population and dwelling counts over time

In 2016 and 2006, dwellings on reserves for which the occupancy status could not be verified or determined during collection were mostly assumed to be unoccupied. In 2011, dwellings for which the occupancy status could not be verified or determined were mostly assumed to be occupied. Actual occupancy for these dwellings was unknown, and the assumptions made during collection may reflect the actual situation across reserves with different degrees of accuracy.

This difference in methodology does not affect the comparability of counts over different censuses for all reserves. It might have an impact on comparisons of counts for reserves that had a significant number of dwellings with unknown occupancy status at a given point.

Prior to the release of the population and dwelling counts from the 2016 Census, six reserve CSDs were identified as being potentially underestimated. For these CSDs, Statistics Canada initiated a formal review of the population and dwelling counts. For any changes made as a result of the formal review, refer to the [Population and dwelling count amendments, 2016 Census](#). For more information on formal reviews, refer to Statistics Canada's [Policy on response to formal review requests of 2016 Census population and dwelling counts](#).

When changes in population and dwelling counts are analyzed over time, it is recommended that multiple reference years be included, especially for smaller geographic areas. Smaller population counts may be more affected by non-response. The methodology for the 2016 Census is comparable with that employed for the 2006 Census. Therefore, comparisons between the 2006 Census and the 2016 Census are not affected by this difference in methodology.

5.1.8 Comparability with the Indian Register

The 2016 Census, previous censuses and the Indian Register maintained by CIRNAC are the principal sources of demographic data on the Registered or Status Indian population.

The censuses are snapshots of the population that self-identifies as Registered or Treaty Indians at a particular time, while the Indian Register is a continuous statutory administrative file based on the registration of individuals who meet specific criteria, as defined by the *Indian Act*.

The census estimate is affected by the undercounting of Registered Indians living on incompletely enumerated reserves where enumeration was not permitted or was interrupted before completion, by the undercoverage of Registered Indians living on participating reserves and settlements, and by the undercoverage of Registered Indians living off reserve. Furthermore, because the short-form questionnaires were used, the census did not collect data that identified Registered Indians living in institutions (hospitals, senior citizen homes, jails, shelters, etc.), or living outside the country.

The Indian Register, conversely, forms one cluster of CIRNAC's entire Indian Registration System. Although it is considered the authoritative source for the number of Registered Indians as per criteria established in the *Indian Act*, the Indian Register also comes with its own set of limitations. The main purpose of the Indian Register is to record individual names and a range of non-statutory data in accordance with specific subsections of the *Indian Act*. It was not designed for statistical analysis. Therefore, data from the application may not fully meet the requirements of some statistical activities (e.g., demographic projections, migration patterns).

There is also a reporting lag between the occurrence of a given life event and its recording in the Indian Register. This means that events that occur in a given year may not be reflected in the Indian Register during that year. The following examples taken from the [Registered Indian Population by Sex and Residence 2016](#) report, the most recent year for which the report is available, illustrate this concept:

1. Infants entitled to be registered at birth may not be registered by the December 31 reporting date. Parents often do not report the birth until a later year. It is estimated that, of all births reported in 2016, approximately 79% actually occurred prior to 2016.
2. Individuals can remain on the Indian Register for some time after they are deceased. A certificate of death or a confirmation of presumed death is normally required to remove a name from the Indian Register.
3. Residency codes are typically updated when a life event is reported, although some bands update them more frequently. Residency remains a voluntary field and is not mandatory to collect.

For additional information on the Indian Register, refer to [How to update the Indian Register?](#)

Furthermore, Registered Indian status does not guarantee Canadian residency. There are a number of registrants on the Indian Register who live in other countries. For example, at the end of 2016, there were nearly 23,000 registrants whose province of residence was listed as “Outside of Canada.”

The different purposes, and the methodological and conceptual differences, of the Indian Register and the census result in estimates that are not directly comparable. The estimate of Registered Indians from the census on May 10, 2016, was 820,120. This was 15.5% lower than the estimate from the Indian Register as of December 31, 2016, which was 970,562.

5.1.9 Comparability with Demosim projections

Demosim is a demographic microsimulation projection model developed and maintained at Statistics Canada. Demosim produces dynamic population projections at the levels of provinces, territories, census metropolitan areas and selected smaller geographies, based on a number of characteristics (age, sex, place of birth, Aboriginal identity, Registered Indian status, visible minority group, generation status, languages, highest level of educational attainment and labour force participation, etc.). It produces projections by simulating events such as births, deaths, migrations and changes in level of education according to various population growth scenarios.⁴

Custom projections⁵ from the Demosim model based on the 2011 NHS were prepared specifically for the purposes of comparing the 2016 Census of Population data with projection results as of May 10, 2016, for a number of variables, including the Aboriginal identity variable.

For the Aboriginal identity variable, two projection scenarios were prepared with different assumptions related to intra-generational response mobility.⁶ One scenario included response mobility according to the average of three periods (from 1996 to 2001, from 2001 to 2006 and from 2006 to 2011), and the other scenario was prepared with an assumption that there was no response mobility as of 2011.

4. For more information on the Demosim model, refer to the methodological report [Demosim: An Overview of Methods and Data Sources. Demosim 2017](#), Catalogue no. 91-621-X. This report provides information about Demosim's content, including its starting population, its general functioning and the data sources and methods used to model its components.

5. The custom Demosim projections used a modified version of the reference scenario of [Statistics Canada \(2017\), Immigration and Diversity: Population Projections for Canada and its Regions, 2011 to 2036](#), Catalogue no. 91-551-X. Modifications consisted of special calibrations to match the population estimates for births, deaths and emigration. The real numbers of immigrants and non-permanent residents estimated between 2011 and 2016 were also used in these custom projections. Moreover, a final calibration by age, sex, and province or territory of residence to match the 2016 Census 2A population (excluding the population that is excluded in the 2B) was applied.

6. Intra-generational response mobility, or intra-generational ethnic mobility (term used in Demosim products), refers to the change in reporting of Aboriginal identity over time, from one census period to the next. In the recent past, intra-generational response mobility has been shown to be a major component of the growth of the Métis and First Nations populations ([Guimond 1999](#); [Guimond 2003](#); [Lebel, Caron-Malenfant and Guimond 2011](#); [Statistics Canada 2015](#)).

At the Canada level, the 2016 Census estimated the Aboriginal identity population at 1,673,785, a number relatively close to the 1,654,000 Aboriginal people projected in the Demosim scenario with response mobility. The difference was 19,785, or 1.2%. However, the difference increased to 126,785 (7.6%) when the census estimate was compared with the projected number based on the scenario without response mobility. Furthermore, the difference between the two sources was more noticeable when specific Aboriginal groups, especially the Métis and First Nations people, were examined.

Consequently, the overall differences in results between the two sources are smaller between the census and the Demosim projection scenario with response mobility, compared with the results between the census and the Demosim scenario without response mobility.

6. Conclusion

In summary, the census provides essential information on First Nations, Métis and Inuit in Canada. No other sources of information can provide detailed socioeconomic information for such small domains of interest. The Aboriginal population estimates may change over time because of demographic growth, and for a number of other non-demographic reasons. Users of census data on Aboriginal people should be aware of changes that affect the interpretation of the data, including changes to concepts and variables, survey and statistical processes, coverage, legislation and judicial decisions, and the social environment.

Bibliography

Guimond, Eric. 1999. "Ethnic mobility and the demographic growth of Canada's Aboriginal populations from 1986 to 1996." Report on the Demographic Situation in Canada, 1998 and 1999. Statistics Canada Catalogue no. 91-209.

Guimond, Eric. 2003. "Fuzzy definitions and population explosion: Changing identities of Aboriginal groups in Canada." *Not Strangers in These Parts: Urban Aboriginal Peoples*. D. Newhouse and E.J. Peters (ed.). Policy Research Initiative, Government of Canada.

Lebel, André, Éric Caron-Malenfant and Eric Guimond. 2011. "Mobilité ethnique des Autochtones dans le modèle de projections Demosim." Presented at the Association des démographes du Québec seminar, Congrès de l'Acfas 2011. Sherbrooke.

Statistics Canada. 2015. *Projections of the Aboriginal Population and Households in Canada, 2011 to 2036*. Statistics Canada Catalogue no. 91-552.

Statistics Canada. 2017. *Immigration and Diversity: Population Projections for Canada and Its Regions, 2011 to 2036*. Statistics Canada Catalogue no. 91-551.